

**Occurrence of Blue, Fin, and Humpback Whales in the Southern California Bight:
Comments on Final EIS/EIR for Cabrillo Port Liquefied Natural Gas Deepwater Port**

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Cascadia Research Collective has been monitoring the populations of humpback and blue whales off the California coast since 1986. The population estimates and distribution patterns for these federally endangered species cited in the Final EIS/EIR are based largely on the published results of this research (see attached list of relevant reports and publications by Cascadia). On 31 March 2006, senior biologist, and Cascadia founder, John Calambokidis provided a letter commenting on the inaccuracy of statements in the Revised draft EIR for this project, in which the California State Lands Commission concluded that these species are unlikely to occur near the project area due to known habitat preferences. Although we acknowledge that additional considerations have been made with regard to impacts on these species in this Final EIS/EIR, we maintain that it is unsound to conclude that these two species (as well fin whales, which are also federally endangered) are “unlikely” to occur in the region affected by this project (Final EIS/EIR 4.7-13). We also wish to support the issue raised in a letter from Rodney R. McInnis of the National Marine Fisheries Service to Mark A. Prescott of the Deepwater Ports Standard Division, dated 31 January 2007, in which he suggests the Region of Influence of this project be expanded to the include all LNG carrier ship traffic lanes within the U.S. Economic Exclusive Zone (EEZ) to address the very real threat posed to these and other large whale species by vessel collision.

This report summarizes some of the relevant sightings of large whales by Cascadia in the Southern California Bight since 1991. It includes an initial summary of sighting data from our 2006 season, which constituted one of our most focused regional efforts to date. We also provide information on the nature and incidence of vessel collision involving large whales both worldwide and regionally, as well as commentary on the proposed mitigation for large whales during the construction phase of the project, should the facility be approved. This shows that blue, fin, and humpback whales inhabit the waters near the proposed facility in a variety of habitats. It is also clear that large numbers of these endangered whales can easily shift their distribution, as seen in other parts of the Southern California Bight in 2006. Further, even in what are considered more “normal” years, when blue and fin whales move up the southern California coast early in the summer into the Santa Barbara Channel and beyond, it is unreasonable to assume that they would not pass through the waters around the proposed FSRU facility in doing so.

Distribution in the Southern California Bight

Baleen whales are wide-ranging species; their population centers can shift readily and unpredictably in response to dynamic oceanographic conditions. Blue, fin, and humpback whales are often associated with bathymetric features such as escarpments that promote local productivity and increase prey abundance. For this reason, our survey effort in Southern California has been concentrated heavily in and around the Santa Barbara Channel, which is a well-known area of abundance for these species. However, these species also occur, and at times in considerable numbers, outside this habitat. We have conducted or participated in surveys of the coastal and offshore waters of Southern California outside the Channel sporadically since the

early nineties, and have documented numerous sightings of blue and fin whales within 10 miles of shore throughout that range (Figure 1).

Much of our historical survey effort in Southern California outside the Santa Barbara Channel has occurred off San Diego, where many projects were based. It is considered normal for numbers of blue whales to be present off the coast of San Diego early in the summer. Typically these concentrations of whales move north up the coast into the Santa Barbara Channel as the season progresses, and then further north into the Gulf of the Farallones as fall approaches. In 2006, Cascadia had several projects in the Southern California Bight, making it a year with particularly intensive effort in the region. It also appears to have been a year in which the populations of blue and fin whales underwent a significant inshore shift and remained further south than normal throughout the season.

Between the months of June and October, we conducted 65 small vessel surveys and one aerial survey in the region, most of which originated in San Diego, Oceanside, or Dana Point, and remained within 20 nm of shore. We sighted an estimated 210 individual blue whales, 17 fin whales, and one humpback whale during these surveys, and most of these sightings occurred well within 20 nm of shore, habitat that contradicts the Final EIS/EIR comments that “very few blue whales have been reported near the mainland coast of the SoCal Bight,” (4.7-23) (Figure 2). Although a complete comparison of identification photos of sighted blue whales is still underway, roughly half of these whales were seen on more than one day, and some of these whales were resighted over several months time, suggesting that these shifts in distribution can be quite stable seasonally. We hope to continue our effort in this region in 2007 to see if this pattern continues across years.

