From: Don Maruska
To: OPC Microplastics
Subject: Please eliminate microplastics pollution as rapidly as possible
Date: Tuesday, December 21, 2021 4:49:48 PM

Microplastics pollution poses grave danger to our marine environments.

Please act decisively to eliminate microplastics pollution as rapidly as possible.

Thank you,

Don Maruska - climate health leader, entrepreneur, author, Master Certified Coach
895 Napa Avenue, Suite A-5, Morro Bay, CA 93442
805-772-4667; fax: 805-772-6475
Author of "How Great Decisions Get Made," "Take Charge of Your Talent," and ebook series "Grow and Enjoy Your Business" (available for free download at https://DonMaruska.com)
Author of the upcoming book "Climate Health Today-How You Can Have Fun Taking Action." Please share your stories about having fun in taking action for a healthy planet.

No trees were harmed in the transmission of this email, but trillions of electrons were excited to participate.

From: James Kao (James Kao Foto)
To: OPC Microplastics
Subject: Preventing micro plastics in our marine environment
Date: Saturday, January 8, 2022 11:30:01 AM

Hi, my name is James Kao and I'm a resident of Redondo Beach. I feel I am qualified to discuss the issue of the impacts of micro plastics in the marine environment as I am an avid stand up paddleboarder who is on the beaches and waterways weekly. I see polystyrene foam floating everywhere in the water, suspended plastic bags holding disposable diapers, water bottles and their caps littering the beach, and disposable face masks everywhere! I also completed last year a 100 beach and bay trash cleanup, doing 101 cleanups by December 31. So I know a thing or too about trash and what is showing up on our beaches and waterways. The number one worst plastic is polystyrene foam from food containers, cups, coolers and product packaging. This foam easily breaks up into smaller and smaller pieces that are virtually impossible to remove from the environment. The foam bits also attract toxic chemicals that adhere to it and the bits are mistaken for food by birds and fish. I have witnessed first hand sea gulls attacking foam carry out food containers and in pecking for the food they break up the foam that then gets scattered all over the beach. Polystyrene must be banned from use as food containers and packaging! There is simply no way to clean and recycle it and recovery in the environment is extremely difficult to impossible. There are other greener alternatives on the market. I have approached restaurants about their use of foam containers and many respond that they cannot afford alternatives and also tout safety concerns related to COVID. This of course is exactly what the plastics industry wants everyone to think so it can continue to push their products to its sole benefit and the detriment of the environment and society.

There is much more that I can say here but will leave it at that for now. I would encourage you to come out with me one of these days for a beach cleanup and you will see the undeniable truth about what is happening to our oceans.

Thank you for your attention and consideration of my comments.

James Kao
Redondo Beach
5 Gyres Ambassador
Surfrider volunteer
Ocean Conservancy member

Sent from my iPhone

From:	Three Rivers Fibershed
To:	OPC Microplastics
Subject:	Feedback on draft of Statewide Microplastics Strategy
Date:	Tuesday, January 11, 2022 5:28:29 PM

January 10, 2022

California Ocean Protection Council
Secretary Wade Crowfoot
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Dear Secretary Crowfoot, OPC Members and Staff;

Thank you for the opportunity to provide feedback on the draft Statewide Microplastics Strategy to inform and drive coordinated legislative and policy solutions to microplastic pollution. This is an issue that crosses borders of states, nations and continents. I am part of an organization who shares a vision for national and international collaboration to produce food and fiber products for our communities while enhancing and repairing ecosystem and community health, including the mitigation of microplastic pollution in our oceans, air, land and freshwater ecosystems.

I applaud the California Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the California State Legislature. However, i am alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed and reduced by targeted solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in
preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

Currently Proposed Solutions will be Insufficient
The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems

To be effective, California's Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with documented microplastic emissions throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of the textile waste from wealthier countries is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, many natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries in an unlevel field. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by ecosystems and communities rather than the companies profiting from them.

Building on Existing International and State Programs

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

California's existing programs to develop and support agricultural systems that build healthy soil and sequester carbon while producing food and fiber products have the potential to offer national and international leadership for integrating land-based approaches to improve textile lifecycle impacts into microplastics strategies.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

I recommend the following solutions be included in California's Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in the state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

I hope you will incorporate this feedback into an updated Statewide Microplastics Strategy for OPC board consideration in February. California can take a position of international cooperation and leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Respectfully,
Maddy Bartsch
Co-President and Co-Founder
Three Rivers Fibershed
Minnesota

From:	M. Pashkovsky
To:	OPC Microplastics
Subject:	Open Comment on Statewide Microplastics Strategy
Date:	Tuesday, January 11, 2022 9:19:34 PM

Mr. Crowfoot and whomever else it may concern,

As a concerned Californian, I am encouraged by the existence of this initiative at all, but I am disturbed by the fact that nowhere in the draft document is there mention of synthetic textiles (both clothing and other textiles) and their significant impact on microplastic pollution. There are several mainstream studies that show that textiles are the primary origin of microplastics in the ecosystem - waterways, airways, soil, etc.

Please consider revising the document and strategy to include addressing synthetic textiles, both limiting their production and finding ways to keep them out of the environment. Implementing systems for encouraging new, localized natural textile/fiber systems would also be a healthy part of making this positive change towards limiting our use of synthetic fibers.

Thank you,

Marcee Jones

From:	Stijntje Jaspers
To:	OPC Microplastics
Subject:	Microplastic pollution from synthetic textiles CONCERN
Date:	Thursday, January 13, 2022 1:32:30 AM
Attachments:	logo 96mtc.png

Dear OPC!

We applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in-preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: *"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."*

We are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

Laundry Filtration is Insufficient

The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems

To be effective, the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions, throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in

both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

We recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Kind regards, Stijntje Jaspers

Creative Circular Change-maker
+31 (0)6 29249326
Co-founder Fibershed Nederland
https://fibershed.nl
Ambassador 100-Months-to-Change
https://100monthstochange.nl

100 96 MONTHS TO CHANGE

From:	Theeng Kok
To:	OPC Microplastics
Subject:	Reduce production of plastics, please!
Date:	Thursday, January 13, 2022 5:22:00 AM

To Whom It May Concern,

I am very worried about microplastics in our environment. On an individual and household level, my family and I have been reducing our plastic use as much as possible. However I know that this isn't enough when I see more and more consumer goods using plastic. Please include policies that support solutions that will reduce the production and use of synthetic textiles or support healthy natural fiber textile systems.

Thank you.
Theeng Kok

From:	Jennie Dozier
To:	OPC Microplastics
Subject:	Call to Action on Microplastics and Textile Policy in California
Date:	Thursday, January 13, 2022 3:00:47 PM

Hello,

First off, I applaud the Ocean Protection Council's work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

However, I would love to see policy solutions address the source of microplastic FIBER pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

To be effective, the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative natural fiber systems.

I encourage the following solutions to be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste.
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in California.
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential.
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products.

Thank you for your time in listening to my feedback!

Jennie Van Boven

Sent from my iPhone

From: Matthew Gilbert
To: OPC Microplastics
Subject: Microplastic Strategy
Date: Thursday, January 13, 2022 3:04:52 PM

Dear Sir,

I believe it is very important to acknowledge that our clothing is a source of micro plastic pollution. Everytime we wash them, everytime we walk through the woods, microplastics are shed. If we want pristine to exist anywhere in the future, listing all the pollution sources now, including the synthetic clothing that we wear, is an important step. Perhaps then solutions can be found.

Matthew Gilbert RPF #2972
Gilbert Forestry
Gilbert.Forestry@yahoo.com
707-972-9144

From:	Meredith Webster
To:	OPC Microplastics
Subject:	Microplastics Policy
Date:	Thursday, January 13, 2022 3:16:50 PM

Hello,
I'd like to express my support for including specific solutions that will achieve source reduction for the production and use of synthetic textiles in the Statewide Microplastics Strategy.
As a California resident, I'd like to see policy solutions that address the source of microplastic fiber pollution- the abundance and overconsumption of synthetic textiles- while incentivizing healthy natural fiber textile production and use. Laundry filtration is a start, but I don't believe it is nearly enough given the scale of the problem.

I support the following solutions being included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

Thank you for your work and attention.
Meredith Webster

From: Baily Rose
To: OPC Microplastics
Subject: Listen to Fibershed please
Date: Thursday, January 13, 2022 9:00:27 PM

Thank you.

We applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in
preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

We are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

Laundry Filtration is Insufficient
The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems
To be effective, the Statewide Microplastics Strategy must incorporate source reduction

policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions, throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Building on Existing State Priorities and Programs

A systemic approach to source reduction of synthetic textile microplastic pollution can leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year.

Several state agencies are expanding programs to develop and support agricultural systems that build healthy soil and sequester carbon while producing food and fiber products in our state, incorporating agricultural land into the state's 30x30 conservation goals (California Department of Food and Agriculture's Healthy Soils Program; California Natural Resources Agency's Sustainable Agricultural Lands Conservation Program; State Coastal Conservancy's Climate Ready Program). The Governor's Circular Economies programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. All of these initiatives can be synergistic with policy goals to support

healthy regional natural fiber and textile production, alongside policies to reduce production and consumption of microplastic-emitting synthetic textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

We recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

From: Alexa Clay
To: OPC Microplastics
Subject: Please reduce micro plastics
Date: Friday, January 14, 2022 8:49:19 AM

Hello,

I am a healthcare provider who is very concerned about microplastics. Pregnant people and children's health suffer at greater rates from from environmental degradation and plastics in the environment. We find signs of these plastics in breastmilk.

My teenagers have even come to me with concern over the ever increasing production of synthetic textiles, which increases the number of micro plastics in our environment. Please help me promise them a better future for our earth and our health.

Thank you,
Alexa Clay

Sent from my iPhone

From:	Elaine Larson
To:	OPC Microplastics
Subject:	Input on Microplastics and Textile Policy in California
Date:	Friday, January 14, 2022 9:07:01 AM

We applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

We are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

Laundry Filtration is Insufficient

The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems

To be effective, the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic

solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions, throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Building on Existing State Priorities and Programs

A systemic approach to source reduction of synthetic textile microplastic pollution can leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year.

Several state agencies are expanding programs to develop and support agricultural systems that build healthy soil and sequester carbon while producing food and fiber products in our state, incorporating agricultural land into the state's 30x30 conservation goals (California Department of Food and Agriculture's Healthy Soils Program; California Natural Resources Agency's Sustainable Agricultural Lands Conservation Program; State Coastal Conservancy's Climate Ready Program). The Governor's Circular Economies programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. All of these initiatives can be synergistic with policy goals to support healthy regional natural fiber and textile production, alongside policies to reduce production and consumption of microplastic-emitting synthetic textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

We recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Elaine Larson
Artist, Reiki Master

243 E Seven Flags Cir

Sonoma, CA 95476

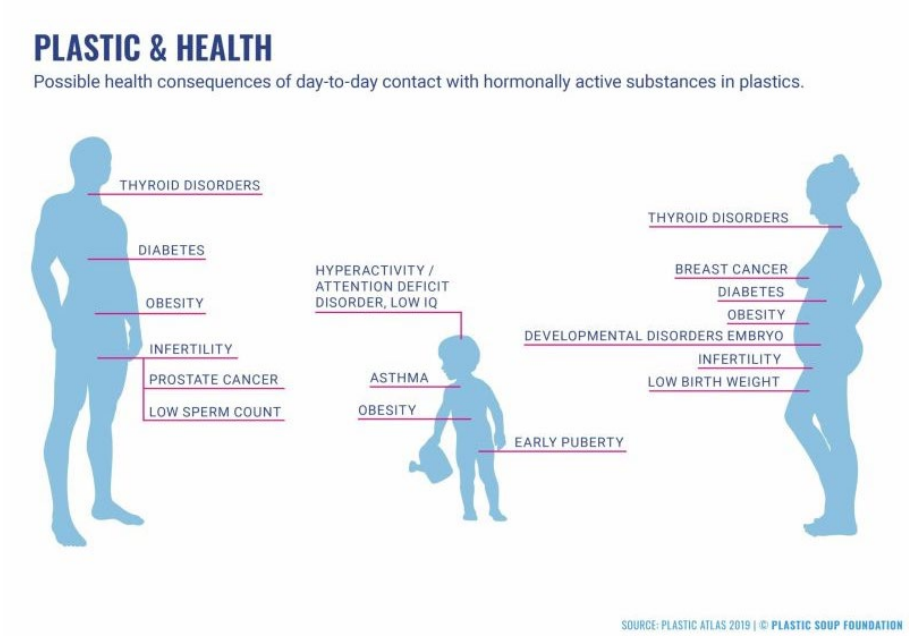
Visit my art website www.elainelarsonarts.com

Search for 'Elaine Larson Arts' on amazon.com

Joy to the world, All the boys and girls now, Joy to the fishes in the deep blue sea, Joy to you and me!
- Three Dog Night

From: Kimberly Guthrie
To: OPC Microplastics
Subject: plastics and our health
Date: Friday, January 14, 2022 9:08:29 AM

Hello,
I do not feel there is enough information and awareness amongst consumers/citizens of the potential health concerns of plastic.
Reports of microplastics found in breast milk and the placenta should be of high concern and are a major women's health issue not getting enough attention.
Thank you so much for all of your work!
Kimberly



Kimberly Guthrie
Associate Chair
Associate Professor
School of the Arts
Department of Fashion Design + Merchandising

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325 North Harrison Street
Richmond, VA 23284-3087
(804)828-1699 | Mobile (804)221-9218
arts.vcu.edu

vcuarts | fashion

From:	Robert Jacobson
To:	OPC Microplastics
Subject:	Comments on California Statewide Microplastics Strategy
Date:	Friday, January 14, 2022 9:17:54 AM

Dear Team with OPC,

Please include a policy solutions section in your microplastics strategy that addresses the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

Best regards,
Robert Jacobson

From: Linda St. Claire
To: OPC Microplastics
Subject: Reduction in micro plastics in fabrics
Date: Friday, January 14, 2022 9:27:58 AM

Hello,

Please include my brief email in the public comments.

I believe one additional measure can be added to reduce the number of micro plastics found in fabrics. This policy is already available and utilizes common sense approaches to production of fabrics.

The Global Textile Organic Standard (GOTS)

To build a truly sustainable textile industry, GOTS evaluates the processing and manufacturing of textiles on the basis of both, environmental and social criteria. This means assessing everything from the chemical inputs being used to the ethical treatment of workers. To become GOTS certified, it is mandatory to meet all of the criteria.

The GOTS Standard consists solely of mandatory criteria. In addition the GOTS Manual provides interpretations and recommendations for implementation. The standard covers the processing, manufacturing, packaging, labelling, trading and distribution of all textiles made from at least 70% certified organic fibres. There are two GOTS label-grades: *'organic'* requiring a minimum of 95% organic fibres and *'made with organic materials'* requiring at least 70% organic fibres.

Key Criteria for Processing and Manufacturing

Environmental

- Separation from conventional fibre products and identification of organic fibre products
- Use of GOTS approved colourants and auxiliaries in wet-processing only
- Processing units must demonstrate environment management, including wastewater treatment
- Technical quality parameters for colour fastness and shrinkage for finished goods required

- Restrictions on accessories
- Restrictions on additional fibre materials
- Environmentally hazardous substances prohibited in chemical inputs
- Evaluation of toxicity and biodegradability for chemical inputs

Social

The Standard sets requirements concerning working and social conditions that are equivalent to those of leading social sustainability standards. GOTS social criteria, based on the key norms of the International Labour Organisation (ILO), United Nations Guiding Principles on Business and Human Rights (UNGPs) and Organization for Economic Cooperation and Development (OECD), must be met by all processors, manufacturers and traders. They must have a social compliance management system, with defined elements in place to ensure that the social criteria are met.

Some of the sections from social criteria under GOTS version 6.0 are highlighted here. For more details, see the latest version of the GOTS Standard.

- Employment is freely chosen
- Freedom of association and collective bargaining
- Child labour shall not be used
- No discrimination is practised
- Occupational health and safety (OHS)
- No harassment and violence
- Remuneration and assessment of living wage gap
- Working time
- No precarious employment is provided
- Migrant workers

Here is the website link for additional information:

https://global-standard.org/the-standard/gots-key-features/ecological-and-social-criteria

Linda St Claire
Napa, Ca.

"Be the change you want to see in the world" Gandhi

From: Massey Burke
To: OPC Microplastics
Subject: Micro plastics bill draft comment
Date: Friday, January 14, 2022 9:54:06 AM

To whom it may concern—

Thank you for all of your work on this bill! I'm delighted to see forward movement on this topic.

Please consider including language on restricting or banning the use of synthetic textiles as well—the bill currently doesn't address this at all, even though synthetic textiles are known to be a primary source of micro plastics.

Thank you,
Massey Burke

From:	Shari
To:	OPC Microplastics
Cc:	Ranney Family
Subject:	Comment on CA State Microplastics Strategy
Date:	Friday, January 14, 2022 10:46:01 AM

Dear members of the Ocean Protection Council,

I commend the government for addressing this critical issue for our state and ultimately for the planet. I have been concerned about the microplastic pollution for some time and am very pleased to see resources and effort allocated towards defining the problem and finding solutions.

Being a member of Fibershed.org, I have learned a lot about how our 'fast fashion' textile choices can also have a big impact on the microplastic issue. I'm not seeing this addressed in the current draft and am hoping it can be considered.

Since most everyone purchases and wears clothing, the pollution generated from synthetic (polyester, acetate, Lycra, etc) fabrics is a significant concern. The negative effects of producing the synthetic fibers, washing and drying the garments (huge contributor to microplastics on a daily basis) and ultimately discarding them to catch the wave of the next fashion trend, can have devastating consequences for our environment . In reading the draft, it seems you are missing this very important factor.

I applaud legislation passed thus far regarding various consumer plastics (plastic shopping bag ban, to-go containers, etc.). As each citizen has adapted to these changes, there has certainly not been any negative effect on our quality of life. Turns out, it is not a big deal to carry reusable bags into the grocery store. At the same time, these changes have a beneficial effect on the cycle of pollution.

It would be prudent to take this one step further in regards to textiles and clothing and make an effort to nip this issue in the bud. Education is key in making people aware, for example: that machine washing and drying their synthetic clothing (something most of us do on a regular basis) is contributing to microplastic pollution on a regular basis. Also, when purchasing clothing, seeking garments from natural fibers (wool, cotton, hemp, silk, etc) can make a big difference. Also, shopping at second hand stores and wearing clothing longer to avoid feeding the landfills with unwanted clothing can be beneficial to the planet. These measures are not difficult to incorporate into one's daily lives. Fibershed to helping to educate the public on this. Perhaps the government could launch a Public Service campaign along these lines.

I don't know if there is any way to exert legislative controls over fabrics introduced into our society (it would be awesome if there was!) and I realize the issues are very complex. It seems that attempting to fix the problem (microplastic pollution) at its source, along with measures to clean up the existing pollution, would be the most effective approach.

Thanks for the opportunity to comment on this very important issue. Please keep up all your good work!

Sincerely,
Shari Ranney

From: Elizabeth Welborn
To: OPC Microplastics
Subject: Legislation needed re. microplastics pollution
Date: Friday, January 14, 2022 11:10:07 AM

Dear people in CA Gov:

We wholeheartedly want to see immediate policy solutions that address the source of microplastic fiber pollution in our state. Our environment, (water, land and air), is being smothered in plastic pollution, causing severe harm and damage to plant, animal and human life. We have the opportunity in our state to make this very important issue front and center and to lead the way legislatively and by example in our country and in the world for a healthier future.

Helping people to understand the severity of this problem is not difficult - data and future predictions on hormone disruption in animals and humans are now in hand. California also has the ability to lead the way in sustainable and natural fiber production with sustainable crops such as hemp, animal husbandry and biotechnology. We as citizens and businesses in fashion are ready to take this step to support this legislation for a better tomorrow.

Best,
Elizabeth

Elizabeth Goodwin Welborn
Owner | Creative Director

STICK & BALL
Cell: 415.254.5603
elizabeth@stickandball.com
stickandball.com

From: Norene Huber
To: OPC Microplastics
Subject: Senate Bill 1263
Date: Friday, January 14, 2022 11:18:00 AM

I regularly clean the beaches in Capitola/Santa Cruz, and have seen first-hand how ubiquitous plastic is in and around our oceans. Please put every effort into reducing micro plastics in our environment.

Thank you,

JN Huber

From: Helen Krayenhoff
To: OPC Microplastics
Subject: Public Comment
Date: Friday, January 14, 2022 12:08:24 PM

To The Ocean Protection Council

I am writing to encourage the OPC to include real policy initiatives that would create action based on it's own conclusion from it's April 2021 draft: "True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."

I agree, the best way to reduce something is to stop producing it at it's source. Since the large majority of micro-plastics are produced by the textile industry, it seems obvious that regulating, incentivizing and holding textile producers and manufacturers accountable for the production of products that increase micro plastic pollution is the best place to start.

As we are facing many crises at one time, it seems only common sense and efficient to take a holistic view in creating policies and investing resources that not only regulate but also support the many changes we need to make to combat climate change, pollution and create good local livelihoods. Supporting natural fiber and textile producers, processors and manufacturers with incentives, investments and technical assistance to replace fossil fuel based industries seems like a win-win strategy to me.

The Governor's Circular Economies programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. This approach can be synergistic with policy goals to support healthy regional natural fiber and textile production.

Let's continue to be the leader in this country with bold, visionary policies that will model right action for the rest of the country on the problem of microplastics in the environment.

Thanks for your time,

Helen Krayenhoff
3629 Dimond Ave
Oakland, CA 94602

From: Larry Lenning
To: OPC Microplastics
Subject: Hemp Bio-Plastic
Date: Friday, January 14, 2022 12:11:44 PM

You should look into adding some language about using Hemp plastic. We are working on just that sort of project right now and hope to be in production of a hemp bio-plastic in the near future.

Best Regards,

Larry M. Lenning
VP of Business Development
Tetra Hemp Company
502-819-1410 Cell

TETRA HEMP
COMPANY

https://tetrahempco.com/

From: laura
To: OPC Microplastics
Subject: Statewide Microplastics Strategy Draft Public Comment
Date: Friday, January 14, 2022 12:22:41 PM

To Whom It May Concern:

I am a CA resident, and very concerned about the known and unknown detrimental effects of microplastic pollution on our oceans, waterways and living world.

OPC's draft Statewide Microplastics Strategy does not directly address source reduction for the primary source of microplastic fiber pollution: fossil-fuel derived synthetic textiles.

The current draft's solution to address microplastic fiber pollution through laundry filtration is insufficient for the scale and scope of the problem - laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles. It is crucial that the state act quickly to begin addressing source reduction and systemic solutions to this known key source of microplastic pollution.

Please consider:

- Coordinated state policies to reduce synthetic textile production, consumption and waste.
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state. Natural fiber systems can support biodiversity, build healthy soils, sequester carbon (mitigating climate change impacts), eliminate toxicity from production and manufacturing and provide jobs.
- Product rating or labeling mandates that inform consumers about textile microplastic pollution.
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

Regards,
Laura Shifley

From: Edith F Butler
To: OPC Microplastics
Subject: textiles
Date: Friday, January 14, 2022 1:05:57 PM

Synthetic textiles are part of the microplastic problem. Please include synthetic textiles in the plan to reduce/eliminate this microplastic problem.

Edith Butler
Eureka CA

From: Amy Skewes-Cox
To: OPC Microplastics
Subject: Microplastics strategy
Date: Friday, January 14, 2022 1:14:29 PM

Hello and thanks for reading this. It's critical that there be an effort to reduce the production/sale of synthetic fabrics in California. Please make sure this is added to the Plan. Sincerely, Amy Skewes-Cox, Fiber Artist

Sent from Mail for Windows

From:	Merch Dept LLC
To:	OPC Microplastics
Subject:	Textile Microplastic Response from Merch Dept LLC - 011422
Date:	Friday, January 14, 2022 2:06:05 PM

MERCH DEPT LLC

Jan 14, 2022 | 1:39 PM PST

To Whom this may concern,

Microplastics/Synthetics in Textiles. My name is Kris McAlavey, founder of Merch Dept aka Merchandise Department. This is a debate I am happy to weigh in on. As an applicator/decorator/printer of textiles and all things merchandise, we are looking at all materials used in processing and production, as well as the lasting effects. Change is inevitable, the planet cannot continue to consume more than the planet can replenish, how are we going to change, by design or by disaster. Less is now!

We pride ourselves in not selling junk, rather quality durable goods that last. The process starts when you receive an order, one device/computer has a need and transmits that need to the provider's device/computer where it is then agreed upon, transacted and produced. The synthetics and plastics used in Technology must be included in this formula as part of order intake and processing.

Pre-production then takes the color, logo and location details to measure, digitize, vector and separate accordingly for the different processes we offer. Our imprinting services include ablation, discharge, embroidery, engraving, heat transfer, screen printing, water base etc. Due to the nature of the photo process in screen printing, most screen printers still output their stencils using a clear plastic inkjet film. The principle of the film is to create the positive to block the exposure source light from curing the emulsion during the next step, exposure. I believe the inkjet film is probably the biggest source of microplastics once it's broken down, unless it can be repurposed like water bottles rPET? With that being said, Computer-to-screen (CTS) systems have been available to screen printing shops for nearly a quarter century. As with most new technologies early versions were expensive, prone to problems, and lacking in features. Only in recent years has CTS become a mature technology and the imaging and imaging/exposure systems is where we are directing investment next in order to get ourselves in line to be carbon neutral and to further that, eventually net zero if possible.

When looking at the product itself, we look at durability, quality, fit, feel, the wash & dry cycle, vividness of imprint, etc. Cotton, the fabric of our lives, lightweight, breathable and compostable which is ideal for the environment. But, cotton, pre-shrunk or not is susceptible to mis-management in the wash and dry cycle, oftentimes when dried in the dryer it tends to alter the shape/size which becomes a discomfort to the user and is ultimately used less than it should be, or its coloration starts to change, fading away from its original dye which becomes seemingly less attractive with each wear and ultimately used less. Cotton can take water based inks as well which is, and the evolution of ink is changing. Polyesters and dri-fit materials as coined by the retail sportswear leaders like Nike, Adidas, UA etc. These 100% poly options have wicking features, anti-microbial, lightweight etc, but they are synthetic which convolutes our natural environment. I must say however, poly does hold shape/size and its color well, so although worse for the environment in the manufacturing process, does that outweigh the longevity and usage potential it contains?

Let's talk ink, for instance plastisol inks albeit currently compliant with state regulations, I am sure still contain certain microplastics. Water Based inks are a good alternative. Poly inks, discharge etc all use different compounds, but plastisol is still widely used due to its reliability, its cost effective and lasting nature. Its shelf life is longer than that of the thread we use in the embroidery process, which brings us to our discussion on thread. Currently, most thread used is polyester or rayon. People use one or the other for different reasons, or they use both depending on the design. Polyester is processed petroleum, while rayon is not classified as either, entirely synthetic or entirely natural since it's made from highly processed cellulose acetate plant material. My guess is we should use rayon for now, but the disadvantages of rayon threads are: it's often not colorfast (the dye can bleed onto fabric when exposed to strong detergent, UV light, or bleach), it's not as strong as trilobal polyester, and the fiber itself is not as durable as polyester. Other thread options include nylon, metallic, reflective and other poly variations. Embroidery is a seemingly cleaner process, with no inks or chemicals needed, and outside of thread we use vinyl thermal transfers for stickers and signage as well as leather and other material for patches. The other forms of application include using lasers for ablation and engraving, which is usually on a sustainable product like a reusable vacuum sealed water bottle or other stainless steel tool or vessel.

We believe in quality over quantity and feel everyone around us should adopt that feeling as well. We can screen print just about anything, which makes its application universal as it binds well once heated, but embroidered products like jackets, polos, vest etc use more synthetic and plastics. You have the accessories, buttons, placquards, zippers, zipper pulls etc as well as the new features and functionality of synthetic materials, breathing, cooling, heating, wind resistance, waterproofing etc. But those features and the ability to withstand the elements make it viable for other reasons like cost, comfort, durability, transportation, weight etc. Recycled rPET materials and textiles continue to be integrated into the day to day. We have studied bamboo as a renewable resource due to its regrowth rate. Due to its relaxed/slinky nature, bamboo is viable when blended with organic cotton to give it some structure for t-shirts and sweatshirts. Hemp is also another resource that has been frowned upon in the past, but is slowly making its way to the retail market as a viscose fiber.

Energy, heating, breathing and cooling are all significant parts of production and our final product so let's be sure not to forget this is part of our formula, to the extent of what we can't see in thin air as well. And finally, the logistics of a product moving to and from, picking the cotton, knitting the garment to delivery of that garment as an order. The last piece to this puzzle is the packaging and need to contain and protect the product during transport. We have focused our packaging materials, tapes etc with ecoenclose, a conscious packing and materials company making products from recycled materials with multi functionality or re-useability. And finally water, the universal solvent, the essence of life. We use water in the screen print process, with multiple layer filtration and drainage to catch any loose materials for reclaim and reuse of screens, so we don't always have to purchase new screens, made of aluminum and synthetic threads.

With that being said, I believe the covid pandemic slowed the world down and has caused a

shift in thinking, which should ultimately escalate this conversation and expedite implementation. That is my two-sense for now, I can elaborate if needed on any point and am excited to join this conversation. A big thank you to Fibershed for putting this information out there, I know other companies like pipe & plant as well as sewer ai are on the cutting edge of wastewater treatment to find solutions in desalination, filtration, infrastructure, collection and recovery etc

Thank you for your time.
Regards,

Kris McAlavey
Merch Dept. LLC
800-424-1284
kris@merchdept.com

Say Hello on Yelp, Facebook & Google
www.merchdept.com

From: Mackenzie Mock
To: OPC Microplastics
Subject: Comments on Draft Microplastics and Textile Strategy
Date: Friday, January 14, 2022 2:59:28 PM

Hello,

I'm writing to provide comments on the Statewide Microplastics Strategy that was introduced by the Ocean Protection Council. Unfortunately, the draft document does not currently include any solutions that will reduce the production and use of synthetic textiles or support healthy natural fiber textile systems.

Please consider the following recommendations in these policy solutions:

- Laundry filtration is insufficient
- The strategy must both address synthetic textile source reduction and build opportunities for natural textile systems
- The strategy should build on existing state priorities and programs
- The strategy must include ambitious and coordinated policy solutions for textile systems

Among these points, it's critical that more support is included for strengthening natural textile systems. With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers.

Thank you for your consideration,
Mackenzie Mock

From:	Justin C.
To:	OPC Microplastics
Subject:	Microplastic pollution
Date:	Friday, January 14, 2022 3:18:30 PM

Hi,

I applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in
preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

We are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

Laundry Filtration is Insufficient

The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles. It is crucial that the state act quickly to begin addressing source reduction and systemic solutions to a known key source of microplastic pollution.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build

Opportunities for Natural Textile Systems

To be effective, the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions, throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Building on Existing State Priorities and Programs

A systemic approach to source reduction of synthetic textile microplastic pollution can leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year.

Several state agencies are expanding programs to develop and support agricultural systems that build healthy soil and sequester carbon while producing food and fiber products in our state, incorporating agricultural land into the state's 30x30 conservation goals (California Department of Food and Agriculture's Healthy Soils Program; California Natural Resources Agency's Sustainable Agricultural Lands Conservation Program; State Coastal Conservancy's Climate Ready Program). The Governor's Circular Economies

programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. All of these initiatives can be synergistic with policy goals to support healthy regional natural fiber and textile production, alongside policies to reduce production and consumption of microplastic-emitting synthetic textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

We recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

-Justin Cutter
he/him

From: joshua leon harper
To: OPC Microplastics
Subject: Banning synthetics
Date: Friday, January 14, 2022 4:08:59 PM

I want to see policy solutions address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

Sincerely,

--

Joshua Leon Harper
Audio Video Specialist
Oakland, California
1 + 0 = ∞

(510) 604-5595 ***^"""">

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[O.o] ‘Imagination to power’
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From: Hilary Barker
To: OPC Microplastics
Subject: Reduce Synthetic Textile Production
Date: Friday, January 14, 2022 6:01:19 PM

Hi, I appreciate all the work that's been done on the Microplastic Strategy to address/eliminate this problem. Synthetic fibers release microplastics, not only in the laundry, but all the time as people wear them. In order to fully address microplastics at the source, the production of synthetic fabrics needs to be drastically reduced. As a California resident, I would love to see my state be at the forefront of the issues surrounding synthetic fabrics.

Thank you,

Hilary Barker

From: Andrea Davis
To: OPC Microplastics
Subject: Synthetic textiles must be addressed
Date: Friday, January 14, 2022 9:22:03 PM

Hi,

I am concerned that the Statewide Microplastic Strategy does not identify synthetic textiles as a primary source of micro plastic pollution, which it is.
Please plan for reducing synthetic textile production, and please build opportunities for natural fiber systems, which do not contain micro plastics.

I try to eliminate all synthetic fibers from my house, but it is very hard to find alternatives. I know few people will have the time to try as hard as I do. Please make it easy to go plastic free, for both individuals and businesses. In the meantime, washing our clothes and producing textiles, for the sake of convenience, is costing the lives of so much wildlife and it breaks my heart. Micro plastic in our textiles is also undoubtedly hurting human health. It is absolutely critical that we address the problem of synthetic textiles which are a primary contributor to these problems.

Thank you!
Andrea Davis
San Francisco, California

Sent from my iPhone

From: Stephanie McKenna
To: OPC Microplastics
Subject: Microplastics and Textile Policy in California
Date: Friday, January 14, 2022 10:10:31 PM

To whom it may concern;

Microplastics originating from synthetic textiles are polluting our waterways. Supporting natural fiber textile systems is the solution to create positive change in the polluting textile industry. Unhooking from a fossil-fuel dependency and incentivizing and supporting local, ecologically restorative textile manufacturing would make a huge difference in California, and make our state a leader in microplastics policy.

Thank you for your consideration as you work on developing our statewide Microplastics strategy.

Best,
Stephanie

--
Stephanie McKenna {She/Her}
{office hours} T 10-6 / Th 10-6

Home & Garden Design & Organization | Oakland, California {Occupied Huichin Ohlone Territory}
www.bowerbirdatelier.com
Follow me on Instagram!

From: Betsyann Gallagher
To: OPC Microplastics
Subject: Reflections on the draft of statewide microplastics strategy
Date: Saturday, January 15, 2022 9:15:49 AM

Dear Friends,

You, the Ocean Protection Council, has released a draft Statewide Microplastics Strategy that will affect California state policy for years to come. Unfortunately, the draft document does not currently include any solutions that will reduce the production and use of synthetic textiles or support healthy natural fiber textile systems. Please know that I want to see policy solutions that address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

Thank you for considering my opinion and for thinking about the future generations who will have to deal with the pollution if we don't curb the real polluters!

Sincerely, Betsyann Gallagher

Betsyann Gallagher
betsyannsmail@gmail.com

Sent from the garden.

From:	Laura Shumaker
To:	OPC Microplastics
Subject:	comment on Draft Statewide Microplastics Strategy
Date:	Saturday, January 15, 2022 9:50:11 AM

Dear OPC,

I would like to applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

However, I am alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. The OPC should reconsider the draft in light of the following:

1. Laundry filtration is insufficient to address microplastic pollution.
2. The strategy must both address synthetic textile source reduction and build opportunities for natural textile systems.
3. A systemic approach to source reduction of synthetic textile microplastic pollution should leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year.
4. Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

I support including in the Statewide Microplastics Strategy the recommendations put forth by Fibershed:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

Regards,

Laura

From:	Dr. Mitch Kennedy ND
To:	OPC Microplastics
Subject:	Comments on Microplastics and need for circular and phase out legislation
Date:	Sunday, January 16, 2022 12:55:44 AM

To the committee,

There is little need to cite facts, statistics or studies on this topic. Precedent exists in the form of voluntary bans on nano particles in sunscreen.

Restrict the use to controlled laboratory environments. Offer research tax breaks for companies to develop bio-based desolving - NOT degrading or “breaking down” products. Require existing manufacturer to imprint, etch or emboss their tax id, stock ticker initials or other identifier on all future production of microplastic particles, and nanoparticles.

Thanks
Mitch

From: Barbara Rosen
To: OPC Microplastics
Subject: End plastic pollution
Date: Sunday, January 16, 2022 9:17:41 AM

Please accept the proposal to reduce plastic pollution for the health of all life and waterways. It is clearly time to take these steps. Thank you.
Barbara Rosen

Sent from my iPhone

From: Aaryaman Singhal
To: OPC Microplastics
Subject: OPC Statewide Microplastics Strategy Comment
Date: Sunday, January 16, 2022 9:31:41 AM

Hi there,

My name is Aaryaman Singhal and I live in Oakland, California. Thank you for developing a state-wide microplastics Strategy. I would like to support some existing aspects of the strategy and suggest improvements in other places. First, I'd like to **support** actions that

- prohibit the sale of single-use tobacco products that contribute to plastic pollution (e.g. cigarette filters)
- prohibit expanded polystyrene foodware and packaging by 2023 and
- ban microplastics that are intentionally added to consumer products

I would like to see OPC **strengthen** the its strategy by

- Requiring reusable foodware for dine-in services
- Banning the sale and distribution of single-use plastics, including balloons, in State parks
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

These actions are really important to me as someone who works on climate change and spends so much time in California's wonderful outdoor spaces. Thank you for considering my comment.

