

Understanding Dungeness crab fishing dynamics and rising whale entanglements

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How have California Dungeness crab fishery
landings and activity changed
over time
and
across the coast?

Data sources

1. PacFIN fish tickets and vessel lengths
2. Vessel Monitoring System (VMS) data

Years: 2009-2016

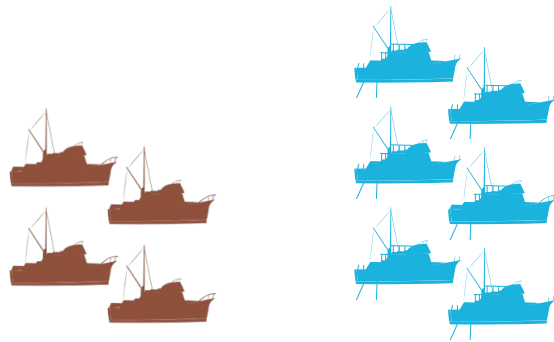
Spatial extent: US continental west coast

Matched fish tickets to VMS locations within a specified time period

- Depth
- Vessel speed
- Specified “look back” window



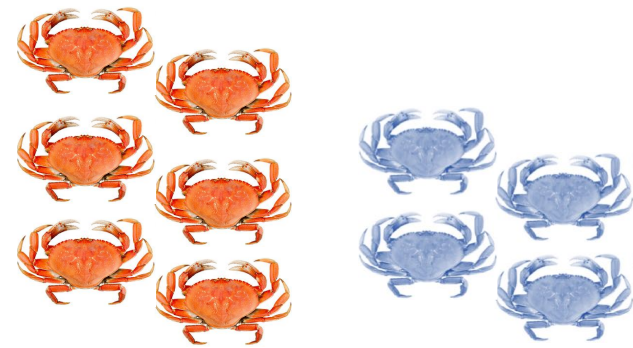
Representation of the California Dungeness crab fishery in the VMS database