Although the location of the proposed facility is outside our main study area, we did conduct one survey heading north out of Huntington Harbor in 2006, in response to reports of blue whales near shore (with some sightings actually made from shore) off Los Angeles and Orange Counties throughout the summer. Despite poor survey conditions for much of the day, we sighted a pair of blue whales 5.5 miles from shore approximately 25 miles southeast of the proposed facility location. In our historical sighting data we have also documented several sightings of both blue and fin whales within 15 miles of the proposed FSRU facility, despite minimal effort in and around that location.

Since April 2004, marine mammal observers from Cascadia and Scripps Institute of Oceanography have recorded marine mammal sightings from the quarterly California Cooperative Oceanic Fisheries Investigation (CalCOFI) cruises. Although these cruises are conducted primarily to collect oceanographic data at predetermined stations, they also provide an excellent platform to systematically document seasonal occurrence of marine mammals off of Southern California. The CalCOFI trackline runs north and south of the proposed port site, with the closest station located 12.5nm south of the site. However, CalCOFI vessels regularly survey closer to the proposed port site when navigating around Santa Cruz and Anacapa Islands to reach the inshore stations. Blue, fin and humpback whales have been documented from the CalCOFI cruises both inshore and offshore of the proposed port site (Figures 3-5) (Soldevilla et al. 2006, 2006, Rintoul et al., 2006).

Ship strikes

It is stated in the final EIS/EIR that it was “unlikely” that a collision would occur between a project vessel and a marine mammal or sea turtle (Final EIS/EIR 4.7-93). However, the Final EIS/EIR did not report the levels of uncertainty that ship strike data is based on, nor did it state the known differences in the occurrences of ship-struck large whales by species (Laist et al., 2001; Jensen and Silber, 2003). Based on the current literature, the proposed port location, the year-round presence and behavior of whales, and the speed/size of Project ships transiting 24-hours a day, we think that it is possible that a ship strike could occur during the construction or the ensuing operation of the proposed deep water port.

The Final EIS/EIR correctly stated that gray whales are in the general vicinity of the proposed port, and with data stated earlier we show that blue, fin and humpback whales are also frequently sighted in the waters within 20nm of shore off southern California. These three species have been implicated in ship strikes world wide, and all four species have been recorded as suffering fatal ship strikes along the California Coast. Based on data from 1997-2001, both blue and humpback whales off California had an average mortality due to ship strike of 0.2 per year, while fin whales had an observed mortality of 0.4 per year (Carretta et al., 2006). However, the actual number of whales involved in vessel collisions was likely higher, since ship-strike data are difficult to collect, and ship-struck whales are rarely recovered. Ship strikes affect small populations the hardest, and with increased traffic to the FSRU site for the next 40 + years we are concerned for blue and fin whales whose population numbers have not increased significantly (Barlow 2003), and could be impacted by increased shipping.

It is stated in the Final EIS/EIR that ships will be moving at slow speeds near the proposed port, and therefore the danger of a ship strike at the port is very unlikely. We think the risk to whales within the project area is greater than concluded in the Final EIS/EIR for the following reasons:

- 1) increased number of vessels using the waters around the project site,
- 2) sound of oncoming vessels is masked by underwater ship and construction noise reflected off of the hulls of ships, and nearby landmass (Blue and Gerstein, 2005),
- 3) and the possibility of younger/more naïve whales found near the surface and in shallow water as was suggested by Laist et al (2001) to explain the high number of ship-struck juvenile/young Atlantic right whales and humpback whales recorded from the Atlantic and Pacific Oceans.

