

Characteristics of Blue Whale Diving and Feeding Activity off Southern California, USA, Over Multiple Weeks

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Advanced Dive Behavior Tags

- Depth, 3-axis accelerometers and magnetometers at 1 Hz
- FastLoc GPS locations every 7 min
- Release at scheduled time or if release criteria are met



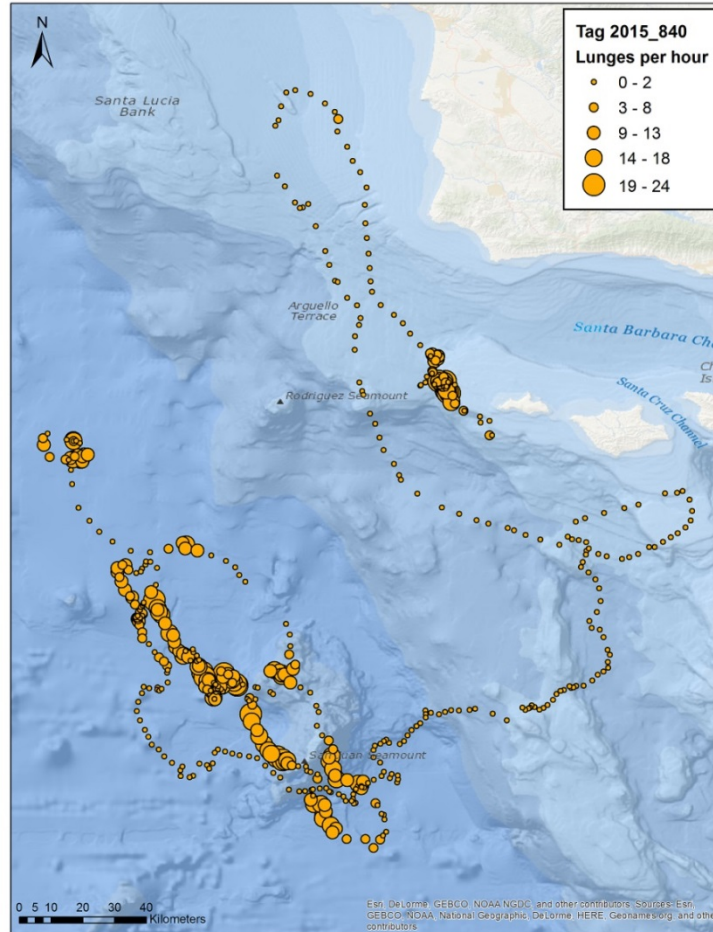
Image source: Wildlife Computers



Deployment Summary

Year	Sex	PTT	Duration (d)	# Dives	# GPS locations	Dives/ day	GPS Locs/day
2014	Female	5644	19	1392	183	73	9.7
2014	Male	5650	20	3004	2278	150	115
2014	Female	5655	19.8	4089	799	207	40.3
2014	Female	5803	18.3	2789	2539	152	139.1
2015	Unknown	840	24.8	2252	1633	91	62.8
2015	Male	4177	27.5	2824	1520	103	53.8
2015	Male	5650	28.9	2298	2246	80	80.9