VMS

No VMS

40 of every 100 crab boats in CA has VMS

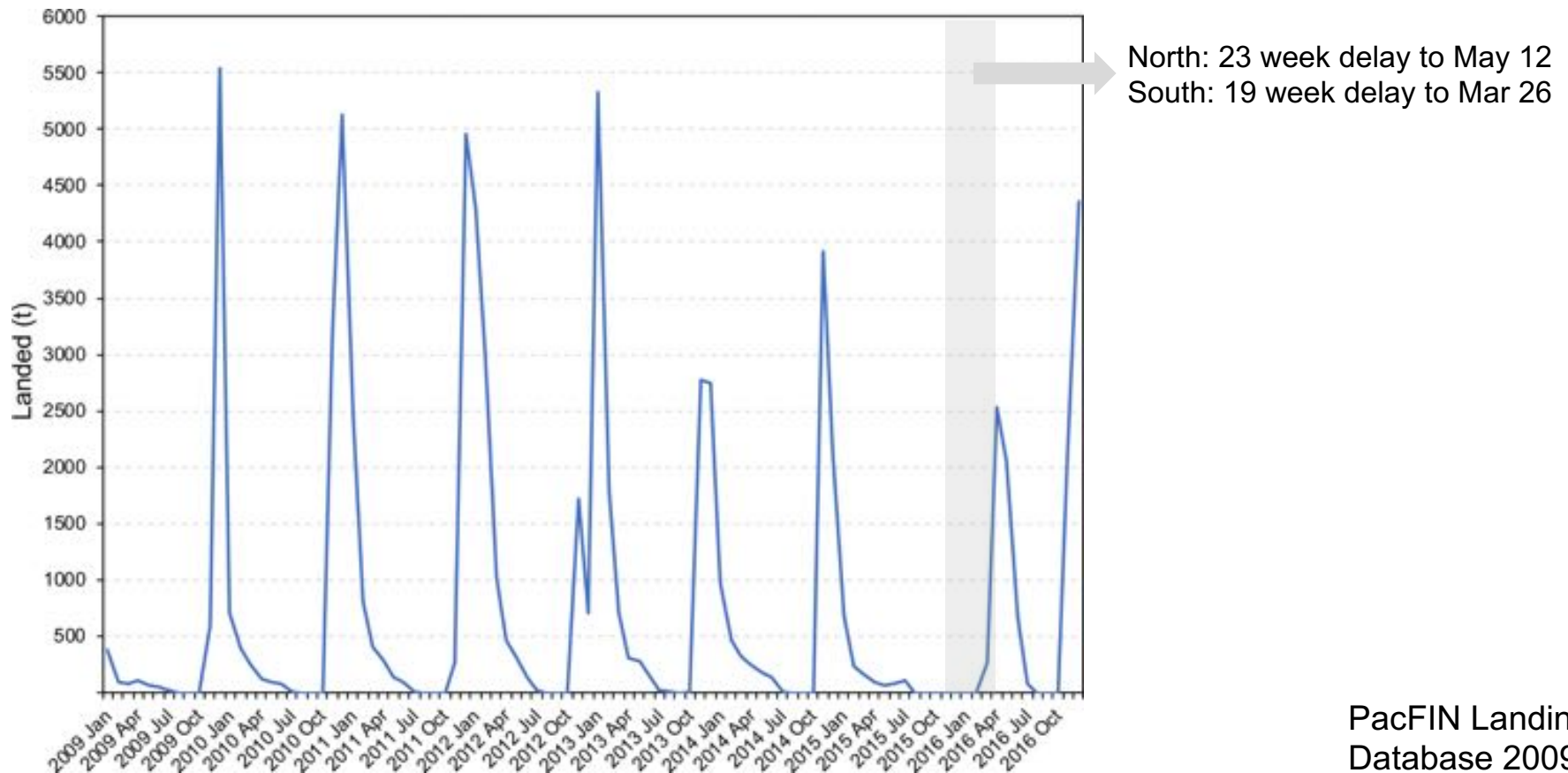


VMS

No VMS

