

Table 1. Summary of observed DGN bycatch sperm whale bycatch events, 1990 to 2012.

latitude	longitude	Date	Depth (meters)	Depth (fathoms)	Number Acoustic Pingers	Extender Length (feet)	Number of whales entangled
36.35	-122.74	11/13/1992	3,299	1,803	0	36	3
36.28	-122.93	10/26/1993	3,089	1,690	0	36	1
32.47	-120.00	12/20/1993	1,645	899	0	46	2
36.02	-122.89	12/10/1996	2,944	1,610	33	36	1
36.03	-122.85	11/17/1998	3,290	1,799	28	36	1
31.95	-119.60	12/05/2010	2,924	1,599	40	37	2

Figure 1. Locations of observed fishing sets (white dots, n=8,365) and sperm whale bycatch events (red triangles, n=6, totaling 10 animals) in the California swordfish drift gillnet fishery, 1990-2012.

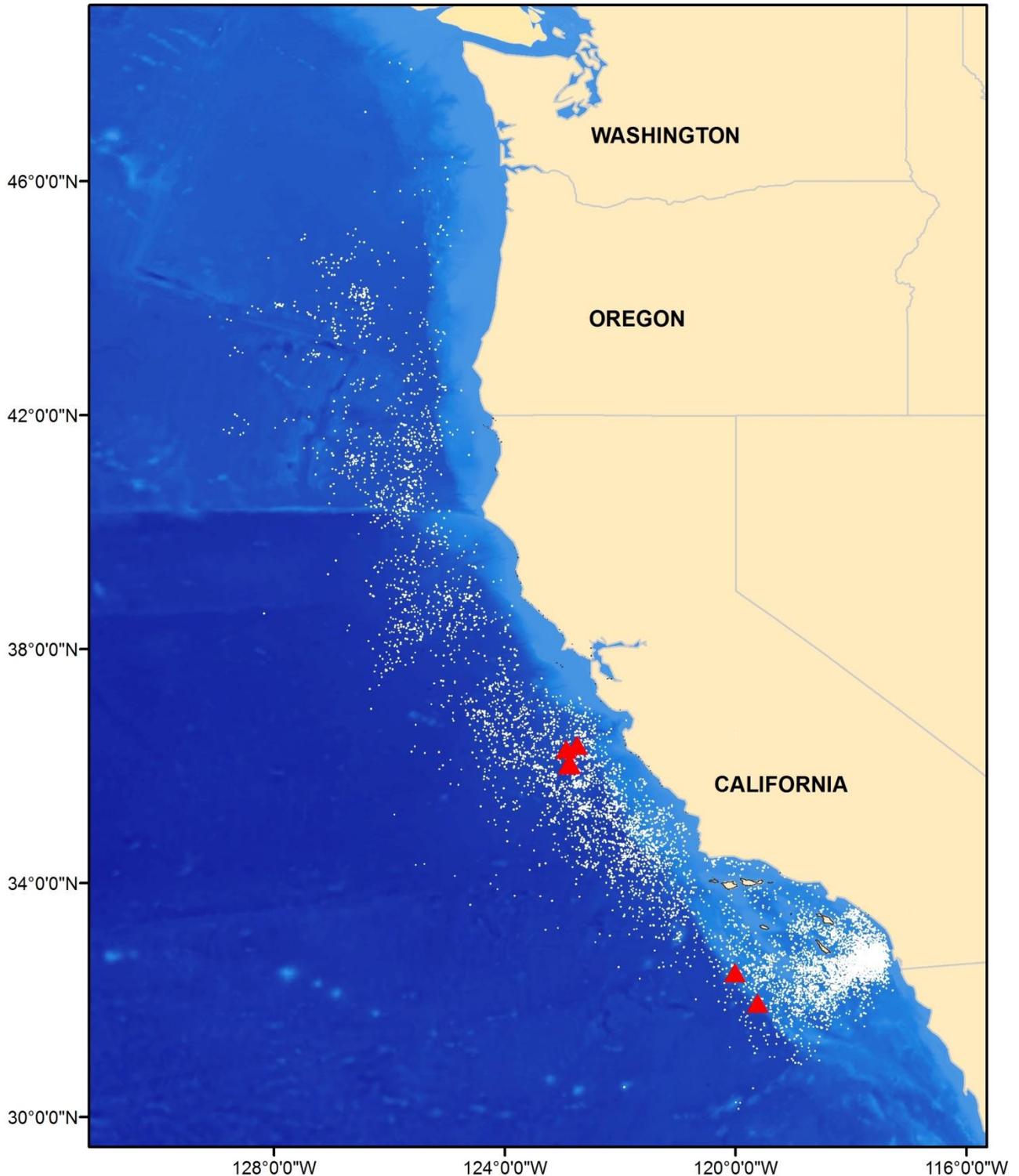


Figure 2. Research vessel survey effort and sperm whale sightings, 1991 to 2009.

