California Department of Fish and Wildlife
Dungeness Crab Fishing Gear Working Group
DRAFT Summary of Northern CA Aerial Survey on February 8, 2018
February 9, 2018

The northern management area season was delayed due to quality testing until Jan. 15, 2018 for the 2017-18 season. Continued industry price negotiations delayed fishery effort further until early February. A California Department of Fish and Wildlife (CDFW) flyover survey had been scheduled to occur on Jan. 31, but did not happen due to continued industry price negotiation delays. A flight using CDFW's Partenavia P68 Observer aircraft was rescheduled to take place on February 8, 2018 after it was confirmed that industry had decided to set gear on February 4. The overall intent of scheduling this flight was to capture the large concentration of gear at the height of the northern season as well as to test the capability of using CDFW's aircraft for future verification of real-time whale entanglement risk if determined by the evaluation team under the RAMP protocol.

The CDFW flight protocol was designed to maximize observational area by flying along two depth strata parallel to the coastline. This has been different from past aerial surveys presented to the working group where transects that are perpendicular to the coast and spaced at set intervals have been used to count whales and crab trap buoys. The flight started along the nearshore 20-fathom depth strata of from Eureka, CA and followed along a total of seven waypoints northward to the CA/OR border. At this northward destination, the plane traveled further offshore (west) and travelled along a 50-fathom depth strata by following another 6 waypoints southward back to Eureka (see included 2-pg map).

The crew on board the flight included two CDFW staff: Torrey Soland CDFW Eureka Scientific Aid and LED Warden Michael Hampton, who were designated observers, and included Warden pilot, Michael Breiling. Ideal weather conditions prevailed with clear, sunny skies and northerly winds of 10-20 knots and calm seas with mixed swell from the north at 3 feet every 5 sec and from the west at 3 feet every 12 seconds. Altitude of plane hovered around 200 feet and flight began at 1040 and ended at 1345 with a short stop at 1246 for a total flight survey time under 3 hours long.

The main goal was to test the feasibility of observing any real-time entanglement risk by observing whales and crab fishing gear while also attempting to count individual traps by the observation of crab buoys and whales that are at the surface. The initial plan was to have both observers count and GPS mark each buoy and whale observed from both sides of the plan, but that there were far too many buoys to accurately mark, so observers quickly shifted protocol. The observer on the starboard side of the plane counted buoys between waypoints, while the observer on the port side would GPS mark waypoints along the way of the flight as well as mark and record observations of any whales encountered. No altimeter was used to measure the extent angle of observations, but crab buoys were counted between just below the visible, starboard side of the plane and about 100-300 yards from the plane, best guess estimate. Approximately, 1,900 buoys/traps were counted along the 20-fathom line while a little over 110 traps were counted along the 50-fathom line (Table 1). This is an order of magnitude difference between the two depth strata covering the same length of coastline. In addition, whales were observed along this deeper offshore line between waypoints 8 and 9 (see Figure 1) with GPS waypoints marked (between CA/OR border and north of Crescent City).

Table 1. Results of counts of crab trap buoys observed between set waypoints parallel to shore.

Waypoint #	(N)earshore/(O)ffshore	Observed number of crab trap buoys	Observed Number of Whales
1-2	N	>300	0
2-3	N	266	0
3-4	N	445	0
4-5	N	400	0
5-6	N	619	0
6-7	N	173	0
8-9	O	76	5
9-10	O	25	0
10-11	O	0	0
11-12	O	3	0
12-13	O	8	0