Aaryaman

--

Aaryaman Singhal

From: Pamela Cain
To: OPC Microplastics
Subject: Reduction in plastic use, sale, dispersion in California
Date: Sunday, January 16, 2022 9:33:52 AM

I support efforts to reduce the production and dispersion of plastics into our environment. Plastic is very useful but in many cases it is not necessary and is harmful because it is not reusable or recyclable or easy to destroy without further pollution of the environment. We don't really need to wrap so many bits of water and food and other goods in plastic.

Sent from my iPhone

From: Margaret Mischner
To: OPC Microplastics
Subject: BAN single use plastics
Date: Sunday, January 16, 2022 9:45:07 AM

PLEASE ban single use plastics! It's so clear the damage they are doing to the Earth. We can't wait any longer.

From: SHARYL SWINK
To: OPC Microplastics
Subject: Solution of our oceans
Date: Sunday, January 16, 2022 9:55:36 AM

Dear Sirs: I am pleading with you to help us stop the mindless destruction of our oceans with this overload of plastics. Please find a way to curtail the use of plastics on this global disaster!!! Yours, Sharyl Swink

From: Jack Novak
To: OPC Microplastics
Subject: Plastic Use Reduction
Date: Sunday, January 16, 2022 10:11:06 AM

OPC. Now is the time to immediately reduce one time use plastic. The oceans and waterways are being overwhelmed by plastic. Save our ocean. Ban plastic

Sent from my iPhone

From: Katherine Leff
To: OPC Microplastics
Subject: Single Use Plastics
Date: Sunday, January 16, 2022 10:43:44 AM

Can a comprehensive, state-wide level (better Nation-wide) movement be instituted to STOP including plasticware and a handful of napkins in every take out order. Must be tons nationwide every day that are carelessly thrown into a plastic bag along with the food. Most of it is merely discarded into the trash as soon as it reaches home.

Make the ONLY plasticware given out ,for homeless persons who have no other means to eat it. Period. Or exceptions for people who ASK for it because they are eating it then and there. And, there are green utensils I've seen in ice cream shops that are biodegradable.

From: Steve DiGrazia
To: OPC Microplastics
Subject: OPC plastic initiative
Date: Sunday, January 16, 2022 10:46:03 AM

We support your initiative to limit plastic use in California. We would vote in favor of further restrictions as detailed in the initiative.

California's precious Ocean environment must be further protected from the harm created by single use plastics!

Sincerely
Steve and Kathy DiGrazia

From: Penny Elia
To: OPC Microplastics
Subject: Plastics are a global threat to our environment, our health, and our economy, and this must be corrected...now...
Date: Sunday, January 16, 2022 10:53:29 AM

I strongly support the OPC's actions that will prohibit the sale of single-use tobacco products that contribute to plastic pollution (e.g. cigarette filters), prohibit expanded polystyrene foodware and packaging by 2023 and ban microplastics that are intentionally added to consumer products. With 2023 less than a year away, let's please make sure this happens. Our planet cannot afford another year of abuse from plastic pollution.

I also urge you to strengthen your actions related to:

- Requiring reusable foodware for dine-in services - this means ALL foodware products please.
- Banning the sale and distribution of single-use plastics, including balloons, in State parks. While State Parks should know better and be a partner, they are always the last agency to "get it" and need to be pushed to get on board with the program. No excuses from State Parks please.
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms. This is a huge problem and some larger brands such as the Montage, brags that it sends all of it's unused or partially used toiletries to needy nations or needy areas of the US. NO, we do not send MORE plastics into these communities. We completely do away with them. This is nothing but a PR opportunity by the Montage, but accomplishes nothing and in fact spreads the problem. With their incredible wealth, resort chains such as Montage should ban all single-use plastics for toiletries and use these funds to donate to needy countries and causes. Having worked in the hotel industry for over 20 years, I have first-hand knowledge of the impacts created by too much plastic in the industry's system.

Thank you for considering these comments and let's work together to heal our planet.

Sincerely,

Penny Elia
Laguna Beach, CA
Coastal Activist

From:	ALAN GOLDHAMMER
To:	OPC Microplastics
Subject:	Microplastics
Date:	Sunday, January 16, 2022 10:53:31 AM

Dear OPC:

Plastic pollution is a global threat to the environment, our health, and California's economy.

Please end the sale of single-use tobacco products that contribute to plastic pollution such as cigarette filter, stop expanded polystyrene foodware and packaging, and ban microplastics added to consumer products, also require reusable dishware for dine-in services, ban the sale and distribution of single-use plastics, such as balloons in State parks, and expand the ban on single-use hotel toiletries to include single-use plastic bottled water in hotel rooms.

Thank-you for your consideration.

Alan Goldhammer
Orinda, CA.

From: Michael Schwager
To: OPC Microplastics
Subject: Reduce single-use plastic products
Date: Sunday, January 16, 2022 11:20:27 AM

Please act to reduce single-use plastics, including:
-ban sale and distribution of them in California State Parks
-require re-usable food-ware for dine-in service
-ban single-use plastic water bottles in hotel rooms

Thanks,

Michael Schwager
1212 Grand Canal
Irvine CA 92620 USA
myklschwager@gmail.com

From: Michael Lewis
To: OPC Microplastics
Subject: Curtail the use of and manufacture of plastics
Date: Sunday, January 16, 2022 11:26:56 AM

The Earth is a finite entity. The oceans are finite, and becoming severely damaged with 'thrown away' plastics. There is no "away". It goes somewhere, and it is still on this Earth. Clean water? Then stop polluting. RECYCLE, REUSE, and REDUCE. Help save the ecosystem that we all depend upon, for everyone.

From: BILL WOODBRIDGE
To: OPC Microplastics
Subject: Plastics
Date: Sunday, January 16, 2022 11:27:15 AM

We have got to outlaw and eliminate single use bags and packaging in CA and the US. All this plastic is destroying our oceans and killing untold number of turtles, birds, and other animals. It needs to stop this year, not 3 years from now.

Bill Woodbridge
Santa Barbara

From:	Pam Nelson
To:	OPC Microplastics
Subject:	reduce plastics
Date:	Sunday, January 16, 2022 11:48:35 AM

Please help stop this overwhelming contamination of plastics in CA (and globally). We are poisoning our human and wildlife populations.
Some actions should include:

- Requiring reusable foodware for dine-in services
- Banning the sale and distribution of single-use plastics, including balloons, in State parks
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

Pam Nelson

Warner Springs, CA 92086

From:	Sabra Scott
To:	OPC Microplastics
Subject:	Plastic pollution
Date:	Sunday, January 16, 2022 11:58:12 AM

To the decision makers:

Please work towards significantly reducing reliance on single-use plastics. It is critical. Words are cheap. We need ACTION to meet climate and waste diversion commitments.

Thank you for paying attention to this email.

Sabra Scott

From: Karen Jacques
To: OPC Microplastics
Subject: Regulation and Reduction of Microplastics
Date: Sunday, January 16, 2022 12:10:59 PM

I am not an expert on plastics and I cannot speak to the technical issues involved in getting rid of plastics.. I am a resident of California who is deeply alarmed by the relentless proliferation of plastics, seemingly everywhere. Because they contain toxins and don't biodegrade, they are a threat to human health, to wildlife and to the environment. I am also alarmed by them because they are made from fossil fuels and fossil fuel corporations are doing everything they can to promote and manufacture them. It is clear that these corporations see plastics as a key way to maintain their profitability as the economy transitions (far too slowly) away from the burning of fossil fuels. I believe we must phase out the use of plastics as fast as possible and get to a circular economy where everything that is produced is biodegradable. I support every effort and regulation that will reduce and ultimately phase out, the use of plastics. I support every step you take to do that and every study you do to determine how to best do that.

It makes sense to me to begin with banning single use plastics as fast as possible, including single use plastic bags and the plastic eating utensils and straws that are still automatically provided by too many restaurants. I would also like to see much better clean up of discarded plastics (people still seem too constantly just dump this stuff on streets and sidewalks when they are done with it) and want everything possible to be done to keep plastic from getting into waterways. Plastics in all form should be banned at all State Parks and other state and locally owned public facilities in California immediately. Pressure should be put on federal regulators to start dealing with the issue plastics.

As a consumer, it is extremely frustrating to me that, no matter how hard I try, I can't avoid plastics. Everything comes wrapped in it and shipped in it. Things that I need at the grocery store come in plastic containers, many of which could probably be recycled and reused, but aren't. The issue of non-recyclable, non-biodegradable plastics has got to be treated as the emergency that it is at the state level and the state has got to push for responsible actions at the federal level.

Thank-you for this opportunity to comment. Karen Jacques, Sacramento resident

From:	Rhonda Plank-Richard
To:	OPC Microplastics
Subject:	Public Comment-Microplastics Reduction Strategy
Date:	Sunday, January 16, 2022 12:48:20 PM

Dear Ocean Protection Council,

I am writing to strongly support your proposed future statewide actions to reduce microplastic pollution that will prohibit the sale of single-use tobacco products that contribute to plastic pollution, prohibit expanded polystyrene foodware and packaging by 2023 and ban microplastics that are intentionally added to consumer products.

I further urge the OPC to strengthen these actions by:

- Requiring reusable foodware for dine-in services
- Banning the sale and distribution of single-use plastics, including balloons, in State parks
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottled water in hotel rooms

We have no time to waste in addressing this enormous problem! I appreciate all your efforts.

Sincerely,
Rhonda Plank-Richard
4817 Excelente Dr.
Woodland Hills, CA 91364
(818) 522-1707

Sent from my iPhone

From: Elizabeth Christeller
To: OPC Microplastics
Subject: Plastic in textiles
Date: Sunday, January 16, 2022 1:21:17 PM

Man made fibers will be here for thousands of years just like plastic food containers. We simply must stop producing these products because of their environmental harm. Natural fibers have many advantages over plastic. I have worn nothing but natural fibers for 40 years. For me, wearing synthetic clothing is like wearing a plastic bag.

Elizabeth Christeller

Sent from my iPad

From: Nova Clite
To: OPC Microplastics
Subject: Ban Single-Use Plastics
Date: Sunday, January 16, 2022 3:49:28 PM

The time is now to protect ocean ecology from plastic pollution. Banning single-use plastics in multipe settings where these are commonly used is a critically important step in weaning the public off these materials. Many people don't want to use single-use plastic but don't have an alternative. Market forces will create those alternatives and regulation is a key way to force that system to action. Thank you!

Nova Clite
275 N. Kalorama St. #303A
Ventura, Ca 93001

From: Karen Socher
To: OPC Microplastics
Date: Sunday, January 16, 2022 4:49:39 PM

We need to curb plastics now! I am writing to urge the OPC at a minimum to strengthen its actions by:

- Requiring reusable foodware for dine-in services
- Banning the sale and distribution of single-use plastics, including balloons, in State parks
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

Plastics should taxed so that they are way more expensive than the alternatives that are more environmentally friendly and the tax proceeds should go to addressing all the problems caused byt he plastics. Plastics companies should be taxed more as well.

From: Susan Brisby
To: OPC Microplastics
Date: Sunday, January 16, 2022 9:26:17 AM

Hello. I enjoyed reading this article about designating California coastal waters for my Chumash brothers and sisters.

I was gifted with a SodaStream last Christmas and it has changed both my carbonated water habit and my plastics footprint considerably. I have reduced my plastic recycling by half. I LOVE that. Motivated for future footprint reduction at home and in nature.

Thank you,
Susan A Brisby

From: K T
To: OPC Microplastics
Subject: Comment on the Statewide Microplastics Strategy
Date: Sunday, January 16, 2022 5:26:31 PM

To Whom It May Concern,

Thank you for taking the steps to lead California as a national and global leader to mitigate microplastic pollution. I support the two-track approach of Solutions (actions to reduce and manage microplastics) and Science to Inform Future Action (research, education, monitoring, sources and impacts). However, per your request, I am writing to comment on two strategies that should be seriously considered, and included in the strategic plan.

The two-track approach does not mention anything about the reduction of the production of the synthetic textiles (e.g. polyester) that contribute to microplastic pollution. Nor does the approach have anything in place to support and promote the use of healthy natural fiber systems such as hemp, alpaca and wool. A truly comprehensive plan would include both reduction of production of synthetic textiles and support of healthy, natural fibers. I am commenting in hopes of including both of these into the Statewide Microplastics Strategy.

Thank you,

Kiet Tran
Alameda County Resident

From:	Meredith Buck
To:	OPC Microplastics
Subject:	Comment on the Statewide Microplastics Strategy
Date:	Saturday, January 15, 2022 2:54:29 PM

Hello,

My name is Meredith Buck and I live in Kailua Kona, Hawai‘i.
As a former resident of California, and as a current resident of a remote island which depends on healthy oceans, I am writing to submit comments to the Statewide Microplastics Strategy.

While I a reply grateful for this effort to care for and clean up the ocean’s micro plastic load, I am concerned that there is currently no section of the Strategy which addresses microplastics resulting from the production and use of synthetic textiles. According to a 2017 study, linked below, an estimated 35% of miroplastic pollution comes from textiles and is invisible to the unaided eye. As consumers wear their synthetic clothes, microfibers are shaken loose and carried on the wind, only to settle in our surroundings and be washed asea with the rain.

https://www.sciencedirect.com/science/article/pii/S004896971834049X

Thirty-five percent is a huge amount of plastic waste that would go unaddressed if not accounted for in the SMS. I urge the Ocean Protection Council to include measures to reduce the production and use of synthetic textiles, and to support healthy, natural fiber textile systems across California. By perpetuating carbon-negative textile production, as the organization Fibershed has done for many years, California can be a true leader in the movement to save our oceans, our climate, and our future.

Thank you very much for your time and consideration, and I look forward to seeing the progress of OPC’s decisions.

With Aloha from across the ocean,

Meredith Buck
96740

From: Olivia Vanistendael
To: OPC Microplastics
Subject: Public comment - Statewide Microplastics Strategy
Date: Sunday, January 16, 2022 5:44:31 PM

Hello,

I am writing to provide public comment on the Statewide Microplastics Strategy draft. I'll start by saying I applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

However, there is a disappointing lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, **synthetic textiles.**

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Other notes:
- Laundry Filtration is Insufficient
- The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems
- Please work with the network of fiber and textile experts available to you in California (Fibershed, retailers, UC Davis, indigienous communities, farmers, mill owners, etc.) to include solutions to your draft that will mitigate microplastic pollution at the source.

Thank you for your time,

--
Olivia
Textile Engineer
Pronouns: she/her/hers

From: mignonsm
To: OPC Microplastics
Subject: Single use plastic
Date: Sunday, January 16, 2022 5:52:55 PM

I support banning all single use plastic in restaurants hotels. I would like to see more refill businesses so we can reuse containers for household cleaners, detergents, shampoos etc. We need to take care of our health and the health of the oceans, rivers, and land that is increasingly being polluted with plastic.

Sincerely,
Mignon Moskowitz

From: Samuel Butler
To: OPC Microplastics
Subject: Draft Statewide Microplastics Strategy
Date: Sunday, January 16, 2022 6:36:00 PM

I am writing to express my support for a significant reduction of plastic pollution in California. It is critical for us to deal with this threat to reduce its impact on our environment and our health.

Please include the following actions as part of your planning:

- Prohibit the sale of single-use tobacco products that contribute to plastic pollution (especially cigarette filters)
- Prohibit expanded polystyrene foodware and packaging by 2023
- Ban microplastics that are intentionally added to consumer products.
- Require reusable foodware for dine-in services
- Ban the sale and distribution of single-use plastics, including balloons, in State parks
- Expand the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

Reducing California's reliance on single-use plastics is critical to meeting the state's climate and waste diversion commitments. I urge you to take strong action to require the elimination of single-use plastics to the fullest extent. Please include this as you develop the Statewide Microplastics Strategy.

Sincerely,

Sam Butler
Los Angeles, CA 90045
samjbutler@sbcglobal.net

From: Hildy and Bev
To: OPC Microplastics
Subject: Draft Statewide Microplastics Strategy
Date: Sunday, January 16, 2022 2:40:12 PM

Plastic pollution is a terrible problem. We need to reduce California's use of single-use plastics. Please strengthen the Draft Statewide Microplastics Strategy by

- Requiring reusable foodware for dine-in services
- Banning the sale and distribution of single-use plastics, including balloons, in State parks
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

Thank you,
Hildy Meyers
Huntington Beach, CA

From: ms.marsha-v-l@comcast.net
To: OPC Microplastics
Subject: Re: The draft Statewide Microplastics Strategy
Date: Sunday, January 16, 2022 7:29:58 PM

Greetings Ocean Protection Council (OPC)
We as a state need to do more to reduce the use of plastic. Leading the reduction of single use plastic straws, eating utensils and take out containers is vital.
We as a state need to return to the use of glass where possible, I do understand the differences between glass and plastic.
BUT. . glass is nearly 100% recyclable, *AND* the glass that does not get recycled, does not lead to the degradation of the environment that plastic does.
Additionally, there are few different types of glass, but multiples of types of Plastic, many that are not financially viable for recycling.
Many plastics that are "recycled" by putting it in your recycling tub, they are typically contaminated and just end up in the waste stream never to be returned to a use.
Please "up the game" on plastic reduction.
Thank you for considering my opinion on this important subject.
Marsha Lowry

"A society grows great when old men plant trees whose shade they know they shall never sit in."
Greek Proverb Quote

From:	Wendy Krupnick
To:	OPC Microplastics
Subject:	Reduce plastic use in CA
Date:	Sunday, January 16, 2022 8:40:37 PM

To whom it may concern,

There is far too much plastic use and polluting plastic waste in California and in our world. I support the requests to prohibit the sale of single-use tobacco products that contribute to plastic pollution (e.g. cigarette filters), prohibit expanded polystyrene foodware and packaging by 2023 and ban microplastics that are intentionally added to consumer products.

You should also:

- Require reusable foodware for dine-in services
- Ban the sale and distribution of single-use plastics, including balloons, in State parks
- Expand the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

Please take the strongest steps possible to reduce this horribly damaging pollution.

Wendy Krupnick

4993 B. Occidental Rd.

Santa Rosa, CA 95401

From: axel becker
To: OPC Microplastics
Subject: Microfibers
Date: Monday, January 17, 2022 4:04:28 AM

Please reduce production and use of synthetic textiles!
Regards
Axel Becker
Norway

From:	Linda Sartor
To:	OPC Microplastics
Subject:	I support the following actions
Date:	Monday, January 17, 2022 6:59:31 AM

Hello OPC,

I support the following actions:

- Requiring reusable foodware for dine-in services
- Banning the sale and distribution of single-use plastics, including balloons, in State parks
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

Sincerely,
Linda Sartor

From: gina smith
To: OPC Microplastics
Subject: draft microplastics report
Date: Monday, January 17, 2022 8:57:20 AM

To Whom it May Concern,

I have been following the OPCs study on the negative impacts of microplastics, a silently growing issue in our environment across the globe. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation. I am alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling. I have read about various solutions which should be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

We need to mitigate the growing problem of microplastics in our natural world **now** and address the root cause. We in California need to be leaders in this charge to find immediate and lasting and solutions to this environmental catastrophe. We are relying on leaders like you to create and implement policy which can protect not only humans, but entire ecosystems across our fragile world.

I thank you for your work and your attention,

Gina Smith
Lagunitas, Ca

From: Beth Milliken
To: OPC Microplastics
Subject: Single-Use Plastic
Date: Monday, January 17, 2022 8:59:57 AM

To Whom it May Concern,

We must move away from single-use plastic in order to protect our natural environment. Producing plastic fouls our air and one of its components is fossil fuel. And then these plastics make their way into our soils and water. There are alternatives, and we must mandate a move away from plastic. Thank you.

Sincerely,

Beth Novak Milliken

--

Beth Novak Milliken
President & CEO

SPOTTSWOODE ESTATE VINEYARD & WINERY

1902 Madrona Avenue • St. Helena CA 94574
707/963-0134, x16 • spottswoode.com

Please paws before printing. – Riley

From: Barbara Diederichs
To: OPC Microplastics
Subject: single-use plastic
Date: Sunday, January 16, 2022 11:00:22 PM

On every one of my daily walks in the hills behind our house, I find plastic trash that is disintegrating in the sun. On our own property, I find bits of plastic. Plastic trash is everywhere, we are drowning in it. It is so convenient, but so destructive. And there are so many ways of avoiding most of it. Please help CA to significantly reduce our reliance on single-use plastics so we can meet our climate and waste diversion commitments.
Thank you!

Barbara Diederichs
h (858) 748-9069
c (619) 300-2816
barbara@diederichs.me

From: Tasha Miller Griffith
To: OPC Microplastics
Subject: Microplastics plan must address synthetic fibres
Date: Monday, January 17, 2022 11:21:10 AM

Hello,

In order for any plan to address microplastic pollution to succeed, it must address the sources of microplastics, and specifically the production and use of non-biodegradable synthetic fibers and textiles. We need policies that reduce the production of synthetic textiles, provide education about the environmental impacts of synthetic textile production and use, and encourage the production and use of sustainable, biodegradable natural fibers and textiles.

Thank you for reading,
Tasha Griffith

From:	Shirley Freriks
To:	OPC Microplastics
Subject:	Comment to OPC on strategy to reduce MICROPLASTIC POLLUTION before meeting on January 21
Date:	Monday, January 17, 2022 12:26:20 PM

YES – YES – YES!!! We must pay attention to this. Microplastics are now being found in the feces of newborns as well as in adults. Plastic is made from a TOXIC CHEMICAL and as it builds in our systems, it will start to harm human health as it has sea life.

Also require states and cities to have water-testing available for citizens. It is in their water but the tests are hard to find. Please make them available.

I go along with the Sierra Club's ask-
Sierra Club California will be submitting comments supporting the OPC's actions that will prohibit the sale of single-use tobacco products that contribute to plastic pollution (e.g. cigarette filters), prohibit expanded polystyrene foodware and packaging by 2023 and ban microplastics that are intentionally added to consumer products.
We will also be urging the OPC to strengthen its actions by:

- Requiring reusable foodware for dine-in services
- Banning the sale and distribution of single-use plastics, including balloons, in State parks
- Expanding the ban on single-use hotel toiletries to include single-use plastic bottle water in hotel rooms

Thank you,

Shirley Freriks
WasteNOT!!
Nevada County Recycling Team
https://www.ncclimateactionnow.org/recycle
https://www.facebook.com/groups/wastenotnevadacounty
NC-CAN https://www.ncclimateactionnow.org/

RETHINK – REFUSE - REUSE - REFILL - REPAIR –– REPURPOSE
ONLY CLEAN RECYCLED material gets REPROCESSED
Let's make the recycle bin obsolete!

From:	Leesa Evans
To:	OPC Microplastics
Subject:	Label plastics everywhere!
Date:	Monday, January 17, 2022 2:58:09 PM

Hello,
I support your efforts! The amounts plastic and chemicals in the marketplace in phenomenal! I would love to see manufacturers or distributors like Amazon be accountable to recycle packaging or required to use compostable materials.

The ingredients in plastics BPA, PFAS and their effects on life should be identified.

As a consumer it's hard to know what products are truly recyclable. Honest labels without greenwashing, ie plastic 'compostable' utensils that may take 10-20 or 200 years to decompose would help in making purchases. Fabrics with polyester and nylon or cosmetics labeled as containing micro plastics could be avoided.

Beyond education and labeling, real legislation to reduce the frenzy of fossil fueled plastics is essential!

Thank you, leesa
--
Leesa Evans

From:	Glynn Barrish-Carroll
To:	OPC Microplastics
Cc:	Glynn Barrish-Dreyer
Subject:	Microplastics report suggestions
Date:	Monday, January 17, 2022 3:02:53 PM

Hello

I was alerted to the absence of some desired guidance in your report on microplastics.

Please ensure you add content regarding the source of microplastics and guide textile mills and manufacturers to use less and instead to promote use of natural and regenerative yarns in manufacturing.

It would also be great to add incentives or give tax breaks to growers,textile mills and companies that use natural and regenerative yarns and fabrics.

Another option is to make it mandatory to add content awareness to all clothing labels using microplastics and the associated health hazards and create a public awareness program.

Another idea-you could convert a local textile mill to recycle the yarn/microplastics into a 2nd life product that will stop if from going into the landfills and./or ocean for a longer period of time.

I think you can do this twice then have to use for another purpose,other than apparel.

If you incentivize the public like bottle recycling,you could create a new revenue stream this way too and turn one ma's waste into another's treasure.

Please feel free to contact me for further input.

regards

Glynn

--

Glynn Barrish-Dreyer
GIBC Inc.
glynn@ragroyalty.com
Cell 310-938-5203

From:	Erika Michelotti
To:	OPC Microplastics
Subject:	Draft Statewide Microplastics Strategy comments
Date:	Monday, January 17, 2022 3:09:20 PM

Hello,

I would love to see California be a leader and be part of the solutions rather than commentating on current problems. An ambitious and coordinated policy solution for textile solutions is needed!

I would like to see more opportunities for natural textile systems and source reduction for harmful micro plastic garments. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Please add some solutions and action items to address the issue of microplastics in the fiber industry.

Sincerely,
Erika Michelotti

From: Cassie LaFollette
To: OPC Microplastics
Subject: Public Comment on the Statewide Microplastics Strategy
Date: Tuesday, January 18, 2022 9:42:53 AM

Hi there,

Thank you for all the work you are doing to help our environment. I would love the Statewide Microplastics Strategy to include solutions that specifically address the overproduction and overconsumption of synthetic clothing and textiles. Since these are a significant source of microplastic pollution, it would be wonderful if our strategy could include some specific ways to incentivize healthy, natural fiber textile production and use.

Thank you kindly,

-Cassie LaFollette

From:	Elizabeth (Lisa) Ferguson
To:	OPC Microplastics
Subject:	Public Comment on Draft Statewide Microplastics Strategy
Date:	Tuesday, January 18, 2022 10:37:22 AM

Dear OPC,

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" inpreparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

I am alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Therefore I urge these recommendations for the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Sincerely,

Elizabeth Ferguson, Ph.D.
Berkeley, CA 94708

From: tannerichards@aol.com
To: OPC Microplastics
Subject: Reducing plastics in CA - Comment
Date: Tuesday, January 18, 2022 2:14:14 PM

As a California resident I am writing in support of efforts by Sierra Club California and the Ocean Protection Council's Microplastic Strategy. I was walking along the Bay Trail toward Richmond yesterday. The tide was out which gave a good clear view of the amount of plastic in the bay -- at least what was visible. It was disheartening to see the damage we have created. PLEASE take this seriously and act in good conscience. We do not need plastic products. There was a time when there weren't any plastics and we did just fine without them. Aim for zero plastics.

Thank you.

Sincerely,

Theressa Anne Richards
1529 Acton Street
Berkeley CA 94702

From: Dana Davis
To: OPC Microplastics
Subject: feedback on the draft-Statewide Microplastics Strategy
Date: Wednesday, January 19, 2022 6:23:49 AM

To Whom it May Concern,

We at Mara Hoffman applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature. But we are also alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

To be effective, we believe that the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

We do hope you will consider this feedback as you work on the revised draft.

Best,
Dana Davis
VP of Sustainability, Product and Business Strategy

Mara Hoffman Inc
dana davis l vice president of sustainability, product & business strategy
255 Centre St, 6FL
New York, NY 10013
P 212.505.3020 xt 108
M 917.549.2865
E dana@marahoffman.com

From: camatisto@gmail.com
To: OPC Microplastics
Subject: Public Comment on Microplastics Strategy
Date: Wednesday, January 19, 2022 11:14:09 AM

Hello,

I would like to reiterate some of the things Fibershed has outlined in response to the statewide micro plastics strategy.

I want to see policy solutions address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

We applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

We are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems
To be effective, the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Thank you,

Carly

Sent from my iPhone

From:	Lynnie mca
To:	OPC Microplastics
Subject:	Microplastics in our envirnment
Date:	Wednesday, January 19, 2022 3:15:02 PM

To Whom It May COncern,

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in
preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

I am alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation. Now is the time for action to increase restrictions for petroleum based plastics entering our environment.

Thank you,

Lynn McArdle

From: Kerry Keefe
To: OPC Microplastics
Subject: Positive efforts
Date: Wednesday, January 19, 2022 3:35:51 PM

Hello,

Thank you for this effort. I have written earlier, but owe you an apology- This effort is excellent!... in as far as it goes. Please include the positive efforts of supporting clothing and fabric that support climate change and keep microplastics out of our environment. Wool and cotton are historically wonderful fabrics. Using sheep in our system to control underbrush and provide wool is a win-win situation. It seems imperative that you should include actions that support these alternatives.

Thank you,
Kerry Keefe

From: Maren Stanczak
To: OPC Microplastics
Subject: Support for your strategy
Date: Wednesday, January 19, 2022 4:42:51 PM

I heartily endorse and support your efforts to restrict microplastic pollution. We humans have been needlessly reckless in creating things for our convenience, regardless of the effect they may have on the environment.

Maren Stanczak
Concord, CA

From: Monica
To: OPC Microplastics
Subject: Concern With the Present Draft of the Statewide Microplastics Strategy
Date: Wednesday, January 19, 2022 5:43:19 PM

Hello,

Greetings and a word on this upcoming issue.

As a life long ocean swimmer, Californian, and indigenous creature of the earth I have some sincere concerns with the present draft of the Sate wide Microplastics Strategy. In the conclusion of Ocean Protection report of 2021it clearly states

"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."

The fact is if we do not end plastic production now, there is no human future. If we are truly wanting to address this issue effectively it will have to include a plan for the complete removal of plastic from all supply chains and most significantly from textiles. The travesty of the ever increasing, greed based, move toward synthetics in clothing is many fold as not only does the production cause harm, every single time that garment is washed and worn more plastic ends up in the water cycle. Filtration will never be enough. When you consider that California throws away an average of 4million pounds of wool EVERY year it begins to look like California is actually in the business of systematic environmental destruction.

The present draft document does not currently include any solutions that will reduce the production and use of synthetic textiles or support healthy natural fiber textile systems. Honestly, it makes me wonder who amongst you works with Patagonia clothing. There needs to be so much more action on these issues please make any formulation of a strategy al least inclusive of the entire scope of the problem! If we can not do that we may as well begin mourning the loss of this species who really did know better.

Mira Mirasuma!

Monica Paz Soldán

From: LeAnn Bjelle
To: OPC Microplastics
Subject: Protection of the oceans
Date: Thursday, January 20, 2022 10:24:15 AM

I am writing to thank you for your efforts to protect our oceans from plastic pollution. I read about it in Gary Griggs column in the Santa Cruz Sentinel.

I am also pleased to learn of your existence and all that you are doing to protect our oceans.

LeAnn Bjelle
Aptos, CA 95003

From: Holly Isaacson
To: OPC Microplastics
Subject: Comment - Statewide Microplastics Strategy
Date: Thursday, January 20, 2022 12:05:40 PM

Hello,

I am a current resident of Los Angeles and a lifelong resident of California. Please work closely with the Sierra Club to ban single use plastics, and especially, single use tobacco products. The evidence of the harm this waste does is all around us.

Thank you,
Holly

Holly Isaacson
hollyalexa82@yahoo.com

From: Kelly McMenimen
To: OPC Microplastics
Subject: Public Comment on Statewide Microplastics Strategy
Date: Thursday, January 20, 2022 4:43:44 PM

To Whom It May Concern:

Humanity has pushed the planet to the brink of environmental collapse on multiple levels, and from multiple angles: climate change, pollution in our air, pollution in our water, destruction of forests, etc. We humans have soiled our own nest and made it toxic to life. Nothing but drastic and comprehensive change of human systems and human social behavior will be adequate to address the problems we face and ensure this planet is habitable for the future generations. We cannot afford to pander to industry AT ALL. We have to propose and incentivize BEST practices immediately, if not sooner.

I applaud the fact that the state is developing a microplastics strategy, but we need to put forth the vision of what will really work, the optimum vision, not just a compromised vision.

As such, I urge you to add to the strategy, measures that will mitigate the production and use of synthetic textiles, and support the growth of natural fiber textile systems in California. Synthetic textiles are a major source of microplastic pollution. Let's not mince words or make compromises. Let's challenge the entire textile industry to upgrade to healthy and natural processes and products immediately, as a very important part of any microplastics pollution reversal strategy.

Thank you for reading my comments, and for upgrading your strategy.

I would appreciate a written response to this letter.

Regards,
Kelly McMenimen
Lagunitas, CA

Kelly McMenimen
Director and Lead Teacher
Earthwise Education
(415) 488-4682
www.earthwiseeducation.org

From: Diane Landry
To: OPC Microplastics
Subject: Draft of Statewide Microplastics Strategy
Date: Thursday, January 20, 2022 7:11:35 PM

Thank you, California, for once again leading the nation in environmental standards. I hope that part of your strategy will include incentivizing healthy, natural textile fiber systems in local fibersheds and disincentivizing the production and use of synthetic textiles, the source of so many microplastics. We need to put the brakes on cheap fast fashion.
-Diane Landry
Sent from Mail for Windows

From: POP PaddleOutPlastic
To: OPC Microplastics
Subject: OPC Draft Statewide Microplastics Strategy
Date: Thursday, January 20, 2022 8:40:17 PM

Honorable Members of the Ocean Protection Council and Staff,

The Draft Statewide Microplastics Strategy is very impressive, but is it enough? As the founder of Paddle Out Plastic, paddlers removing plastic litter from aquatic environments by kayak and standup paddleboard, I have written to you in the past about the plastic we find polluting California waters. It has been likened to a slow-moving oil spill and aptly so, not only because of the long-term toxic hit to our seas, but the contribution to our climate and biodiversity crisis. Every day that we wait, every day that we postpone the reduction in single-use plastic means that much more plastic pollution, more potential harm to wildlife, more to clean up later, more that will never be cleaned up. That is particularly true regarding insidious plastic particles known as microplastics.

New information relevant to the issue is becoming available daily. Even Unilever came out with a statement early this week acknowledging responsibility, saying that they need to go "*much further, much faster . . . . Without changes to how nations use, recycle and ultimately reduce plastic usage, we will not fix the problem. We need tough, global action that gets to the root cause. And in some cases that means moving from voluntary to mandatory measures.*"

With the foregoing in mind, in addition to supporting the comments of Sierra Club California, we offer the following comments on the Draft Strategy:

Shorten the Timeline and Add to Actions on a Rolling Basis
Let's not wait for the amount of plastics entering the environment to increase before we take action to staunch the flow. Nor can we wait for industry to move quickly voluntarily. Please consider making the recommended Solutions actionable immediately (2022 rather than 2023 or later).

Also, the Draft Strategy indicates new solutions will be evaluated. There is some indication that won't happen until 2025. Why not bring forth additional actions on a rolling basis as new information becomes available; as new alternatives become available; as reusable models become more widely available? This will have the benefit of leveling the playing field between those companies leaning in to acting more responsibly vis a vis single-use plastics and those lagging.

We can attest that expanded polystyrene is indeed a major contributor to microplastic particles in the aquatic environment and were elated to see the prohibition of it in foodware and packaging on the list of recommended actions. We simply hope to see it done in 2022. In 2021, we removed 25,256 pieces of polystyrene foam from the water. The photo below shows our haul just this week (MLK Day January 17), when we retrieved from the water 650 pieces of foam spread over about two miles.

Yet, there are other culprits currently not on the list of actionable microplastics, including for example, multi-layer food packaging that sheds thin plastic film in small bits.

In 2021, we retrieved 11,218 food wrappers from the water. The photo below is of food wrappers retrieved from the water during just one paddle out.

Flexible packaging such as this has been found to be particularly harmful to wildlife. Scientists in New Zealand (Science Direct, Dec 2021) analyzing stomach contents of 15 common dolphins stranded between 2019-2020 found microplastic fragments in every one of them, translucent, flexible fragments being most common. There are alternatives and some companies already are beginning to switch to paper wrappers for food. We would hope to see this type of material addressed soon.

Bring More of the Public Onboard through Education and Follow up with Enforcement

A shared body of knowledge is critical for a well-functioning democracy. The Draft Strategy explains what education can do: "*reduce desirability, accessibility, and acceptability of plastic products, increase consumer demand for plastic alternatives or reuse, and improve understanding of microplastic impacts on human and environmental health.*" Education can also help to support legislative action. We've got to counteract the disinformation being spread regarding single-use plastics, misinformation being spread about alternatives that are no better, and confusion regarding recycling, however, or we risk losing support.