The Final EIS/EIR states that “most LNG carriers have design speeds of 19.5 to 21 knots” (Final EIS/EIR 4.7-93), which we can only presume will be the travel speed of Cabrillo Port LNG carrier ships. Other than these design speed capabilities the Final EIS/EIR does not disclose physical characteristics of LNG carrier vessels, which are key in estimating the frequency and destructiveness of collisions with whales. It is not noted in the Final EIS/EIR that larger vessels traveling at high speed are more likely to cause mortality to whales, however the following information seems pertinent to an impact statement: severe injuries are caused by ships that measure 80 m or longer; most lethal or severe injuries involve ships traveling 14 knots or faster and finally, tanker and cargo ships have the highest number of whales killed by collision (Laist et al., 2001; Jensen and Silber, 2003).

Should this deepwater port be built, it will be utilized by this type of large, fast moving vessel as they transit through areas where large whales are known to be seasonally abundant. Further, as these vessels approach from offshore they will pass through areas known to be used by sei and Bryde's whales, both of which are susceptible to ship strike. Ships in transit to the proposed deepwater port could negatively affect more species than just those directly around the port, and we would like to support the NMFS perspective that the Final EIS/EIR needs to systematically consider impacts from ship strike out to the edge of the EEZ.

Marine Mammal Monitoring

The EIS/EIR referenced a marine-mammal monitoring plan to avoid/prevent/document collisions between construction vessels and marine mammals and sea turtles. Despite all the qualifications and experience of the individual monitors, the Final EIS/EIR outlines an unrealistic certainty that mitigation can continue day and night with the same effectiveness. Daytime monitoring would not be very effective as a mitigation in hours when visibility is poor due to wind, rough seas, or fog. It is our opinion that effective nighttime monitoring for large whales and turtles along coastal Southern California is an insurmountable goal. In the past, Cascadia Research Collective has participated in monitoring projects where work was conducted 24-hours. We used Generation 1 to 3 Night Vision as well as high-tech military infrared equipment, and in all cases we felt that the monitoring was insufficient. The goggles afforded a limited view in the best circumstances, and whales and dolphins that dove ahead of the vessel were missed. Only large groups of bow riding dolphins were effectively monitored.

Summary

In conclusion, based on arguments presented in this letter, we think the Final EIS/EIR does not sufficiently account for federally endangered species that are present around the Project site and in waters leading to the site. We suggest that the danger of ship strike is more likely than is presented in the Final EIS/EIR, and that the Region of Influence (ROI) be expanded substantially to account for LNG carrier traffic through known areas of large whale concentrations. The proposed monitoring plan during construction cannot adequately protect marine mammals and sea turtles in the immediate project area especially during nighttime and times of poor daylight visibility. As with much of the general anthropogenic noise generated off of Southern California it would be impossible to mitigate or monitor the type of ongoing harassment that operation of this facility would entail, however the Final EIS/EIR should consider the potential long-term effect on large whales in the vicinity over time.

References

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Sightings of Blue and Fin Whales in the Southern California Bight (not incl. SB Channel) from Cascadia surveys, 1991-2004