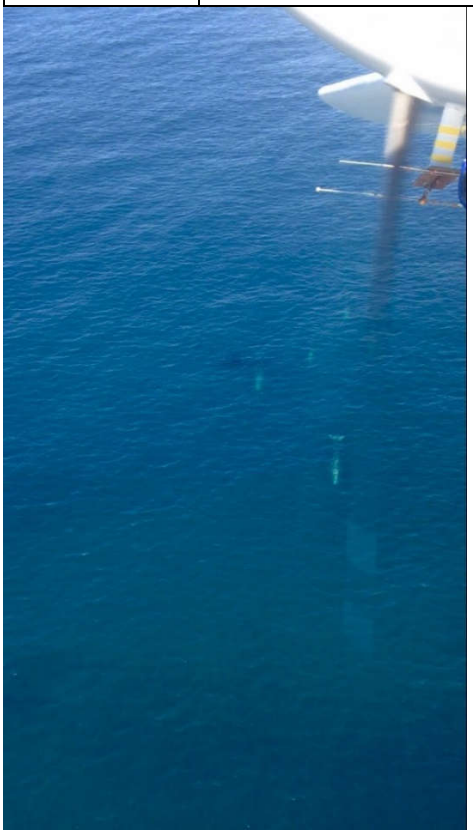
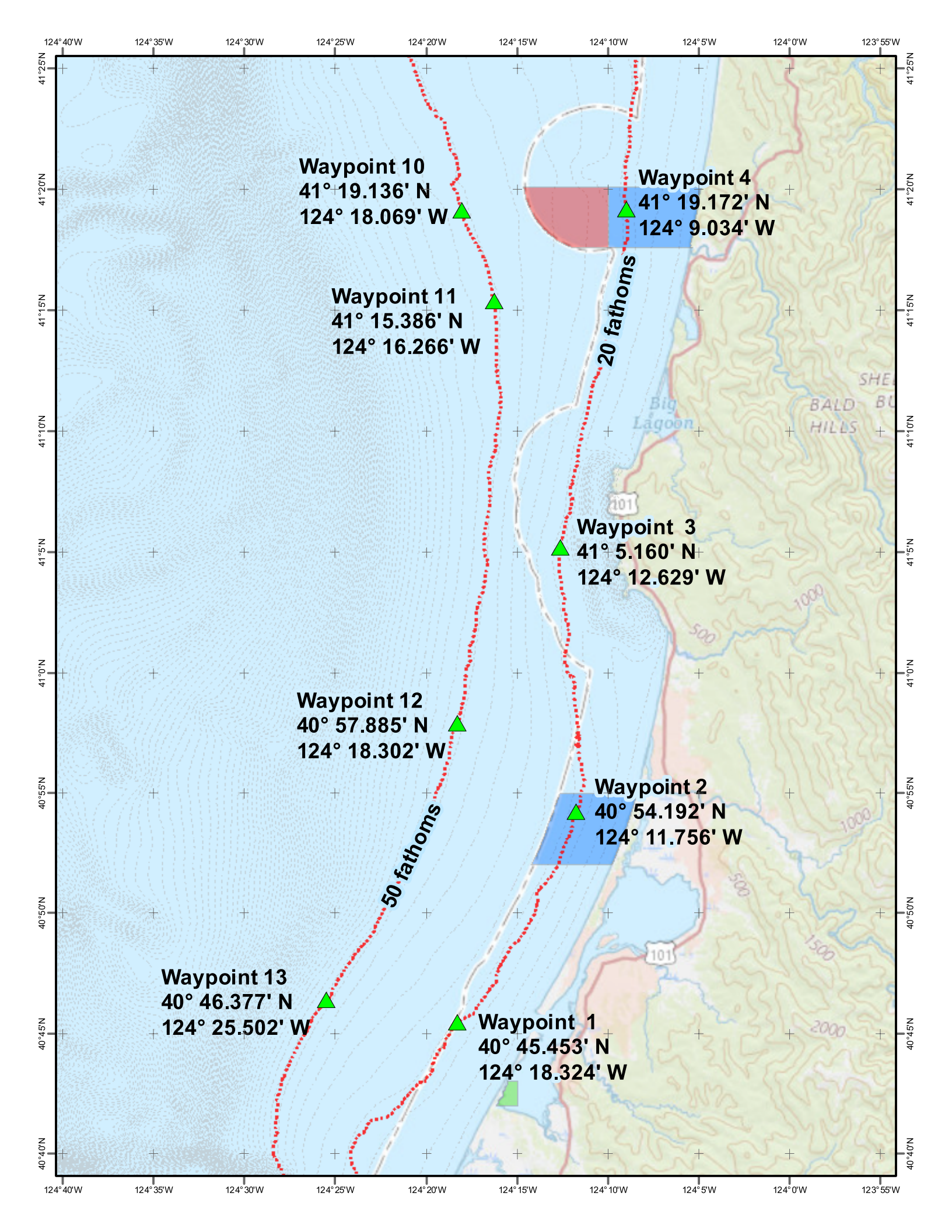
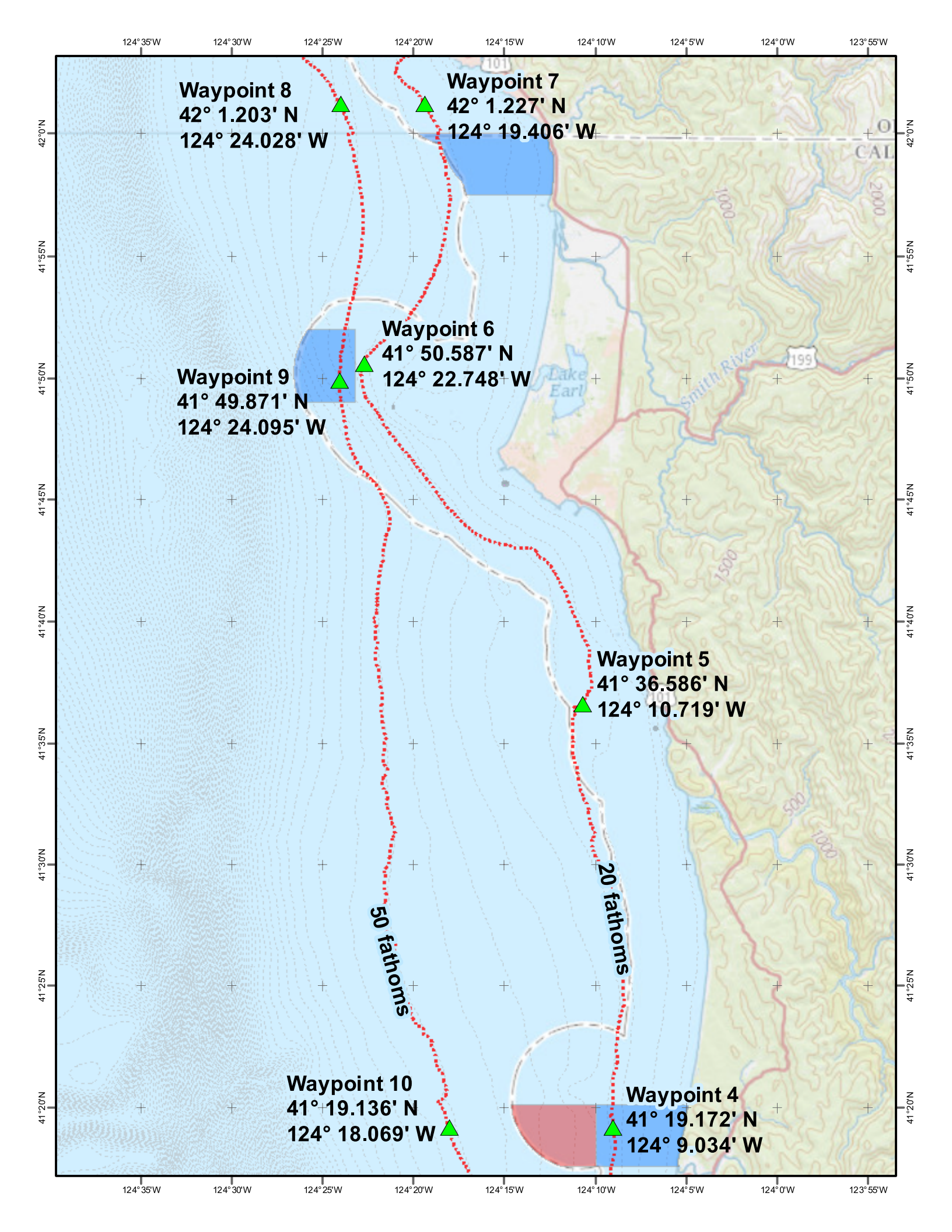