In conjunction with education, there must also be a path for intervention when existing laws are not followed. It's unclear in the Draft Strategy what the path forward will be regarding ensuring compliance with the Trash Provisions for zero waste in surface waters by 2030. The same question arises regarding proposed actions such as the prohibition on expanded polystyrene foodware and packaging. How will compliance be ensured?

You've probably seen it with plastic straws. They come to your table in drinks before you have a chance to say anything. As you know, since 2018 California law has required that single-use plastic straws only be given to a customer upon request, yet numerous eateries are not following it, including along the Southern California coast

mere steps away from the beach. In 2021, we retrieved 2,560 plastic straws from the water while paddling. Through social media, we believe that our visuals can play a part in educating the public, but ultimately there must be an enforcement arm involved.

Perhaps bringing local governments on board could help, involving them in campaigns to raise awareness and generate solutions in their communities. No community likes to see blight and that is what we see as a result of single-use plastic foodware and plastic packaging litter, which eventually breaks down into microplastics; which eventually runs down streets and waterways to the sea.

Last, please consider that the more quickly that reuse models and other alternatives to single-use plastics become mainstream, the more quickly costs will come down and the more accessible it will be for all to do right by our environment.

Thank you for all you are doing to move us forward to a healthier planet.

Very truly,
Eva Cicoria, Founder

PADDLE OUT
PLASTIC

From: Paula Rhude
To: OPC Microplastics
Subject: Comments on the Draft Statewide Microplastics Strategy
Date: Friday, January 21, 2022 7:10:34 AM

January 21, 2022

California Ocean Protection Council
Secretary Wade Crowfoot
California Natural Resource Agency
1416 Ninth Street, Suite 1311
Sacramento, California 95814

Dear Secretary Crowfoot, OPC Members and Staff,

Thank you very much for your considerable effort in preparing this Draft Statewide Microplastics Strategy.

I appreciate the fact that the Strategy has been created and have suggestions for increased positive impact. Time is short as we all know.

I want to see policy solutions address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use. A public information campaign is a necessity.

Additionally, California currently has a $20Billion budget surplus. California could use this money to assist local agencies in beginnning to install state-of-the-art microfiber filters on waste water discharge systems that send Microplastics into our oceans and rivers.

I hope you will incorporate this feedback into an updated Statewide Microplastics Strategy for OPC board consideration in February. California should take a position of leadership in microplastics policy.

Respectfully,

Paula Israel Rhude
POBox38 (234 Clark Street)
Eureka, California 95502

From: Full Circle Wool
To: OPC Microplastics
Subject: Comment on Microplastics Issue
Date: Friday, January 21, 2022 10:13:14 AM

To: CA OPC
Re: CA Microplastic Strategy

As a life-long resident of California and ardent supporter of a healthy environment, I'm deeply concerned about the problems posed by microplastic pollution in our waterways. I support the OPC's leadership on addressing this issue with solid policy and actionable solutions. Thank you for your work on this matter. I'd like to see more work addressing the fault and source of microplastic pollution on synthetic materials, as well as support for natural fibers as a solution.

Thanks much,
Marie Hoff
Owner/Operator of Full Circle Wool
Mendocino County, CA

Marie Hoff
Full Circle Wool
www.fullcirclewool.com
@stargrazers

From:	Amanda Gilbert
To:	OPC Microplastics
Cc:	samanthaposoll4@gmail.com; juliangheth@gmail.com; corylvg@gmail.com; bridget.goodwin@student.tamdistrict.org; Juilaarthur2003@gmail.com; Buddy711428@gmail.com; eabroome2@icloud.com; bendeandrade@yahoo.com
Subject:	Statewide Microplastics Strategy Public Comment
Date:	Friday, January 21, 2022 12:19:51 PM

Dear Ocean Protection Council,

We are a group of youth climate interns called Greenstitch, located in the San Geronimo Valley, in Marin County. We attend Archie Williams High School, and Oak Meadow School. One of our main focuses in the past few months have been on the clothing industry and textiles, and the hugely negative effects they are currently having on the health of our planet. Textiles are one of the main contributors to microplastic pollution, and we hope that effective solutions to stop the production of synthetic fibers from the source will be added to the Ocean Protection Council's Statewide Microplastics Strategy. As members of the younger generation, we are constantly bombarded with advertising that supports the fast fashion industry, and encourages over consumption. It is very frustrating to see that not only is there very little transparency with most brands about how their products are made, but there is very little accessible information about the negative impacts of synthetic fibers. As an internship, we have reached out to our community to educate about reuse and mending of clothing to slow the consumption of fast fashion that is often composed of synthetics. We have also been educating about the importance of local and natural textiles, and the false conceptions that large companies put forth to promote fast fashion. We recognize both the social and environmental benefits of rewiring our fashion industry to promote quality garments free of fossil-fuel derived fibers. We hope that there will be policies and statewide support put in place to encourage more variety and accessibility to sustainable, local and natural fibers that will reduce the contamination of our water, food, and air with microplastics. Changing the way our society consumes and thinks about clothing can be hugely impacted by the information and policies that are put forward, so we ask that you make this a priority.

Thank you, and we appreciate the crucial work you are doing to preserve the health of our oceans and ecosystem.

Sincerely,

Greenstitch Interns

Samantha Podoll, San Geronimo- samanthaposoll4@gmail.com
Amanda Gilbert, Woodacre- amanda.g.vaulter@gmail.com
Julia Ng-Heth, San Anselmo - juliangheth@gmail.com
Cory Vangelder, Woodacre- corylvg@gmail.com

Bridget Goodwin, Woodacre- bridget.goodwin@student.tamdistrict.org
Julia Arthur, Fairfax- Juilaarthur2003@gmail.com
Buddy Faure, Inverness - Buddy711428@gmail.com
Ella Broome, San Anselmo- eabroome2@icloud.com
Ben De Andrade, Fairfax- bendeandrade@yahoo.com

From:	Megan von Feldt
To:	OPC Microplastics
Subject:	Statewide Microplastics Strategy: please include Source Reduction for Synthetic textiles in strategy
Date:	Friday, January 21, 2022 12:26:22 PM

Good afternoon,

While public comments are still open, I would like to ask OPC to include solutions in the Statewide Microplastics Strategy that will achieve **source** reduction for the production and use of synthetic textiles. As I understand, synthetic textiles are a primary source of microplastic pollution, but the language I read in the draft focuses on solutions *after* these materials have saturated our population.

I would also ask OPC to consider incentivizing natural fiber textile production and use in the final strategy (wool, cotton, flax/linen, hemp, etc) to further strengthen curbing the effects of polluting synthetic garments and textiles.

Below are points that I think would strengthen the effectiveness of the Strategy, and I hope OPC considers the following:

- Coordinated state policies to reduce synthetic textile production, consumption and waste at the source
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

And finally, I sincerely thank you for your hard work on finding a solution for this problem.

Megan von Feldt
Berkeley, CA

650-766-1727

From:	Michelle Magdalena Maddox
To:	OPC Microplastics
Subject:	End Micro plastics
Date:	Friday, January 21, 2022 12:33:57 PM

Hello Council,

Thank you for your attention and support of this issue. Microplastics our ecological presence in our food and environment which is becoming increasingly toxic. We cannot know the complete range of effects this will have on future generations but we must slow it and stop it best we can, Whenever possible.

Sincerely,

Michelle Maddox

Founder of Magdalena magazine

https://www.magdalenamag.com/

Http//:www.michellemagdalena.com

From: Rhoby Cook
To: OPC Microplastics
Subject: Comments on Statewide Microplastics Report
Date: Friday, January 21, 2022 12:48:35 PM

Dear Ocean Protection Council Members,

Thank you for your important work to address micro-plastic pollution in our state's waters and in the ocean. No doubt plastic micro-fibers are also present in our air, soil and our own bodies as well. The recent report issued by the Council emphasized the importance of SOURCE REDUCTION.

I urge the Council to recommend policies which reduce the impact of plastic pollution coming from clothing at the source. Policies that reduce the fast fashion cycle of over-production and waste is one way. Making manufacturers take responsibility for their products is another. A very powerful way to reduce synthetic fiber clothing is to replace it with 100% natural fiber textiles such as wool, cotton and linen. It is important these be pure natural fiber, because once cotton, for instance, is blended with polyester, it can no longer be recycled and must be land-filled.

I am a member of Fibershed and produce fine quality wool. There is no economical market in California for the wool my sheep produce. My wardrobe is full of polyester blends and I am dumping beautiful natural fiber on the field as mulch. This doesn't make sense. We need policies that support a full shift in the way clothing is produced in our state, that support regional textile production to take advantage of the environmentally sustainable and non-polluting natural fibers and dis-incentivize the production and consumption of plastic textiles.

Please include these policy suggestions in your report to the Legislature.

Sincerely,

Rhoby Cook
P.O. Box 650
Hoopa, CA 95546

From: Irene Barnard
To: OPC Microplastics
Subject: Comment: OPC Strategy on Microplastic Pollution in CA
Date: Friday, January 21, 2022 2:19:52 PM

The Ocean Protection Council's draft Statewide Microplastics Strategy will affect California state policy for years to come. Unfortunately, the draft document does not currently include solutions that will reduce the production and use of synthetic textiles or support healthy natural fiber textile systems. I want to see policy solutions address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

I applaud OPC's hard work on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature. But OPC's report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in
preparation for development of the Statewide Microplastics Strategy, included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

It's alarming that the current draft lacks solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution: synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

The current draft's suggestion to address microplastic fiber pollution through laundry filtration clearly are insufficient for the scale and scope of the problem identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles. It is crucial that the state act quickly to begin addressing source reduction and systemic solutions to a known key source of microplastic pollution.

To be effective, the Statewide Microplastics Strategy must incorporate source reduction

policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions, throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

A systemic approach to source reduction of synthetic textile microplastic pollution can leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year.

Several state agencies are expanding programs to develop and support agricultural systems that build healthy soil, increase biodiversity and sequester carbon while producing food and fiber products in our state (California Department of Food and Agriculture's Healthy Soils Program; California Natural Resources Agency's Sustainable Agricultural Lands Conservation Program; State Coastal Conservancy's Climate Ready Program). The Governor's Circular Economies programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. All of these initiatives can be synergistic with policy goals to support healthy regional natural fiber and textile production, alongside policies to reduce production and consumption of microplastic-emitting synthetic

textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

The following solutions should be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Thank you,
Irene Barnard

From: Laura Wasielewski
To: OPC Microplastics
Subject: Comment on Microplastics Strategy
Date: Friday, January 21, 2022 2:26:01 PM

As a mother of four children growing up in Southern California the issue of microplastics in the ocean they love to play in is very important to me.

I applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

We are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

Laundry Filtration is Insufficient
The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles. It is crucial that the state act quickly to begin addressing source reduction and systemic solutions to a known key source of microplastic pollution.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems
To be effective, the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions, throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic

emissions in both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Building on Existing State Priorities and Programs

A systemic approach to source reduction of synthetic textile microplastic pollution can leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year.

Several state agencies are expanding programs to develop and support agricultural systems that build healthy soil, increase biodiversity and sequester carbon while producing food and fiber products in our state (California Department of Food and Agriculture's Healthy Soils Program; California Natural Resources Agency's Sustainable Agricultural Lands Conservation Program; State Coastal Conservancy's Climate Ready Program). The Governor's Circular Economies programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. All of these initiatives can be synergistic with policy goals to support healthy regional natural fiber and textile production, alongside policies to reduce production and consumption of microplastic-emitting synthetic textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

We recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Thank you for your time.

Please do the right thing for my children and all the other children who want to safely enjoy our oceans.

-Laura Wasielewski

Sent from my iPhone

From:	Kris Paquette
To:	OPC Microplastics
Subject:	Response to OPC Draft Statewide Microplastics Strategy
Date:	Friday, January 21, 2022 2:29:26 PM

Greetings,
My name is Kris Paquette. I am a retired elementary school teacher and have volunteered as a teacher of marine mammal science and ocean stewardship at the informal science center, Pacific Marine Mammal Center, in Laguna Beach for the past 8 years. The following comments are my own personal opinions and do not necessarily represent those of PMMC. I have reviewed this draft document and wanted to express my appreciation for how thorough and comprehensive it is. I really like the multi-faceted approach with both short-term and long-term goals included.
My input is in the area of education. I have been able to teach many groups and school classes about ocean conservation topics, most often focused on plastic pollution. I find that many teachers and other groups such as scouts turn to informal science centers to have their students learn about these issues. I imagine this has already been considered, but what I see time and again is the need for individuals to feel a personal connection in order to "buy in" to supporting this cause. For PMMC, that meaningful personal connection is often the charismatic attraction to the animals that we rescue, rehab, and release. Informing and increasing understanding on these issues is of course the first task, but then, people need tasks or action items that they can personally accomplish such as clean ups, or refusing, reducing, reusing or using alternative products to replace single use plastic. This leads to empowerment and the desire to encourage others. Jane Goodall is a master at teaching about how to accomplish this.
I worry about the resistant political climate we live in. I hope that there is a concentrated effort to help the general public feel like they're involved in the changes in a bottom-up type of way as much as possible. They can hopefully see how the changes they make, do make a difference and thus feel empowered and are able to sustain a long-term supportive attitude for the necessary changes that need to occur. I appreciate the acknowledgement that plastic pollution issues sometimes impact lower income populations disproportionately. I was also glad to see that 5 Gyres and Agalita were mentioned in the timeline goals.Please also keep in mind the power in utilizing informal science centers to help promote these important goals.
Thank you so much for this incredibly important work that you're doing!
Sincerely,
Kris Paquette

From: Liz Savage
To: OPC Microplastics
Subject: Statewide Microplastics Strategy
Date: Friday, January 21, 2022 2:52:19 PM

Dear Ocean Protection Council members,

Thank you for your work in developing the draft Statewide Microplastics Strategy.

As mentioned in the OPC's own report, Microplastic Pollution in California, "True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."

Therefore it's very concerning to see that the current draft Statewide Microplastics Strategy lacks solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution: synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. **Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles.** It is crucial that the state act quickly to begin addressing source reduction and systemic solutions to a known key source of microplastic pollution.

To be effective, the **Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems.** These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate

change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Therefore, I support the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Thank you,
Liz Savage
San Francisco, CA

From: Sally Maier
To: OPC Microplastics
Subject: Statewide Microplastics Strategy
Date: Tuesday, January 18, 2022 5:33:46 PM

I applaud the draft Statewide Microplastics Strategy you recently released. Prohibiting the sale of single-use tobacco products that contribute to plastic pollution, prohibiting polystyrene foodware and packaging by 2023, and banning microplastics that are intentionally added to consumer products are all helpful actions to reduce plastic pollution.

I encourage you to strengthen the Strategy by:

- Requiring reusable food ware for dine-in services

- Banning the sale and distribution of single-use plastics, including balloons in State Parks

Sincerely,

Sally Maier

From: Dashka Slater
To: OPC Microplastics
Subject: Statewide Microplastics Strategy
Date: Sunday, January 16, 2022 3:19:52 PM

Dear OPC,

As a Californian, a parent, and a San Francisco Bay swimmer, I am writing to support all efforts to reduce the use of single-use plastics by banning polystyrene foodware and packaging, banning the use of microplastics, and banning the sale of single use tobacco products that contribute to plastic pollution. In addition, I urge you to take the stronger steps of requiring reusable foodware for dine-in restaurants, banning the sale and distribution of single-use plastics in state parks, and banning the use of single use plastic water bottles in hotel rooms.

I have been aghast at the amount of additional plastic generated during the pandemic, much of which turns up in the waterways where I swim. The plastic industry and some misguided beliefs about the spread of covid-have succeeded in normalizing the use of these polluting throw-away products just at the moment when we were starting to see significant progress in reducing their use. Not only will the proposed measures reduce the amount of plastics entering the waste-stream, they will also begin to take back some of the lost ground that has led to a 30% uptick in disposable plastic use since the start of the pandemic. It is important to continue to make all Californians think twice about the use of single-use plastics by making them less ubiquitious.

At present, a hodgepodge of municipal and county regulations make it difficult to know what is and isn't allowed. We need strong statewide action in order to protect our waterways, our health, and our marine life.

Sincerely,

Deirdre S. Slater

From:	Michelle Lai
To:	OPC Microplastics
Subject:	Statewide Microplastics Strategy
Date:	Sunday, January 16, 2022 10:40:44 AM

To Ocean Protection Council :

I want to see policy solutions address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

Best,

Michelle Lai

From: Lisa Canning
To: OPC Microplastics
Subject: Statewide Microplastics Strategy
Date: Saturday, January 15, 2022 11:27:29 AM

We applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

We are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed by targeted source reduction solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

Laundry Filtration is Insufficient
The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles. It is crucial that the state act quickly to begin addressing source reduction and systemic solutions to a known key source of microplastic pollution.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems
To be effective, the Statewide Microplastics Strategy must incorporate source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions, throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in both manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and

impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries continue to drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Building on Existing State Priorities and Programs

A systemic approach to source reduction of synthetic textile microplastic pollution can leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year.

Several state agencies are expanding programs to develop and support agricultural systems that build healthy soil and sequester carbon while producing food and fiber products in our state, incorporating agricultural land into the state's 30x30 conservation goals (California Department of Food and Agriculture's Healthy Soils Program; California Natural Resources Agency's Sustainable Agricultural Lands Conservation Program; State Coastal Conservancy's Climate Ready Program). The Governor's Circular Economies programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. All of these initiatives can be synergistic with policy goals to support healthy regional natural fiber and textile production, alongside policies to reduce production and consumption of microplastic-emitting synthetic textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy

We recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer

responsibility and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

I have been following this issue for over a decade, I do not buy plastic clothing or goods. We have a crisis here and it needs to be fully and responsibly addressed!

Best Regards, Lisa Canning

From: bob scowcroft
To: OPC Microplastics
Subject: Micro-plastics and pollution
Date: Friday, January 21, 2022 2:54:05 PM

To Whom it May Concern:

Emerging science points to microplastic fibers contributing to the state's, if not the world's environmental plastic contamination. California is often cited as a leader in new technology and innovative solutions to a host of environmental problems. However I'm led to believe that your most recent draft document does not offer any specific solutions to this ongoing if not increasing source of plastic pollution. Might I suggest a few solutions worthy of further discussion:

1. Labeling that identifies a portion or all of the synthetic fibers contained in a product with an assessment of how many of those fibers will eventually enter our environmental system.

2. Identify a small but noteworthy "synthetic fiber" tax to every product that contains them to be paid by the consumer at the point of purchase. I would suggest that it would be similar to the "mill tax" every California electricity customer pays to clean up the decades of nuclear waste and power plant decommissioning costs needed to close these plants for good. Any funds collected under this tax would be restricted to new technology used to clean up our water supplies from previously discovered microplastic pollution.

3. Establish a promotional program (maybe like a marketing order) that would promote plastic-free consumer fiber products. It could be voluntary and generic or more focused and regulated.

Thank you in advance for taking my suggestions under consideration.

Sincerely,

Bob Scowcroft
Santa Cruz, Ca. 95062

From: Kimberly Bower
To: OPC Microplastics
Subject: Microplastic Fiber Solutions
Date: Friday, January 21, 2022 3:57:07 PM

Hello,

I'm reaching out to submit a public comment:

I'd like to see policy solutions that address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

Thank you for your consideration,
Kym Bower

From:	Hope Salzer
To:	OPC Microplastics
Cc:	Katerina.Robinson@sen.ca.gov
Subject:	PUBLIC COMMENT SUBMISSION on Draft OPC Microplastics Strategy...
Date:	Friday, January 21, 2022 4:43:25 PM

Dear OPC professionals,

I'm a concerned Californian resident, taxpayer, active voter, and U.S. citizen. I applaud the attention the State is finally giving to reducing the infestation of plastics in our everyday lives as well as its waste products in our environments— all of them, in every form of matter, in our solid land, in our liquid freshwater and marine environments and in our gaseous/air environment.

I've read the draft Microplastics Strategy and, while it appears to have considered options for plastics pollution reduction, I am not satisfied that after giving polluters an unfettered 'Right to Pollute' and pass along clean-up costs to consumers and taxpayers for decades and decades that this Strategy does enough to rescind that assumed Right.

I would like to see much, much stronger language and much stronger action taken by my State representatives to protect and defend my and my family's environment. In the Solutions section of this Draft document, I would like to see the elements in the 'Financial Incentives' section changed from 'incentives… through rebates and other mechanisms' to "requirements for the sale and use of washing machine filters with screens of 100 microns or less" as well as "requirements for the sale and use of ENERGY STAR condenser dryers— PERIOD. I would also like to see Extended Producer Responsibility implemented to **minimize** the use of **ALL** plastics, not just plastic packaging and foodware and— very significantly— NOT to drive an increase of recycling but to eliminate the use of plastics.

As you probably know, the U.S. is the number one source of plastic waste historically and only an estimated 9% of all plastics have ever been so-called "recycled". You may also know that, unlike glass and aluminum which are truly infinitely recyclable, plastics and paper are categorically and emphatically NOT. At best, plastic and paper wastes are downcyclable into lesser quality materials. These so-called recycled, post-consumer plastics eventually degrade and end up in our environments (either land or water). Incentivizing 'recycling' only kicks the can down the road and extends the stretch of time that these materials stay in use before becoming toxic pollution and furthermore, they further incentivize the production of new plastics because they create a markets for their use and serve to greenwash their detrimental effects on our natural environments.

I would also like to see ALL of the Recommended Actions under the section "Pollution Prevention: Product and Material Bans" strengthened as well, as follows:

1) Implement the statewide requirement that single-use food ware and condiments be provided only upon request, and that, in that case ONLY compostable options be permissible for distribution.

2) REQUIRE state purchasing and service contracts to require reusable foodware and eliminate the state's use of single-use foodware.

3) Prohibit ALL consumer uses of expanded polystyrene (not just for foodware and

packaging).

4) Expand the stated microbes ban enacted by Assembly Bill 888 (Bloom, 2015) to include ALL microplastics (not just those that are intentionally added to consumer and industrial products).

5) Prohibit the sale of single-use tobacco products… including UNCOMPOSTABLE tobacco products packaging.

Moreover, I also strongly resent the idea articulated in your 'Education' solutions section of using state resources to update teacher training and K-12 student education materials about microplastics. As the adults in charge of the care and safety of California's minors, we need to take adult responsibility and proactively protect our kids from the health and environmental dangers of plastics waste pollution. I don't want to educate another decade of children on why they should avoid plastics— all the while cavalierly and callously allowing the polluting industries which make these toxic and detrimental pollutants to continue to infiltrate the bodies of all of our citizens and non-human inhabitants alike.

I sincerely hope that your staff will update this Draft strategy to suggest solutions ideas which are much more likely to quickly, efficiently, economically and fairly, minimize plastics use in California and use our tax revenues instead to incentivize and materially reward Refill and Waste-Free businesses throughout California.

Submitted with sincerity and humility,

-Hope Salzer
(415) 816-4673

From: Liz Atwell
To: OPC Microplastics
Subject: Please stop microplastics
Date: Monday, January 24, 2022 2:08:28 PM

Hello,
I'm asking you to please stop the micro plastics being used and also single used plastics must be banned if we are going to get a handle on our oceans and rivers in California.
We need more companies to get on the bandwagon, like happy plant oils who has all of her containers for chopsticks and hand creams in recyclable materials. Like a heavy cardboard. I think it should be mandatory that everybody brings their own bags to the store and banned plastic bags completely! There are many other alternatives. I Have been doing this for the last 30 years. There are companies that offer rice based containers for takeout food. And there are non-plastic utensils that you can get. Those are the only things that should be out on the market and accessible to restaurants etc.
We all have to stick together and do our part to make a difference. Contrary to belief one person out of millions cannot change the outcome. They can only educate others. Thank you for your time.
Plastic free, Liz Atwell

One never knows how far an act of kindness ripples out to touch the lives of others.
Liz Atwell

From: Gil Shorr
To: OPC Microplastics
Subject: Other ideas
Date: Wednesday, January 26, 2022 8:53:39 AM

I would like to encourage people to re-use their produce bags. When you bring onions home in a plastic bag, there's no reason why you shouldn't take it back to the store again and fill it with some other vegetables or fruit—I have bags I've been using for months. Some need a wash and dry but they're still good for multi-use.
Thank you for this survey. Gil Shorr

Sent from my iPhone

From:	Asher T. Sinclaire
To:	OPC Microplastics
Subject:	Hi Ocean Protection Council - Statewide Microplastics Strategy
Date:	Thursday, January 27, 2022 1:14:46 PM

Hi Ocean Protection Council,
Wishing you and your loved ones are all well.

I am a Digital Eco-Artist creating nature-inspired designs from my photographs and digitally printing them with natural eco-textiles, non-toxic inks, and a waterless printing process. My connection with the global natural eco-textile community supports his belief that natural eco-textiles are safe and sustainable for people and the planet.

I would greatly appreciate seeing policy solutions address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles while incentivizing healthy natural fiber textile production and use.

I would like to recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption, and waste
- Incentives, investments, and technical assistance for natural fiber and textile producers, processors, and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

California has a prime opportunity to take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility, and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Thank you! Sending positive energy to you all!

Asher T. Sinclaire
Digital Eco-Artist
ashertsinclaire.com
ashertsinclaire@gmail.com
+1 (808) 987-6477

From: Patti Calande
To: OPC Microplastics
Subject: comment on your draft
Date: Tuesday, February 8, 2022 9:23:05 AM

Hello~

Thank you for addressing this pressing issue on our environment. I would like to see policy solutions address the source of microplastic fiber pollution in the abundance and overconsumption of synthetic textiles, while incentivizing healthy natural fiber textile production and use.

Thank you~

Patti

CALIFORNIA ASSOCIATION of SANITATION AGENCIES
925 L Street, Suite 200 • Sacramento, CA 95814 • TEL: (916) 446-0388 • www.CASAweb.org

January 21, 2022

Kaitlyn Kalua, Water Quality Program Manager
California Ocean Protection Council (OPC)
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Submitted via OPCmicroplastics@resources.ca.gov

SUBJECT: Draft Statewide Microplastics Strategy Support

Dear Ms. Kalua,

On behalf of the California Association of Sanitation Agencies (CASA), thank you for the opportunity to provide comments on the OPC's draft Statewide Microplastics Strategy. CASA represents more than 125 public agencies and municipalities that engage in wastewater collection, treatment, recycling, and resource recovery. Our vision is to advance public policy and programs that promote the clean water community's efforts in achieving environmental sustainability and the protection of public health.

CASA, as the organizational-sponsor of Senate Bill 1263 (2018) by Anthony Portantino which required the OPC to develop the statewide microplastics strategy (Strategy), would like to compliment the OPC for its vision and guidance in the Strategy to protect California's coast from microplastics pollution. We are supportive of the Strategy's two-track approach of identifying presently available solutions and detailing the additional scientific inquiries to pursue. Moreover, CASA has appreciated the opportunity to support the OPC and the Southern California Coastal Water Research Project (SCCWRP) on the microplastics study of wastewater treatment removal effectiveness, which is included in the Strategy. CASA's participating members have had a unique vantage point for deploying newly standardized and accredited methods to collect and analyze samples, and these experiences have provided all parties with meaningful information, especially as it pertains to crafting monitoring efforts in the future.

Regarding the Strategy, we respectfully request your consideration of our remarks, which briefly address biosolids (a byproduct of wastewater treatment), and then the Strategy's recommendations for our sector.

The Transfer of Microplastics to Sludge and Biosolids During Treatment Underscores the Importance of Pollution Prevention to Minimize the Initial Entry of Microplastics to Wastewater Treatment Plants

In regard to biosolids, the Strategy observes, "While tertiary and advanced treatment have demonstrated efficacy in preventing microplastic pollution from entering receiving waters, microplastics may be applied to land and impact soils through the biosolid byproduct of wastewater treatment plants."

We first want to recognize the significance of this observation and how it reinforces the imperative of the Strategy's principal solution of pollution prevention. Though secondary and tertiary treatment remove between 92% and 99% of microplastics from wastewater treatment plant discharges, those microplastics are not eliminated nor destroyed by treatment. Some may wind up in biosolids, but the extent is unknown without a robust mass balance, as there are numerous other avenues for the removal of microplastics throughout the treatment process. In this light, the Strategy's second solution of pathway intervention is somewhat hardened at wastewater facilities since nearly all treatment facilities utilize secondary treatment at a minimum. There is potential for innovation and research to identify primary floating scum removal technologies that specifically reduce microplastics, which could significantly reduce loadings before they move any further along the treatment process. Nevertheless, it is critical to reduce the number of microplastics entering wastewater facilities through pollution prevention and source control.

Additionally, while we concur with the fact that biosolids contain microplastics, the impact to soil relative to other sources needs to be examined, as well as the fate and transport of microplastics in land applied biosolids. Several studies have identified other equally important sources of microplastics to soil, including atmospheric deposition and agricultural practices, which led to higher contamination than soils with land-applied biosolids (Vollertsen and Hansen 2017). This points to the research needed in this area, the importance of investigating other pathways (Rolsky et al. 2020), and the need to evaluate the prospective adverse impact of microplastics in soil from biosolids as compared to the benefits of recycling organic matter and nutrients for uses which are well established as effective ways to improve the physical, chemical, and biological properties of soils, re-establish vegetation, and restore degraded ecosystems (Wong et al. 2021).

Requested Additions

(1) Add to the second-track on scientific research the development of microplastics reduction strategies at headworks or via primary scum removal, prioritizing technologies that reduce microplastics at this stage in the treatment process;

(2) Add to the second-track on scientific research an evaluation of the prospective adverse impact of microplastics in soil from biosolids as compared to the overall benefits of recycling organic matter and nutrients.

We Support the Recommendations for Wastewater Pathway Intervention and Suggest Minor Modifications to Ensure the Intent of Those Recommendations is Fully Realized

As an initial matter for pathway interventions, it is important to note that SB 1263 requires the Strategy's "investigation of the sources and relative importance of pathways associated with the environmental impacts of microplastics determined to be significant pursuant to [the characterization of ambient concentrations of microplastics in the marine environment and an assessment of the associated environmental impacts.]"

Accordingly, we suggest Pathway Interventions also include a dimension of prioritization for efficacy. As an example, a seminal 2019 San Francisco Estuary institute (SFEI) study found that loadings to the marine environment from wastewater comprised only 0.03% of the overall contributions of microplastics, observing "*a plastic polymer that is 1% of the stormwater microplastic load would be three to five times greater than the entire wastewater microplastic load*" (p. 72/402). This led the study to conclude that for the wastewater sector, facility upgrades are not the solution, but rather pollution prevention is the key: "*It is likely far more cost-effective to prevent pollution in the first place (e.g., bans on sources of microplastic pollution, such as microbeads) or to control it directly at the point of entry (e.g., providing filters for washing machines)*" (p. 115/402).

CASA's members are taking proactive approaches to reducing microplastics where possible. Our comments below seek to refine and add to your recommendations for our sector, as they otherwise have successfully identified the pathway interventions that are available to us.

Wastewater Strategy Recommendation #1: "Based on the results of previous studies regarding microplastic removal efficacy in wastewater treatment plants, further promote recycling of tertiary-treated wastewater that would otherwise be discharged to the ocean."

CASA members are fully supportive of the recycled water policy of the State Water Resources Control Board (State Water Board) to maximize reuse. In fact, between current and planned water recycling projects, sanitation agencies are supplying approximately 1.6 million acre feet per year (AFY), or 100,000-acre feet per year above the 2020 target of 1.5 million AFY, and with new reuse projects that will be developed based on the forthcoming direct potable reuse regulations from the State Water Board, we expect this number to significantly increase over the next five years.

With regard to the Strategy's first recommendation, it seems to be premised upon the single-digit difference in removal efficiency between secondary and tertiary treated water. As a point of clarification, that additional stage of treatment for the vast majority of tertiary technologies does not actually result in the removal of microplastics from the marine environment. Tertiary treated water still produces a liquid waste stream that's discharged into the aquatic environment, so the additional microplastics "removed" by tertiary treated water are only transferred into a different matrix that will be discharged into the same receiving waters permitted for secondary effluent.

Hence, we suggest this recommendation include the qualification that where feasible and practicable, the form of tertiary treatment being endorsed does not result in transferring microplastics to another liquid stream that will reach the marine environment. Moreover, given the findings of the SFEI study that microplastic loadings attributable to wastewater represent a fraction of 1% of the overall loads, and that moving from secondary to tertiary treatment only increases removal efficiency by less than 10% of that fraction of 1%, promoting an across-the-board increase in tertiary treatment will not be the most efficient utilization of resources to address microplastics pollution, so the benefits and costs must be considered against other alternatives when prioritizing solutions based on the likelihood that they will lead to significant, rapid, sustained reductions to microplastics levels.

Wastewater Strategy Recommendation #2: "Based on the results of previous studies and the following completion of the ongoing SCCWRP study on wastewater treatment plant process removal efficacy, further develop microplastics reduction strategies and monitoring recommendations based on each level of treatment, including primary, secondary, tertiary, and advanced treatment."

We are supportive of this recommendation and encourage linking it to the Strategy's second-track section on monitoring, specifically the identified need to develop standardized methods, which is required for the Strategy under SB 1263 ("development of standardized methods for sampling, detecting, and characterizing microplastics"). Due to how research for measuring microplastics in the environment has far outpaced the development of standardized methods for collection and analysis, we encourage the OPC to prioritize method development before the 2025 update to the Strategy, as well as pace monitoring for microplastics with method development, which would also have the latent scientific benefit of providing uniformity between microplastics studies, such that their comparability will be enhanced. Further, it would provide time for the development, validation, and incentivization of open-source spectral libraries for the spectroscopic identification methods that will be used for microplastic analysis. So far these have not been developed and a laboratory's identification of suspected microplastics and confidence in their results are only as good as the reference libraries they use to base their analyses.

Recommendation #2 also could be linked to the Strategy's second-track section on monitoring about developing a statewide monitoring network, which we support. It seems the monitoring called for is intended to support the development of regulations, not to show compliance with existing regulations. Based on our experience in the OPC's study of wastewater treatment removal efficiency, it is very time consuming and laborious to collect samples and far more so to analyze them using the FTIR or RAMAN methods. As efficiencies are gained on these fronts, wider spread monitoring will be more feasible. Until then however, relying upon a representative sample of POTWs through a statewide monitoring network is the most efficient use of our sanitation agencies' and municipalities' resources. Comprehensively requiring all coastal treatment plants to arduously collect samples which then require extensive periods of time to analyze likely will not yield more meaningful results.

In support of this approach as an example are POTWs in the San Francisco Bay Area. They have recently undertaken a successful representative sampling effort with SFEI and the San Francisco Regional Water Quality Control Board to characterize PFAS at wastewater treatment plants, and those agencies have a long history of supporting monitoring of Constituents of Emerging Concern through the Regional Monitoring Program. A reference to the San Francisco Regional Monitoring Program is already included in the Strategy (page 21), and so we request this recommendation be modified to recognize such an approach to monitoring. Practically speaking, it is fairly straightforward to implement regional monitoring requirements within an NDPES permit, and there are several options for doing so. CASA and our regional association partners are happy to share our experiences, if the OPC is interested.

To be sure, participation in such monitoring programs is designed to be an equitable exchange for agencies, so there are not increased costs, but insofar as the Strategy will introduce new costs and expenses to implement at wastewater treatment plants, we request either state funding be provided or alternatively that an extended producer responsibility (EPR) program be implemented for those who manufacture and distribute plastic products commonly found in the environment as informed by regional trash monitoring data and synthetic textiles. In other words, producers ideally should fund this new program of monitoring and research regarding the impacts of mitigation, cleanup, and secondary microplastics. Otherwise, the Strategy would impose disproportionate financial impacts on local sanitation agencies, given that wastewater is actually the pathway of least contribution, with no burden to the industries that produce the pollution.

Requested Additions

1) In the monitoring recommendation, after "permitees," add the clause "either individually or through regional monitoring studies" to become "based on the results… require microplastic monitoring for California wastewater treatment plant permittees, either individually or through regional monitoring studies, as needed as permits are renewed or revised.";

2) Recommend state funding be directed towards the extra costs otherwise incurred by local agencies to implement the Strategy, or alternatively adopt and implement an EPR model to pass along the costs to the producers of microplastics in the ocean environment.