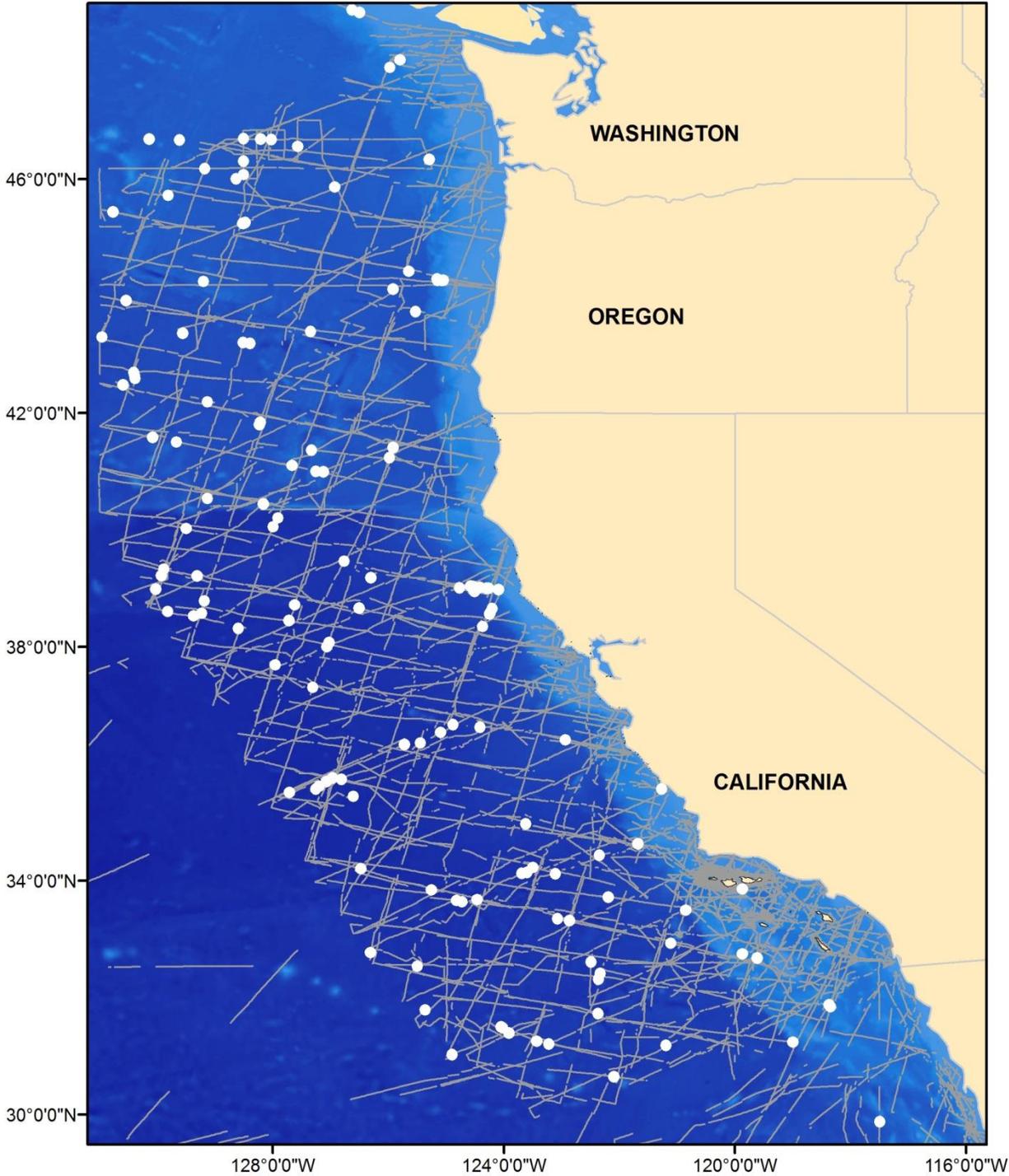


Figure 3. Differences in sighting distributions between sperm whales (white dots) and humpback whales (orange dots).