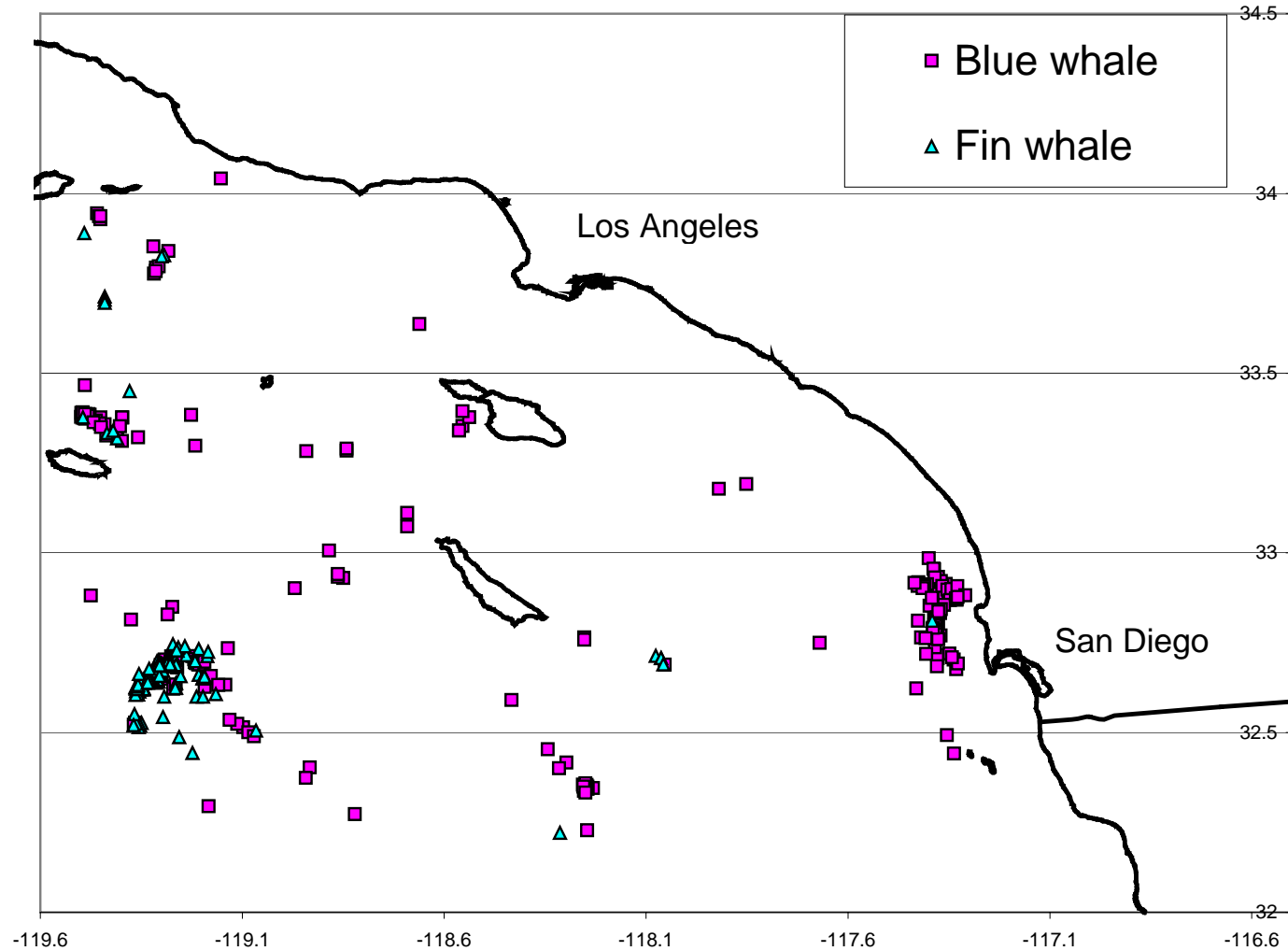


Figure 1. Historical sightings of blue and fin whales during non-systematic surveys by Cascadia Research, 1991-2004. Each sighting represents a group of whales; group sizes ranged from 1- 40 whales, with an average size of 2. Effort was not consistent throughout the region during this period, and areas with few sightings do not necessarily indicate an absence of whales.

Sightings of Blue, Fin, and Humpback Whales in the Southern California Bight
from Cascadia surveys in 2006