Wastewater Strategy Recommendation #3: "Develop and implement a program to incentivize, or otherwise require, the purchase and use of washing machine filters through rebates and other mechanisms. (See Pollution Prevention: Financial Incentive solutions above)"

CASA supports this recommendation. We partnered last year with California Coastkeeper Alliance to co-sponsor AB 622 (2021) which would have required new washing machines sold in California to be equipped with a microplastics filter. Unfortunately, the legislation did not advance, but we will be supportive of this concept in future legislative sessions. In a similar vein, this year we are pursuing PFAS-disclosure legislation so we may further identify sources of PFAS entering the state, as the first step to pursue effective source control strategies. In the Strategy's second-track, it may be beneficial to recommend comparable research and investment to perform forensic analysis of environmental plastics to determine their source origin, as well as the development of models that quantify the breakdown of larger macroplastics into microplastics, in order to identify the role of specific types of litter or trash. This is especially important, as the National Academy of Science's 2021 report estimated over 80% of microplastics found in the environment are secondary microplastics, that is, they derive from the breakdown of macroplastics. This finding may also provide further support for utilizing EPR for monitoring in the Strategy's recommendations.

Additionally, the Strategy addresses the use of dryer filters in the atmospheric deposition section, which are critical for reducing microfibers from the air and that eventually lead to loadings in runoff. CASA supports this recommendation and encourage its pursuit in tandem with the washing machine filter requirements. It may be beneficial in the respective Pathways Intervention sections for wastewater and atmospheric deposition to reference both recommendations since washers and dryers are frequently a tandem purchase, so policymakers couple the issues and pursue changes to them concurrently.

Last, we submit for your consideration the concept of creating a separate and unique recommendation related to reducing synthetic textiles via EPR, like CalRecycle did with hospitality textiles last year, or financial incentives for transitioning to natural fiber systems. Due to the prevalence of microfibers from multiple environmental pathways, addressing synthetic textiles beyond laundry filtration will yield greater results in reducing their proliferation.

Requested Additions

1) Include in the second-track research for forensic analysis of microplastics and research to model the process of secondary microplastics generation, as these both pertain to source identification;

2) Explore opportunities to reduce microfibers by implementing EPR strategies to synthetic textile products.

Wastewater Strategy Recommendation #4: "Expand the microbead ban to include microplastics that are intentionally added to consumer products, such as cosmetics, household and industrial detergents, cleaning products, and paints. (See Pollution Prevention: Product and Material Ban solutions above)"

CASA supports this recommendation to expand the microbead ban. In 2015, CASA sponsored AB 888 (Bloom), which banned microbeads in personal care products ultimately leading to the national ban soon after passage here in California.

CASA also sponsored in 2021 AB 818 (Bloom), which requires "do not flush" labeling on non-flushable wet wipes, which are composed of microplastic fibers. We suggest the Strategy add a recommendation encouraging the pursuit of statutes and policies which will ensure flushable wet wipes containing plastic are not disposed of in toilets. Pursuant to AB 818, we are actively participating in multi-year studies of collection systems to measure the type and reduction of wipes in sewer lines as a result of this legislation, but more education will be required. Furthermore, there is no statutory limitation on what can be marketed as "flushable," and as such, wipes and other consumer products containing plastic are promoted for disposal in public wastewater systems. Since many of these products are designed to disintegrate, if they do contain plastic or plastic-like fibers, they would increase loadings entering our facilities. Thus eliminating those or having them re-designated as "non-flushable" would be beneficial. Further research is warranted into the composition of these products and whether the fibers and other materials they are composed of present the same toxicological impacts as traditional microplastics on the marine environment.

Requested Additions

(1) Direct the pursuit of statutes and policies which will ensure wet wipes containing plastic are not disposed of in toilets;

(2) Include in the second-track research into the composition of these products and whether the materials they are composed of have the same toxicological impacts on the marine environment as traditional microplastics.

Conclusion

We appreciate your consideration of these comments on the Strategy. We affirm our support for the OPC's efforts, and commend your team's vision and leadership to protect California's coast from microplastics pollution. Source identification and source control are integral to the Strategy, and we look forward to opportunities to partner on policies and research to achieve the Strategy's recommendations. We also are excited to continue supporting the OPC and SCCWRP on the microplastics study of wastewater treatment removal effectiveness, and we are grateful for the inclusion in that project. If there any questions about these comments, please do not hesitate to reach me directly at (916) 694-9269 or jvoskuhl@casaweb.org.

Thank you,

Jared Voskuhl
CASA Manager of Regulatory Affairs

January 21, 2022

Kaitlyn Kalua
Program Manager
Ocean Protection Council
Water Quality Program
Kaitlyn.Kalua@resources.ca.gov

Submitted via email: OPCmicroplastics@resources.ca.gov

Re: Comments – OPC Draft Statewide Microplastics Strategy

Dear Ms. Kalua:

On behalf of the undersigned organizations, thank you for the opportunity to provide comments on the Ocean Protection Council's (OPC) Draft Statewide Microplastics Strategy released December 21, 2021 (hereinafter, Draft Strategy). We understand this Draft Strategy represents the OPC's response to the requirements of Senate Bill 1263 (Chapter 609, Stats 2018). This law specifically calls for a Draft Strategy that develops a comprehensive research plan for microplastics, development of a risk assessment framework, and application of that risk assessment framework to evaluate options. Several required components and sequencing include:

(1) The development of a comprehensive prioritized plan that includes research that will support the development of risk assessments for microplastics in the marine environment habitat types of California.
(2) The development of standardized methods for sampling, detecting, and characterizing microplastics.
(3) The characterization of ambient concentrations of microplastics in the marine environment and an assessment of the associated environmental impacts, by microplastic particle age, size, shape, type, and location.
(4) An investigation of the sources and relative importance of pathways associated with the environmental impacts of microplastics determined to be significant.
(5) The development of a risk assessment framework for microplastics, based on the best available information on exposure of microplastics to organisms, including humans, through pathways that impact the marine environment.
(6) Research on approaches for reducing the introduction of microplastics into the marine environment from significant pathways of exposure, with an emphasis on the sizes, shapes, and types of microplastics that are associated with significant environmental impacts.
(7) Use of the risk assessment framework developed pursuant to paragraph (5) to evaluate options, including source reduction and product stewardship techniques, barriers, costs, and benefits.
(8) Recommendations for policy changes, including statutory changes, or additional research that may be needed.

The statute anticipates that the risk assessment framework will be used to assess options, including

source reduction and stewardship options, and specifically requires consideration of "barriers, costs, and benefits" of options. While recommendations for policy changes, which specifically include additional research or changes to the statute, are noted, this recommendation anticipates that the risk assessment and evaluation of options, including cost-benefit review, will occur as a pre-step.

The Draft Strategy sets out a two-track approach. Track 1 are near term, precautionary actions the state can take "now" to address sources of microplastics while the scientific knowledge of microplastics develops further. Track 2 are research priorities "to advance scientific knowledge of microplastics to develop and refine future solutions." As we note above, while there is a clear statutory mandate for the OPC to develop a research strategy (Track 2), we are concerned that the legislature did not intend policy recommendations directed at actual or potential sources of microplastics to be imposed or justified before the development of a risk assessment framework and its application, including the cost-benefit review, with respect to policy changes and specific actions.

We further recommend that the agency quantify potential risks and document the potential benefits and cost effectiveness of each proposed action, in a manner that also takes into consideration the potential for creating regrettable substitutions. Such prior scientific analysis takes the guesswork out of policymaking. While absolute scientific certainty should not be a precondition for controlling substances or operations that could be harmful to health or the environment, there should be a sufficient body of evidence that establishes that serious or irreversible damage is likely to be caused by a product or activity before a decision is made to ban or limit its uses. Where scientific evidence establishes a likelihood of unacceptable harm, risk management measures should be selected which are cost-effective and consider economic and social as well as environmental consequences considering existing scientific knowledge. In that vein, while we appreciate that the working group of the California Ocean Science Trust has recommended a precautionary approach to assessing the risk of, and to managing microplastic pollution risk, a precautionary approach is not warranted here as the basis for recommended product bans and restrictions, and this fails to take product uses and benefits into account.

Each specific solution offered should be supported by an adequate review, as noted above, and specifically connected with and analyzed in accordance with the relevant source of plastic into the environment. In particular cases this review may indicate that sourcing of microplastics from a particular use of plastics in commerce may be so small, and so low risk based on a scientific review, and lacking a cost-benefit rationale, that restrictions are not warranted. Intentionally added microbeads in product categories other than cosmetics, for example, may fit into such a category and be an inappropriate target for regulation.

We begin with a general comment about the use of the term microplastics in the Draft Report. We then offer comments on the draft research strategy, followed by comments on the proposed "early" actions that are characterized "immediately implementable" and "no regrets" options in the document.

1.0 <u>Working Definition of "Microplastics" in the Research Context - and Outside that Context</u>

In previous comments provided to the State Water Resources Control Board (SWRCB) by ACC, it was recommended that the working definition of microplastics be specific to microplastics as used in research programs. Beyond that, however, with respect to the definition of microplastics, we also note that the definition developed by SWRCB currently in use for research purposes should not be used out of this context to apply to options and actions. The SWRCB definition is simply too broad to be used

effectively to support well-tailored policy options. Regulatory options to address entry of plastics into the environment must be specifically tailored to the sources of the breakdown plastic particles associated with them, and vice versa. Without this connection, the nexus and basis for a rational policy solution is missing. The environmental breakdown particles from fishing nets, for example, are specific to that source, a recommended action targeted to the much broader universe of "microplastics" will not be sufficiently tailored and connected to support rational regulatory action or impactful results. As another example, page 5 of the Draft Report, notes that "microplastics" have been observed in a variety of waterways including preproduction plastic pellets or "nurdles." While we appreciate that a pre-production pellet that enters the environment may meet the definition of "microplastic" for research purposes (e.g., to research the environmental fate of different kinds of pellets entering the environment), it should not be conflated with other primary and secondary microplastics for regulatory purposes. Stewardship measures to control product loss (pellet loss) needs to be well targeted, starting with fit-for-purpose definitions.

2.0 Draft Research Strategy - "Science to Inform Future Action" (Track 2)"

The OPC Science Advisory Team (OPC SAT) has done important work to date, including identification of microfibers and road wear particles as dominant sources of microplastics and work on stormwater runoff, aerial deposition, and wastewater. We are supportive of the SWRCB's focus on the development of a risk quantification framework, and in particular, on standardization of microplastics measurement, characterization, and quantitation. We propose further fast-tracking the development of validated test methods for microplastics with additional stakeholder participation, taking into account work done at ISO, ASTM, EPA and elsewhere. We note the San Francisco Estuary Institute's recommendations to develop standardized methods for microplastics in various media, and industry can be a constructive partner in advancing standard development.

That said, several critical details have not been included in the Research Priorities and we recommend their inclusion. While it is recognized that implementation is contingent upon the availability of funding and personnel resources, it is unclear what the dates listed on page 25 for each priority signify. (I.e., are these the dates the activities will be initiated, or completed?) In terms of planning, it is important to include stakeholder engagement and public outreach, in addition to the required notice and comment procedures.

2.1 Monitoring

To obtain reliable scientific data, the Research Strategy plan to establish standardized microplastic monitoring methods, to develop lab accreditation procedures, and to develop model microplastics monitoring programs with an eye towards perhaps eventually establishing a broader statewide monitoring network is on target. ACC recently submitted comments (Attachment A) to the SWRCB on the Draft Microplastics in Drinking Water Policy Handbook (Handbook; released in November 2021). Rather than repeat these detailed comments herein, we request that the OPC review and take into consideration the ACC comments on the SWRCB Handbook, in particular, the sections on Quality Control / Quality Assurance and Methods for Identifying Microplastics, The Working "Microplastics" definition continues to be problematic and should be updated, and the "Health Effects" section in the handbook should be revised for accuracy

However, some of the Research Priorities include potential risk management actions. Such risk management actions should not be grouped within the Research Strategy Track. For example, it would

seem appropriate for the Research Strategy Track to initiate pilot monitoring studies (e.g., "implement a pilot monitoring program to evaluate microplastics in agricultural runoff (2024)"), since pilot studies of this type help to verify sampling, analysis and quantitation protocols. However, including risk management actions such as requiring microplastic monitoring for wastewater treatment plant permittees, and requiring microplastic monitoring for municipal stormwater permittees, as permits are renewed or revised, is inappropriate. Risk management actions should not be prejudged in advance of development of a sufficient understanding of the nature and magnitude of potential risks. Risk management should follow, not precede risk assessment. If the risks are determined to be of sufficient concern as to warrant risk management considerations, then policy alternatives can be developed, taking into consideration such matters as risk reduction, cost and benefits, and broader societal, economic, legal, and political concerns.

Furthermore, as noted in ACC's comments on the SWRCB Handbook, if the SWRCB or other Cal-EPA boards or departments put forward a proposed rule, the scientific portions of such a rule must comply with the requirements of HSC § 57004; specifically, the scientific portions of a proposed rule must be subjected to independent external scientific peer review before the rule can be enacted. In other words, the scientific risk evaluation must be developed and peer reviewed prior to enactment of risk management rules, and the OPC Draft Strategy should include these activities, where warranted.

2.2 Risk Thresholds & Assessment

The statement "Develop toxicological studies that provide greater certainty of microplastics risk thresholds for marine life and human health, and determine recommended actions when thresholds are exceeded," implies the OPC is proposing to design and conduct on its own, or provide funding to design and conduct, toxicological studies. This should be clarified. If the OPC is not going to proceed in such a manner, then the description of this activity should be revised, perhaps along the lines of "Evaluate toxicological studies in the scientific literature that…"

As noted in the ACC comments on the SWRCB Handbook, the scientific certainty of purported microplastics-induced adverse health effects is often vastly overstated. Most of the laboratory studies published to date contain significant scientific flaws, such as failure to use sufficient number of exposure groups, failure to use sufficient number of animals in each exposure group, failure to characterize the dose solutions (for uniform concentration, stability and actual amounts administered (not just nominal concentrations)), failure to use EPA or OECD standardized and validated toxicity testing study designs, failure to use validated methodologies for determining adverse effects, insufficient or inappropriate use of statistical analyses, failure to follow Good Laboratory Practice guidelines, etc. For these reasons, the Draft Strategy should include text along the lines of "more research is needed to understand potential human health implications, if any, and to determine if there are environmentally relevant concentrations, frequencies and durations of exposures that could potentially lead to adverse environmental or health effects."

2.3 Sources & Pathways Prioritization

Understanding releases, sources, transport pathways and exposures are key to quantify potential risks. Inputs and emissions are only a part of the exposure equation. Therefore, although not specified in the actions described, the section should consider including actions to evaluate / model transport and fate in the environment. Risk is a function of exposure, so knowledge of the concentration at the point of contact with a receptor is key, and this knowledge can only be obtained by empirical means, or modeling transport and fate based on emission and inputs.

2.4 Evaluating New Solutions

As noted above, risk evaluation must precede risk management. Risk evaluation should address both the probability of exposure, the magnitude, duration and frequency of exposure, and the magnitude of adverse impacts or consequences that could result. Risk management options should include a no action alternative, along with other options where scientific evidence establishes a likelihood of unacceptable harm, alternative potential risk management measures should be proposed and evaluated taking into account feasibility, cost-effectiveness, economic, social, and environmental consequences, including potential for regrettable substitution, in light of existing scientific knowledge.

3.0 Comments on "Solutions" (Track 1)

3.1 Alternatives to Single Use Plastic Bans Unlikely to Lead to Litter Reduction

A state purchasing ban on single use plastics is unlikely to reduce the amount of litter. In fact, two studies following a similar ban reported an increase in the littering of alternative materials that was greater than the decline in the banned material[1]. **This was a primary reason why the California Water Board rejected the use of plastic bans as a compliance mechanism for waterborne trash reduction.**[2]

3.2 Procurement and Recycling

An area where we agree with a proposed solution is in preferential procurement policy by the state. In addition to exploring reusable food ware options, we also suggest California take a holistic approach and investigate increasing demand for post-consumer recycled content. State procurement policy can help increase domestic demand for post-consumer recycled (PCR) content. Increasing purchasing of plastics with recycled content promotes the use of PCR in manufacturing new products, beyond food ware. This more sustainable development will support increased economic development promoting a more circular economy.

While California does encourage procurement of goods and products with recycled content and recycling, more should be done to incent recycled content use. For example:

- Create policies that give PCR containing products purchasing preference
- Create resources that educate and equip employees to increase PCR procurement and recycling
- Give greater employee recognition for increasing agency procurement of PCR and recycling, for example by expanding the Governor's Environmental Economic Leadership Award.
- Make procurement guides and programs available to local governments

3.3 Industry Engagement

Continue engagement with industry and other parts of the value chain to increase awareness of critical issues, alignment on new developments, and foster an informed and productive path forward. Consider hosting regular meetings and publishing discussion drafts for public comments. Robust discussion should occur to properly develop recycled plastic content incentives, evaluate the health, safety, and performance benefits of plastics, consider the market opportunities for recycled content, and fully align with national

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[1] Single-Use Polystyrene Food Containers and Plastic Bag Study, Report No. 18-04, Council Com. 347 (Honolulu, HI: City and County of Hawaii, 2018).

[2] Amendment to the Water Quality Control Plan for the Ocean Waters of California to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, (Sacremento, CA: State of California, 2015).

waste management hierarchy.

These discussions can lead to real world collaborations. For example, UBQ Materials, an Israeli-based company, created 2,000 recycling bins from MSW as a part of a pilot project with the Central Virginia Waste Management Authority.[3] Under UBQ's process, unsorted MSW is broken down into more basic components and reconstituted into a new composite material.

California should engage its economic development organizations to produce opportunities like these.

3.4 Modernize the State's Recycling Policy

Opportunities exist to work with industry, local governments, waste/recyclers, environmental organizations and others to develop a more circular economy in California and across the country for all materials, including plastic.

A well-designed policy should:

- Increase access and the collection and sortation of recyclable materials, including metals, paper, glass and plastic;
- Invest in the appropriate infrastructure to increase the types of materials that are currently recycled;
- Incentivize stakeholder decisions that lead to lower environmental impacts;
- Support the existing roles of local government and waste management and recycling companies, and include the voices of key stakeholders including government, waste management and recycling companies, brands, and material suppliers;
- Recognize the critical role of mechanical and advanced recycling technologies in recovering more plastic;
- Encourage end-market development for recycled content; and
- Improve outreach and education to consumers to help them recycle more material.

Additional examples of policies that could be considered include:

A. Product Stewardship Example. The Maine Environment and Natural Resources Legislative Committee held a hearing on LD 1471[4] that would establish a *packaging product stewardship program*. A balanced proposal like this could help increase collection and sortation of all recyclable materials. This proposal has critical stakeholder support, including AMERIPEN[5], which represents all parts of the value chains including brand companies.

B. The 2020 *Circular Economy Accelerator* Report. This report calls for public policy that: invests in infrastructure that expands and improves residential recycling, develop comprehensive public education, and supports community recycling operations by addressing the imbalance between

[3] Cottom, "Virginia debuts partnership to turn MSW into plastic substitute."
[4] *An Act To Establish a Stewardship Program for Packaging*, First Regular Session, LD 1471.
[5] Andrew Hackman, "In Support of LD 1471 and Opposed to LD 1541," (AMERIPEN, May 10 2020), Public Testimony. https://legislature.maine.gov/testimony/resources/ENR20210510Hackman132650842244112015.pdf.

recycling and disposal costs[6]. This proposal has also critical value chain support[7].

- **30 by 30.** Require all plastic packaging to include at least 30 percent recycled plastic by 2030 through a national recycled plastics standard.

- **Modernization.** State laws that recognize advanced recycling, mass balance, attribution, and conform to EPA's recycling guidelines.

- **Recycling framework.** Establish a recycling framework for plastics by requiring the appropriate state agency to engage state agencies, local government, and industry in a collaborative stakeholder process.

- **Environmental impact.** An environmental impact assessment must be completed by the state before considering proposals affecting plastics recycling. This assessment must consider any net change in emission rates of greenhouse gases (GHGs).

To this end, many of us are working constructively in the state Legislature on a comprehensive policy that sets new recycling standards, modernizes the state's recycling infrastructure, and improves markets for recovered materials. SB 54 by Senator Ben Allen is currently moving through the Legislature and is intended to be the vehicle to enact these sweeping policies. It is anticipated that SB 54 will also include new requirements for producers to help finance improvements to the state's recycling and composting infrastructure so that more material can be recycled and help reduce the cost burden to local governments, waste haulers/recyclers and the public. We believe a comprehensive policy as envisioned in SB 54 is a more appropriate policy in lieu of one-off packaging bans.

Thank you for your consideration of these comments. If you have any questions, please feel free to contact me at 916-448-2581 or tim_shestek@americanchemistry.com

Sincerely,

Tim Shestek

On behalf of the following organizations:

American Chemistry Council
California Manufacturers & Technology Association
Fragrance Creators Association

Attachment A: Comments of the American Chemistry Council re: Microplastics in Drinking Water Methods and Plan

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[6] *Accelerating Recycling: Policy to Unlock Supply for the Circular Economy*, Circular Economy Accelerator (Falls Church, VA: The Recycling Partnership, September 2020), 6, https://recyclingpartnership.org/wp-content/uploads/dlm_uploads/2020/09/Policy-Whitepaper-9.30.2020.pdf.
[7] *Accelerating Recycling: Policy to Unlock Supply for the Circular Economy*, 29.

December 22, 2021

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor,
Sacramento, CA 95814

Subject: Comments of the American Chemistry Council re: Microplastics in Drinking Water Methods and Plan

Dear Ms. Townsend:

The American Chemistry Council (ACC)[1] appreciates the opportunity to provide comments on the Draft Microplastics in Drinking Water Policy Handbook released in November 2021 (hereinafter, Handbook). We offer these comments to highlight how the State Water Resources Control Board (SWRCB or Board) may meet its regulatory obligations, meet the required scientific standards for promulgating the policy, and to ensure meaningful protections to Californians and the California environment that are based on the best available science and the overall weight of the scientific evidence.

Since the passage of SB1422, the Board has made significant efforts to develop methods for microplastics identification with industry and academic partnerships, most notably through the set of workshops organized by the Southern California Coastal Water Research Project (SCCWRP). These workshops have served the crucial purpose of identifying potential methods that may satisfy the requirements under SB1422 and refining them to ensure scientific veracity. The Handbook represents a culmination of these efforts and includes robust quality control / quality assurance (QA/QC) guidance – important considerations given the nascent stage of microplastics science. Further refinement to the Handbook, in accordance with the comments we provide below, will help focus the Board's efforts on advancing microplastics detection and identification.

[1] The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer.

I. ACC Supports the Handbook's Focus on Quality Control / Quality Assurance and Methods for Identifying Microplastics.

As a general matter, ACC supports the Board's extensive focus on QA/QC for microplastics sample collection, preparation, and identification. Many have noted the exponential increase in microplastics publications recently, although the ability to compare and aggregate data within the various studies remains challenging due to incompatible sampling and reporting methods.[2] Further, overall data quality from these publications leaves much to be desired, with recent publications scoring an average of 45% on quality criteria concerning particle characterization, experimental design, applicability in risk assessment, and ecological relevance.[3] Based in part on these challenges, we agree with the Board's finding that it is inappropriate at this time to provide numerical exposure guidance, while providing detailed steps to ensure that sampling and analysis of microplastics in drinking water are as accurate as possible (i.e. by using positive and negative controls, fortified blanks, etc.). Moreover, the contamination and quality control sections within the Handbook represent a comprehensive approach to minimizing ambient microplastics contamination during sample handling and analysis, thus reducing the chance of reporting inaccurate microplastic levels. While the microplastics research field has ample room for improvement, the Handbook's standard operating procedures move the science in the proper direction.[4]

ACC was also pleased to see that the Handbook identifies Raman and infrared spectroscopy as the preferred methods for microplastic identification. These instruments represent tried-and-true analytical techniques to discern synthetic particles from natural materials and are uniquely suited to the regulatory requirements in SB1422. The draft protocols within the Handbook have appropriate minimum cutoff sizes for microplastic particles that best represent the capabilities of the instruments and laboratory personnel (20 and 50 µm, respectively). And while other technologies will likely be available in the future for microplastics identification—namely pyrolysis / gas chromatography and laser direct infrared analysis—the current limited quantity of these instruments in laboratories and incipient analysis protocols prevent them from use within a regulatory setting at this time. We encourage the Board to continue to work with voluntary consensus organizations, such as ASTM and ISO, to develop these technologies. Relatedly, ACC acknowledges the importance of the Board's work within ASTM to date that has resulted in

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[2] Cunningham, E.M.; Sigwart, J.D. Environmentally Accurate Microplastic Levels and Their Absence from Exposure Studies *Integrative and Comparative Biology*, **2019**, *59*(6), 1485–1496. https://doi.org/10.1093/icb/icz068.
[3] de Ruijter VN, Redondo-Hasselerharm PE, Gouin T, Koelmans AA. Quality Criteria for Microplastic Effect Studies in the Context of Risk Assessment: A Critical Review. *Environ Sci Technol*. **2020** Oct 6;*54*(19):11692-11705. doi: 10.1021/acs.est.0c03057.
[4] The demonstrations of accuracy and precision, for example, we expect to improve over time.

D8332-20 and its inclusion in the Handbook.[5] We hope that this effort will continue to yield new methods applicable to microplastics in the future.

II. The Working "Microplastics" Definition Continues to be Problematic and Should be Updated.

1. "Microplastics" as defined is overbroad and unworkable.

ACC previously commented on the proposed "microplastics in drinking water" definition. SWRCB staff have indicated an openness to revisiting the definition as the program matures. We recommend that California update and refine the definition now.[6] The definition as is remains too broad because it encompasses not only traditional microplastics from major resins in consumer products—polyethylene (PE), polypropylene (PP), styrene-butadiene rubber (SBR), and polyester, for example—but also particles not associated with plastic, such as dyed wool and polyethylene glycol.

SWRCB can solve this issue by adopting the plastic definitions put forth by ASTM or ISO. Both are similar in that they define plastic as being shaped by flow, a traditional method for manipulating heated polymers into end products during manufacturing. ASTM defines plastic as:

> "a material which contains as an essential ingredient one or more organic polymeric substances of large molecular weight, is solid in its finished state, and at some stage in its manufacture or processing into finished articles can be shaped by flow."[7]

Including "plastic" in the definition rather than "polymer" is more appropriate because plastic MPs can be properly detected and quantified. Non-plastic polymer particles often have complex dissolution behaviors in water and are very difficult to detect in drinking water matrices. Developing adequate methods to detect non-plastic polymers would take concerted effort and time, while adding unneeded complexity to analytical methods.

Thus, traditional plastic particles that are solid and insoluble in drinking water should be the focus. Referencing the ASTM and ISO definitions for plastics would help ensure this. OMB Circular A-119 encourages adoption by reference of voluntary consensus standards such as those developed

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[5] The Division of Drinking Water, State Water Resources Control Board State of California "Draft Microplastics in Drinking Water Policy Handbook", November 10,2021, p. 10; ASTM D8332-20 Standard Practice for Collection of Water Samples with High, Medium, or Low Suspended Solids for Identification and Quantification of Microplastic Particles and Fibers.

[6] ACC. "Comments on the proposed definition for "microplastics in drinking water" under California Health and Safety Code § 116376". April 2020.

[7] ASTM D883-19b Standard Terminology Relating to Plastics.

by ASTM, so this ASTM definition is likely to be influential and likely to be the leading definition used by federal agencies such as EPA, NOAA and others, as well as researchers across the US.

2. The minimum size threshold does not comport with polymer science principles.

Turning to the size requirements within the "microplastics" definition, draft ASTM standards use the traditionally accepted maximum microplastics size of 5 mm, which comports with the SWRCB's Proposed Definition. Aligning the Board's definition with this generally recognized upper limit will substantiate boundaries for microplastics research and regulatory efforts. The Board's defined lower limit of 1 nm, however, is not grounded in any scientific principle and demonstrates a fundamental misunderstanding of polymer science. Paraffin wax, for example, is a polymer that comprises a fully saturated alkyl carbon chain commonly 31-33 carbon atoms in length – roughly 40 nm.[8] This structure is identical to polyethylene, and thus synthetic polyethylene with a length of 40 nm would be chemically indistinguishable from paraffin wax. The structural similarities at this size are important because waxes are distinct from plastics due to their inherent characteristics – and more importantly waxes readily biodegrade.[9] Consequently, the present "microplastics" definition is problematic because it fails to include a lower size threshold that excludes waxes. It is also conceivable that additional, biologically-derived molecules could be swept up in definition as well – *n*-octanol, for instance, has a length of 1 nm. Further complicating the matter is that the detection and analysis of particles within this size range is extremely difficult. Therefore, we recommend that the Board increase the minimum size requirement for microplastics to 100 nm to avoid these complications. It is worth noting that the 100 nm minimum size limit is in line with recommendations from the Committee on Risk Assessment for intentionally added microplastics under REACH.[10]

3. Soluble polymers should be excluded.

Reframing the microplastic definition on plastics rather than polymers will focus SWRCB efforts on creating analytical methods for traditional plastic particles that are solid and completely insoluble in water. The current definition will likely implicate many materials that should not be viewed as associated with the presence of trace amounts of microplastics in the environment, such as polyethylene glycol and polyvinyl alcohol. That is not to say these polymers might not be without risk in unusual situations where very high exposures could theoretically occur, since risk

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[8] Fathi Samir Soliman (September 9th 2020). Introductory Chapter: Petroleum Paraffins, Paraffin - an Overview, Fathi Samir Soliman, IntechOpen, DOI: 10.5772/intechopen.87090. Available from: https://www.intechopen.com/chapters/67759

[9] Arnbjörn O. Hanstveit, Biodegradability of petroleum waxes and beeswax in an adapted CO_2 evolution test, *Chemosphere*, 1992, *25*(4), 605-620. https://doi.org/10.1016/0045-6535(92)90291-X.

[10] Committee for Risk Assessment, Opinion on an Annex XV dossier proposing restrictions on intentionally-added microplastics ECHA/RAC/RES-O-0000006790-71-01/F, June 2020. https://echa.europa.eu/documents/10162/b4d383cd-24fc-82e9-cccf-6d9f66ee9089

is a function of hazard and exposure. But as used in commerce at present, these polymers are not widely detected in environmental or biotic screening studies looking for trace concentrations of microplastics. More commonly, these chemicals dissolve when formulated into consumer products. For instance, functional polymers used in cosmetic and other products may be manufactured as solid particulate materials but dissolve when used in aqueous formulations and remain dissolved after use and disposal. While these functional polymers share the same backbone with their larger structural polymeric relatives, it is the unique and subtle co-monomer profile that effectively differentiates a functional and a structural polymer. These small and often proprietary differences in the co-monomer content may lead to significantly altered polymeric properties that allow, among others, for an enhanced solubility but also may considerably change the applicability of analytical test methods.

Including these functional polymers within "microplastics" unnecessarily broadens the definition scope beyond plastics one would expect to find. We propose a 100 mg/L solubility threshold to ensure the definition for "microplastic" can facilitate proper analytical method development for polymers relevant to human ingestion.

III. Including "Surface Waters" Within the Phased Approach Is Overly Broad and Unworkable.

While ACC supports a phased system for microplastics method development and monitoring, the Board's expansion of monitoring activities to include "source waters" will dramatically increase the scope of this program, which will impose unnecessary costs and complexities. We also believe this was not intended by the legislature when the program was authorized under SB1422, is not supported by the plain language of the authorizing statute, and is inconsistent with accepted differentiation – and regulation – of "source waters" and drinking water.

The State should focus on "drinking water" as that term is generally understood by the general public, by the legislature, and by the drinking water regulated community. At the federal level, it is well understood that drinking water does not include "source waters" and there is a well-established distinction between drinking water that has been treated and is safe, or ready, to drink or cook, versus untreated "source water," which is "water in its natural state, prior to any treatment for drinking."[11] California also recognizes this distinction: the California Water Board's website on safe drinking water simply says "[d]rinking water, which is also known as potable water, is the water used for drinking, bathing and making food."[12] Employing the proposed two-phase iterative approach described in Section 4.3 is an appropriate way to address the statutory requirements while continuing to develop scientific capabilities that will enable detection at lower concentrations and

[11] EPA, Office of Water, National Service Center for Environmental Publications (NSCEP), Drinking Water Glossary,
[12] https://mywaterquality.ca.gov/safe_to_drink/

microplastic sizes. That said, the Handbook indicates phase 1 will comprise characterizing microplastics greater than 20 µm in size "in source waters used for drinking [water]". This interpretation of the statute expands the Board's activities beyond those delineated within the enabling statute. SB1422 requires development and testing of "drinking water" for microplastics. "Source water" is inherently separate from "drinking water" – numerous processes are involved to filter, sanitize, and deliver drinking water from its original source. Many Federal and State requirements apply to drinking water that are not applicable to surface waters. As such, reading "drinking water" to include "source water" is incompatible with the plain language of SB1422 – they are fundamentally two different things. Furthermore, the California legislature was aware of the SWRCB Resolution No. 88-63 dealing with "source waters" when enacting SB1422. SB1422 could have directed that the SWRCB actions be applied to "sources of drinking water" – instead the legislature used the term "drinking water." Based on the statutory language, it is imperative that the Board revamp the Handbook to focus on drinking water.

IV. The "Health Effects" Section in the Handbook Should be Revised for Accuracy.

The proposed recommended health-based guidance language in Section 4.1.1 of the Handbook vastly overstates the scientific certainty of purported MP-induced adverse health effects in laboratory rodent studies. All of these studies contain significant scientific flaws, such as failure to use sufficient number of exposure groups, failure to use sufficient number of animals in each exposure group, failure to characterize the dose solutions (for uniform concentration, stability and actual amounts administered (not just nominal concentrations)), failure to use EPA or OECD standardized and validated toxicity testing study designs, failure to use validated methodologies for determining adverse effects, insufficient or inappropriate use of statistical analyses, failure to follow Good Laboratory Practice guidelines, etc. For these reasons, the scientific basis for the first sentence in the recommended guidance language should be deleted in its entirety, and the recommended language should be modified, along the lines of:

> "Finding a measurable amount of microplastics in drinking water is only an indicator of possible exposure and does not mean that any adverse health effect will occur. More research is needed to understand potential human health implications, if any, and to determine if there are environmentally relevant concentrations, frequencies and durations of exposures that could potentially lead to adverse health effects. Therefore, California is monitoring microplastics in drinking water to understand its occurrence and is supporting ongoing research."

V. California Health and Safety Code Requirements.

In promulgating the Handbook, the SWRCB needs to comply with the requirements of California Health and Safety Code § 57004.[13] Accordingly, the SWRCB must submit "…the scientific portions of the proposed rule [The Handbook], along with a statement of the scientific findings, conclusions, and assumptions on which the scientific portions of the proposed rule [The Handbook] are based and the supporting scientific data, studies, and other appropriate materials, to the external scientific peer review entity for its evaluation."

- The Handbook falls within the definition of HSC § 57004 since it is a "policy that is adopted by the State Water Resources Control Board pursuant to the Porter-Cologne Water Quality Control Act (Division 7 (commencing with Section 13000) of the Water Code) that has the effect of a regulation and that is adopted in order to implement or make effective a statute."
- As stated in the Introduction section of the Handbook, "This Microplastics in Drinking Water Policy Handbook's (Policy) purpose is to implement Health and Safety Code section 116376 by setting forth the requirements for conducting monitoring and reporting of microplastics in drinking water."
- The scientific portions of the Handbook subject to the requirements of HSC § 57004 include, but are not limited to: Section 3, Definitions; Section 4, Background; Section 5, Monitoring and Reporting Requirements; Attachment A; Standard Operating Procedures for Extraction and Measurement by Infrared Spectroscopy of Microplastic Particles in Drinking Water; and Standard Operating Procedures for Extraction and Measurement by Raman Spectroscopy of Microplastic Particles in Drinking Water.

VI. Miscellaneous Comments

- Phase 2 of the proposed implementation plan notes that the focus will shift to smaller particles (sizes greater than 5 µm) rather than the 20 µm particles in Phase 1. Challenges exist when attempting to sample and analyze particles of this size. While the technology may advance to that point in 2-years' time, 5 µm may be overly ambitious.
- The Handbook mentions Nile Red as a potential surrogate method for resin identification. Recent studies have shown that Nile red adsorbs onto plastic surfaces and fluoresces. Successfully analyzed microplastic particles include PE, PP, PS, nylon-6, PC, PET, PVC and PUR – tire rubber does not cause Nile red to fluoresce.[14] That notwithstanding,

[13] California Code, Health and Safety Code § 57004. https://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-57004.html.

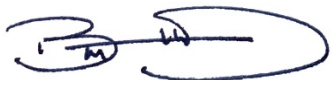
[14] Lost, but Found with Nile Red: A Novel Method for Detecting and Quantifying Small Microplastics (1 mm to 20 µm) in Environmental Samples, Gabriel Erni-Cassola, Matthew I. Gibson, Richard C. Thompson, and Joseph A. Christie-Oleza, Environmental Science & Technology 2017 51 (23), 13641-13648. DOI: 10.1021/acs.est.7b04512.

natural contaminants such as chitin and wood can give false positive results, particularly in the case of less hydrophobic plastics (e.g. PC, PVC, PUR, and PET).[15]

- Section 6.3 recommends vacuum filtration with 20 µm pore size filters of polycarbonate. It is important to note that polycarbonate should not be used if a lab is running pyrolysis GC/MS on this sample later.
- Section 6.6 quality control materials only focus on spherical shapes of microplastics. Fibers and fragments should be included, especially since fibers are likely the most abundant physical form that will escape 10 – 20 µm filtration.
- The Handbook does not identify laboratory accreditation targets.