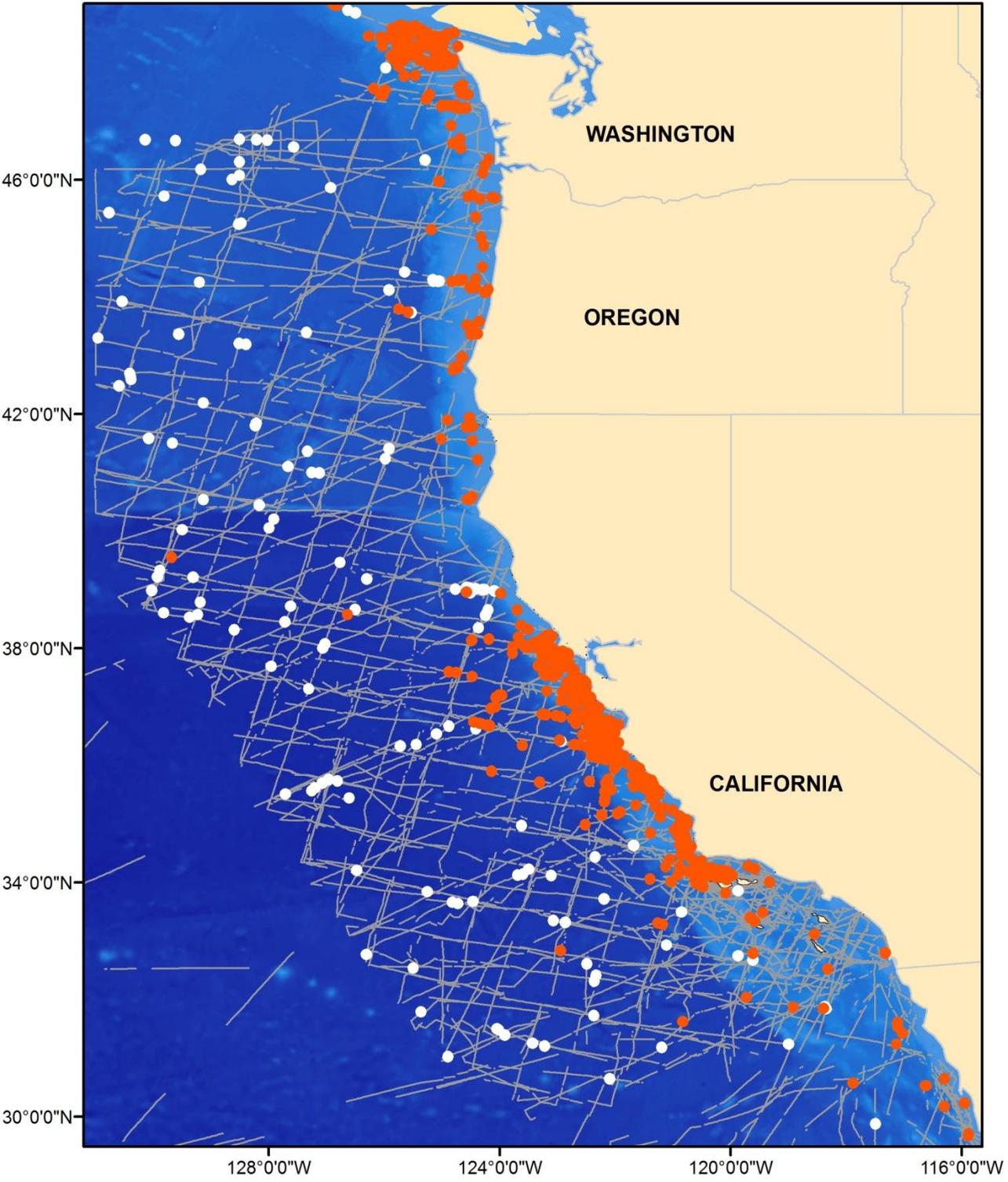
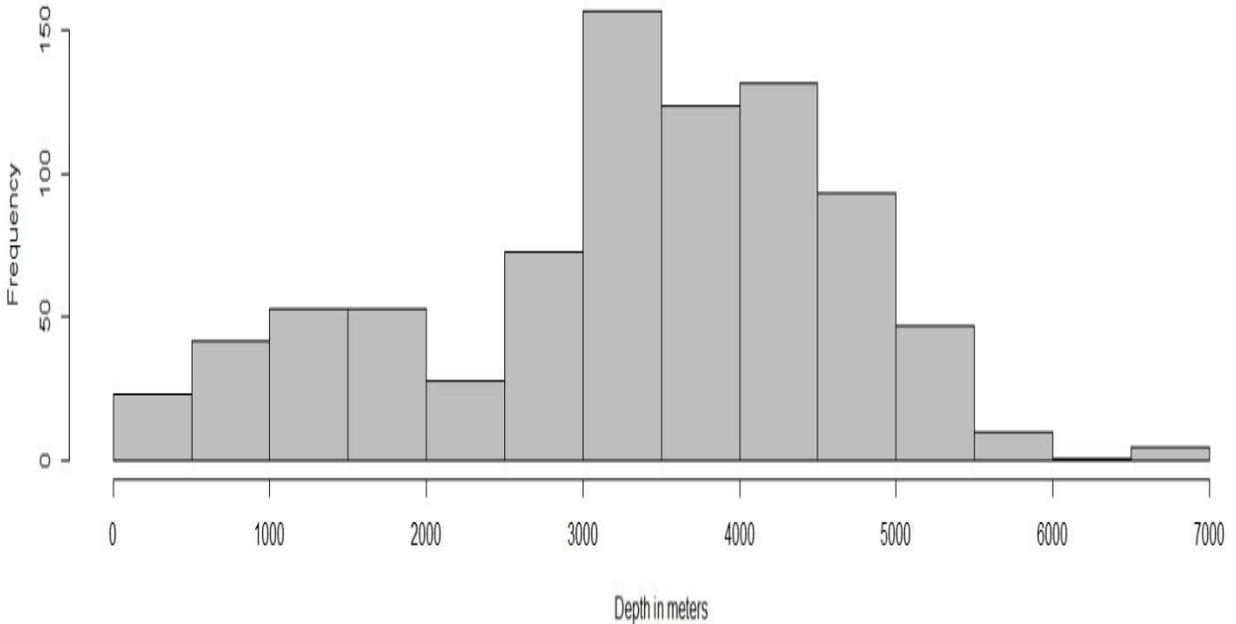


Figure 4. Depth distribution of sperm whale sightings from research vessel surveys, 1986-2010. Top panel shows all North Pacific sightings, Bottom panel shows California Current sightings.