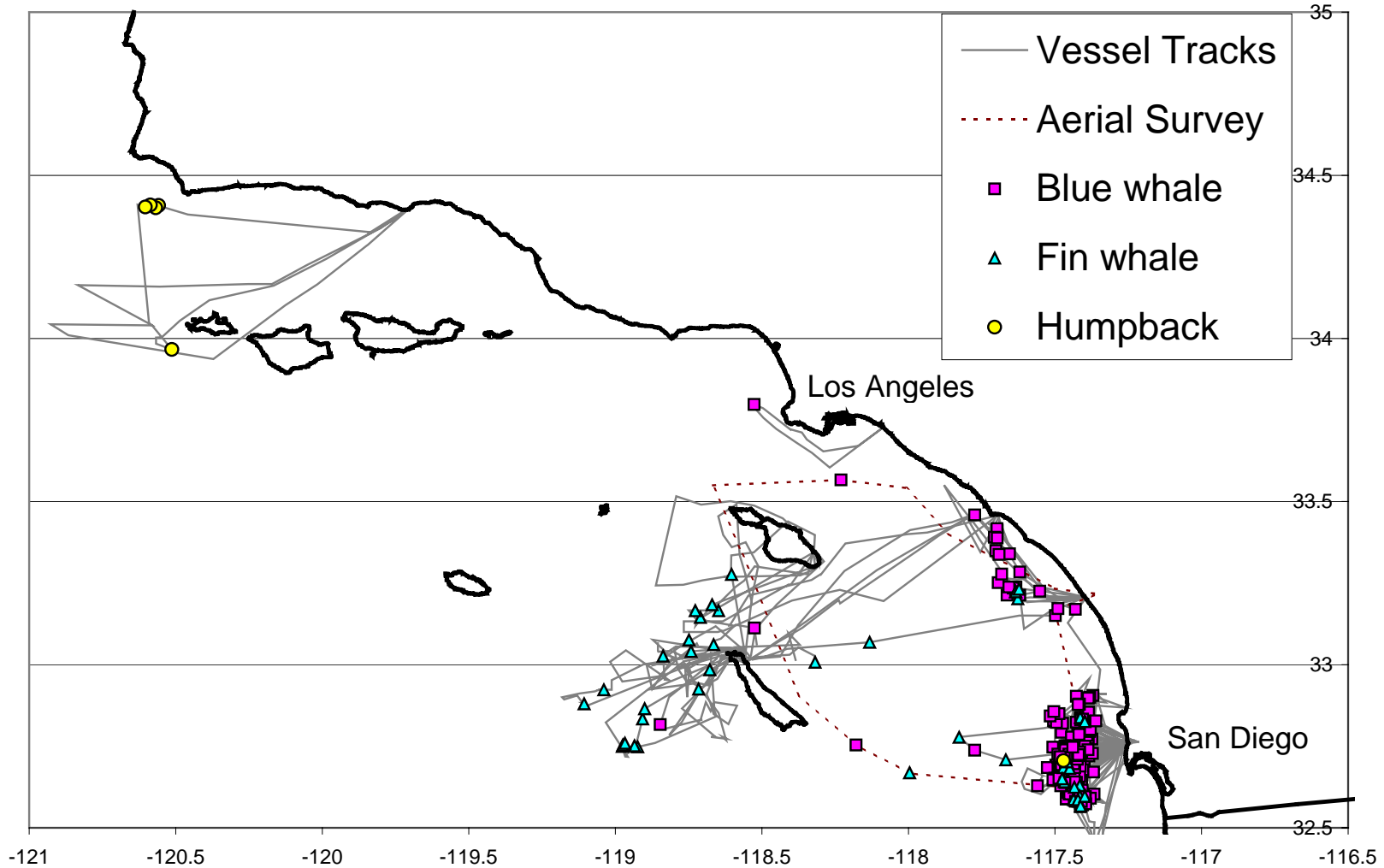


Figure 2. Sightings of blue, fin, and humpback whales on surveys conducted by Cascadia Research, June through October 2006. Gray lines indicate survey tracks. Each sighting represents a group of whales; group size ranged from 1-20 whales, with an average group size for all species of 2 whales.