Thank you for your consideration of these comments. If you have any questions on ACC's comments, please feel free to contact me by email at brett_howard@americanchemistry.com.

Sincerely,



Brett Howard, J.D., Ph.D.
Director
Regulatory & Scientific Affairs

cc: Melissa Hall, P.E. , Senior Water Resource Control Engineer
Scott Coffin, Ph.D., Research Scientist III

[15] A rapid-screening approach to detect and quantify microplastics based on fluorescent tagging with Nile Red, Thomas Maes, Rebecca Jessop, Nikolaus Wellner, Karsten Haupt & Andrew G. Mayes, Scientific Reports volume 7, Article number: 44501 (2017).

ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

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January 19, 2022

Submitted via e-mail

Mr. Wade Crowfoot
Secretary for Natural Resources
Council Chair
California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

RE: Draft Statewide Microplastics Strategy

Dear Secretary Crowfoot:

The Association of Home Appliance Manufacturers (AHAM) respectfully submits the following comments to the California Ocean Protection Council (OPC) regarding the Statewide Microplastic Strategy to provide a multi-year roadmap for California in managing microplastics pollution.

AHAM represents more than 150 member companies that manufacture 90% of the major, portable and floor care appliances shipped for sale in the U.S. Home appliances are the heart of the home, and AHAM members provide safe, innovative, sustainable and efficient products that enhance consumers' lives. The home appliance industry is a significant segment of the economy, measured by the contributions of home appliance manufacturers, wholesalers, and retailers to the U.S. economy. In all, the industry drives nearly $200 billion in economic output throughout the U.S. and manufactures products with a factory shipment value of more than $50 billion.

AHAM supports OPC in its efforts to reduce microplastic pollution in California's marine environment. Our interest and expertise is related to the concept of filters in clothes washing machines. Although the focus of the draft strategy is developing and implementing a program of incentives for the "sale and use of washing machine filters with a screen size of 100 microns or smaller through rebates and other mechanisms," the draft strategy also recommends regulators to "otherwise require" the use of filters with a screen size of 100 microns or smaller. It is unclear if this recommendation is meant to suggest requiring filters on clothes washers or requiring incentives. Our comments are focused on the very significant problems that a requirement for filters on clothes washers will raise.

In short, other jurisdictions, specifically France, are attempting to require filters on clothes washers and are running into significant technical and administrative challenges. NSF International also conducted testing whose results demonstrate the engineering challenges of a filter requirement. California should also note that other government agencies in the European

Union and at the federal level in the United States are conducting studies on microfibers, the results of which may impact California's efforts.

I. France Is Struggling To Implement Its Microfiber Filter Requirement For Clothes Washers.

In 2020, as part of a large circular economy bill, the French parliament approved a one sentence amendment in the final days of the legislative process requiring a "plastic microfiber filter" for clothes washers by January 2025. The law also stated that a subsequent Decree would specify the terms and conditions of application of this law. The French government held a number of stakeholder meetings to draft the Decree. The stakeholder group included manufacturers of washing machines, textile and filters manufacturers, consumer associations, academics, and other non-governmental organizations. As a result of these stakeholder meetings, the impracticality of a filter requirement for clothes washers became apparent. The French Parliament did not repeal the requirement, but the following year it amended the requirement, calling for a filter "or any other internal solution." The French Ministry is still not able to implement the requirement even after it was expanded to allow for any solution because there is no widely available viable solution to address the technical barriers to microfiber filters in clothes washers.

The French Ministry has been unable to create even a first preliminary draft of the Decree. Any regulation, in addition to being verifiable and enforceable, must set clear specifications for filters or any other filtration solution. These specifications include performance in consumer environments, and ensuring that any solutions meet the stated goals of reducing microfiber pollution in the environment. The Ministry is also trying to grapple with how its law will exist in the European Union's common market and the impacts that any filtration system may have on a clothes washer's energy use, which the E.U. regulates. Although more devices aimed at addressing the release of microfibers during the clothes washing have been developed in recent years, filters cannot be considered as a solution to be implemented at large scale.. APPLiA, the European counter part of AHAM, continues to work with the French Ministry on this matter.

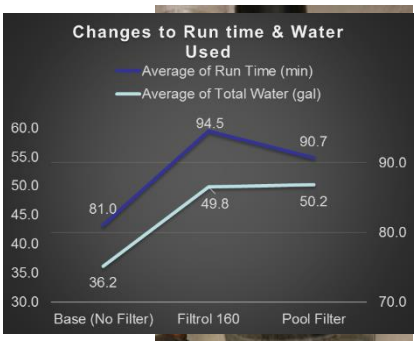
II. NSF International Test Results Demonstrate The Engineering Challenges Of Clothes Washer Filtration.

NSF International tested two different filters for capture of lint from washing machine greywater under different operating conditions. The washing machine used for the test was similar to the top loading washing machine models used in other recent studies (Zambrano, et al., 2019, Bruce et al.). Two filters were tested: the Filtrol 160 Washing Machine Microfiber Lint Filter and the Hayward W560 PoolVac Navigator Leaf Canister paired with Impresa Filter Saver Pool Socks. The pool filter sock is rated as having a 100 micron filtration capability, while the Filtrol 160 filter is rated at 200 microns.

The testing concluded that a clothes washer filter would be a mess for consumers and a miss for the environment:

- **Filters Capture at Most 26% of Material, Only a Portion Would be Microfibers**

- **More Energy & Water Used**
  - Run time increase can be more than running another complete cycle.
  - Longer run time creates more shedding.
  - On average, in-line filter increased run time by 10-14 minutes (max. 43 min) and water use by 14 gallons (max. 45 gallons).



[Note: From Life Cycle Analysis (LCA) perspective, energy and water during the use phase of a clothes washer dominates all other environmental impacts.]

- **More Plastic Into the Environment**
  - Filters themselves are made of plastic. It would take 13 years to collect an equivalent amount of plastic captured that is in the filter. Additional time is needed if replacement filters are used – exceeding the useful life of a clothes washer.

- **Consumer Impacts**
  - Clogging & Flooding – a bypass is needed to prevent flooding and the filter will run in bypass 100% of time when clogged – catching no microfibers.
    "Filter housing was 50% full and (the water) was dripping steadily from the lid"
    --Test Technician
  - Fabric softener collects in filter and forms dark residue on the filter sock
  - Standing water remains in filter unit after wash cycle, creating biohazard
  - Filter may need to be cleaned every one or two cycles
  - Will people clean the filter? What will they do with the material? Pour it down the drain or toss in the trash to be landfilled?
  - Consumer could easily circumvent filter to avoid problems
  - Mounting will be physical challenge due to:
    - Compliance with the Americans with Disabilities Act
    - Impacts on the elderly
    - Space concerns regarding whether filters will fit in typical laundry rooms

III. Government Studies On Microfibers Are Underway In the United States and Europe.

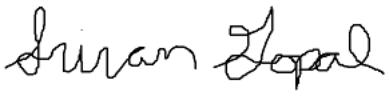
Two government studies on microfiber pollution are planned to be completed by the end of 2022. In the US, the Save Our Seas 2.0 Act requires a study on microfiber pollution by the Interagency Marine Debris Coordinating Committee to be sent to Congress by the end of this year. The European Commission is also working on several studies in this area. The European Commission published a roadmap on microplastic pollution and there is a study on unintentionally release of microplastics. Other studies include EU sustainable strategy for Textile and Urban Waste Water Treatment Directive. The Commission should review the findings of these studies as it develops its strategies.

IV. These Additional References May Be Useful To The Ocean Protection Council.

We also suggest a review of some of the references cited in the report so readers will be able to find the studies mentioned. On page 5, footnote 1, the reference is "Lebreton & Andrady, 2020" but this paper is not included in the list of references on pages 27-29. On page 12, footnote 7, the lead author's name should be "Borrelle" not "Borelle." Same correction is needed for the refrence list on page 27.

AHAM appreciates the opportunity to submit these comments on OPC's Draft Statewide Microplastics Strategy and is glad to discuss these matters in more detail should you so request.

Sincerely,



Sriram Gopal
Director, Technology and Environmental Policy

January 21, 2022
Wade Crowfoot, Secretary for Natural Resources
Chair, California Ocean Protection Council
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Sent via: COPCpublic@resources.ca.gov

RE: Draft Statewide Microplastics Strategy

Dear Secretary Crowfoot and members of the Ocean Protection Council:

California Coastkeeper Alliance (CCKA) represents watershed-focused California Waterkeepers to fight for drinkable, swimmable, fishable waters for all Californians. We thank you for the opportunity to provide the following comments regarding the Draft Statewide Microplastics Strategy.

The Microplastics report is an excellent start to a robust, statewide approach to mitigate microplastics in our waterways. We applaud the Ocean Protection Council (OPC) for its leadership on microplastics and would like to offer additional recommendations on four issues: (1) pollution prevention, specifically Extended Producer Responsibility, (2) stormwater and trash hot spots as pollution pathways, (3) methodologies to control microplastics in wastewater, and (4) expanding science and research priorities.

I. The State Should Consider Broadening an Extended Producer Responsibility Program to Create a "Polluter Pays" Program to Address All Sources of Stormwater Pollutants.

The report highlights the effectiveness of an Extended Producer Responsibility program as a financial tool to reduce plastic pollution at the source. This is an excellent start. However, because stormwater is one of the leading pathways for microplastic pollution, we recommend considering a broader statewide "Polluter Pays" program to financially disincentivize pollution into stormwater.

A wholistic "Polluter Pays" program would eliminate or reduce sources of stormwater pollutants by holding manufacturers financially responsible to clean-up their environmental externalities.

Recommended language to be added on page 18: Identify Extended Producer Responsibility (EPR) strategies for recycling or disposal of plastic packaging and foodware, including a broader Polluter Pays program to holistically reduce stormwater pollutants at their source. (2022)

II. Recommendations to Improve the Pollution Pathways Section of the Microplastics Strategy.

The report makes clear the importance of controlling stormwater as a pathway for microplastic pollution in the state. We wholeheartedly support this approach and believe four additional steps are necessary to maximize its effectiveness: (A) modernizing California's stormwater program, (B) adopting a statewide Commercial, Industrial, and Institutional (CII) Stormwater General Order, (C) implementing and enforcing the Trash Amendments, and (D) developing a trash hotspot program to address signifigent and direct discharges of trash into our waterways.

A. Modernize California's Stormwater Program to Address Water Quality Impairments Efficiently.

As we celebrate the 50th anniversary of the Clean Water Act, the state needs to take a hard look at its stormwater program and evaluate what changes are necessary to put California on track to attain beneficial uses within the next 50 years. One such change should be the streamlining of stormwater permits so they are better focused on more effective stormwater controls – like source control and stormwater capture – while also holding polluters accountable.

Stormwater permits are extraordinarily large and complex and need to be modernized. They are so complicated that California's clean water program is largely dictated by consultants, who only benefit from more permit complexity that results in less emphasis on improving water quality. To ensure that the stormwater program is effectively controlling microplastics, we recommend that this report discuss the importance of modernizing stormwater permits to focus specifically on water quality and permittee accountability. This includes recommending that the state water board conduct planning to modernize California's stormwater program by focusing on simplifying permits to focus on water quality, incorporating the best available science into permit terms, and streamlining monitoring.

Recommended language to be added on page 19:

Modernize the stormwater permit program to simplify stormwater permits to focus on water quality and permittee accountability.

B. Develop a Statewide Commercial, Industrial, and Institutional Stormwater General Order to Address Microplastic Pollution from Large Commercial Parking Lots.

The federal Clean Water Act regulates stormwater discharges, but stormwater permits currently do not cover the large parking lots from commercial, industrial, and institutional (CII) facilities. A federal court ruled in 2018 that the discharge of pollutants from CII sites are subject to either regulation or enforcement under the federal Clean Water Act, and California has yet to adopt a statewide General Stormwater Order to address these sources of stormwater pollutants.

The OPC should recommend that the State Water Board adopt a statewide Commercial, Industrial, and Institutional (CII) General Order that incentives stormwater capture to meet water quality objectives and provide a potential source of water supply. The permit should incentivize the payment by CII entities into a fund for regional stormwater management projects to improve water quality on a regional, rather than site-specific scale, and help entities come into compliance with existing water quality objectives. This will advance the existing court ruling and California's current stormwater capture goals by providing clear incentives, with appropriate guard rails, to promote stormwater capture, regional stormwater management projects, and help California limit microplastics from these sources from entering our waterways.

Recommended language to be added on page 19:

Adopt a statewide Commercial, Industrial, and Institutional (CII) General Order that incentives stormwater capture to control microplastics from large commercial parking lots and provide a potential source of water supply.

C. The State Needs to Implement and Enforce the Trash Amendments.

California is failing to implement the Trash Amendments in a timely manner. The State Water Board adopted the Trash Amendments in April 2015, and they became effective in December 2015. The Trash Amendments are now six years old yet only two stormwater permits (the Salinas and Ventura Phase I Permits) have adequately incorporated the Trash Amendments as enforceable permit provisions. This is an unacceptable delay, as the Trash Amendments will greatly limit microplastics from entering California's waterways.

Two regional boards have ignored their legal obligation to incorporate the Trash Amendments into a regional stormwater permit. Pursuant the Trash Amendments, Regional Water Boards "shall modify, re-issue, or newly adopt NPDES permits issued pursuant section 402(b) of the Federal Clean Water Act"[1] to reflect the requirements established by the Amendments. Two MS4 permits have been adopted by Regional Water Boards without integrating the requirements of the Trash Amendments: The Lahontan Regional Water Quality Control Board NPDES Permit for Stormwater and Urban Discharges from El Dorado County, Placer County, and the City of South Lake Tahoe (Order No. R6T-2017-0010) and the Central Valley Regional Water Quality Control Board Municipal Separate Storm Sewer Systems (MS4) Permit (Order No. R5-2016-0040).

Pursuant with the federal Clean Water Act, reissued permits must comply with all Basin Plan requirements and standards – in this case, the Trash Amendments. Clean Water Act section 402 requires Regional Water Boards to prescribe conditions for permits to assure compliance with the requirements of paragraph 402(a)(1), including effluent limitations necessary to comply with water quality standards. NPDES permits are required to contain effluent limitations reflecting pollution reduction achievable through technological means, as well as more stringent limitations necessary to ensure that receiving waters meet state water quality standards.[2] Ultimately, a reissued permit must comply with all Basin Plan requirements and standards, including the Trash Amendments adopted by the State Water Board in 2015. Further, a water quality control plan adopted by the State Water Board supersedes a water quality control plan adopted by a Regional Water Board and applies to subsequent permit issued or reissued by the Regional Water Boards.[3]

Despite the Central Valley Regional Water Board Executive Officer's assurances during the State Water Board Meeting held June 19, 2018, that the Central Valley Regional Water Board had incorporated the elements of the Trash Amendments into Order No. R5-2016-0040, the permit did not incorporate the enforceable water quality objectives outlined in the Trash Amendments. This stands in direct contrast to the requirements dictated by the California Water Code or federal Clean Water Act.

The Trash Amendments provide a ten-year compliance window following the date of the first implementing permit (e.g., an MS4 permit issued by a Regional Water Board) with a final backstop that full compliance be achieved *no later than fifteen years following the effective date of the Trash Amendments*. The failure of the Central Valley Regional Water Board to issue an enforceable permit that incorporates the requirements of the Trash Amendments constitutes an undue delay in addressing the pervasive and ongoing contamination of trash in California waterways, as individual permittees will not be required to begin achieving interim milestones until 2022, at the earliest. Further, due to the final backstop that compliance be achieved within fifteen years of the Trash Amendments' effective date, permittees now only have eight years to achieve compliance. This limited timeframe will only make the

[1] Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Final Staff Report (April 7, 2015) at A.1.a.
[2] 33 U.S.C. § 1311(b)(1)(A)-(C).
[3] Wat. Code sec. 13180.

stringent requirements of the Trash Amendments more difficult to achieve for individual permittees and risk the effectiveness and success of this statewide objective that California's waters be trash free by 2030.

The state needs to take more proactive action to ensure all stormwater permits adequately incorporate the Trash Amendments as soon as possible, but also be prepared to enforce against those permittees that do not achieve full capture compliance (end-of-pipe requirement) or have any trash present in their waterways (receiving water limitation) by 2030. Therefore, we ask that stronger language be used within this report to ensure that a key pollution pathway is protected from microplastics and other trash, as mandated by law.

Recommended language to be added on page 19: Implement and enforce the statewide Trash Provisions and final compliance deadline of zero trash in state surface waters by 2030.

D. Address Trash Hotspots as a Microplastics Pollution Pathway.

Controlling microplastic pollution requires limiting both primary and secondary microplastics. One important method of limiting secondary microplastics, the result of larger plastics breaking down, is to prevent larger plastics from entering California's waterways in the first instance. The Trash Amendments were originally going to include requirements for local municipalities to identify and address 'trash hot spots,' defined as high use beaches, recreational areas, and homeless encampments. However, the 'trash hot spot' program was removed from the Trash Amendments for political reasons – particularly the thorny issue of how to address trash from homeless encampments. Given California's housing crisis, and the trash and bacteria concerns coming from homeless encampments, it is critical that the state develop a trash hot spot program.

To address this pollution pathway, we recommend including language within the report recognizing the importance of controlling trash hot spot pollution and identifying key elements of successful trash hot spot programs.

Recommended language to be added on page 19: Develop a Trash Hot Spot program to address direct and signifigent plastic discharges from homeless encampments, high use beaches and recreational areas near waterways. The program should include a cost-sharing component where the state provides resources to local municipalities if they match the funding and work with NGOs to humanely address the source of plastic pollution.

III. Address Microplastic Impacts and Exposure from Wastewater Discharges.

In addition to stormwater, wastewater is a principal pathway for microplastic pollution. This report highlights key issues regarding this pollution pathway, and we recommend expanding on two important areas: (A) recycling all ocean wastewater discharges to a potable standard and (2) requiring both washer and dryer microfiber filtration.

A. Encourage Potable Reuse of All Ocean Wastewater Discharges as a Strategy for Controlling Microplastics.

Most cities in California use water once, then dispose of it like waste. Approximately 12 billion gallons of treated wastewater are discharged into the ocean or an estuary each day. But like many other recycled materials, water can be reused. Advanced filtration technologies can produce highly purified drinking water while also removing microplastics from our wastewater discharges. Water recycling offers a significant untapped water supply, particularly in coastal areas facing water shortages or in areas that rely on imported water.

The OPC has already set a statewide goal to recycle ocean wastewater discharges. We recommend the OPC not back away from that existing objective, and instead, reemphasize the goal by integrating it into the Microplastics Strategy.

Recommended language change on page 19:

Based on the results of previous studies regarding microplastic removal efficacy in wastewater treatment plants, ~~further promote recycling of tertiary treated wastewater that would otherwise be discharged to the ocean~~ establish interim goals as needed for significantly reducing nutrient loading and/or phasing out coastal wastewater discharge into the ocean. Work with partners to achieve a goal of 80-90% coastal wastewater recycling that can be put to beneficial use by 2040.

B. Incentivize or Require Washer and Dryer Microfiber Filtration.

Hundreds of thousands of microfibers can be released from clothing and textiles with each load of laundry. Because wastewater treatment facilities are not equipped to filter particles of this size, an estimated one million tons of microfibers are discharged into the world's oceans, rivers, and lakes each year. The report recognizes this, identifying that only tertiary and advanced treatments can prevent microplastic pollution from entering waterways, and even then, this results in microplastic pollution into land and soil through biosolid byproduct.

To target this pollution pathway, we request that the report recommend filters for washing machines to further limit microfiber pollution. To accomplish this goal, we recommend the development and implementation of a program which would incentivize, or otherwise require, the purchase of washing machine filters through rebates and other mechanisms. This would fall neatly into the Pollution Prevention: Financial Incentive category for the report.

Recommended language to be added on page 19:

Develop and implement a program to incentivize, or otherwise require, the purchase of washing machine filters through rebates and other mechanisms. This includes requiring machines sold to the public to have filtration and existing state contracted washing machines to include external filtration.

IV. Adopt Science and Research Priorities Which Protect Biological Resources, Address Greater Environmental Justice Concerns, and Assess Threats to Drinking Water.

The report identifies several research priorities which would aid California to understand and monitor microplastic pollution. In addition to the methodologies outlined in the report, we would like to suggest the inclusion of three additional risk threshold and assessment recommendations: (A) including a

microplastic water quality objective in the upcoming biological objectives report, (B) expanding the assessment of microplastics in environmental justice communities to include an assessment of larger plastics and trash generally, and (C) requiring monitoring of drinking water for microplastic pollution.

A. The OPC Should Consider Recommending a Microplastics Water Quality Objective as Part of the State's Upcoming Biological Policy.

California has an obligation to achieve the Clean Water Act's goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. Despite the state's obligation to restore the biological integrity of our waterways, the State Water Board has yet to develop a statewide Biological Policy. The State Water Board has determined that the adoption of a Biological Policy is a top priority for them in the next five years. And while the Policy is intended to focus largely on a Biostimulatory water quality objective for nutrients in surface water, the Policy's development is an excellent opportunity for the state to also adopt a microplastics water quality objective that is protective of biological health.

Recommend language to be added on page 25: Prioritize the development of microplastic water quality objectives, as part of the statewide Biological Policy, for state ocean waters, estuarine waters, and freshwaters. (2024)

B. The OPC Should Expand Microplastic Assessments in Environmental Justice Communities to Include Large Trash Exposure.

The report recommends assessing microplastic pollution exposure and impacts in environmental justice communities as a tool to identify and assess risk thresholds and prioritize future solutions. However, only assessing microplastics is not sufficient. It is important to expand this assessment to include those larger plastics and trash which will break down into secondary microplastics.

Recommended language to be added on page 25 Conduct an assessment of trash and microplastic pollution exposure and impacts on environmental justice communities in California to inform and prioritize future solutions. (2024)

C. The OPC Should Include Addressing Microplastics in Drinking Water as Part of this Strategy

Although the report excellently discusses many of the facets of microplastic pollution, it lacks any discussion of microplastics in drinking water. While SB 1422 mandates the State Water Board to test and report on microplastics in drinking water, Section (d)(5) of SB 1263 [Portantino] requires that OPC include a risk assessment framework regarding microplastic exposure to humans through pathways that impact the marine environment. Drinking water is both a potential exposure risk for humans and a pathway which impacts the marine environment. A discussion on the impacts of microplastics in drinking water should be added to the report under the Risk Threshold & Assessment section. This compliments

SB 1422, as the State Water Board will monitor for microplastics while OPC will assess the associated risks.

Recommended language to be added on page 25 Update the existing microplastics risk assessment framework and execute risk assessments that incorporate local environmental loads of microplastics and risk thresholds to quantify the risk of microplastics to marine life and human health, including threats through drinking water. (2024)

***

We applaud the OPC for its leadership on microplastics. This draft report provides a thoughtful and comprehensive strategy. We hope our recommendations are constructive and can help bolster an already successful report. Thank you for your time and consideration of our comments.

Sincerely,

Sean Bothwell
Executive Director
California Coastkeeper Alliance

Cody Philips
Policy Analyst
California Coastkeeper Alliance

LOS ANGELES COUNTY
SANITATION DISTRICTS
Converting Waste Into Resources

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January 21, 2022
File No. 31-370.40.4A

Submitted via e-mail to OPCmicroplastics@resources.ca.gov

Wade Crowfoot, Secretary for Natural Resources
Chair, California Ocean Protection Council
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Dear Chair Crowfoot and Members of the Council:

Ocean Protection Council Draft Statewide Microplastics Strategy

The Los Angeles County Sanitation Districts (Sanitation Districts) appreciate the opportunity to provide comments on the Ocean Protection Council (OPC) Draft Statewide Microplastics Strategy released on December 21, 2021 (referred to herein as the "draft Strategy"). The Sanitation Districts are a confederation of 24 independent special districts located throughout Los Angeles County. For over 98 years, the Sanitation Districts have operated one of the largest regional wastewater collection and treatment systems in the nation, with a service area that covers approximately 850 square miles and encompasses 78 cities and the unincorporated territories of Los Angeles County. Within the greater Los Angeles metropolitan area, the Sanitation Districts operate an interconnected system of sewers and wastewater treatment plants called the Joint Outfall System (JOS), which serves 17 districts, 73 cities and a population of over 5 million people. The terminal treatment plant in the JOS is the Joint Water Pollution Control Plant (JWPCP), which discharges to an ocean outfall system offshore of White Point on the southern side of the Palos Verdes Peninsula. To ensure our operations are protective of public and environmental health, we have conducted over 50 years of comprehensive coastal environmental monitoring along Palos Verdes, including areas associated with two Marine Protected Areas.

The Sanitation Districts share OPC's commitment to ocean protection, and we congratulate the OPC on releasing the draft Microplastics Strategy in accordance with SB 1263. We offer the following suggestions on the Strategy.

Relative Contributions from Major Pathways Should be Established Prior to Proposing "Pathway Prevention" for Wastewater Treatment Plants

Once a robust estimate of relative loadings of microplastics from all major pathways to the ocean has been established, it is likely that wastewater treatment plants would be confirmed to be an extremely minor source of microplastics to California's ocean waters as was the case in the 2019 San Francisco Estuary Institute (SFEI) study which found that wastewater contributes only 0.03% of microplastic particles to San Francisco Bay relative to stormwater. Further, if aerial transport had been included in the study's loading measurements, wastewater would have likely been an even smaller relative contributor.

Through implementation of source control actions for microplastics entering wastewater collection systems, such as implementing washing machine filters and enhancing existing microbead bans, wastewater treatment plants would then receive and discharge far fewer microplastic particles. A study of the efficacy

of the source control efforts, using the ongoing OPC wastewater treatment plant removal efficiency study as a baseline, would help to determine whether or not advanced treatment in wastewater treatment plants would be an effective pathway prevention strategy in comparison to source control efforts.

Strengthen Source Control Efforts Within the Multi-Benefit, 'No-Regrets' Actions

We enthusiastically support the source control efforts called out in the "Solutions" portion of the draft Strategy. Indeed, the best way to eliminate or reduce pollutants is to establish source control of contaminants before they reach wastewater collection systems and treatment plants (or the environment) where they may be more challenging and less cost-effective to remove. As such, we recommend to add or augment actions to reduce/eliminate the following sources of secondary microplastics which would likely yield the greatest environmental benefit, and are most prevalent and/or known to be toxic to biota in environmentally relevant concentrations:

- Paint used on roads, buildings, and boats/vessels may be up to 30 times more abundant than other microplastics in some regions of the ocean (Gaylarde et al. 2021). In fact, paint-derived microplastic particles (PMPs) are one of the top sources of microplastics pollution in our oceans, with an estimated 0.01 paint flakes per m^3 of seawater (Turner et al. 2022). Despite their prevalence, PMPs have thus far been excluded from source control regulation. It has been well-documented that paint used on ships, boats, roads, and building exteriors are a major source of microplastics to waterways. Many paint-derived microplastics found in marinas and ocean sediments come from antifouling paints used on commercial and recreational marine vessels and boats. Anti-fouling paints shed into the ocean where they sink and accumulate on the ocean floor, and leach heavy metals and biocides. Unlike most other microplastic particles in which health effects are yet to be determined, antifouling paint particles, which use high amounts of copper to deter biofouling, are known toxins for aquatic biota in environmentally relevant concentrations. Thus, we recommend adding exterior and marine paint to the draft Strategy's list of major sources of microplastic pollution to develop industry-wide solutions, to increase scientific studies of paint-derived microplastics' fate, transport, and effects, and to improve regulation of paints applied to roads, building exteriors, and boats, and antifouling paint waste originating from boatyards, marinas, and abandoned boats.

- Tire and road wear particles (TRWPs) have an estimated per capita emission volume of up to ~6 kg. TRWPs and their associated chemical constituents are known environmental hazards due to particle aging, shear stress, biodegradation, and leaching, especially as continuous breakdown of TRWPs on roadways generates nanoplastic "dust" which can then travel long distances via aerial pathways. In general, particulate emissions are increasingly implicated in human illness and death. In 2010, the California Air Resources Board estimated that 9,000 Californians die prematurely each year due to exposure to particulate matter. Previous studies have shown that exposure to motorists can be up to 10 times higher than ambient particulate concentrations. A study to be released by UC Riverside during 2022 proposes to give real-time particulate matter concentrations on Southern California highways.

- Fishing gear including nets, ropes, line, floats, traps, sails, tarps and pots, is a potentially significant source of microplastics. Microplastic particles are sloughed off from fishing gear during use and/or loss, weathering, or ingestion by marine animals. Previous studies have found a strong correlation between the intensity of fishing activities, including aquaculture, and the abundance of microfibers. Microplastics sourced from fishing gear have been detected one foot deep in sediment cores indicating bioturbation by benthic infauna. Because most studies have considered only microplastics in surface sediment, this type of pollution in ocean sediments worldwide may be greatly underestimated.

- Plasticulture including plastic mulch, seed coatings, and coverings that prevent crop damage due to weeds and pests.

Update Proposed Pathway Interventions to Build on Lessons Learned and Reflect a Logical, Evidence-based Workflow

Much progress has been made in filling information gaps about microplastics measurement methods, sources, pathways, and health effects. The draft Strategy could benefit from leveraging this information by considering a holistic view of end goals, what has been learned, priority research gaps and actions, and measurement of uncertainties to ensure the actions work synergistically, build on lessons learned, and promote the overall goal of reducing microplastics released to the environment. The following example efforts offer opportunities for collaborations that would benefit to ensure successful outcomes of the Strategy:

- USEPA, California Air Resources Board, OEHHA, and University of California- Riverside (UCR): particulate toxicity from tire wear and synthetic turf infill.
- ASTM and EPA Region 9: standardized methods for accurate and efficient long-term monitoring for microplastics collection, sample preparation, analysis, reference materials, study design for water matrices including wastewater, ambient water, stormwater, and drinking water, and also for sediments.
- SFEI: recommendations for reducing microplastics from urban runoff; aerial transport pathways and extent.
- Southern California Coastal Water Research Project (SCCWRP): wastewater treatment plant removal efficacy of microplastics.
- NOAA Marine Debris Program, and regional partners such as the states of Oregon and Washington: macroplastic and microplastics pathways, quantities, and rates including breakdown of existing plastic trash into microplastics.
- USEPA, OEHHA: risk assessment of environmentally relevant concentrations of microplastics on human health, baseline conditions prior to source controls.
- Additional collaborations
    - Fingerprinting forensics for microplastics source identification
    - Regional studies to establish baseline conditions before and after source controls are implemented to better understand efficacy of management solutions.

Align Priority Solutions with the Largest Source of Microplastics: Macroplastics

Macroplastic (plastic particles > 5 mm) trash ultimately breaks down into microplastics and amounts of trash continue to increase in CA waters (SCCWRP Trash and Debris Report 2022). Further, over 80% of microplastics in the environment are generated from the breakdown of plastic trash. As was the consensus by panel members and microplastics experts during the November 2021 California Department of Toxic Substances Control (DTSC) Green Ribbon Science Panel microplastics meeting, and was also included in the draft Strategy's discussion of the National Academies of Sciences, Engineering, and Medicine (NAS) Dec 2021 national report to Congress on behalf of the National Oceanic and Atmospheric Administration (NOAA), reducing secondary microplastics formed by the breakdown of plastic products such as trash would be most effective way to reduce microplastics to the environment. The strategy would therefore be more effective if a greater emphasis were placed on reducing/preventing plastic trash from entering the environment. Solutions should follow suit and should incorporate the entire life cycle of products including Extended Producer Responsibility (EPR).

Those responsible for creating the sources of plastic pollution should bear proportional responsibility for funding solutions via EPR including funding additional methods research and contributing to future monitoring programs.

Research and Monitoring Methods Should be Designed to Address the Question Asked

Prior to developing an environmental monitoring strategy, management goals and monitoring methods suitable to the need should be established. Specifically, appropriate environmental monitoring methods and laboratory capability to conduct monitoring should be evaluated. These efforts should consider methods for microplastics sample collection, preparation, analysis, and reporting, as well as data interpretation appropriate for the specific matrix of interest and enable practical long-term monitoring. As such, methods need to be feasible for laboratories to conduct and yield accurate results.

- To date, the microplastics methods comparison study cited in the draft Strategy has not compared high-throughput methods useful for monitoring, nor did it use a realistic test matrix representative of oceanwater, stormwater, or wastewater, nor were environmentally relevant levels of contaminants used. Of the types of microplastic particles added, some key microplastics types were missing such as tire wear particles containing carbon black which FTIR cannot accurately detect. We recommend using USEPA's well-established pollution investigation guidance in which the appropriate protocols are first identified prior to initiating the environmental investigation.

- The USEPA Region 9-led efforts to establish standardized and validated microplastics methods via ASTM including methods for collection, preparation, and analysis of microplastics of all waters should be included in the Strategy as these methods have helped solve the issue of accurately measuring microplastics in even the most complex aquatic matrix, wastewater, while maintaining the call for efficient, interpretable, high-throughput analysis by laboratories. The methods can be adapted for biosolids and sediments.

- The methods mentioned in the draft Strategy are all count-based for quantifying microplastics. We urge the OPC to include a discussion in the draft Strategy of the high error rates and uncertainties associated with using particle counts. We recommend following advice given in USEPA guidance on measuring asbestos particles as well.

- If particle sizes are deemed important, actual measurements of particles should be made as part of the analysis via flow cytometry, or IR (FTIR, Raman, LDIR). To date, none of the studies mentioned in the draft Strategy have measured particles, but rather used particle counts on each sieve fraction to characterize size which is highly inaccurate because smaller particles are often trapped by other debris in larger sieve fractions.

- For quantifying microplastics polymers and their chemical contaminants, measuring the particles by mass (e.g., ASTM Pyrolysis-GC/MS microplastics analysis method), rather than by individual counts is recommended. This method eliminates error associated with particle breakage during handling and has the added benefit of having the ability to identify additional Chemicals of Emerging Concern (CECs) adsorbed to microplastic particles, as well as yielding highly accurate, high-throughput results (several samples can be run per day). If microplastics shapes and sizes are deemed important for future management, IR (FTIR or Raman), or flow-cytometry could be used to characterize the diversity of types using subsamples collected for this purpose.

Plastic Trash Monitoring (macroplastics > 5mm), and Aerial Deposition of Microplastics Should be Incorporated into the Strategy

While California has a well-established trash monitoring playbook and methods (SFEI 2021), how trash monitoring data will be incorporated to better inform microplastics management has not yet been established. Also, there is a need for scientific research on aerial-deposition of microplastics in California. Both are key to informing effective and comprehensive monitoring program design.

Extend EPR to Fund Mitigation, Monitoring, and Cleanup Efforts

The model microplastics monitoring program and integrated statewide ambient monitoring network to "quantify microplastic occurrence and effectiveness of management actions for microplastic pollution", as described in the draft Strategy, are created with "partners" including regional monitoring coordinators (SWAMP, SFEI, and SCCWRP). These partners are primarily funded by wastewater agencies as part of their permit-required monitoring efforts. There is also a description of "additional data" potentially obtained via wastewater treatment plant monitoring requirements. As stated, the draft Strategy currently gives a disproportionate responsibility for monitoring to the pathway of least contribution (wastewater treatment plants), and no responsibility to industries which produce the pollution. We recommend that EPR should extend to mitigation, cleanup, and monitoring efforts. This would include those who manufacture and distribute plastic products commonly found in the environment as informed by regional trash monitoring data.

The Timeline for Strategy actions needs refinement

While we applaud the OPC for their ambitious timeline for actions to curb microplastic pollution, there are several items which are contingent upon studies which have not yet been published, finalized, or completed, or the issue may take longer to solve. Some examples are listed below.

- Wastewater Treatment Plant Microplastics Removal Efficiency Study (2022)

  The wastewater treatment plant study's pilot phase has been completed, but the results of the study will not likely be available until 2023 at the earliest. The results from this study will inform next steps and also affect the timeline for other management actions dependent on this study including pathway interventions and permit-required monitoring.

- Nurdle discharge compliance assurance (2022)

  Plastic pre-production pellets (nurdles) have been regulated for several years yet continue to be an issue. It may be challenging to fully enforce existing laws by the end of 2022.

Thank you for your careful consideration of our comments. We look forward to working together with the OPC to achieve common goals. If you have any questions or require additional information, please contact Shelly Walther at (562) 908-4288, extension 2842 or swalther@lacsd.org.