Depth Distribution of RV Vessel Sperm Whale Sightings 1986-2010, all areas, n=841



Depth Distribution of RV Vessel Sperm Whale Sightings 1986-2010, US West Coast, n=135

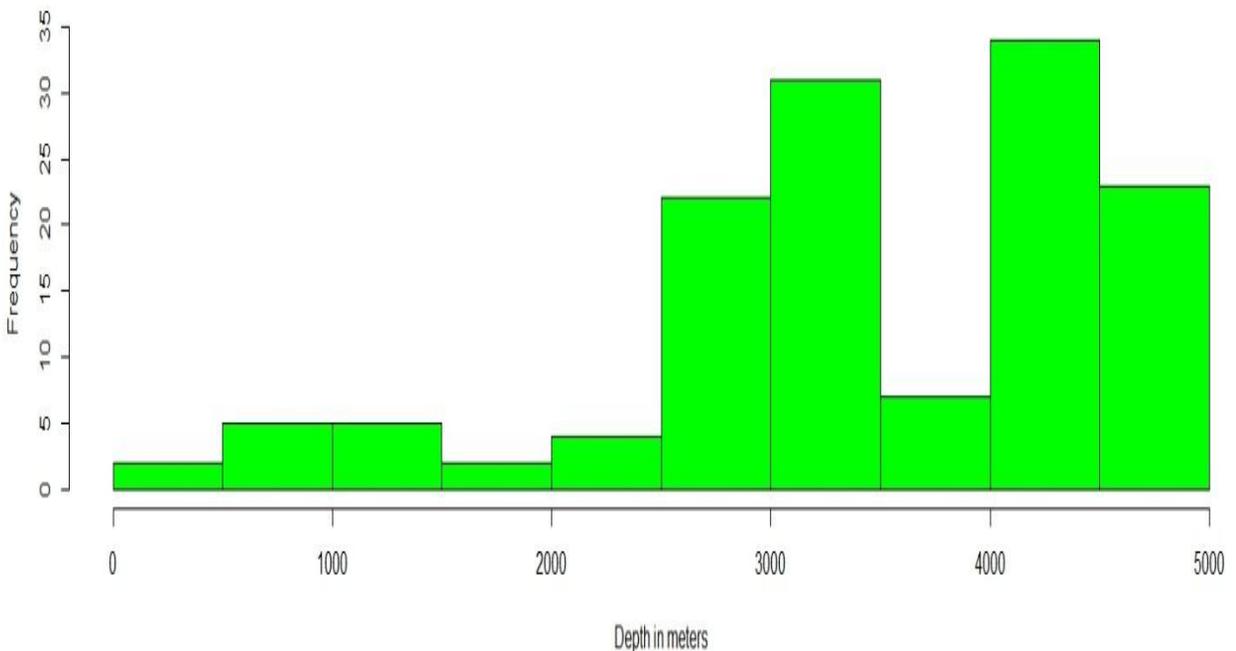
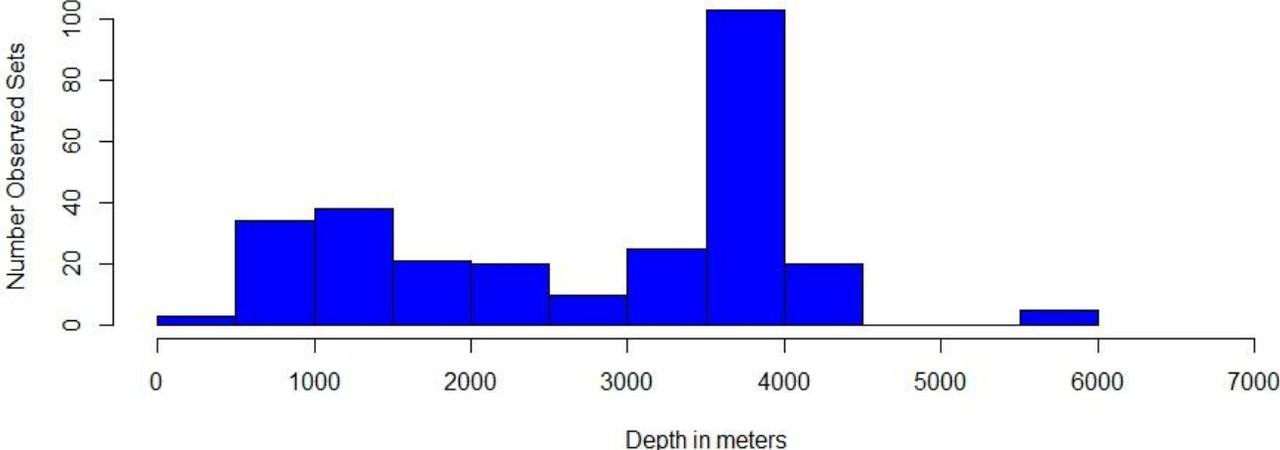