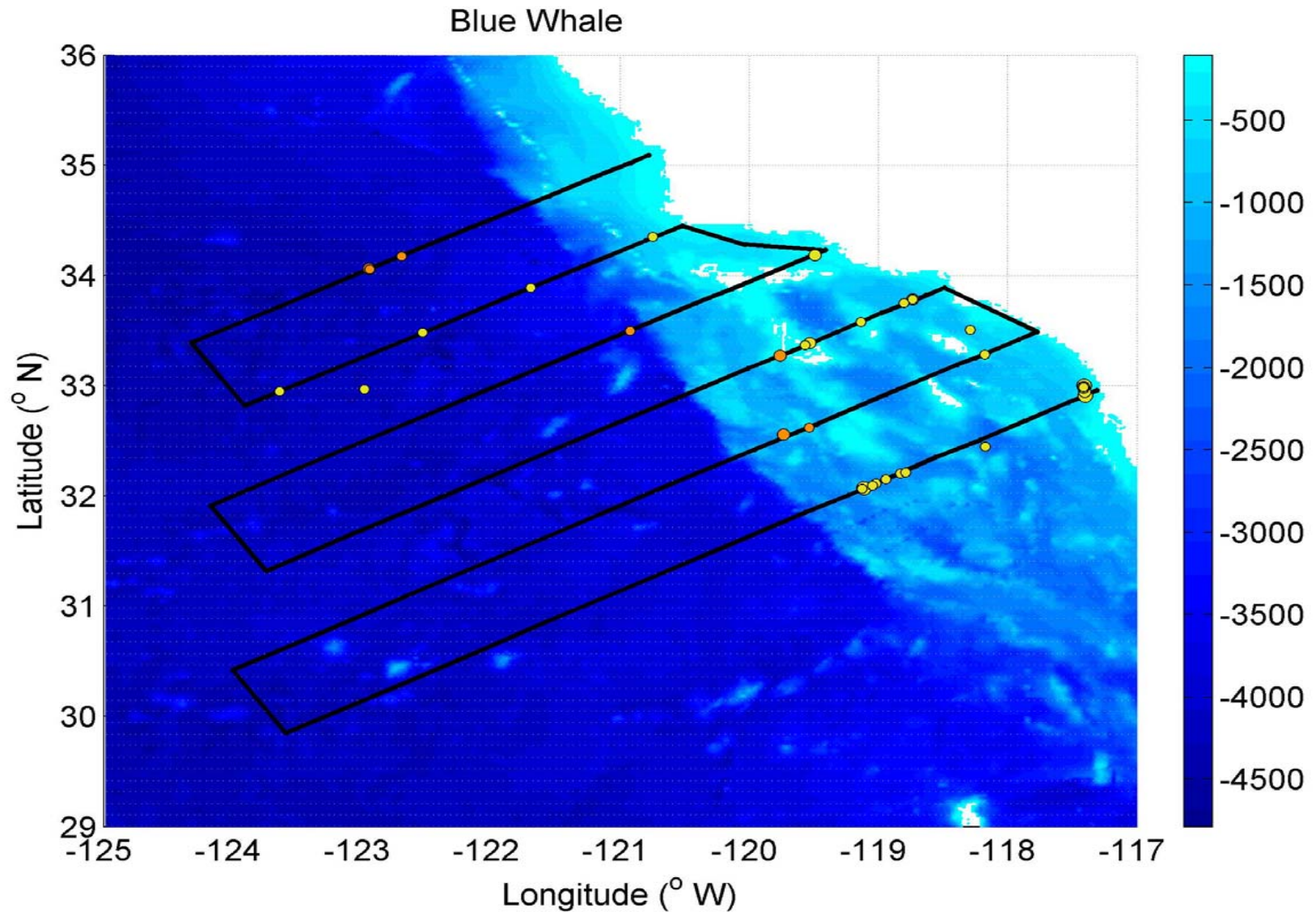


Figure 3. Sightings of blue whales by Cascadia and Scripps Institute of Oceanography from the CalCOFI research vessels that operate quarterly off Southern California. Sightings are from 11 cruises (2004-2006) (Soldevilla et al., Soldevilla et al., unpublished). Each sighting represents 1-3 blue whales.