Very truly yours,

Erika Bensch

Erika Bensch
Division Engineer
Reuse and Compliance Section

EB:LG:SW:ER


January 21, 2022

California Ocean Protection Council
Secretary Wade Crowfoot
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
OPCmicroplastics@resources.ca.gov

RE: Comment Letter - Draft Statewide Microplastics Strategy

Dear Secretary Crowfoot, Ocean Protection Council Members, and Staff,

The Surfrider Foundation (Surfrider), the Center for Biological Diversity, and the Clean Seas Lobbying Coalition appreciate the Ocean Protection Council's (OPC) ongoing commitments to engage stakeholders in developing a statewide strategy to reduce microplastic pollution in California's marine environment. The Surfrider Foundation has over 20 chapters in California and is dedicated to the protection and enjoyment of the world's ocean, waves, and beaches, for all people, through a powerful activist network. The Center for Biological Diversity is a national nonprofit organization dedicated to the preservation of biodiversity and ecosystems; in pursuit of this mission, the Center has been working to stem the environmental and public health harms from plastics production, use, and disposal throughout the United States. The Clean Seas Lobbying Coalition is a coalition of non-profit organizations throughout California dedicated to plastic pollution solutions, with an emphasis on more upstream solutions including source/waste reduction and transitioning to reuse. We are in support of the OPC's efforts to reduce microplastic pollution and in making "decisive, precautionary actions now." To

make the Statewide Microplastics Strategy as robust and effective as possible, we offer the following recommendations.

Overall, we recommend **a stronger emphasis on source reduction and implementing a more comprehensive and holistic approach to reducing microplastics pollution.** Plastic pollution is a climate and environmental justice issue and has detrimental impacts throughout its lifecycle, especially on low-income communities and communities of color. Solutions need to address plastic pollution across its lifecycle, from extraction and manufacture, to distribution and the point of sale, to disposal and recycling.

Under the *Pollution Prevention* section in *2A Solutions*, there is currently more emphasis on eliminating "plastic waste at the source, defined as the product, material, or industry from which microplastics originate." Although we are supportive of a statewide expanded polystyrene (EPS) foodware ban as one method of plastic source reduction, we strongly recommend also going beyond single-item product bans. We have been at the forefront of similar policies and are still engaged and refining ordinance structures to address lessons learned. However, we encourage the OPC to recommend implementing broader policies, including those that ban a wider array of EPS foam items. As well as comprehensive foodware policies that require restaurants to provide reusable foodware for dine-in meals.[1] In this vein, we also recommend changing the title of *Product and Material Bans* under *Pollution Prevention* on page 18 to *Product and Material Regulations*. This change will make this section more inclusive and leave room for more than just suggestions for bans.

When considering more comprehensive solutions to reducing microplastic pollution, we strongly encourage the OPC to include the 2022 California Plastic Pollution Reduction and Recycling Act and the federal Break Free From Plastic Pollution Act (BFFPPA).[2,3] Both policies are currently not included in the draft Statewide Microplastics Strategy and should be. One major theme of the BFFPPA is on source reduction of plastic bags, foam foodware, plastic straws, plastic utensils, and plastic produce stickers. This bill should be used as a blueprint for California as it is the product of years worth of intensive stakeholder outreach and input.[4] Engagement included over 200 environmental groups, businesses, scientists, environmental justice groups and most importantly, state and local leaders advocating for these policies and implementing them at the state and local level across the United States.

Regarding Extended Producer Responsibility, although it is mentioned in the draft Statewide Microplastics Strategy on page 18, clear delineation of funding needs to be added. Producers must be responsible for the onus of dealing with the negative externalities that they have

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[1] Surfrider Foundation. *Comprehensive Foodware Policy Toolkit* (2021) https://ee5-files.s3-us-west-2.amazonaws.com/publications/Comprehensive-Plastic-Policy-Toolkit_072320.pdf

[2] Stop Plastic Pollution: California Plastic Pollution Reduction & Recycling Act (2022) https://www.stopplasticpollutionca.com/

[3] Surfrider Foundation. *Pass the Break Free From Plastic Pollution Act* (2022) https://www.surfrider.org/campaigns/introduce-bold-federal-legislation-to-tackle-the-plastic-pollution-crisis

[4] U.S. Senator Udall and U.S. Representative Lowenthal. *Legislative Blueprints for Reducing Plastic and Packaging Pollution* (2020) https://drive.google.com/file/d/1cz0e3-W_Z4IgxgUDU0LrvS6sM6l5QSPg/view

created. For far too long, the financial burden of recycling and waste disposal has fallen on ratepayers and local governments, and sometimes volunteers doing cleanups. The 2022 voter initiative and BFFPPA should be used as a working framework of policies to include in the draft Statewide Microplastics Strategy. Although education is generally important for addressing microplastics, citizens need more sustainable options as a top priority. To achieve this, producers need to be held accountable and incentivized to develop refillable and reusable packaging, followed by recyclable and compostable packaging. Also funding in the budget for the Reuse Grant Program should be included under financial incentives on page 18. This will help support pilot projects as well as systematic changes towards refill and reuse.

Also, under *Identifying Alternative Product Actions* on page 18, we recommend that OPC expand the priority industries and products to investigate alternative sources and design on page 14 and 18 to include packaging. Plastic packaging is one of the top contributors to plastic production and pollution and this strategy must prioritize packaging, with an emphasis on single-use designs, to sufficiently reduce microplastic contributions to the environment. Furthermore, fishing gear should be included. Similar to working with the textiles industry to make textiles that are more sustainable and shed fewer microfibers, there must be an effort to work with the fishing gear industry to make fishing gear that doesn't create microplastics.

Finally, the implementation section of the document currently lacks detail and is vague. Information regarding who will implement, partners, objectives, timelines, and metrics will assist with follow-through and accountability.

Thank you for your consideration, and we hope that OPC will include these recommendations in the next iteration of the Statewide Microplastics Strategy. We look forward to staying engaged and working on this critical issue. Thank you.

Sincerely,

Miho Ligare
Plastic Pollution Policy Manager
Surfrider Foundation

Emily Jeffers
Staff Attorney
Center for Biological Diversity

Emily Parker
Coastal and Marine Scientist
Heal the Bay

Erica Donnelly-Greenan
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Julie Andersen
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Plastic Oceans International

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Christopher Chin
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January 20, 2022

Via Email: OPCmicroplastics@resources.ca.gov

Attn: Kaitlyn Kalua
Water Quality Program Manager
Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Subject: County of Orange Comments on the Ocean Protection Council's Draft Statewide Microplastics Strategy

Dear Ms. Kalua:

The County of Orange /OC Public Works Department (County) appreciates the opportunity to provide comments on the draft Statewide Microplastics Strategy (hereinafter Strategy) released by the Ocean Protection Council (OPC) on December 21, 2021. The County supports the comments provided separately by the California Stormwater Quality Association (CASQA) and provides the following additional comments:

1. **Microplastic pollution should be addressed at the source.** The draft Strategy promotes a statewide approach for curbing microplastic pollution at the source through pollution prevention mechanisms, such as material bans and financial incentives to improve consumer habits and drive innovation for better products. Targeting microplastics at the source is key to reducing the occurrence of these pollutants in the environment as supported by similar statewide efforts implemented for pesticide management and brake pad regulations to reduce copper and zinc. Due to the limited knowledge and scientific monitoring tools currently available to assess microplastics, it is recommended that advancements in scientific methods (see comment below) are needed for a better understanding of microplastic trends, problem areas, sources and transport pathways before program level changes are recommended.
2. **Establishment of microplastics monitoring methods are needed to develop informed solutions to address microplastic pollution.** The draft Strategy's recommendation to develop an integrated monitoring network to better understand microplastics sources, pathways, risks, and effects is appropriate. Given that this is a new, emerging and complex type of monitoring, consistent sampling methods and data analysis tools need to be developed first before inclusion of potentially disparate microplastic monitoring requirements in various municipal stormwater permits. The establishment of regional monitoring efforts with consistent data collection methods are potentially more effective pathways for collecting microplastics monitoring data than individual efforts and should be preferentially considered. Local agencies could potentially provide in kind support to such efforts.

3. **As additional microplastic knowledge is gained through scientific advances, treatment technologies should be assessed for their efficiency in removing microplastics in the environment.** The draft Strategy recommends pathway interventions for stormwater that involve evaluating microplastic removal efficiency in Low Impact Development (LID) structural Best Management Practices (BMPs), inclusion of LID requirements for new and redevelopment projects, and LID retrofitting of existing development. Although LID implementation is a common approach to minimize pollutants for new and redevelopment projects, these programs consist of systems that are not currently designed or tested in their efficiency to remove microplastics. Development of performance monitoring studies for microplastic removal efficacy in various LID systems is needed before program level changes to LID implementation processes are enacted. This will ensure that recommended BMPs will perform as intended and address microplastics.

The County appreciates OPC's efforts in microplastic pollution management. If you have any questions or need additional information, please contact Ana Montoya-Horn at (714) 955-0332.

Very truly yours,

DocuSigned by:
CFFF1B48CED94FF...

Chris Crompton, Manager
North OC Watershed Management Area

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Established in 1938

January 25, 2022

File Ref: PPSC

Kaitlyn Kalua,
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Ocean Protection Council
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Sacramento, CA 95814

VIA ELECTRONIC MAIL ONLY (OPCmicroplastics@resources.ca.gov*)*

Subject: Draft Statewide Microplastics Strategy

Dear Ms. Kaitlyn Kalua:

The California State Lands Commission (Commission) staff has reviewed the subject draft *Statewide Microplastics Strategy Understanding and Addressing Impacts to Protect Coastal and Ocean Health* (Draft Strategy). Established in 1938 by the California Legislature, the Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of natural and navigable lakes and waterways. The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The state holds these lands for the benefit of all people of the state for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. Macro- plastics and their microplastic breakdown products on the urban landscape and their transport to urban stormwater runoff is a pressing concern for the Commission.

It appears that projects or actions to reduce, research, and monitor micro- or macro-plastics will involve work on State sovereign land, and thus Commission staff has an interest in the development and implementation of the State's Microplastics Strategy.

Strategy Description

The Strategy outlines a two-track approach: 1) Solutions and 2) Science to Inform Future Actions. The Solutions track is identified as a multi-benefit solution the state can act upon now while the scientific knowledge of microplastics further develops. The Science to Inform Future Action track will identify research priorities to advance

scientific knowledge of microplastics to develop and refine future solutions. To comprehensively manage microplastics in California is ambitious and will reduce significant amounts of macro- and micro-plastics reaching State waters and sediments. This strategy, including identification of the various sources of macro- and micro-plastics in State water and sediments, will likely decrease the flow of macro- and micro-plastic releases and discharges into State waterways.

Within the immediately implementable Solutions track, short-term management actions focus on eliminating plastic waste at its points of origin to prevent introduction into the environment (Pollution Prevention) and implementing multi-benefit management interventions that both reduce plastics loading and improve overall ecosystem health (Pathway Interventions). Also, the Solutions track includes working to alter public behaviors, attitudes, and priorities around plastics use and waste reduction (Education).

The research-focused, Science to Inform Future Action Track, focuses on standardizing measurement approaches and building monitoring capacity to comprehensively assess the scale of, and trends in, California's microplastic pollution (Monitoring); implementing a risk assessment approach that identifies the types of microplastics having the greatest effect on aquatic life and the critical thresholds at which those microplastics effect aquatic life (Risk); and enhancing understanding of the pathways by which toxic variations of microplastics are entering aquatic environments (Source and Pathways Prioritization). Future actions include developing targeted engineering and management solutions (Evaluating New Solutions). A statewide microplastic monitoring program will prioritize the development of source emission inventory and advancement of existing risk thresholds that can inform future regulatory action by 2025.

General Comments

On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court order. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low-water mark and a Public Trust easement landward to the ordinary high-water mark, except where the boundary has been fixed by agreement or a court order. Such boundaries may not be readily apparent from present day site inspections.

In addition to its direct jurisdiction over ungranted tide and submerged lands, the Commission has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine. The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, if potential proposed

research or monitoring involves work on State sovereign land, the work could require a lease.

As the Statewide Microplastics Strategy moves forward, please consult with Commission staff if projects are proposed to occur on state lands. Those projects would also be subject to analysis under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.).

Environmental Justice and Tribal Cultural Resources Outreach

Commission staff supports the Draft Strategy and the two-track approach. We encourage the Ocean Protection Council to engage and reach out early and often to identified disadvantaged communities, Environmental Justice (EJ) communities, and to Tribes to ensure success of the proposed outreach efforts. Any proposed projects associated with the Draft Strategy will require engaging communities to identify and pursue measurable actions and multi-benefit solutions to reduce and manage microplastic pollution within these identified communities. Commission staff recognizes and supports the recommended action in the Draft Strategy to engage EJ communities and conduct an assessment of microplastic pollution exposure and impacts in those communities to help inform and prioritize future actions. There is also a need and obligation to engage Tribal communities within the State's waterways and watershed basins to determine the impacts of microplastics to Tribes and Tribal Cultural Resources. Various strategies may be necessary to ensure effective and meaningful outreach with both EJ and Tribal communities. Commission staff supports efforts to develop and implement microplastic management solutions tailored to specific communities to ensure success of the strategy as a whole and specifically for the areas of Pollution Prevention, Pathway Interventions, and Education.

Thank you for the opportunity to review and comment on the Draft Statewide Microplastics Strategy. Plastic pollution impacts the Public Trust resources of California, and Commission staff is supportive of the development of a microplastics management strategy. Please refer questions concerning environmental review to Christopher Huitt, Senior Environmental Scientist, at (916) 574-2080 or at christopher.huitt@slc.ca.gov.

Sincerely,

Nicole Dobroski, Chief
Division of Environmental Planning
and Management

cc: Jennifer Mattox, Commission

January 21, 2022

Ocean Protection Council
1416 9th Street, Suite 1311
Sacramento, CA 95814

Re: Environmental Organizations' Comments on Draft Statewide Microplastics Strategy

Dear Ocean Protection Council,

The undersigned organizations and their members throughout California appreciate the Ocean Protection Council's efforts in creating the comprehensive Statewide Microplastics Strategy that includes pollution prevention, pathway interventions and education. This is an important addition to your previous work: California Ocean Litter Prevention Strategy in 2018, and the Top 10 Recommendations to Address Plastic Pollution in California's Coastal and Marine Ecosystems in 2021. Thank you for your continued efforts on addressing the plastic crisis in California.

We would like to focus our comments on *"refuse reduce reuse"* since pollution prevention is the first and most important action, and according to California statute, waste *reduction* holds the highest value on the waste hierarchy. We particularly appreciate the boldness of the following recommended actions:

- *Prohibit the sale of single-use tobacco products that demonstrably contribute to tobacco product plastic pollution, including but not limited to cigarette filters, electronic cigarettes plastic cigar tips, and unrecyclable tobacco product packaging. (2022)*
- *Prohibit expanded polystyrene foodware and packaging. (2023)*

- *Expand the statewide microbead ban enacted by Assembly Bill 888 (Bloom, 2015) to include microplastics that are intentionally added to consumer products, such as cosmetics, household and industrial detergents, and cleaning products. (2023)*

Additionally, we appreciate you sponsoring the Reusable California Policy Playbook by UPSTREAM and highlighting it in the Strategy. The model Foodware and Packaging Reduction Ordinance and Source Reduction Purchasing Policy will help municipalities understand "reduce and reuse" and its various benefits, such as cost savings, public health and equity. Adoption and implementation of the ordinance and policy should be a condition in their applications for grants from OPC or permits from California Coastal Commission (CCC), which CCC started doing. More collaborations among agencies and NGOs would foster effective changes.

More importantly, California must adopt comprehensive solutions to plastic pollution to turn the tide on microplastic pollution and place the cost on producers, rather than on communities, local governments, and the environment. Please consider the following revisions and additions to the draft Strategy.

COMPREHENSIVE SINGLE-USE PLASTIC POLLUTION REDUCTION

Develop a comprehensive California Recycling and Plastic Pollution Reduction Plan. The State needs a transformational plan to reduce plastic pollution. Specifically, a plan must ensure CalRecycle has regulatory authority to (1) charge plastic manufacturers up to a penny tax on single-use plastics to fund plastic recycling and environmental restoration, (2) ban Styrofoam food containers, (3) reduce the amount of single-use plastics sold in California by 25% by 2030, and (4) require remaining single-use plastics to be recyclable or compostable by 2030. Such a plan would provide the relevant State agencies with the authority to effectively end significant sources of microplastics. We recommend OPC work closely with the Legislature, CalRecycle and the other State agencies to ensure such a comprehensive plan is developed and vigorously implemented.

STATE AGENCIES AND PROPERTIES

- **Require reusable foodware.** The recommended action "*Encourage state purchasing and service contracts to require reusable foodware whenever feasible and reduce the state's reliance on single-use foodware. (2022)*" on page 18 must be strengthened, encouragement is no longer adequate. In 2021, though **reusable foodware for dine-in** was removed from AB 1276 (Carrillo), an increasing number of municipalities have adopted ordinances that require it. California must lead this movement by requiring reusable foodware for dine-in statewide for consistency across the state.
- **Ban balloons in State Parks** should be added to page 18 under Product and Material Bans. A number of municipalities have banned the sale, distribution and use of balloons. The function of balloons and similar plastic products create more damage than they are worth. Balloons released into the air can travel many miles, and end up in the ocean. Banning balloons in State Parks would set an example for the rest of the state.

- **Ban the sale and distribution of single-use plastics in State Parks** should be added to page 18 under Product and Material Bans. Laguna Beach banned single-use plastic foodware on beaches, parks and trails. At Huntington State Beach, a unique business called the Huntington Beach House serves cocktails in single-use plastic cups on the beach and sells single-use plastic water bottles. Recently in New York, a bill has been introduced to ban the sale of single-use plastic water bottles in state parks. And, 340 organizations requested Secretary Deb Haaland to ban the sale or distribution of single-use plastics in national parks. It's time for California State to demonstrate leadership by instituting this ban in State Parks.

Source: the Huntington Beach House

REFUSE, REDUCE AND REUSE

- The Examples of Existing California Plastic Waste Reduction Laws section on page 13 only includes examples of recently passed legislation. We suggest adding examples of landmark waste reduction laws such as California's Beverage Container Recycling Act, or clarifying that this section provides Examples of *Recently* Enacted California Plastic Waste Reduction Laws. We suggest adding the following recent laws:
    - Bring Your Own Containers and Cups: Chapter 93 of 2019 (AB 619, Chiu)
    - Single Use Hotel Toiletries Ban: Chapter 687 of 2019 (AB 1162, Kalra)

- Consider renaming "Product and Material Bans" under Pollution Prevention on page 18 to be more inclusive and leave room for more than just suggestions for bans. We suggest "**Product and Material Regulations**." Under this section, we recommend also:
    - Include "**remove regulatory barriers to using reusable products**", such as what AB 619 (Chiu) did in 2019 to remove a requirement that single-use items must be used at temporary food facilities, and AB 962 (Kamlager) did to pave the way for the use of reusable glass beverage bottles in California's Bottle Bill Program.
    - Expand the ban on single-use hotel toiletries to include **single-use plastic bottled water in hotel rooms**.
    - **Ban stickers and plastic packaging for fruit and vegetables**. France and several other European countries have announced the plastic packaging ban as a climate action since the COP26 conference. California should follow their lead, and ban the plastic stickers, which have long been a challenge for cleanup volunteers, and now a worsening problem with compost and soil quality as SB 1383 (Lara) requires all Californians to compost food waste.
    - **Ban all carryout bags made from thin plastic film** and **require carryout-bag fees for all retailers.** It's time for California to catch up with Vermont and some other states.
    - **Ban plastic produce bags.** Compostable produce bags have become more available.
    - Support legislation aimed at **e-commerce packaging**.

- Under "Financial Incentives" on page 18:
    - **Strengthen the Extended Producer Responsibility (EPR)**. Simply identifying EPR strategies and only applying those strategies to recycling or disposal of plastic packaging

and foodware is not sufficient. The State must look both outwards to other nations' plastic specific EPR programs and inwards to California's EPR programs that the State has already developed for other materials to **develop and implement EPR schemes for all disposable plastics** in California. We recommend the following language: "*Identify and implement Extended Producer Responsibility (EPR) strategies for disposable plastic packaging and products that prioritizes source reduction and full responsibility transference from consumers to producers.*"

- Include funding in the budget to **fund the Reuse/Refill Grant Program**.
- On page 14, include information on the status on one of the Top 10 Recommendations to Address Plastic Pollution in California's Coastal and Marine Ecosystems: "*Partner with local governments, state agencies and nonprofit organizations to provide technical assistance and tools that assist with implementation of local comprehensive food assistance and tools that assist with implementation of local comprehensive food serviceware ordinances by Winter 2021.*" We suggest expanding the partnership to **meal services** that are contracted by local governments, such as Meals on Wheels. When today's meals are being dropped off, previous day's reusable containers can be conveniently picked up. It would be both economical and widely educational for the impact Meals on Wheels has in many communities. It may be even more helpful to incentivize a reusable pilot in SoCal when contracts are renewed for the new fiscal year.

One day's meals delivered by Meals on Wheels. Meals on Wheels America started exploring reusable options with Beyond Plastics. Uniquely, its operation in Alameda county has been using reusable containers.

- Under "Identifying Alternative Product Actions" on page 18
  - Expand the priority industries and products to investigate for alternative sources and design on page 14 and 18 to include **packaging**. Plastic packaging is one of the top contributors to plastic production and pollution and this strategy must prioritize packaging, especially single-use designs, to sufficiently reduce microplastic contributions to the environment.
  - Include a strategy on **synthetic turf**. Collaborate with the California Department of Resources Recycling and Recovery (CalRecycle), Department of Toxic Substances Control: Safer Consumer Products Program (DTSC) and State Water Resources Control Board (SWRCB) for a strategy on synthetic turf, which is mentioned in your Assessing the Risk of Microplastic Pollution in California. Millbrae adopted a moratorium on the installation of synthetic turf, one of the reasons was "*Plastic microfibers runoff into storm drains that [are] digested by aquatic life.*"
  - Develop a plan for **fishing gear**. Similar to working with the textiles industry to make textiles that are more sustainable and shed fewer microfibers, there must be an effort to work with the fishing gear industry to make fishing gear that doesn't create microplastics.

- Under "Education" on page 19:
  - Promote industry engagement and outreach on **Bring Your Own Reusables**.

Again, Sierra Club California and the undersigned organizations congratulate the Ocean Protection Council on its efforts to address the microplastic crisis in California. We look forward to working with the Ocean Protection Council on this important issue.

Sincerely,

Lauren Cullum
Policy Advocate
Sierra Club California

Miho Ligare
Plastic Pollution Policy Manager
Surfrider Foundation

Nick Lapis
Director of Advocacy
Californians Against Waste

Emily Parker
Coastal and Marine Scientist
Heal the Bay

Leslie Lukacs
Executive Director
Zero Waste Sonoma

Nancy Gardner
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Orange Coast River Park

Judie Mancuso
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Jan Dietrick
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Bow Seat Ocean Awareness Programs

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President
Zero Waste USA

Julie Anderson
Global Executive Director
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David Krueger
President
Northern California Recycling Association

FIBERSHED

Local Fiber, Local Dye, Local Labor

January 21, 2022

California Ocean Protection Council
Secretary Wade Crowfoot
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Comments submitted via: **OPCmicroplastics@resources.ca.gov**

Dear Secretary Crowfoot, OPC Members and Staff;

Thank you for the opportunity to provide comments on the draft Statewide Microplastics Strategy. As a supplement to the comments we submitted in collaboration with ten partnering organizations and businesses, we wanted to add some comments specific to our perspective working with fiber and textile producers, processors, manufacturers and retailers in California, the United States, and internationally. We hope that our comments will be helpful to your consideration of revisions to the Microplastics Strategy and would welcome the chance to answer any of your questions or discuss this input further.

The OPC's report "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" lists the following microplastic pollution sources as the highest priorities and most prevalent: tire & road wear, laundry & **textiles**, and plastic litter from aquaculture & fishing. The report also lists microfibers as a priority for microplastic particle morphology type and polymer type. Effectively addressing microplastic fiber pollution, derived primarily from synthetic textiles, must be a central component of the Statewide Microplastics Strategy.

We encourage OPC to recognize the opportunity for the Statewide Microplastics Strategy to provide a coordinating vision for source reduction of synthetic textile microplastic emissions that bolsters and builds on work already being undertaken by other state agencies, such as CalRecycle, CDFA, CNRA, the State Coastal Commission and California State Universities. These agencies are already tasked with developing solutions for reducing textile waste (CalRecycle) and supporting agricultural producers in developing more climate resilient methods of production that achieve co-benefits for improving water quality, increasing biodiversity and ecosystem health, and sequestering carbon (CDFA, CNRA, State Coastal Commission, California State Universities). Existing state initiatives already promote procurement and marketing of California agricultural products. Circular economy goals are being set for the state to reduce waste and create new industrial infrastructure. Many of these existing programs could incorporate a vision for natural fiber production and infrastructure to be prioritized and upheld systematically by the state. This vision is needed in order to coordinate and mobilize the investments and support that are required for the survival of natural fiber producers and processors in our state. (These needs are echoed in other regions around the country and the world. California can set a model that will inform and complement textile policy development internationally.)

Natural fiber producers in our state, and globally, need more public policy support to counteract market forces driving a preference for inexpensive synthetic fiber materials. There is a need for technical assistance and research to refine practices for non-toxic, soil building agricultural practices for fiber production in our state, especially given the growing challenges of drought, salinization and other impacts of climate change on our agricultural regions. There is a need for incentives and matched investment with industry to explore natural fiber technology development as an alternative to synthetic fiber-based textile innovations, for instance processing technologies and local infrastructure to support regional markets for California farmers and ranchers; job development in natural fiber and textile processing; fiber and textile finishing technologies and dye systems that can provide nontoxic, biodegradable alternatives to synthetic fiber products. All of these developments can be based in a truly circular economy that moves from soil-to-soil, engaging Californians in producing, processing, using, repairing, reusing and eventually safely composting biodegradable textile products whose life cycles help build healthy soil, meet people's needs, create cultural richness and support economic prosperity.

We encourage you to be explicit with the goals of strategies and solutions in the Microplastics Strategy for statewide support for alternatives to synthetic textiles that are nontoxic and biodegradable, prioritizing natural fibers sourced from climate smart agricultural systems. If this language is not explicit, 'alternatives' will likely be interpreted by the industry as pathway interventions, such as technologies and practices to reduce fiber fragmentation of synthetic textiles. These may be important strategies as long as synthetics textiles are predominant; however, they are not source reduction strategies.

We need the State of California to provide leadership on supporting equitable and healthy development of natural textile systems while at the same time establishing policies to disincentivize and create accountability for synthetic textile production systems. There are many routes that the State could take to help begin to hold accountability- and to provide incentives for redesign- for businesses currently responsible for the widespread pollution of microplastic fibers. Consumer and market education about microplastic emission potential from synthetic textiles is essential given the incredible success of the fashion industry's marketing of recycled polyester as a sustainable and preferred material, with microplastic emissions lacking in accountability and consumer awareness. Some strategies could include a labeling or product rating program to highlight synthetic fiber content and microplastics emissions potential; Extended Producer Responsibility (EPR) such as the hospitality textiles EPR recommendation adopted by CalRecycle's Statewide Commission on last year. State or local procurement programs could choose to prioritize natural fiber products, or ideally California-grown and processed fiber products.

The volume-based business model that has become normalized in the fashion industry is beginning to be questioned, and the State can support industry movement toward less consumption-based business models, such as repair, repurposing and upcycling-based businesses. The trend of overproduction and consumption in the fashion and textile industry is driven by the abundant presence of cheap synthetic fiber materials. Currently the global consumption of textiles is comprised of 69% synthetic materials, and without intervention this is expected to rise to 73% by 2030. Recycled polyester is heavily marketed as a sustainable product, but it is in actuality a stop-gap measure to address the problem of plastic proliferation in our communities, and its microplastic emissions are even worse than virgin polyester. Textiles are the least ideal form to channel recycled plastic, from the perspective of microplastic emissions.

A trend toward lowering wasteful overproduction in the textile sector, together with shifting the composition of overall textile use to a higher percentage of natural fiber

textiles will have myriad social and environmental benefits. Microplastic fiber emissions and pollution are not distributed equally, with a disproportionately high exposure among workers involved with processing and manufacturing of textiles, such as the 45,000 garment workers in California, the highest concentration in the country.

The content of California's Statewide Microplastic Strategy will have critical implications for textile communities around the world, as we have seen in following textile policy development and its implications for natural fiber producing communities. Systemic solutions are not easy, but we saw the OPC develop and adopt an ambitious strategy last year to address macroplastic pollution in our state. Given the OPC's own emphasis on taking a precautionary approach to risk assessment and pollution abatement, we hope you will be willing to take a similarly ambitious approach to looking at true solutions to microplastic pollution.

Respectfully,

Rebecca Burgess, Executive Director

Heather Podoll, Partnership and Advocacy Coordinator

The Nature Conservancy
Protecting nature. Preserving life.™

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January 21, 2022

Mark Gold, Executive Director
California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

re: PUBLIC COMMENT – Draft Statewide Microplastics Strategy

Dear Dr. Gold,

Plastic pollution may be one of the greatest environmental threats of our time. Plastics break down over time or are released into the environment as miniscule plastic pieces. Such microplastics are a persistent pollutant in natural environments that pose significant risks to wildlife and likely human health. With an estimated 11 million metric tons of plastic entering the ocean each year, and global plastic production and use continuing to grow, bold actions are needed now. The California Chapter of The Nature Conservancy (TNC California) is committed to advancing the innovative, science-based solutions necessary to mitigate the growing threat of plastic pollution to people and nature.

Interventions outlined within the draft Statewide Microplastics Strategy developed by the California Ocean Protection Council (OPC) will be an important step towards turning the tide on plastic pollution. The draft strategy sets forth a bold intervention and research agenda to mobilize immediate action by the state, as the risk of inaction becomes too great. It also positions California as a global leader on this critical conservation and environmental health issue. We agree that California can and should step up to accelerate the pace at which solutions are deployed.

As OPC solicits feedback on its draft Statewide Microplastics Strategy, TNC California submits the following brief comments:

- **Take a precautionary approach that emphasizes the importance of adaptive decision-making**

As noted in the draft strategy, failure to act now could result in up to three times the amount of plastics entering our oceans by 2040. We applaud OPC for not delaying action in the absence of perfect information. The two-track approach outlined in the draft strategy acknowledges that our preliminary understanding of the problem is robust enough to inform immediate action, while prioritizing the research needed to fill remaining information gaps. Ongoing research can then inform adaptive decision-making, as OPC moves towards development of a final set of recommendations to the Legislature, in alignment with the timeline set by Senate Bill 1263 (Portantino).

- **Support innovation and experimentation to quickly scale cost-effective solutions**

In a state filled with leading technologists and researchers, California is poised to deliver cutting edge, bold solutions to address plastic pollution. Given the geographic size and economy of California, solution blueprints can be easily exported to other states and even countries. While we agree with OPC's recommendations around the value of financial incentives (e.g., taxes, subsidies, consumer incentives) to accelerate uptake of existing solutions, we encourage the addition of innovation competitions and accelerators to the list of incentives to encourage manufacturers to develop cost effective solutions that can scale quickly to support the California market.

- **Address linkage of plastic pollution to climate change**

In its 2020-2025 Strategic Plan, OPC outlines a bold vision for protecting California's coast and ocean. The strategic plan acknowledges that greenhouse gas emissions are warming our oceans, having catastrophic effects on ecosystems and fishing communities. However, the draft microplastics strategy does not currently mention the climate-plastics nexus; plastic production and use is on track to produce more greenhouse gas emissions than coal power plants by 2030. Language could be added to the 'Background' section that elevates the connection and the more clearly articulates the importance of the recommendations focused on source reduction to mitigating climate threats. Recommendations focused on source reduction will also help to support California's broader climate goals.

- **Amplify the equity aspects of plastic pollution problem**

There is increasing awareness that the impacts of plastic pollution are disproportionately felt across people and communities. OPC has elevated the importance of equitable access, both to natural resources and policy decision-making, within its strategic plan. Given this focus, we are supportive of the research-focused recommendation around "Conduct[ing] an assessment of microplastic pollution exposure and impacts on environmental justice communities in California to inform and prioritize future solutions." However, there is currently limited supporting content for this recommendation within the draft strategy relative to other topical issues. We strongly recommend that OPC add explanatory language to the 'Background' section and more dedicated text within the 'Risk' research priority section. Additionally, it is important that such an assessment incorporate ongoing outreach to environmental justice organizations and low income and disadvantaged communities to ensure solutions developed best meet the needs of those most impacted.

- **Closely coordinate strategy implementation across government and non-government entities**

Effective implementation of the Statewide Microplastics Strategy will require close communication and coordination across a large number of state agencies, local and federal governments, research organizations, and non-governmental entities. Further, finite resources available to address the plastic pollution crisis require it. OPC could consider developing a working group approach, similar to that used for the California Ocean Litter Strategy. Twice yearly check-in webinars or conference calls and potential yearly meetings to assess progress and address implementation challenges would also help inform the final list of recommendations to be submitted to the Legislature, as a requirement of SB 1263.

- **Prioritize statewide research studies**

The draft strategy establishes an ambitious timeline under which immediate actions and research priorities should be addressed. To maximize impacts, particularly for research priorities, studies

should be prioritized that focus on statewide monitoring, as well as estimate the magnitude of various microplastic pollutants across the state. Such statewide studies can provide clear insights on how threats to nature and people are spatially distributed. In collaboration with UC Santa Barbara, TNC California recently published such a study to estimate statewide microfiber emissions to California's lands and waters from machine washing of synthetic apparel, which can be cited as follows:

Geyer, R., Gavigan, J., Jackson, A.M., Saccomanno, V.R., Suh, S., and Gleason, M.G., Quantity and fate of synthetic microfiber emissions from apparel washing in California and strategies for their reduction, *Environmental Pollution* (2022), doi: 10.1016/j.envpol.2022.118835.

In our study, we developed a material flow model to estimate the magnitude and fate of microfiber emissions generated from apparel washing in California. We then used the model to assess the effectiveness of different interventions to reduce microfiber emissions, including business as usual, in-line filters, and increasing wastewater treatment filtration efficiency to 99%. The majority of microfibers are estimated to enter terrestrial environments (1.6 kilotons (kt)), followed by landfills (0.4 kt), waterbodies (0.1 kt), and incineration (0.1 kt); diversion of microfiber emissions from waterbodies to terrestrial environments largely occurred through application of biosolids. Our analysis revealed a directional flow of microfiber pollution from higher-income urban counties to lower-income rural communities. Under business as usual, annual synthetic microfiber emissions to California's natural environments would increase by 17% to 2.1 kt by 2026. Model results indicated, however, that full adoption of in-line filters in washing machines may offer the greatest reduction in microfiber emissions – a reduction of 79%.

One of the major limitations to this study was lack of consistent and robust data available on microfiber concentrations in treated wastewater and biosolids to groundtruth our model results. Statewide monitoring data is a crucial, yet missing, piece of the puzzle of understanding microfiber pollution in the state. Additionally, while our study points to agricultural lands as receiving large amounts of microfibers via biosolid application, our model does not capture potential for re-entry of microfibers to streams and eventually oceans from agricultural run-off. In this way, conclusions from the study also provide strong support for the following monitoring-related research priorities outlined in the draft strategy –

- "Based on the results of existing studies regarding microplastic removal efficacy in wastewater treatment plants, require microplastic monitoring for California wastewater treatment plant permittees as needed as permits are renewed or revised."
- "Implement a pilot monitoring program to evaluate microplastics in agricultural runoff."

In addition to these two research recommendations, ideally a study would also be commissioned to evaluate microplastic concentrations in soils, sediments, and receiving bodies.

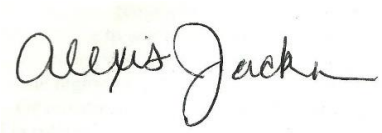
- **Develop clear numbering scheme for recommendations outlined in Statewide Microplastics Strategy**

The draft strategy outlines clear recommendations on early interventions and research priorities needed to address microplastic pollution in the state. To track progress by all stakeholders over the next four years, OPC should adopt a numbering scheme for all recommendations included in the final strategy.

In closing, TNC California appreciates the opportunity to provide comment on the draft Statewide Microplastics Strategy. It provides a clear framework that will catalyze immediate action and

prioritize research across the state. We look forward to working with OPC and other motivated entities to tackle plastic pollution and to continue to integrate emerging science to sharpen our solution set.

Sincerely,



Jay Ziegler
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January 21, 2022

Via email: OPCmicroplastics@resources.ca.gov

Mr. Wade Crowfoot
Secretary for Natural Resources
Chair, California Ocean Protection Council
1416 Ninth Street, Suite 1311
California, CA 95814

Re: Draft Statewide Microplastics Strategy

Dear Secretary Crowfoot,

GE Appliances submits these comments in response to the California Ocean Protection Council's (the "Council") request for comments regarding its draft Statewide Microplastics Strategy.