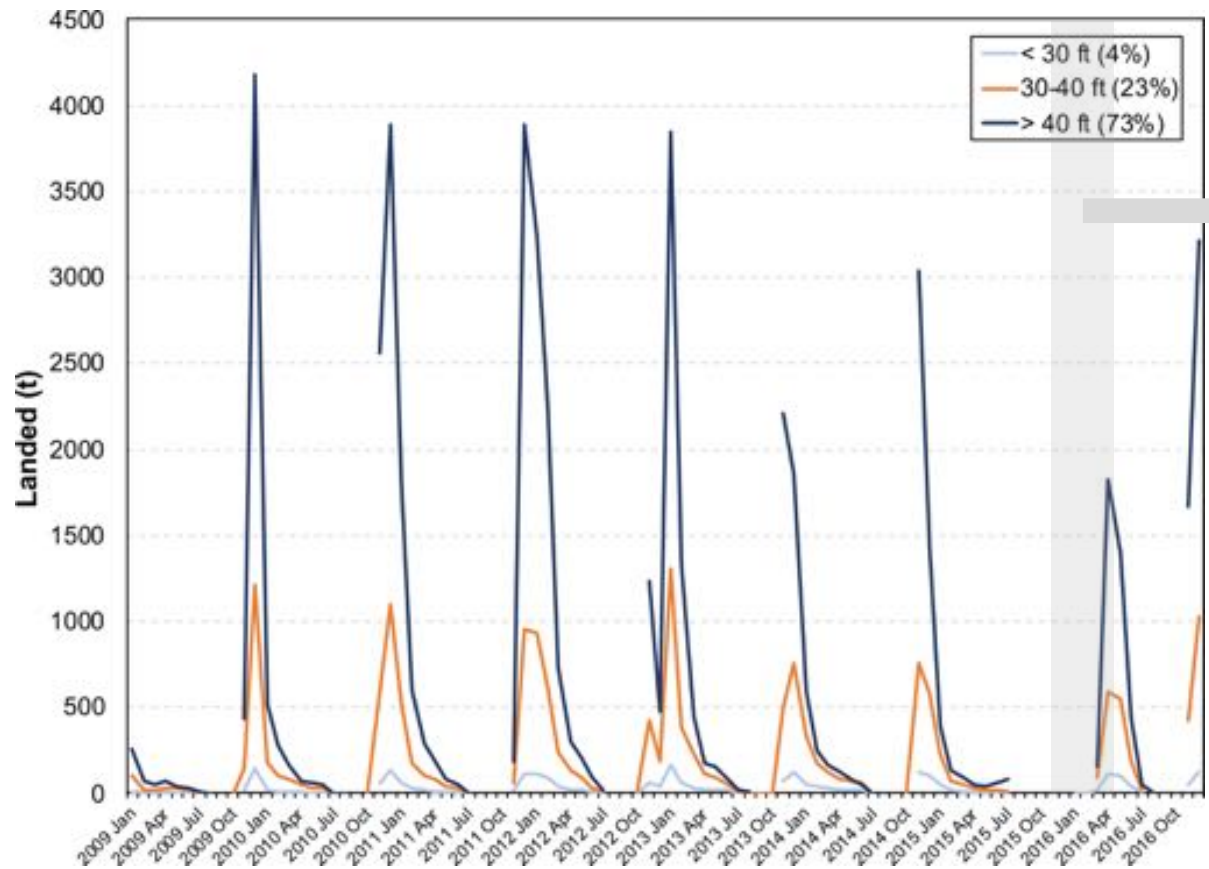
58 of every 100 tons of crab landed in CA come from a boat with VMS