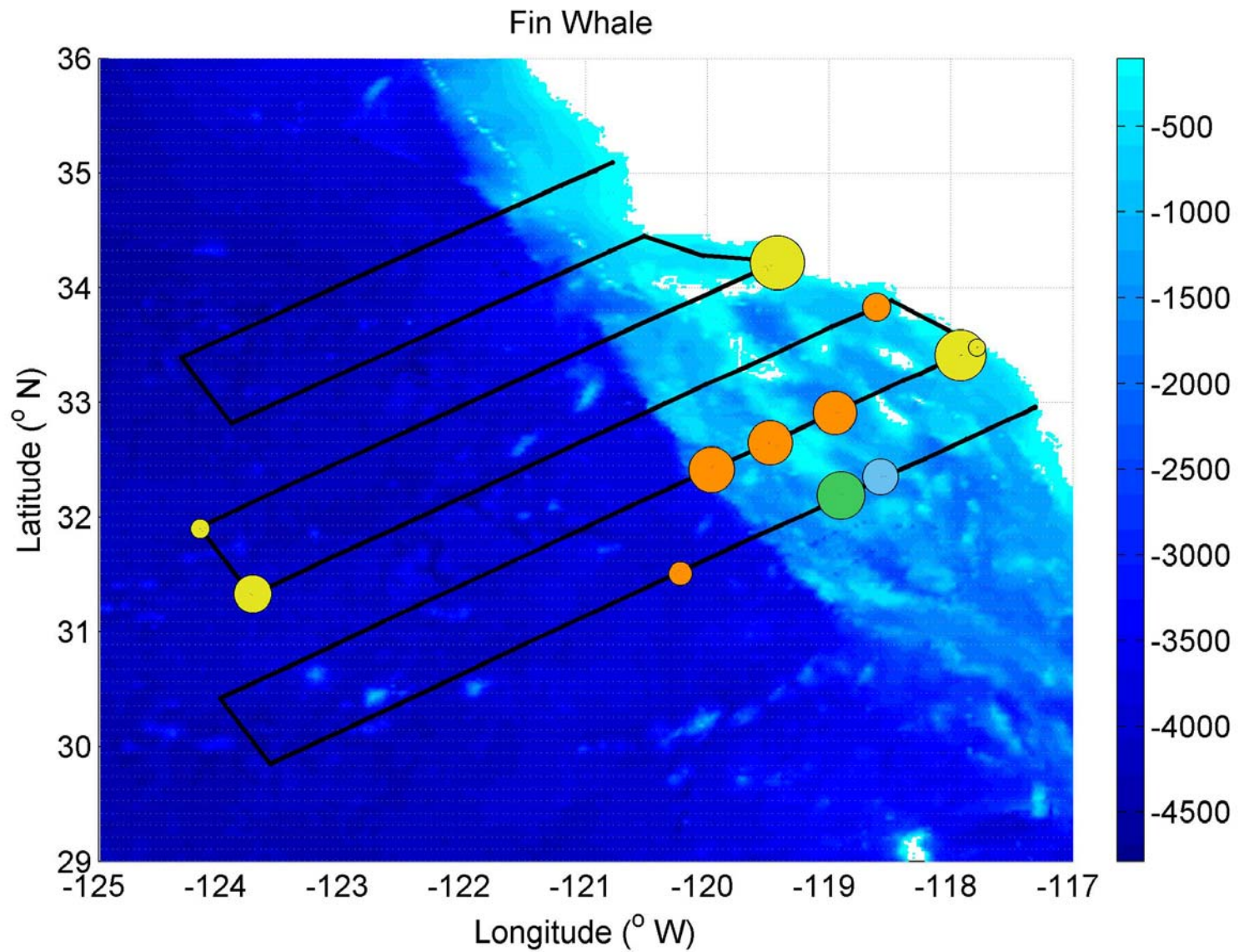


Figure 4. Sightings of fin whales by Cascadia and Scripps Institute of Oceanography from the CalCOFI research vessels that operate quarterly off Southern California. Sightings are from 11 cruises (2004-2006) (Soldevilla et al., Soldevilla et al., unpublished). Each sighting represents 1-10 fin whales.