GE Appliances is the fastest growing appliance company in the United States and a leading manufacturer of clothes washers and dryers and other clothes care products. We have been in the home laundry business for most of our 100 years of operation, the last five of which as Haier US Appliance Solutions, Inc., d/b/a GE Appliances.

GE Appliances is pleased to submit these comments as part of what we hope will be a collaborative relationship with the Council and the Office of the Secretary through which we can share our views on practical approaches to solve the growing problem of microfiber pollution of the oceans and other waterways and to keep the Council apprised of assessments of proposals that fall short of the goal to achieve a net positive environmental solution to microplastics pollution.

Over the many years of our operation, our technology teams have learned that innovation that doesn't enhance convenience or make using the product easier for the owner will not be accepted. It may satisfy all the technology CTQs and still be rejected if awkward, laborious or ugly. This is especially true of home appliances, which consumers expect to make their lives easier especially when the appliance is intended as a solution for chores that don't involve creativity, like cooking, save money by preserving food, like refrigeration, or make glassware crystal-clean, like a dishwasher

Because every available washer filtration system adds work, much of it very unpleasant, yet still fails effectively to do the job to remove microplastics, consumers will soon learn to shun them.

An ineffective 100 microns washing machine filtration system will also capture more than microplastics. Wash debris is often contaminated with hair, bodily fluids, waste matter and assorted biohazards. Based on our experience working with consumers as we design our products, we are concerned about end users' willingness and comfort level hygienically to remove and properly to dispose of soiled wash debris. Cleaning washing machine filters is a task consumers likely will put off as long as possible. When redeposition of filter contents onto the wash forces the issue, many will be tempted to wash debris off the filter and into the laundry room sink.

The Council's draft strategy highlights a much more effective microfiber collection point: Wastewater treatment plants (WWTP). Reviews of the capture efficiency of WWTPs show that these systems remove 90-99% of microplastics from water treated by and discharged from treatment plants.

The highly effective WWTP collection approach is an essential element of the net environmental benefit that GE Appliances urges the Council's strategy to seek.

Development work continues at GE Appliances and other manufacturers to find technologies suitable for use with laundry appliances. We urge the Council to recognize the limitations of currently available flawed approaches and promote development—perhaps by directing incentives to these efforts—of solutions that will contribute to that net environmental benefit solution that we are all working to achieve.

Respectfully submitted,

GE Appliances, a Haier company by:

Earl F. Jones
Associate General Counsel

January 4, 2022

Honorable Wade Crowfoot, Secretary for Natural Resources
Chair, California Ocean Protection Council
California Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
Email: wade.crowfoot@resources.ca.gov

RE: DRAFT Statewide Microplastics Strategy

Dear Secretary Crowfoot:

Please accept the following comments from the National Aquaculture Association[1] and California Aquaculture Association[2] to improve the implementation of a microplastics strategy.

We agree and support the forward thinking of the California legislature, municipalities and agencies to develop a cohesive ocean and coastal natural and human ecosystem oriented microplastics strategy. We suggest the risk assessment methodology described by the Science Advisory Team be implemented to complete an assessment for each plastic compound, product, pathway and use to inform effective actions. The draft appears to be predicated on an assumption of hazard to trigger action. This hazard-based approach appears to ignore: 1) the ubiquitous presence of biotic and abiotic particles (e.g., silt, plant fibers, animal fragments) present in the marine environment over the millennia and 2) the capability of marine animals and plants to process natural and anthropogenic particulates (Hamm et al., 2022).

As noted in NAS (2021, 8), "Microplastics in particular are ingested by marine biota and may move through the food web, ultimately to humans, but there is limited knowledge of effects throughout the food web and to humans specifically." We conducted a literature review to develop a Plastic Policy to inform and guide the US aquaculture community. We found:

> "Research to assess the relative risks of micro and nanoplastics to humans and the world around us is inconclusive at best and the risks associated with micro-and nano-organic and inorganic particles have not been comprehensively assessed for their

[1] The National Aquaculture Association (NAA) represents farmers across the United States that raise aquatic animals and plants destined for food, bait, ornamental, recreational fishing markets and as fertile eggs, larvae, fingerlings or shellfish seed to stock farms for grow-out. We are a U.S. producer-driven, non-profit association incorporated in 1991 that for 30 years has worked ensure the aquaculture industry's sustainability, profitability and development occurs in an environmentally sustainable manner. For more information, visit http://thenaa.net/.
[2] The California Aquaculture Association (CAA) is a producer-supported association representing finfish, shellfish, and algae growers and seafood related businesses throughout California since 1983. The CAA promotes commercial production of plants and animals in aquatic systems to satisfy the needs of consumers for wholesome products that are produced by sustainable means conserving California's land and water resources. For more information, visit https://caaquaculture.org.

> contribution to the overall risk. Initial microplastic assessments suggest risks are unlikely for human health, marine organisms, aquaculture, and the environment (Adam et al. 2021; Gouin 2020; Lusher and Welden 2020; Vethaak and Legler 2021)."

We reviewed the risk presentations convened by the State Water Resources Control Board and Southern California Coastal Water Research Project Authority, which appeared to agree with the National Academy of Science risk summarization and our summarization of the literature as well.

As the aquaculture farming community, we recommend research priorities to include:

a. standardize micro- and nano-plastic sampling, analysis, and reporting,
b. conduct comparable environmental and human risk analyses,
c. develop biodegradable plastics that avoid environmental and human health risks;
d. characterize degradation characteristics of the various plastics and ropes used by the marine recreational, commercial and farming communities to ensure the use of the most durable materials possible and their responsible disposal before they start to breakdown;
e. describe new plastic recycling technologies to recover, reuse and remanufacture; and,
f. encourage micro- and nano-particle research for anthropogenic and naturogenic sourced materials to develop a complete understanding of environmental and human health risk.

Our policy can be accessed here, Plastics_0.pdf (thenaa.net), and includes practical actions US aquaculture can implement.

We also suggest adding to this strategy a goal of creating recycling capabilities that would redirect exported and landfilled plastic waste to California-based facilities for sorting, processing and remanufacturing under the regulatory oversight of federal, state and local entities. An environmentally sound recycling opportunity would significantly reduce the risk of macro-plastic introduction to the environment and human health, which are described risks of a magnitude supporting public investment.

If there are questions concerning our comments, please do not hesitate to contact us.

Sincerely,

Jim Parsons
President
National Aquaculture Association

Tony Vaught
President
California Aquaculture Association

References

Adam V, von Wyl A, Nowack B. 2021. Probabilistic environmental risk assessment of microplastics in the marine habitats. Aquatic Toxicology. 230:1-10. (https://doi.org/10.1016/j.aquatox.2020.105689.

Gouin T. 2020. Toward an improved understanding of the ingestion and tropic transfer of microplastic particles: Critical review and implications for future research. Environmental Toxicology and Chemistry 39(6):1119-1137.

Hamm T, Barkhau J, Gabriel A-L, Gottschalck LL, Gruelich M, Houiller D, Kawata U, Tump LN, Leon AS, Vasconcelos P, Yap V, Almeida C, Chase Z, Hurd CL, Lavers JL, Nakaoka M, Rilov G, Thiel M, Wright JT, Lenz M. 2022. Plastic and natural inorganic microparticles do not differ in their effects on adult mussels (Mytilidae) from different geographic regions. Science of the Total Environment. https://doi.org/10.1016/j.scitotenv.2021.151740.

Lusher AL, Welden NAC. 2020. Microplastic Impacts in Fisheries and Aquaculture. In: Rocha-Santos T, Costa M, Mouneyrac C. (eds) Handbook of Microplastics in the Environment. Springer, Cham. https://doi.org/10.1007/978-3- 030-10618-8_30-1.

NAS (The National Academies of Sciences, Engineering, and Medicine). 2021. Reckoning with the U.S. Role in Global Ocean Plastic Waste. Washington, DC: The National Academies Press. https://doi.org/10.17226/26132.

Vethaak AD, Legler J. 2021. Microplastics and human health. Science 371(6530): 672-674.

NEWLIGHT

January 21, 2022

Ms. Kaitlyn Kalua
California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
Kaitlyn.Kalua@resources.ca.gov

Transmittal Via Email: OPCmicroplastics@resources.ca.gov

Re: Support Letter for Draft Statewide Microplastics Strategy

Dear Ms. Kalua,

Newlight Technologies, Inc., (Newlight) is expressing our support for the State's policy leadership and Ocean Protection Council (OPC) staff as they continue to develop and implement initiatives to reduce and manage microplastic pollution. Newlight believes our California based technology and manufacturing would be of interest to OPC and the Draft Microplastics Strategy, specifically, the proposed immediate action which calls for "engagement with industry to identify alternative material sources."

The plastic crisis is not just a pollution problem, it is also accelerating global warming. In response, Newlight was founded in 2003 to manufacture a material that can replace oil-based plastics at global scale. Newlight has developed technology that uses naturally occurring microorganisms from the ocean to convert GHGs into a material functions like plastic, but biodegrades. This material is a naturally occurring PHB, which we call AirCarbon®.

Naturally Occurring Material: PHB

PHB (Polyhydroxybutyrate) is a long chain molecule, or "polymer" produced naturally by almost all known living things on Earth, including trees, flowers, fish, microorganisms, and the human body. PHB is found nearly everywhere life occurs, from the bottom of the Atlantic Ocean to the depths of the Amazon rainforest, and is produced to store energy. PHB is one of the oldest molecules on Earth, estimated to have come into formation over 2 billion years ago.

Since PHB is a naturally occurring energy storage material, and made throughout all of nature's ecosystems without the influence of humans, PHB has the unique characteristic that nature recognizes it as food: if left in nature, PHB is naturally consumed as an energy source, similar to fruit, leaves, seeds, natural rubber, or waxes. A thin piece of PHB, as an example, will be recognized as a nutrient by natural microorganisms present in a forest or ocean, and as such will be degraded as fast as a leaf or piece of paper. Because PHB can biodegrade in both anaerobic and aerobic environments, it can break down in a variety of disposal end points including backyard compost, commercial composters, and anaerobic digestors. This offers the consumer an array of options other than the landfill to discard products made of PHB.

Newlight's AirCarbon® PHB

AirCarbon® is produced using naturally-occurring (non-GMO) methane-consuming microorganisms found in the ocean. To make AirCarbon®, no genetically modified microorganisms, synthetic solvents, or any other non-naturally occurring materials are used to synthesize or purify the material. AirCarbon® production recreates processes found in nature. Since AirCarbon® is made in a natural process, it is also readily biodegraded by living things as a food or energy source, in all known environmental conditions that support life.

We believe Newlight aligns closely with the *Draft Microplastics Strategy*'s calls for exploration of alternative materials to plastic, and "advancements in technological innovation to identify alternative products, sourcing, design, and plastic reduction strategies." We appreciate acceptance of our comment letter and look forward to answering any further questions and providing additional information.

Sincerely,

Allegra Curiel
Policy Manager
Newlight Technologies, Inc.
acuriel@newlight.com

Oldcastle Infrastructure
A CRH COMPANY
7000 Central Park, Suite 800
Atlanta, GA 30328

oldcastleinfrastructure.com

To: Ocean Protection Council

From: Oldcastle Infrastructure
Regulatory Services

Date: January 21, 2022

RE: NOTICE OF OPPORTUNITY FOR PUBLIC COMMENT ON THE DRAFT STATEWIDE MICROPLASTICS STRATEGY

Oldcastle Infrastructure is a leading manufacturer of stormwater control measures and technology. Our mission is to provide appropriate treatment and storage solutions at a competitive cost, to protect our national waterways, and create a healthier environment. Oldcastle Infrastructure respectfully submits the following comments for consideration with further context provided below:

- Source control is an effective and integral component to pollution prevention.
- Manufactured treatment systems should be considered the primary approach to treatment for particles larger than 5mm.
- Manufactured treatment systems should be considered the primary approach to treatment for particles smaller than 5mm.

Section 2A. Solutions – Pollution Prevention

"Pollution prevention to eliminate plastic waste at the source, defined as the product, material, or industry from which microplastics originate."

Oldcastle Infrastructure supports an emphasis on source control and education to reduce microplastics in our waterways. Source control is proven to be an effective method for pollution reduction with direct, immediate, and measurable results.

Section 2A. Solutions – Pathway Interventions

"Low impact development (LID), such as bioretention rain gardens, infiltration trenches, and additional types of green infrastructure, offer opportunities to capture both macro- and microplastics and provide additional pollution reduction benefits, stormwater capture and, augmentation of groundwater."

Focusing this comment on the treatment of macroplastics, defined in this document as those plastics larger than or equal to 5mm, the proposed language suggests Low Impact Development as the preferred

practice for pathway intervention. Oldcastle Infrastructure respectfully disagrees with this assessment due to the nature of LID solutions and the impact that macroparticles will have on their efficacy and aesthetics. LID solutions are nature based, supporting trees, shrubs, and grasses to provide a symbiotic relationship that provides water and nutrients to the living components which in turn provide water quality benefits to the watershed. Creating pathways that direct large particles to LID systems will affect their ability to filter water, clogging media with large particles, and introducing toxins from the plastics into the nutrient stream for these organic systems. There is no research demonstrating the effect of large particle filtration on LID systems efficacy or maintenance cycles, but using LID to capture large trash violates the aesthetic goals that green infrastructure exemplifies.

The California State Water Resources Control Board supports a list of certified full capture systems specifically vetted and approved for the treatment of particles larger than 5mm. This list of devices has been verified as meeting both trash capture requirements (capture of all particles 5mm and larger) and vector control requirements (ensuring the health and safety concerns have been met). LID solutions have not been vetted in this manner and have limited testing showing long term effects of trash as a pollutant of concern on the systems overall health and efficacy. Therefore, Oldcastle Infrastructure suggests the use of California State Water Resources approved full capture devices as the preferred treatment approach for pathway intervention of macroplastics.

Section 2A. Solutions – Pathway Interventions

"Low impact development (LID), such as bioretention rain gardens, infiltration trenches, and additional types of green infrastructure, offer opportunities to capture both macro- and microplastics and provide additional pollution reduction benefits, stormwater capture and, augmentation of groundwater."

It is the opinion of Oldcastle Infrastructure that the treatment of microplastics, defined as those plastics smaller than 5mm, be conducted through high-flow biofiltration media or media filtration (such as media cartridges). The intention of pathway intervention is to capture microplastics and remove them from the watershed discharge route thereby eliminating microplastics from our waterways. Unlike nutrients and bacteria, microbes living in LID solutions cannot uptake or transform the pollutants. Therefore, the microplastics will remain trapped within the media until maintenance is conducted and the media is properly disposed. Systems such as media cartridges and high-flow biofiltration media will remove the same amount of pollution and microplastics as green infrastructure with comparatively less media byproduct for disposal. Using green infrastructure to filter microplastics from waterways results in media that becomes waste as the void space is full of plastics. Minimizing waste is as important as ensuring clean water ways.

Thank you for your time and consideration.

Laraine Sanfilippo
Associate Director Regulatory Affairs

10441 Vine Street
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P 619-481-0608
E laraine.sanfilippo@oldcastle.com

Personal Care Products Council
Committed to Safety, Quality & Innovation

January 21, 2022

Via Electronic Mail
Kaitlyn Kalua
Program Manager
California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Re: PCPC Comments on OPC's draft Statewide Microplastic Strategy

Dear Ms. Kalua:

The Personal Care Products Council (PCPC)[1] is pleased to provide comments concerning OPC's draft Statewide Microplastics Strategy. PCPC supports reasonable and pragmatic measures to reduce environmental microplastic contamination such as transitioning to recyclable or reusable packaging and replacing intentionally added microplastic ingredients with biodegradable alternatives. We commend OPC's commitment to a risk-based approach to safety assessment although we recommend additional science be considered. We are concerned that OPC's microplastic definition could lead to regulatory and legislative outcomes beyond the scope of Senate Bill 1263.[2] We also respectfully raise concerns that OPC's strategy misses an opportunity to advance the adoption of innovative technologies, such as biodegradable polymers, that would reduce environmental microplastic contamination while mitigating impacts on consumer choice, product performance, and commerce.

[1] Based in Washington, D.C., the Personal Care Products Council (PCPC) is the leading national trade association representing global cosmetics and personal care products companies. Founded in 1894, PCPC's approximately 600 member companies manufacture, distribute, and supply the vast majority of finished personal care products marketed in the U.S. As the makers of a diverse range of products millions of consumers rely on and trust every day – from sunscreens, toothpaste, and shampoo to moisturizer, lipstick, and fragrance – personal care products companies are global leaders committed to product safety, quality, and innovation.

[2] An act to add Chapter 3.2 (commencing with Section 35635) to Division 26.5 of the Public Resources Code, relating to pollution, SB 1263, Chapter 609 (Cal. Stat. 2018).

PCPC supports OPC's risk-based approach to assessing the environmental safety of intentionally added microplastic cosmetic and personal care ingredients. We note that important studies outlining approaches to assessing the environmental risk of microplastics and which offer key recommendations to furthering these approaches, such as Burns & Boxall (2018), Adam et al. (2021) and Gouin et al. (2019), were not considered by OPC when drafting the microplastic strategy. [3,4,5] For example, microplastic risk assessment frameworks have been proposed (e.g., Gouin et al. 2019). Additionally, Holmes et al. (2019) proposed an exposure modeling and risk-based approach for evaluating the environmental safety of microplastic cosmetic and personal care ingredients disposed of down-the-drain. [6] We therefore recommend that OPC considers these approaches for assessing the environmental risk of microplastic cosmetic and personal care ingredients which are predominantly disposed of down-the-drain. Overall, we respectfully request that OPC considers additional science related to environmental risk assessment of intentionally added microplastic ingredients in consumer products and promotes the use of risk-based approaches for guiding regulatory and legislative outcomes for these materials.

Regarding OPC's microplastic definition, it is important to note that while all plastics are polymers, not all polymers are plastics. With that in mind, we are concerned that OPC's microplastic definition does not adequately define what is, and is not, a plastic. A distinguishing feature of plastics is that they are shaped by flow during processing. This is reflected in, for example, the widely adopted ISO (International Organization for Standardization) plastic definition.[7] In addition, we recommend more thought and attention be given to the term 'solid'. Cosmetic and personal ingredients are identified by their INCI (International Nomenclature Cosmetic Ingredient) name; however, one INCI name can represent solid and non-solid polymer forms depending on their physiochemical properties. Formulation processes can also alter,

[3] Burns, E. E. & Boxall, A. B. A. Microplastics in the aquatic environment: Evidence for or against adverse impacts and major knowledge gaps. Environ. Toxicol. Chem. 37, (2018).
[4] Adam, V., von Wyl, A. & Nowack, B. Probabilistic environmental risk assessment of microplastics in marine habitats. Aquat. Toxicol. 230, (2021).
[5] Gouin, T. et al. Toward the Development and Application of an Environmental Risk Assessment Framework for Microplastic. Environ. Toxicol. Chem. 38, 2087–2100 (2019).
[6] Holmes, C. M., Dyer, S. D., Vamshi, R., Maples-Reynolds, N. & Davies, I. A. A National-Scale Framework for Visualizing Riverine Concentrations of Microplastics Released from Municipal Wastewater Treatment Incorporating Generalized Instream Losses. Environ. Toxicol. Chem. 39, 210–219 (2020).
[7] ISO. 2013. Plastics – Vocabulary (ISO 472:2013). Retrieved from https://www.iso.org/standard/44102.html.

among other properties, a polymer's physical state; we therefore also recommend that OPC includes language to reflect that only those ingredients found in finished products are relevant for applying a microplastic definition. Without a more refined microplastic definition, which should be linked to physiochemical properties at various life-cycle stages,[8,9] it is likely that non-plastic polymeric cosmetic and personal care ingredients could be defined as plastic despite not meeting key criteria of widely adopted definitions (e.g., ISO, 2013).[10] This could result in non-plastic polymeric ingredients falling under the scope of regulations and legislation intended to specifically address environmental microplastic contamination, consistent with Senate Bill 1263.

Given the important role of biodegradable alternatives (such as polyhydroxyalkanoates [PHAs], polyhydroxyalkanoate [PHBV], waxes, and glycol distearate) in replacing intentionally added microplastic ingredients we are disappointed that OPC's strategy does not recognize these innovations as new solutions to reducing environmental microplastic contamination. The adoption of such technologies would offer a wider choice of safe, high-performance cosmetic and personal products to consumers and benefit the Californian economy. Moreover, the European Chemicals Agency (ECHA) included a derogation for biodegradable plastic in its Annex XV microplastic restriction.[11] ECHA's Risk Assessment Committee (RAC) then supported this derogation in a June 2020 opinion. Importantly, the RAC recommended that evidence of biodegradability should be provided through standard testing.[12] Indeed, McDonough et al. (2017) used standard environmental fate methods, such as the OCED 301B test guideline,[13] to show that certain next generation microplastic alternatives biodegrade at similar rates to

[8] ECETOC. 2019. The ECETOC Conceptual Framework for Polymer Risk Assessment (CF4Polymers). Version 1, Technical Report No. 133-1. European Centre for Ecotoxicology and Toxicology of Chemicals, Brussels.
[9] ECETOC. 2021. Case Studies Putting the ECETOC Conceptual Framework for Polymer Risk Assessment (CF4Polymers) into Practice. Version 1, Technical Report No. 133-3. European Centre for Ecotoxicology and Toxicology of Chemicals, Brussels.
[10] ISO. 2013. Plastics – Vocabulary (ISO 472:2013). Retrieved from https://www.iso.org/standard/44102.html
[11] ECHA. 2019. Proposal for a restriction: intentionally added microplastics. Version number 1.2, Annex XV Restriction Report. European Chemicals Agency, Helsinki.
[12] ECHA 2020. Opinion on an Annex XV dossier proposing restrictions on intentionally-added microplastics. Committee for Risk Assessment (RAC), Committee for Socio-economic Analysis (SEAC). ECHA/RAC/RES-O-0000006790-71-01/F. European Chemicals Agency, Helsinki.
[13] OECD (1992), Test No. 301: Ready Biodegradability, OECD Guidelines for the Testing of Chemicals, Section 3, OECD Publishing, Paris, https://doi.org/10.1787/9789264070349-en.

natural microplastic alternatives such as jojoba wax and beeswax.[14] Overall, we respectfully urge OPC to explore and consider approaches which ensure innovative polymer technologies are encouraged and fostered when reliable supporting environmental fate data are available within the microplastic strategy.

In summary, PCPC supports reasonable and pragmatic measures to reduce environmental microplastic contamination and OPC's commitment to conducting risk-based safety assessments of these materials. We recommend however that OPC considers additional published literature to ensure the strategy is based on all available science. Additionally, we ask for OPC to address PCPC's concerns over the proposed microplastic definition which, as written, could lead to regulatory and legislative outcomes unrelated to OPC's goal of reducing environmental microplastic contamination, consistent with Senate Bill 1263. Finally, we strongly advocate for OPC to consider the benefits of replacing legacy intentionally added microplastic ingredients with innovative biodegradable polymer technologies.

Thank you for the opportunity to provide these comments.

Sincerely,

Iain A. Davies, Ph.D.
Director, Environmental Science Programs

Emily E. Burns, Ph.D.
Environmental Scientist

[14] McDonough, K. et al. Assessing the biodegradability of microparticles disposed down the drain. Chemosphere 175, 452–458 (2017).

PACIFIC
MARINE MAMMAL CENTER

January 21, 2022

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Kaitlyn Kalua
Water Quality Program Manager
Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Re: DRAFT Statewide Microplastics Strategy

Dear Kaitlyn,

On behalf of the Pacific Marine Mammal Center, thank you for the opportunity to comment on the draft California Statewide Microplastics Strategy originally directed by Senate Bill 1263 in 2018. The Pacific Marine Mammal Center (PMMC), based in Orange County, CA, rescues, rehabilitates and releases marine mammals and inspires ocean stewardship through research, education and collaboration. We are proud of our history as the first marine mammal rehabilitation facility in California that was established in 1971, prior to the Marine Mammal Protection Act of 1972.

Above all, we applaud the thoughtfulness and thoroughness of the two-track concept. Addressing gaps in our knowledge base of the landscape of the microplastics issue, while understanding that there is an urgency to enact certain actions and solutions now, allows for "us", as a state, to prioritize critical interventions immediately and improve and build upon these activities as we learn more. **PMMC would like to express its overwhelming support of this proposed approach as an effective pathway for addressing the complexity and magnitude of the microplastics problem.**

While the details of each of the two tracks were also designed in a comprehensive manner, we would like to provide our thoughts on the following:

1. **The need to emphasize the impact of microplastics on marine life, sea birds, and humans must be a priority.**

The data on the sources and magnitude of the problem continue to be overwhelming and readily available and understood by the general public. Continuing to build on this, and particularly, on the sources will be helpful. However, until the case statement of why microplastics are harmful in a meaningful manner has been well presented, there won't be that critical mass of support necessary to "move the needle" on this issue. At this point, people still do not accept or realize the harmful effects of microplastics and plastic pollution, in general. There is more convincing that has to be done as the foundational work of the education campaigns.

2. **Informal education institutions can be effective as another distribution channel for the proposed public education campaigns.**

The proposed pathway of collaborating with entities that include the California Air Resources Board, California Tobacco Control Program/Department of Public Health, CalRecycle/Department of Education will be important avenues to raise public awareness of the educational components of the microplastics pollution strategy. In addition, however, we also encourage the OPC to consider institutes that provide informal education, such as aquariums, zoos, children's museums, other museums, and facilities that offer after-school programs. These organizations, which include the Pacific Marine Mammal Center, generally are able to use unique or creative platforms in engaging with the public. As an example, at our facility, we know that our marine mammal patients are very popular in attracting the attention of both children and adults, and we take advantage of this opportunity to host approximately fifty thousand visitors annually and over twenty thousand children through our science-based education programs. Similar to other learning concepts in curriculum taught at schools, informal education can be an effective way to reinforce and supplement the microplastics pollution campaigns. There may even be things you can actually even learn better in these types of pseudo real world settings rather than studying it within the four walls of a classroom.

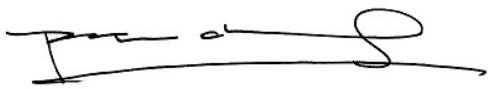
3. **Improving the understanding of the critical thresholds at which aquatic life and humans are <u>adversely impacted</u> by various microplastics exposures is imperative.**

Related to Comment #1 above, the research that will be required to build a clearer picture of the impact of microplastics consumption (e.g. tissue inflammation, impaired growth, developmental anomalies, and reproductive difficulties) will be critical in advancing the case statement needed for broader behavioral changes. We were encouraged to see that this was a research priority. To reiterate the earlier points, this information will be essential in creating the urgency needed for the general public to act at the level that is needed.

At the Pacific Marine Mammal Center, we feel very fortunate to have this opportunity to provide comments, as well as to be a partner in the stewardship of our ocean eco-system.

Please feel free to contact us with any questions or for additional information.

Sincerely,



Peter Chang
Chief Executive Officer

PACIFIC
MARINE MAMMAL CENTER

Point Blue
Conservation
Science

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January 14, 2022

Kaitlyn Kalua
Water Quality Program Manager,
Ocean Protection Council
Kaitlyn.Kalua@resources.ca.gov

RE: Public comment on draft Statewide Microplastics Strategy submitted to OPCmicroplastics@resources.ca.gov by 5:00 pm on January 21, 2022

Dear Water Quality Program Manager,

I am writing on behalf of Point Blue Conservation Science (Point Blue) to comment on the draft Statewide Microplastics Strategy. We believe the section on "Science to Inform Future Action Research Priorities" needs an at-sea monitoring component, and particularly a biological monitoring component that focuses on the incidence of plastic in living organisms. Addressing this critical monitoring gap will allow scientists and ocean resource managers to better evaluate the consequences of marine microplastic pollution to the ocean food web and allow for more evidence-based management of California's important marine resources.

At Point Blue, we advance conservation of birds, other wildlife, and ecosystems through science, partnerships, and outreach. Our scientists work to reduce the impacts of climate change and other environmental threats, including shipping, fishing, and habitat loss while promoting nature-based solutions for wildlife and people, on land and at sea.

Point Blue is an independent, scientific research non-profit that was founded in 1965. We conduct research to support marine wildlife conservation and healthy marine ecosystems. One of our priority initiatives is to conduct applied science to guide ocean management to reduce threats to wildlife and ensure sustainable human uses. Our research efforts help the USFWS manage priority species on the Farallon Islands, and our at-sea research in collaboration with NOAA's National Marine Sanctuaries provides data useful for managing threats to marine life within the Sanctuaries.

While we are pleased to see attention given to increasing microplastic pollution monitoring capabilities throughout the state, this section is lacking on biological monitoring. Existing programs highlighted in the plan (e.g., SWAMP, San Francisco RMP) focus on freshwater, estuarine, and coastal areas. Yet the extent of microplastics incidence in offshore areas and the level of occurrence in marine species remains understudied and is not well understood. Monitoring of the marine environment is essential to understanding the extent of microplastic

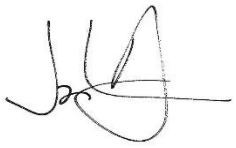
pollution in California, as well as for evaluating and predicting consequences to the marine food web as microplastics are ingested by marine wildlife.

In the last year, Point Blue Conservation Science partnered with the Estuary and Ocean Science Center at San Francisco State University to quantify the occurrence of microplastics in fish collected on the Farallon Islands, located 30 miles west of the Golden Gate Bridge. We worked with a graduate student to analyze specimens of northern anchovy (*Engraulis mordax*), a filter-feeding forage species caught by the rhinoceros auklet (*Cerorhinca monocerata*), and found a high percentage of fish containing microplastics (77%), with microfibers being the most common variety (64% of microplastics found).

Microplastics are being observed offshore in forage species, but we do not understand the full extent of microplastics in the marine food web off California. We recommend that the section on "Science to Inform Future Action Research Priorities" should be expanded to include an at-sea monitoring component that samples for microplastics not just in the water column, but also in the marine food web. A biological monitoring component able to quantify the ingestion of plastics in living marine organisms should be included, focusing at least on forage species such as krill, anchovy, juvenile rockfish, and market squid, as these are consumed by many marine predators, including seabirds, whales, and fish of commercial value like salmon. Marine predator diet sampling (similar to the current research with San Francisco State University) and direct fish sampling at key locations along the coast would improve our understanding of the incidence of microplastics in the marine environment.

We hope you will consider these comments. If you would like further information, please contact me at jjahncke@pointblue.org or 707-781-2555, ext. 335.

Sincerely,



Jaime Jahncke, Ph.D.
California Current Group Director
Point Blue Conservation Science

Cc: Dr. Grant Ballard
Chief Science Officer
Point Blue Conservation Science

January 21, 2022

California Ocean Protection Council
Secretary Wade Crowfoot
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Comments submitted via: **OPCmicroplastics@resources.ca.gov**

Dear Secretary Crowfoot, OPC Members and Staff;

Thank you for the opportunity to provide feedback on the draft Statewide Microplastics Strategy to inform and drive coordinated legislative and policy solutions to microplastic pollution. We are organizations who share a vision for California to produce food and fiber products for our communities while enhancing and repairing ecosystem health and building community resilience.

We applaud the Ocean Protection Council (OPC)'s work over the past several years on a baseline of monitoring and risk assessment frameworks to inform the Statewide Microplastics Strategy and solutions that will be presented to the State Legislature. However, we are alarmed by the current draft's lack of solutions and recommendations to directly address source reduction for the primary source of microplastic fiber pollution, synthetic textiles. Although research supported by OPC and cited in the draft Strategy is clear about the prevalence of microplastic fiber as a predominant component of microplastic pollution overall, the draft Strategy document does not specifically identify synthetic textiles as a primary source of microplastics that must be addressed in the near term by targeted solutions. Nor does the current draft include solutions that will bolster the survival and evolution of natural fiber production and manufacturing systems in our state to provide healthy textile alternatives as part of a holistic solution to address microplastic fiber proliferation.

In April 2021, OPC released the report, "Microplastic Pollution in California: A Precautionary Framework and Scientific Guidance to Assess and Address Risk to the Marine Environment" in preparation for development of the Statewide Microplastics Strategy, which included the following conclusion: ***"True source reduction of plastic materials, either through reducing production, safe-by-design engineering, or curbing societal use, may be the most effective precautionary strategy to reduce and prevent microplastic pollution."***

Current Solutions in the Draft Strategy are Insufficient
The current draft's inclusion of solutions to address microplastic fiber pollution through laundry filtration and a convening of industry experts in 2023 are insufficient for the scale and scope of the problem that has been identified and described in the scientific research underpinning this Statewide Strategy. Laundry filtration, while potentially an important pathway intervention, can address only a fraction of the microplastic emissions generated by clothing, and does nothing to mitigate emissions from other textiles. It is crucial that the state act quickly to begin addressing source reduction and systemic solutions to synthetic textiles as a known key source of microplastic pollution.

The Strategy Must Both Address Synthetic Textile Source Reduction and Build Opportunities for Natural Textile Systems
To be effective, the Statewide Microplastics Strategy must include source reduction policies that address the present proliferation of synthetic textiles, excessive textile consumption and waste overall; as well as initiatives to support the development of alternative regional natural fiber systems for biodegradable and nontoxic textile products. These are necessary components of a holistic solution to the complex and growing challenge of microplastic fiber pollution, while offering an enormous array of ancillary benefits for the environment, job creation and environmental justice.

Synthetic textiles are derived from a fossil fuel-based supply chain, with implications for carbon emissions and equity concerns, in addition to microplastic emissions throughout their lifecycle, from production to end-of-life/waste stream. Exposure to microplastic emissions in both synthetic textile manufacturing phases and textile waste pose an especially pronounced burden on vulnerable communities and ecosystems. Too often these communities and impacts are unseen or ignored by citizens and policymakers in regions like California that are driving consumption, because manufacturing is outsourced with little transparency or accountability, and much of our textile waste is exported to communities who are forced to deal with the burden to their water, land and economic systems.

With sufficient investment and supportive policies, natural fiber systems can realize goals for supporting biodiversity, building healthy soils, sequestering carbon, mitigating climate change impacts, eliminating toxicity from production and manufacturing, and providing jobs with dignity and care for all workers; while providing a natural alternative to synthetic textile products. In the current market and regulatory context, natural fibers, dyes, and cleaner chemistries are competing with fossil carbon based plastics industries. Volume-based fashion and performance textile industries drive the use of inexpensive plastics within our clothing and other textiles; the huge costs of these plastic fiber products to environmental and human health are externalized, borne by our ecosystems and communities rather than the companies profiting from them.

Building on Existing State Priorities and Programs
A systemic approach to source reduction of synthetic textile microplastic pollution can leverage and build upon work already being undertaken across numerous state agencies. For instance, CalRecycle's Statewide Commission on Recycling adopted a recommendation for Extended Producer Responsibility (EPR) in hospitality textiles last year. Several state agencies are expanding programs to develop and support agricultural systems that build healthy soil and sequester carbon while producing food and fiber products in our state, incorporating agricultural land into the state's 30x30 conservation goals (California Department of Food and Agriculture's Healthy Soils Program; California Natural Resources Agency's Sustainable Agricultural Lands Conservation Program; State Coastal Conservancy's Climate Ready Program). The Governor's Circular Economies programs are seeking ways to support industries that can reduce waste and pollution while creating good jobs. All of these initiatives can be synergistic with policy

goals to support healthy regional natural fiber and textile systems, alongside policies to reduce production and consumption of microplastic-emitting synthetic textiles.

Other regions and governments are developing coordinated strategies to reduce microplastic pollution; California could echo and expand upon these related initiatives. For example, the European Union is developing a Microplastics Policy that aims to address market and regulatory failures that are leading to growing microplastic fiber pollution, including proposals to develop rules for producer responsibility, design requirements and product labeling.

Ambitious and Coordinated Policy Solutions for Textile Systems Must be Included in the Strategy
We recommend the following solutions be included in the Statewide Microplastics Strategy:

- Coordinated state policies to reduce synthetic textile production, consumption and waste
- Incentives, investments and technical assistance for natural fiber and textile producers, processors and manufacturers in our state
- Product rating or labeling mandates that provide information to consumers about textile microplastic emissions potential
- Holding textile producers and manufacturers accountable for costs of management and end-of-life treatment for their products (Extended Producer Responsibility)

We hope you will incorporate this feedback into an updated Statewide Microplastics Strategy for OPC board consideration in February. California can take a position of international leadership in microplastics policy by embracing a soil-to-soil circular economy perspective for textiles, incentivizing producer responsibility, and encouraging product design that incorporates biodegradable materials derived from healthy regional agriculture and land stewardship.