Figure 5. Depth distribution of observed set pulls in the DGN fishery, 2001 to 2012. Top panel includes data from north of Pt. Conception. Bottom panel includes data from south of Pt. Conception.

Depth of retrieved sets: North of Pt. Conception 2001-2012, n = 279



Depth of retrieved sets: South of Pt. Conception 2001-2012, n = 2,110

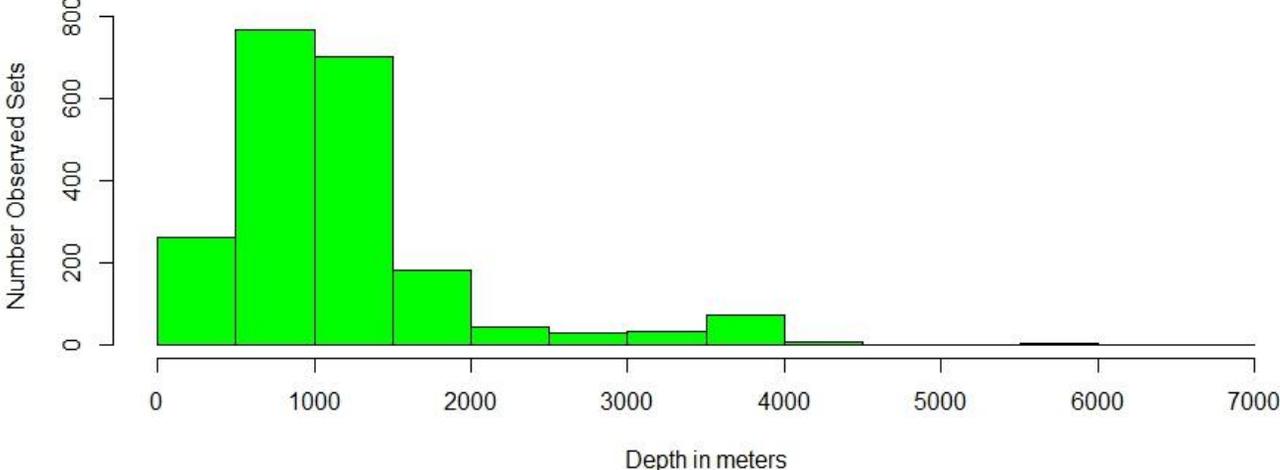
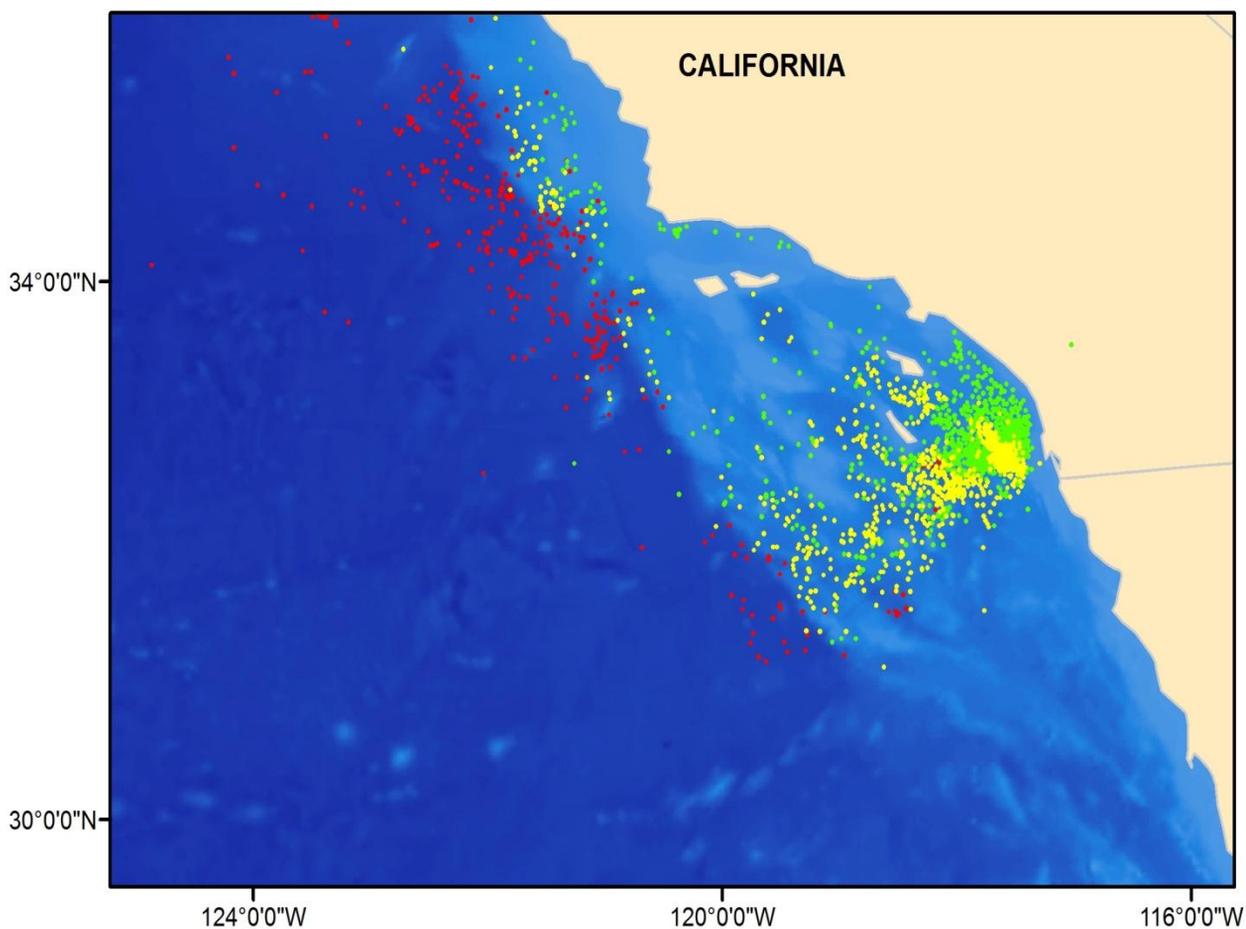


Figure 6. Observed DGN sets, 2001 to 2012. Depth category is shown by color.

Green < 1,000 m (< 547 fm)

Yellow > 1,000 m and < 2,000 m (between 547 and 1,094 fm)

Red > 2,000 m (1,094 fm)



Summary

- Sperm whale bycatch has been observed six times (10 animals) in ~8,300 sets since 1990. All bycatch events occurred in waters deeper than ~1,600 m (900 fathoms).
- Sperm whale bycatch is too rarely observed to determine if acoustic pingers currently used in the fishery are effective deterrents. Sample sizes are insufficient.
- 95% of research vessel sightings of sperm whales in the CA Current were seen in water deeper than 1,000 m (547 fathoms). 90% of sightings occurred in waters deeper than 2,000 m (1,094 fathoms).
- Approximately 50% of fishing effort in southern CA waters occurs in waters deeper than 1,000 m (547 fathoms).
- Sperm whale habitat in the CA current can be considered to be any waters deeper than approximately 1,000 m (547 fathoms) to 2,000 m (1,094 fathoms). DGN fishing effort overlaps with these regions.
- Reducing spatial overlap of fishing effort in sperm whale habitat may be an effective means to reduce the risk of sperm whale bycatch.