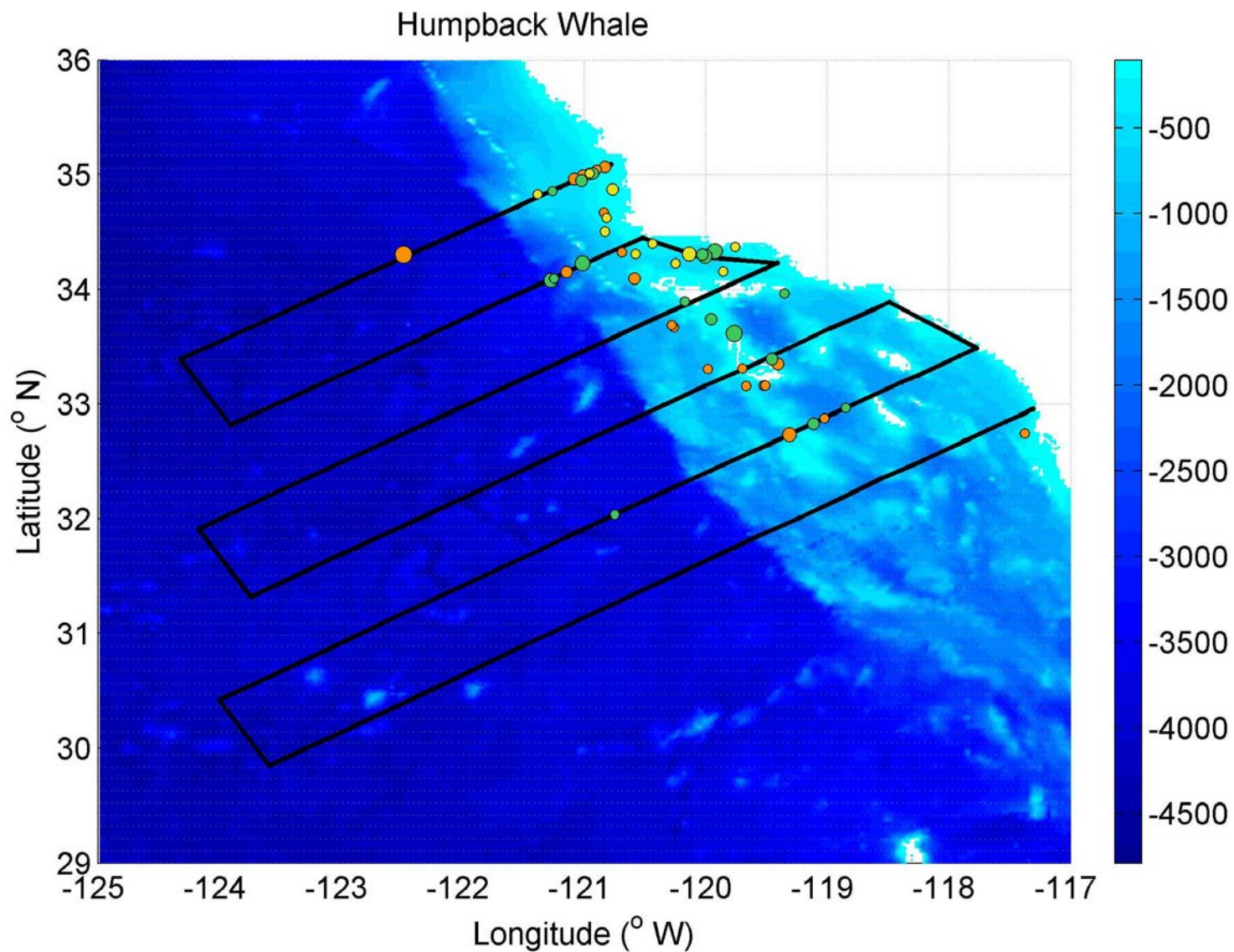


Figure 5. Sightings of humpback whales by Cascadia and Scripps Institute of Oceanography from the CalCOFI research vessels that operate quarterly off Southern California. Sightings are from 11 cruises (2004-2006) (Soldevilla et al., Soldevilla et al., unpublished). Each sighting represents 1-7 humpback whales.