Respectfully,

Rebecca Burgess, Executive Director, Fibershed

Doug Kobold, Executive Director, California Product Stewardship Council

Torri Estrada, Executive Director, Carbon Cycle Institute

Rebecca Spector, West Coast Director, Center for Food Safety

Nick Lapis, Director of Advocacy, Californians Against Waste

Ana Smith, Director of Programs and Engagement, White Buffalo Land Trust

Emilie Winfield, Regional Coordinator, North Coast Soil Hub

Nikki Eclarinal, Policy Manager, Fashion Revolution USA

Laura Sansone, Founder/Designer, New York Textile Lab

Hubbard and Marcee Jones, Co-Owners, Housework

Carol Lee Shanks, Owner and Designer, Carol Lee Shanks Clothing Design and Textile Art

January 21, 2022

Kaitlyn Kalua
Program Manager
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via electronic transmission

Re: Statewide Microplastics Strategy; Understanding and Addressing Impacts to Protect Coastal and Ocean Health. 12/21/2021 Draft.

I. Overview

The U.S. Tire Manufacturers Association[1] (USTMA) is the national trade association representing major tire manufacturers that produce tires in the United States. Our 12-member companies operate 58 tire-related manufacturing facilities in 17 states and generate more than $27 billion in annual sales. We directly support more than 20,000 jobs in the state of California – contributing roughly $3.5 billion dollars in direct output to the California economy. USTMA advances a sustainable tire manufacturing industry through a commitment to science-based public policy advocacy. Our member companies' tires make mobility possible and keep the U.S. economy moving. We appreciate the opportunity to provide comments on the DRAFT December 21, 2021 Statewide Microplastics Strategy; Understanding and Addressing Impacts to Protect Coastal and Ocean Health.

Tires are one of the most important safety components of a car. In addition to supporting the vehicle's weight, and providing performance in multiple weather conditions, tires are a vehicle's only connection to the road. This is why the grip between a tire and the road surface is essential to tire safety and performance, and this critical grip also leads to abrasion of both tire and road surface, producing tiny debris called tire and road wear particles (TRWP). USTMA welcomes the opportunity to work with the Ocean Protection Council and other state agencies in California on the development and implementation of the statewide microplastics strategy.

These comments provide: (1) an overview of our commitment to sustainability; (2) an overview the various factors that impact tire abrasion; (3) our recommendations on the solutions track including (a) our recommendation that lifecycle impacts be assessed before bans are instituted; (b) our support for expert workshops and recommendation that expert workshops include the tire industry to identify

[1]USTMA members include: Bridgestone Americas, Inc., Continental Tire the Americas, LLC; Giti Tire (USA) Ltd.; The Goodyear Tire & Rubber Company; Hankook Tire America Corp.; Kuhmo Tire Co., Inc.; Michelin North America, Inc.; Nokian Tyres, Pirelli Tire North America; Sumitomo Rubber Industries, Ltd.; Toyo Tire Holdings of Americas Inc. and Yokohama Tire Corporation

possible alternative product actions; (c) awareness that there is no one-size-fits-all solution to reduce tire wear and the generation of TRWP and a multi-faceted approach is needed; (d) our support for investment in green infrastructure; (e) our critique of the research used to identify microplastics in stormwater and in air transport; (f) our support for education to inform consumers that under-inflated tires can impact tire safety, performance and tread life; and (4) our support for additional research to characterize the potential for environmental exposure to microplastics.

II. The tire manufacturing industry is committed to understanding any potential impacts of our tires on the environment.

USTMA members are committed to sustainable practices in every aspect of their businesses. As global leaders in manufacturing, USTMA members embrace a shared responsibility of helping to achieve a more sustainable society. From engineering innovations that reduce CO_2 emissions to enhancing tire safety and performance, driving progress in workplace safety and preserving the environment throughout the life cycle of a tire, our members are continually looking for new ways to improve the societal contributions of their products and operations. As part of this, we remain committed to understanding any potential impacts of our tires on human health and the environment.

Since 2006, the tire industry has demonstrated this commitment by initiating and funding research performed by the World Business Council for Sustainable Development's Tire Industry Project (TIP) – the primary global forum on sustainability issues.[2] For over 15 years, TIP has proactively addressed the potential health and environmental impacts of materials associated with the life cycle of a tire with the goal of creating a more sustainable future.

TIP has performed research to evaluate the potential health and environmental impacts of chemicals commonly used in tire making and has developed a better understanding of the fate and possible effects of particles generated during normal tire use and wear. Prior to TIP's work on TRWP, no method existed to identify TRWP in the environment. TIP research evaluated the composition, presence, and the ability to detect TRWP in various environments. TIP analysis showed that TRWP is comprised of a significant amount of material from the road and surrounding environment, as opposed to just tread rubber.

The research has included evaluation of both the potential toxicity of and exposure to TRWP. The exposure pathway for humans is via the ambient air and the research has shown that TRWP contributes on average less than 1% to the total PM10 and less than 0.3% pf total PM2.5 (Panko et al., 2013; Panko et al., 2019). The average concentrations of TRWP in the air were less than the level at which adverse effects could occur (Kreider et al., 2019). The pathway for exposure to environmental receptors is through roadside soil and aquatic systems (Unice et al., 2019). Acute and chronic aquatic toxicity studies of TRWP and five freshwater species were conducted in accordance with OECD guidelines and revealed no significant adverse effects up to the maximum concentration of 10,000 ppm TRWP in sediment. These tests involved exposure to both sediment elutriates and the whole particles in sediment systems (Marwood et al., 2011; Panko et al., 2013). Measurements of TRWP in freshwater sediment ranged on average from 36 ppm to 6800 ppm (Unice et al., 2013). As such, although an

[2] The member companies of the World Business Council for Sustainable Development Tire Industry Project include: Bridgestone Corporation, Continental AG, Cooper Tire & Rubber Company, The Goodyear Tire & Rubber Company, Hankook Tire & Technology Co., Ltd., Kumho Tire Company Inc., Compagnie Générale des Établissements Michelin, Pirelli & C. S.p.A., Sumitomo Rubber Industries, Ltd., Toyo Tire Corporation, The Yokohama Rubber Co., Ltd.

adverse effect level was not identified in the toxicity studies, the average concentrations of TRWP measured in various watersheds throughout the world indicated low potential for risk.

TIP is engaged in continued research to improve scientific understanding of the potential impact associated with TRWP. USTMA supports the development of robust methodologies and peer-reviewed science by TIP, academic, and other research institutions to gain a deeper understanding of any potential human health or environmental impacts associated with TRWP and tire materials.

III. There are many factors that impact the generation of TRWP

Many factors affect tire tread abrasion rates, or the total amount of mass lost from the tire surface due to interaction with the road per unit of distance. The quantity and characteristics of generated particles and rate of tire abrasion are linked to tire design choices that must provide traction under a variety of surface and environmental conditions. In addition, the rate of tire abrasion is influenced by factors unrelated to tire design, including driving behavior, vehicle and road characteristics, weather conditions and tire pressure. These external factors can cumulatively have a bigger influence on the rate at which TRWP are formed than tire design or construction alone.

For example, a 2006 study by the Arizona State University, titled "Tire Wear Emissions for Asphalt Rubber and Portland Cement Concrete Pavement Surfaces," found that emission rates of tire wear per kilometer driven on concrete pavement road surface are 1.4-2 times higher than emission rates of tire wear on rubber modified asphalt road surface.[3] Thus, road surface is a major factor in TRWP generation.

Additionally, certain driving behaviors can have a positive impact on the reduction of TRWP generation, including but not limited to: accelerating gently, maintaining a steady speed, anticipating traffic, avoiding high speeds, coasting to decelerate, maintaining correct tire pressure, and avoiding carrying unnecessary weight. These driving behaviors also have an added benefit of improving gas mileage thereby reducing GHG emissions.

IV. Solutions track

The Solutions track outlines immediate actions that can be taken to reduce and manage microplastics and includes three major focus areas: Pollution Prevention, Pathway Interventions, and Education. We offer additional comments on some of these approaches in further detail below.

A. Pollution Prevention

1. Lifecycle benefits of a product should be assessed before implementing a product and material bans

USTMA urges the Ocean Protection Council (OPC) to acknowledge that evaluation of environmental benefits and impacts over a product's full life cycle be considered before bans are implemented. Bans of plastic materials or articles may reduce waste but may increase natural resource

[3] https://azdot.gov/sites/default/files/2019/05/tire-wear-emissions-for-asphalt-rubber-portland-cement-concrete-April2006.pdf

depletion (water, minerals, etc.) used to manufacture and return to service durable, non-disposable alternatives.

2. USTMA supports expert workshops that include the tire industry to identify possible alternative product actions.

USTMA supports the OPCs recommendation to convene experts from targeted industries to review advancements in technological innovation for tires. USTMA agrees that alternative product considerations should include life cycle assessments that incorporate climate and social impacts and chemical additive safety to avoid regrettable substitutes.

For complex, highly engineered products such as tires, product considerations must be balanced with product safety requirements. All USTMA member companies take extraordinary efforts to ensure quality, safety, and reliability of the tires they manufacture. Thus, any change in the composition of tires requires a series of safety and durability tests to ensure tires still meet Federal Motor Vehicle Safety Standards (FMVSS). The composition and nature of the chemicals present in tires impart a function and the exact composition of tires cannot be modified without great care. It is not a simple process to change the composition of tires; any change could affect the stopping distance of tires, durability, vehicle fuel economy, tire wear, and other safety-related components. Given the technical safety and performance requirements tires must meet, we recommend that targeted workshops on vehicle tires include USTMA and tire manufacturing experts.

B. Pathway interventions

1. There is no one-size-fits-all solution to reduce tire abrasion and the generation of TRWP. Effective reduction of TRWP requires a multi-faceted approach.

As mentioned previously in these comments, many factors impact tire wear, including tire design, vehicle characteristics such as weight, distribution of load, location of driving wheels and suspension types, road surface (material, runoff design, roughness), weather (humid or dry, hot or cold), road topology (hilly or flat, winding or straight), and driving behavior (aggressive or smooth driving, high or moderate speed, respecting the correct inflation pressure, braking). As a result, there is no one-size-fits-all solution to reduce tire wear and the generation of TRWP. Rather, effective reduction of TRWP will require a multi-faceted approach, and effective strategies could include reducing the generation of particles from tires through innovations in the automotive and infrastructure value chains and ensuring proper tire inflation.

2. Stormwater

a. San Francisco Estuary Institute (SFEI) monitoring study and conceptual model

The OPC refers to the SFEI microplastics monitoring study (SFEI, 2019) as foundational information for creating a statewide microplastics strategy. Although the SFEI study was extensive in terms of characterizing various source inputs of microplastics to the San Francisco Bay estuary, the analysis does not characterize all sources of microplastics to the estuary. For tire wear particles specifically, there were several limitations to the SFEI analysis; notably that SFEI did not chemically

identify particles from tire wear, despite published methods for tire and road wear particles (TRWP). Rather, they identified the particles based on their black color and manual compressibility using a tweezer "squeeze" of individual particles . As such the SFEI identified "unknown black rubbery particles" that they hypothesize are from tire wear, however other black particles, such as those originating from asphalt or asphalt sealers, also could be rubbery and in stormwater and therefore could be misidentified as tire wear particles. In the publication of their conceptual exposure model for tire particles SFEI (2021) argues that they are unlikely to have mischaracterized the black rubber particles as tire wear, however robust analytical techniques have not been applied to stormwater samples; although a methodology for quantifying single tire wear particles was published recently (Kovochich et al., 2021). As such, extrapolation of the SFEI (2019) findings with respect to source attribution of microplastics statewide is not appropriate and deserves more research.

b. USTMA supports investment in green infrastructure to address all roadway runoff.

USTMA believes that rebuilding roadways in the U.S. and in the state of California should be done with the future in mind to develop roadways that increase driver safety and preserve stormwater as a valuable resource. We support the development of green infrastructure including the use of bioswales, rubber modified asphalt, and stormwater infiltration galleries to treat all pollutants and microplastics in stormwater. The use of green infrastructure is a currently available tool that will help mitigate impacts of all microplastics transmitted to aquatic systems via the stormwater route (plastic litter, TRWP, pavement particles, road paint, vehicle derived plastic particles, outdoor plastic surfaces, etc).

A 2019 study conducted by the San Francisco Estuary Institute (SFEI), titled "Multi-year water quality performance and mass accumulation of PCBs, mercury, methyl mercury, copper, and microplastics in a bioretention rain garden", found that the use of raingardens reduced microplastics in stormwater runoff by 91%.[4] Concentrations of microparticles were decreased from 1.6 particles/L down to 0.16 particles/L by treating surface water with a raingarden. This study demonstrates that the use of raingardens and bioswales are an effective mitigation solution for microparticles in surface water/ stormwater.

Tire wear particles can be reduced in the environment through the use of rubber modified asphalt. Adding ground rubber from scrap tires into asphalt appears to have many performance and environmental benefits. For example, including ground rubber into asphalt binders creates a quieter pavement, ensures better tire grip and produces less spray for drivers in wet weather. Additionally, the use of ground rubber in roads creates longer lasting roads that crack and rut less than traditional asphalt. A 2009 study by the Arizona Department of Transportation found that driving on rubber modified asphalt roads verses concrete roads produces fifty percent less tire and road wear particles.[5] Given these benefits of rubber modified asphalt, USTMA urges the OPC to consider pavement choice as a means to reduce tire wear in the environment.

[4] SFEI-ASC Publication #872.

[5] See https://azdot.gov/sites/default/files/2019/05/tire-wear-emissions-for-asphalt-rubber-portland-cement-concrete-April2006.pdf

Additionally, the use of tire derived aggregate, or large shreds of scrap tires, in stormwater infiltration galleries also appears to provide significant benefits in reducing pollutants entering stormwater in urban areas.[6] Stormwater infiltration galleries are patches of material through which stormwater flows before entering a storm drain. Cal Recycle research found that galleries made with tire derived aggregate reduce stormwater pollutants such as zinc and iron by over 80%,[7] and research by the University of Minnesota found that stormwater galleries with tire chips reduce pollutants in stormwater by over 60%.[8] USTMA recommends that stormwater infiltration galleries be included as a best management practice for treating stormwater given the demonstrated findings that the use of this technology can reduce pollutant loading in stormwater.

3. Aerial Transport. USTMA disagrees with OPC's characterization of the aerial transport and deposition of TRWP.

USTMA disagrees with OPC's characterization of the aerial transport and subsequent deposition of TRWP as a significant pathway to urban stormwater and the ocean. The reference that OPC has cited to (Evangeliou et al, 2020) is inconsistent with all other airborne TRWP fate and transport assessments (Pierson and Brachaczek, 1974; Cadle and Williams 1978; Aatmeeyata et al., 2009; Stein et al., 2012; Denier van der Gon et al., 2013 and Unice et al., 2019 a,b). Evangeliou et al. (2020) conducted their evaluation using various mathematical models to determine, on a global scale, the amount of tire- and brake-wear particles that are deposited into the ocean and remote locations via atmospheric transport and eventual deposition. The researchers do not present any air, ocean-water, or ice sampling data with which to judge the representativeness or accuracy of the models.

For tire-wear particles, Evangeliou et al. concluded that, on a global level, atmospheric transport and deposition are the primary mechanisms by which the particles reach the ocean, which is contrary to that of other researchers and may be an artifact of the many model assumptions. The authors' conclusions are drawn from the use of various atmospheric models, in which the underlying assumptions used to calculate input values are highly uncertain.

The steps to calculate an input value for the atmospheric models were as follows:

Step 1: Determine mass of TWP released globally. This was done using two different methods:

Step 1a: Use the CO_2 ratio method (no reference or citation to a published paper for this method). Result was 3434 kt/yr.

- This approach assumes a constant direct/linear relationship of TWP release and CO_2 emissions from motor vehicle fuel combustion, where the CO_2 emissions were obtained from the CMIP6 model. Given the wide variation in TWP emission rates by country (Kole et al., 2017), and type of road (urban or rural), the assumption of constant and linear relationship with CO_2 has not been established.

Step 1b: Use GAINS model (established atmospheric model for air pollution). Result was 2380 kt/yr.

- The GAINS model has been used for many years, although tire wear rates have not been updated. The model provides air emission rates in g/vkm for three size fractions—total

[6] See https://stormwater.pca.state.mn.us/index.php?title=BMPs_for_stormwater_infiltration

[7] See CalRecycle Presentation "Civil Engineering Applications Using TDA" at 12, 16 (2017).

[8] University of Minnesota Report: "The Impact of Stormwater Infiltration Practices on Groundwater Quality" at 58 (2014).

suspended particulate (TSP), fraction of TSP that is PM10, and fraction of TSP that is PM2.5. The emission rates in this model are based on old data, and current estimates based on Tire Industry Project (TIP) studies are most consistent with the low end of the ranges represented in the model.

The results from both models were considered by the authors to be equally plausible, and therefore, the results from each were averaged together to determine that the annual average global release of TWP is 2907.3 kt. This averaged value is 18% higher than the value provided by the GAINS model alone.

Step 2: Apportion the mass of TWP released globally from Step 1 into PM10 and PM2.5 size fractions. The authors indicated that they ran the model for five scenarios, varying the % of the total mass released as follows:

PM10: 2.5%, 5%, 10%, 20%, 40%
PM2.5: 0.25%, 0.5%, 1%, 2%, 4%

The authors appear to have disregarded the TWP allocation assumptions in the GAINS model and in Klimont (2017), citing instead a previous Klimont et al. paper (citation 77). A careful review of that reference, however, finds that there is no allocation of mass of TWP into a size bin; rather, emission rates are provided for TSP, PM10, and PM2.5—which are the same as those used in the GAINS model.

For the CO_2 model, the authors indicated that the percent allocation of the total mass of TWP released annually is based on the wide ranges provided in the literature; three of their citations refer to tire wear particles (Wik and Dave, 2009; Harrison et al., 2012; Kumar et al., 2013), and none were interpreted correctly. For example, Wik and Dave (2009) present a review of published studies regarding size distributions; however, the mass % by size bin is for the *airborne* particles, not for the total mass of TWP released. Similarly, Harrison et al. (2012) report data that are from air samples collected with an Anderson impactor, for which the largest size that could be sampled was <21 µm, and the data do not represent the total amount of TWP released. Lastly, Kumar et al. (2013) presented information only on nano-sized particles (not the entire size distribution), and only by number count, not mass weight percent. Therefore, none of the literature referenced by the authors supports the allocation of the total mass of TWP into the size bins that were used in the analysis.

Pierson and Brachaczek (1974) and Cadle and Williams (1978) reported that less than 5% of the TWPs become airborne, and more recently, Aatmeeyata et al. (2009) reported that less than 0.1% of particles generated from the interaction of tires and pavement in a road simulator laboratory were 10 µm or smaller. This is similar to a conclusion reached by Stein et al. (2012), who found that <0.5% of the mass of TWP is in the PM2.5 fraction. Kreider et al., 2010 reported that less than 1% by volume (often used as a mass % approximation for bulk solids) of TRWP is 10 µm or smaller. An international workshop on transport of wear emissions stated that an average of 5%–10% of total TWP will become airborne (Denier van der Gon et al., 2013).

Significant uncertainty is introduced by the assumptions used by Evangeliou et al. to generate the two most basic input parameters to the various models, and this uncertainty is carried through its 120 iterations.

The Evangeliou et al. (2020) conclusions about air deposition as the primary pathway and mechanism for TWP to reach the ocean may have been reached using inappropriate model input assumptions, and as they acknowledge, these conclusions are not supported by any empirical evidence.

As such OPC's use of this publication to characterize the aerial transport and deposition as a significant source of microplastics in urban stormwater in San Francisco Bay and potentially the ocean is not appropriate. Unice et al. (2019a) present a detailed mass balance of tire and road wear particles (TRWP) released in the environment and show that it is consistent with available measurements in the region for which the model was developed (i.e., the Seine River watershed). Because each model parameter has some uncertainty associated with it, a probabilistic assessment of the model was conducted to characterize the variability; this assessment also showed results consistent with the measured data (Unice et al., 2019b).

The existing measurements of TRWP in the ambient air also provide some context for the conclusions reached by Unice et al.,—that atmospheric transport and deposition is unlikely to be the primary mechanism for TWP to reach the ocean. For example, measurements of TRWP in ambient air PM10 and PM2.5 in samples collected near roads in major urban settings—where concentrations are likely to be highest—show that TRWP is not always measurable (detection frequencies ranged from 50% to 100% for PM10 and 0 to 100% for PM2.5). These measurements also indicate that the absolute mass concentrations are low (PM10 averages ranging from 0.05 to 0.70 $\mu g/m^3$, and PM2.5 averages ranging from 0.004 to 0.29 $\mu g/m^3$), representing less than 1% and 0.3% of total PM10 and PM2.5, respectively (Panko et al., 2013, 2019).

C. Education

USTMA supports the development of a "strategic public awareness campaign that educates the public to recognize and understand the sources, impacts and available solutions to reduce macro and microplastic pollution."[9] As mentioned previously, there are many factors that contribute to tire abrasion including tire inflation. Drivers can reduce the amount of TRWP produced by maintaining proper tire pressure. Improper tire inflation can accelerate tire wear. Under-inflated tires can impact tire safety, performance and tread life. USTMA recommends that consumers check their pressure at least monthly to ensure proper inflation and to maximize the performance and life of the tire. Education campaigns on tire inflation not only ensure tire safety but can also reduce the increased production of TRWP caused by driving on under inflated tires.

V. Science to Inform Future Action

USTMA supports additional research to characterize the potential for environmental exposure to microplastics.

A. Monitoring

USTMA agrees that to date there is insufficient monitoring on microplastics in terms of location of sampling points, frequency of sampling and number of samples to accurately attribute all of the sources of microplastics to the ocean waters from California. Sampling only in large urban areas such as San Francisco fails to accurately characterize the spatial distribution of potential sources. Additionally, the lack of routine sampling limits the understanding of trends of microplastics in California aquatic systems, as well as potential effectiveness of mitigation measures that may be implemented in the

[9] Statewide Microplastics Strategy; Understanding and Addressing Impacts to Protect Coastal and Ocean Health. 12/21/2021 Draft at 17.

future. Without additional microplastics monitoring, California will be unable to assemble statewide relative contribution to total microplastic loading to oceans

1. USTMA recommends that sampling and analytical methods should be standardized.

Much progress has been made with respect to analytical techniques t to identify and quantify microplastics in the environment including those for TRWP (ISO TS 21396:2017, Kovochich et al. 2021a, b). USTMA recommends that methods for quantifying TRWP in environmental samples be standardized and be based on techniques that are specific TRWP.

B. Risk

USTMA supports a risk-based approach to guide action on microplastics. Assessing both the hazard and potential for exposure is important to characterizing the human and ecological health risk of microplastics in the environment. To date, most research effort has focused on enumerating microplastics and comparatively less focus has been on establishing hazard benchmarks against which the exposure measurements can be compared. USTMA supports additional research to characterize the potential toxicity of various microplastics for humans and ecological receptors and specifically recommends that environmentally relevant concentrations and test systems be used in assessing potential for toxicity. A risk-based approach will allow California to prioritize resources on mitigation measures that are likely to have the most impact.

C. Sources and Pathways

The draft statewide strategy mentions that the "OPC SAT microplastics working group has recommended focusing on discharges from tire and road wear, laundry and textiles, tobacco products and agricultural runoff. USTMA requests additional information from the OPC SAT microplastics working group on the process used and data reviewed to support the prioritization of tire and road wear discharges. USTMA recommends that the state establish a source emissions inventory for all types of plastics before prioritizing sources.

D. New Solutions

As new solutions are evaluated, USTMA and our members welcome the opportunity to participate in public processes to evaluate new solutions and their potential implementation.

VI. Conclusion

Thank you again for the opportunity to provide comments on the DRAFT December 21, 2021 Statewide Microplastics Strategy; Understanding and Addressing Impacts to Protect Coastal and Ocean Health. USTMA welcomes the opportunity to meet with the OPC and other state agencies working to create the statewide strategy on microplastics. Specifically, we welcome the opportunity to discuss the foundational science used to prioritize tire and road wear particles (TRWP) in the draft strategy. As mentioned previously in these comments, there is no one-size-fits-all strategy to reduce tire wear and the generation of TRWP. We support the development of an expert workshop on TRWP and the opportunity to share additional information about TRWP generation and mitigation with the OPC. We

also support the use of existing technologies such as the use of green infrastructure and pavement solutions such as rubber modified asphalt to reduce microplastics, including TRWP in the environment. If you have any questions about these comments, please contact Sarah Amick (samick@ustires.org, (202)682-4836).

California Stormwater Quality Association®
Dedicated to the Advancement of Stormwater Quality Management, Science and Regulation

January 21, 2022

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Submitted via email to: OPCmicroplastics@resources.ca.gov

Subject: Comments on the Draft Statewide Microplastics Strategy, Released by the Ocean Protection Council on December 21, 2021

Dear Ms. Kalua:

The California Stormwater Quality Association (CASQA)[1] appreciates the opportunity to provide input on the Statewide Microplastics Strategy (Strategy) set forth by the Ocean Protection Council (OPC). CASQA appreciates OPC's efforts to identify and prioritize goals and objectives that will provide a roadmap to address microplastics in the state of California. The Strategy is in general alignment with CASQA's own *Vision for Sustainable Stormwater Management (Vision)* [2] which emphasizes pollution prevention (true source control) as the best mechanism to address pollution in California's waterbodies.

Within this alignment, our recommendations are intended to amplify the actions where OPC's efforts are critical for achieving the goals set forth by the Strategy and for California to serve as a global leader in developing the next era of the science-informed solutions necessary to address microplastic pollution.

COMMENT #1: POLLUTION PREVENTION IS THE PRIMARY MECHANISM FOR REDUCING MICROPLASTICS POLLUTION

As the Strategy notes, and as CASQA strongly supports, microplastics must be addressed via pollution prevention (i.e., true source control). The strategic actions focus on increasing policies that ban or reduce single-use food ware, condiments, single use tobacco products, polystyrene, and microbeads. Within the Strategy, there is also acknowledgement of other products that harm the environment by shedding microplastics. A study by the San Francisco Estuary Institute[3] specifically cites tires and fibers (including cellulose acetate fibers from cigarette butts) as the top sources of microplastic releases into the San Francisco Bay, and likely in all of California. CASQA supports the structure of the strategy and the inclusion of pollution prevention, as it directly aligns with our Vision.

[1] CASQA is a nonprofit corporation with approximately 2,000 members representing more than 26 million people throughout California that advances sustainable stormwater management protective of California water resources. Our membership is comprised of a diverse range of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms.

[2] https://www.casqa.org/sites/default/files/downloads/final_-_vision_for_sustainable_stormwater_management_-_10-07-2020.pdf

[3] Moran, K.; Miller, E.; Mendez M.; Moore, S.; Gilbreath, A.; Sutton R.; Lin, D. 2021. A Synthesis of Microplastic Sources and Pathways to Urban Runoff. SFEI Technical Report: SFEI Contribution # 1049. San Francisco Estuary Institute, Richmond, CA

CASQA Recommendation:

- Add language that clearly expresses that the primary solution to microplastics reduction is pollution prevention, not treatment controls once it enters the environment.

COMMENT #2: ENSURE THAT STORMWATER IS CONSISTENTLY CHARACTERIZED AS A PATHWAY AND NOT A SOURCE

For most of the Strategy, stormwater is characterized as a pathway or transport mechanism. However, in the main discussion of stormwater solutions (page 15), stormwater is described as a "predominant source" of microplastics due to the high prevalence on the San Francisco Bay. The distinction between source and pathway is fundamentally important to ensure that the Strategy focuses on solutions – reducing or eliminating the actual sources that generate microplastics pollution.

The study by the San Francisco Estuary Institute (referenced in Comment #1) found that tires composed nearly half of the microplastics identified in recent urban runoff monitoring in the San Francisco Bay region and are one of the most ubiquitous forms of microplastic pollution reported globally. Rather than treating stormwater as a "predominant source," the true microplastic sources (e.g., tire particles and fibers) should each have its own pollution prevention mechanism, and stormwater should be described as a pathway.

CASQA Recommendation:

- In page 15 of the Strategy in the stormwater paragraph, strike: "stormwater runoff observed in the San Francisco Bay should be confirmed as a ~~predominant source~~ **pathway** in other urban areas in the state."
- Universally, when referencing stormwater, ensure it is described as a pathway and not as a source for microplastics.

COMMENT #3: IMPLEMENTING THE STRATEGY AT A STATEWIDE LEVEL IS THE MOST EFFECTIVE APPROACH

CASQA strongly supports the approach in the Strategy to address bans and other mitigation mechanisms at a statewide level. Strategic actions like product and material bans and financial incentives are very resource intensive for local governments to implement city by city and county by county. In the case of microplastics, focusing on statewide actions will result in the most effective and appropriate scale for implementation.

CASQA generally supports the monitoring concepts introduced in the Strategy. We strongly support the Strategy's recommendation to utilize existing statewide and regional monitoring programs (i.e., Surface Water Ambient Monitoring Program (SWAMP), San Francisco Bay Regional Monitoring Program, and Southern California Bight Regional Monitoring Program). The existing programs will provide a consistent statewide approach to monitoring and to inform the necessary pollution prevention solutions. However, inclusion of monitoring requirements in individual MS4 permits would result in potentially disparate, inconsistent, and less efficient data collection and analysis.

Statewide programs will also more appropriately support and implement evolving science, especially the development of standardized methods and sampling protocols. Monitoring data and source specific information can then be used to identify spatial and temporal trends, pinpoint problem sources, better understand transport pathways, and inform management actions (current and future) through true source control programs.

CASQA Recommendation:

- On page 25, strike: ~~Require microplastic monitoring for municipal stormwater permittees as permits are renewed or revised~~.

COMMENT #5: OPC SHOULD UTILIZE SCIENCE TO INFORM FUTURE ACTIONS SUPPORTING POLLUTION PREVENTION RATHER THAN MAKING RECOMMENDATIONS FOR REGULATORY ACTIONS

Pollution prevention (true source control) is the key to resolving microplastics pollution. These methods have proven successful in addressing other key pollutants from a statewide, true source control perspective. For example:

- Monitoring programs related to pesticides have been implemented to improve modeling efforts used to assess the risk of pesticides in causing aquatic toxicity prior to registration. Monitoring efforts have also supported changes to labeling on products leading to safer use.
- Monitoring of metals such as copper and zinc have led to the identification of key sources, specifically copper in automobile brake pads and zinc in automobile tires. These monitoring programs have informed statewide legislation to support key product changes to reduce these pollutants. Continued monitoring programs will provide information to evaluate the efficacy of these actions.

These examples employed an approach focused on identifying and controlling the pollutants at their source and provide proof of concept that the "traditional" regulatory approach may not be the most effective means to address the problem of microplastics. CASQA encourages OPC to focus on monitoring to evaluate the extent of the problem, characterizing sources, and supporting true source control programs, rather the developing and implementing new and potentially costly regulations.

CASQA Recommendation:

- Use science and monitoring to support statewide true source control programs designed to halt the source of microplastics rather than continue the "traditional" regulatory approach of developing water quality objectives, impairment assessments, and TMDLs that lead to costly monitoring and implementation requirements for individual permittees.

COMMENT #6: REQUIRING MICROPLASTICS MONITORING IN THE MS4 PERMITS BY 2024 IS PREMATURE

While CASQA generally supports the monitoring concepts introduced in the Strategy (see Comment #4), it is premature to require microplastic monitoring for municipal stormwater permittees by 2024 for the following reasons.

- Currently, most if not all municipal stormwater permits require standard methods (e.g., those listed in 40 CFR136 or equivalent) for all permit-required monitoring. Such methods for microplastics, however, are still in development stage. Completion of the method development, peer review, and adoption will likely require a timeline that extends well beyond 2024.
- All permits require laboratories that conduct permit-required analyses to be certified by the State's Environmental Laboratory Accreditation Program (ELAP). This certification will require additional time.

CASQA Recommendation:

- *Strike out the bullet point on Page 25 under the 'Monitoring' tab:*
  ~~*Require microplastic monitoring for municipal stormwater permittees as permits are renewed or revised. (2024)*~~

COMMENT #7: FRAMING LOW IMPACT DEVELOPMENT AS A POLLUTION CAPTURE DEVICE MAY NEGATIVELY IMPACT EFFORTS TO CAPTURE STORMWATER

Framing Low Impact Development (LID) as a pathway intervention for microplastics gives us pause. LID is an excellent tool for reconnecting the hydrologic cycle and for increasing stormwater capture. To protect stormwater as the resource that it is, the public and policy makers need to shift their thinking away from viewing stormwater as a pollutant to protecting stormwater as a resource. If permits and policy makers frame LID in terms of a pollution capture device, rather than as a way to capture this resource, projects may face local opposition (such opposition has

resulted in projects being rejected by local communities[5] due in part to perceived fears of concentrating bacteria in soils). The Strategy makes this connection on page 19 by recommending the prioritization of LID implementation in microplastics generating areas. Such a recommendation would easily manifest as a screening criteria or requirement in a stormwater permit, directly linked to microplastics. This connection moves LID squarely into a pollution capture device and away from framing LID as a critical tool to increasing stormwater capture.

As noted throughout this comment letter, reducing microplastics from the environment through true source control is not only the most effective solution, it is also necessary for the long-term success of stormwater capture. CASQA understands and appreciates the structure of the Strategy to focus on sources as well as pathways. Incentivizing LID and stormwater capture aligns with our Vision. Our comment does not seek to change the need to build this infrastructure; rather, it focuses on the importance of how LID is framed and the need to treat stormwater as a resource.

Lastly, there is concern that LID will be viewed as the primary action to reduce microplastics. Again, we emphasize how important pollution prevention activities are – not only for microplastics reduction, but for the viability of capturing stormwater, which is a valuable resource and critical to California's future resiliency. Microplastics are distinctly different than metals, bacteria, or other pollutants in that they are a physical contaminant with specific concerns related to accumulation and concentration. The impact of such accumulation and concentration is unknown. Pollution prevention must be prioritized to achieve our common goals.

CASQA Recommendation:

- Revise the recommendations for stormwater on page 19 such that LID is not framed as a pollution capture device for microplastics; incentive LID for its multiple benefits
- Existing programs requiring LID strategies on land development and public retrofit project projects should be supported by the Strategy. True Source Control should be a primary focus of efforts to reduce microplastic pollution in stormwater. Where additional stormwater treatment controls are desired, more research is needed to identify the most effective, cost effective and technically feasible approaches, which may or may not be described as LID best management practices.

COMMENT #8: THE STATEWIDE TRASH AMENDMENTS ARE MISCHARACTERIZED WITHIN THE STRATEGY

The intent of the Trash Amendments[6] established by the State Water Resources Control Board is mischaracterized in the Strategy. The goal of the Trash Amendments is to address the impacts of trash to the surface waters of California through the establishment of a statewide narrative water quality objective and implementation requirements to control trash. The water quality objective is implemented through the prohibition of discharge. The Trash Amendments do not set a goal of attaining zero trash in state surface waters by 2030, as stated in the stormwater section of the Strategy. The Trash Amendments state that trash shall not be present in ocean waters/inland surface waters, enclosed bays, estuaries, and along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance. This discharge prohibition is to be achieved through the implementation of control measures to address trash in priority land use areas.

The stormwater implementation strategy in the Trash Amendments is designed to address particles greater than 5mm in size. Although some microplastics result from degradation of plastics greater than 5mm, the Strategy should not rely on the Trash Amendments to reduce microplastics pollution. Rather, the Strategy should acknowledge the Trash Amendments as one tools to address microplastics but emphasize and ensure that future resources focus on

[5] https://www.dailybreeze.com/2019/03/28/this-is-why-hermosa-beach-scrapped-a-large-stormwater-infiltration-project-potentially-costing-it-3-1-million-in-grant-funding/

[6] State Water Resources Control Board Resolution 2015-0019. Amendment to the Water Quality Control Plan for Ocean Waters of California to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

improved science and true source control to best understand how to curb the generation and transport of microplastics in the environment.

CASQA Recommendation:

- *The strategic actions for stormwater should not rely on the Trash Amendments to reduce microplastics pollution.*
- *The Strategy should remove, on page 15, "~~Trash Provisions further established a water quality objective of zero trash in state waters by 2030~~" as this statement mischaracterizes the Trash Amendments.*

Thank you again for the opportunity to comment on OPC's draft Statewide Microplastics Strategy. On behalf of our members across the state, we look forward to the consideration of our comments. If you have any questions, please contact me at (310) 462-4939 or karen.cowan@casqa.org.

Sincerely,

Karen Cowan, Executive Director
California Stormwater Quality Association

cc: Jonathan Bishop, State Water Resources Control Board
Karen Mogus, State Water Resources Control Board
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CASQA Board of Directors
CASQA Executive Program Committee
CASQA Monitoring and Science Subcommittee
CASQA Policy and Permitting Subcommittee
CASQA True Source Control Subcommittee