Fig. 1 A pod of four gray whales observed heading south on the offshore transect line (50-fathoms) between waypoints #8 and #9.


Waypoint 10
41° 19.136' N
124° 18.069' W
Waypoint 4
41° 19.172' N
124° 9.034' W
Waypoint 11
41° 15.386' N
124° 16.266' W
20 fathoms
Waypoint 3
41° 5.160' N
124° 12.629' W
Waypoint 12
40° 57.885' N
124° 18.302' W
Waypoint 2
40° 54.192' N
124° 11.756' W
50 fathoms
Waypoint 13
40° 46.377' N
124° 25.502' W
Waypoint 1
40° 45.453' N
124° 18.324' W
Big Lagoon
BALD HILLS
101
124° 40'W
124° 35'W
124° 30'W
124° 25'W
124° 20'W
124° 15'W
124° 10'W
124° 5'W
124° 0'W
123° 55'W
41° 25'N
41° 20'N
41° 15'N
41° 10'N
41° 5'N
41° 0'N
40° 55'N
40° 50'N
40° 45'N
40° 40'N


Waypoint 8
42° 1.203' N
124° 24.028' W
Waypoint 7
42° 1.227' N
124° 19.406' W
Waypoint 6
41° 50.587' N
124° 22.748' W
Waypoint 9
41° 49.871' N
124° 24.095' W
Waypoint 5
41° 36.586' N
124° 10.719' W
Waypoint 10
41° 19.136' N
124° 18.069' W
Waypoint 4
41° 19.172' N
124° 9.034' W
50 fathoms
20 fathoms
Lake Earl
Smith River
124° 35'W
124° 30'W
124° 25'W
124° 20'W
124° 15'W
124° 10'W
124° 5'W
124° 0'W
123° 55'W
42° 0'N
41° 55'N
41° 50'N
41° 45'N
41° 40'N
41° 35'N
41° 30'N
41° 25'N
41° 20'N