Clear decline in Dungeness crab landings in CA starting with the 2013/14 season, especially during domoic acid related closure in the 2015/16 season

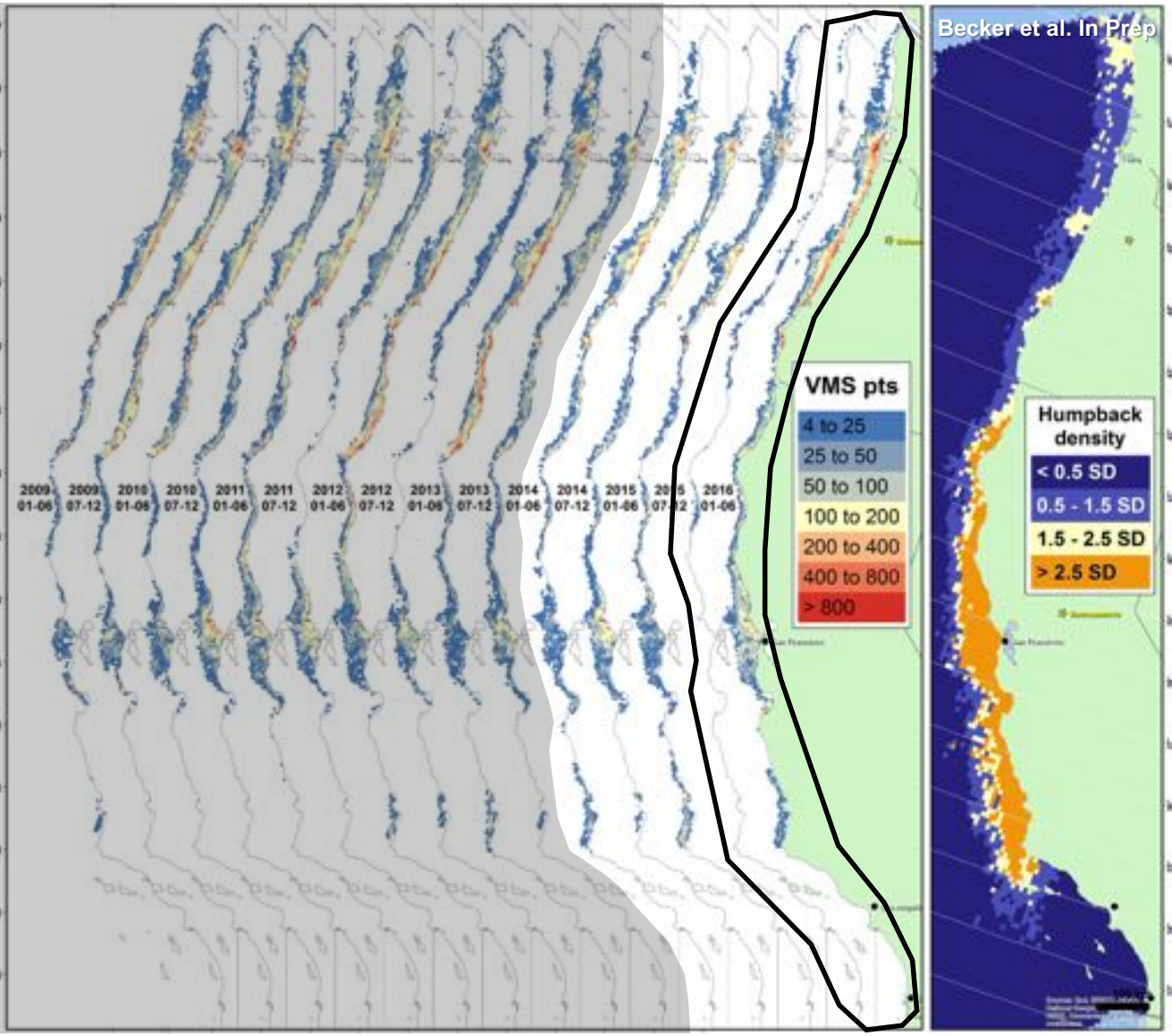


PacFIN Landings
Database 2009-2016

In California Dungeness crab vessels of different sizes show similar trends



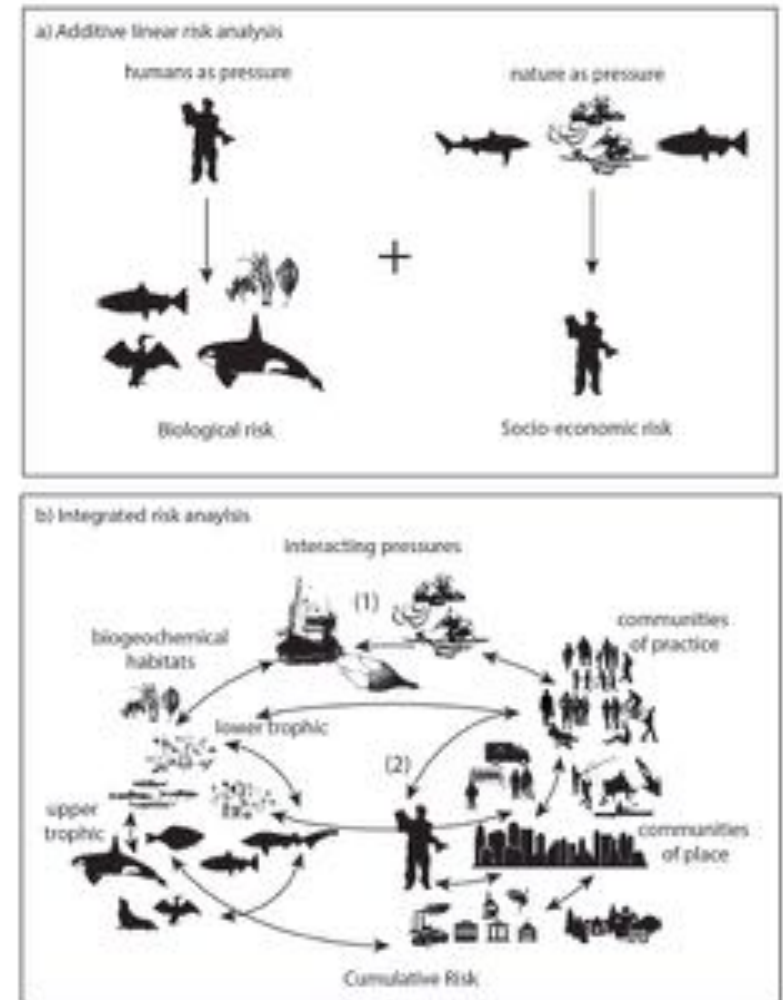
North: 23 week delay to May 12
South: 19 week delay to Mar 26



Dungeness fishing activity (PacFIN informed VMS) over time

Looking forward: potential applications

1. How to minimize economic losses to the Dungeness crab fishery while addressing the rise in whale entanglements?
2. What management options are most desirable?
3. What are your experiences on the water and what are we not seeing in the PacFIN and VMS databases?



Holsman, Samhuri et al. 2017

Ideas and questions?