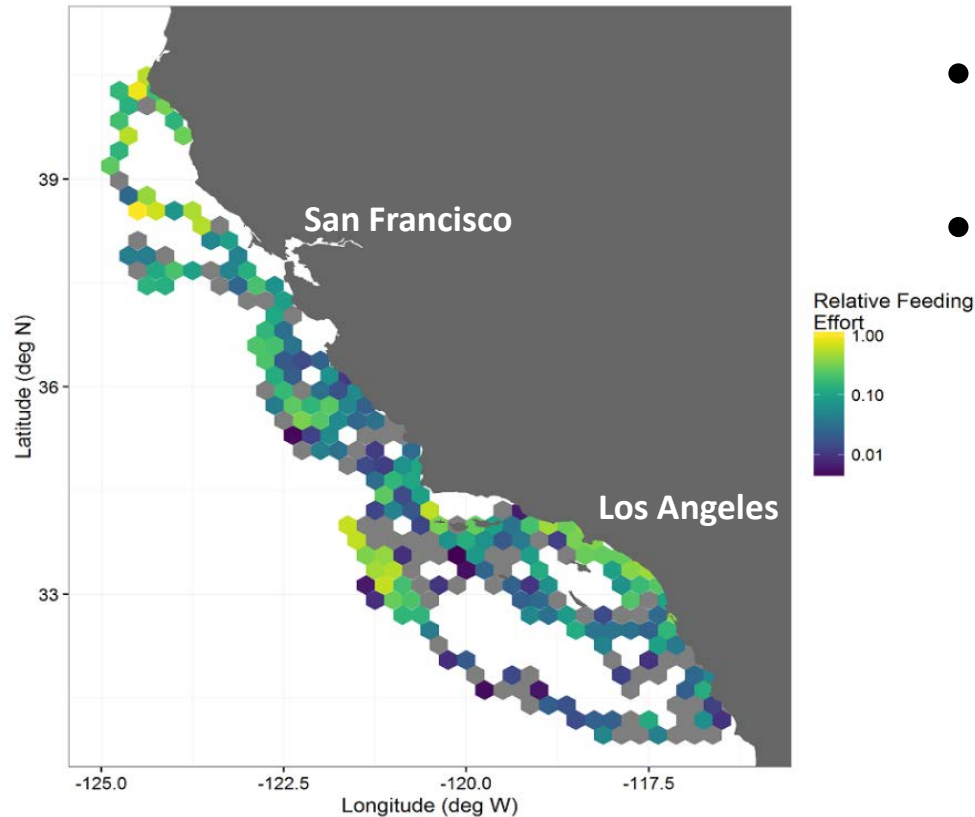
Spatial distribution of feeding effort



Spatial distribution of feeding effort

(N = 7)

Relative Feeding Effort

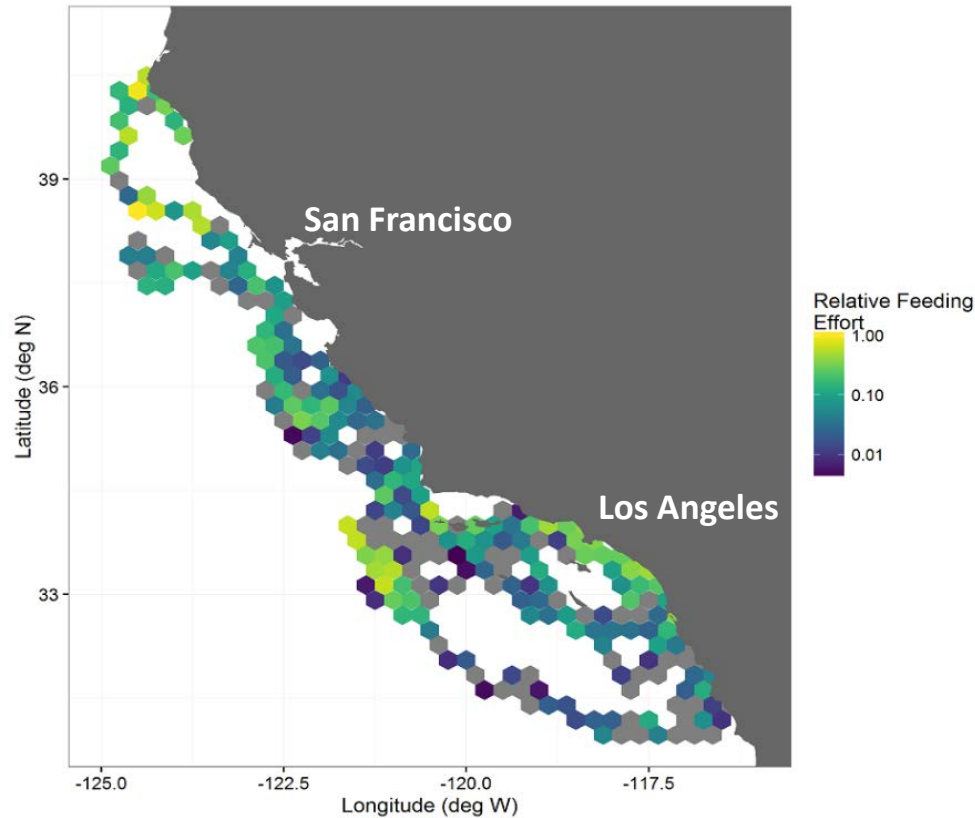


- Average lunges/h of diving in 0.25 deg cells
- Each cell averaged across whales and relativized

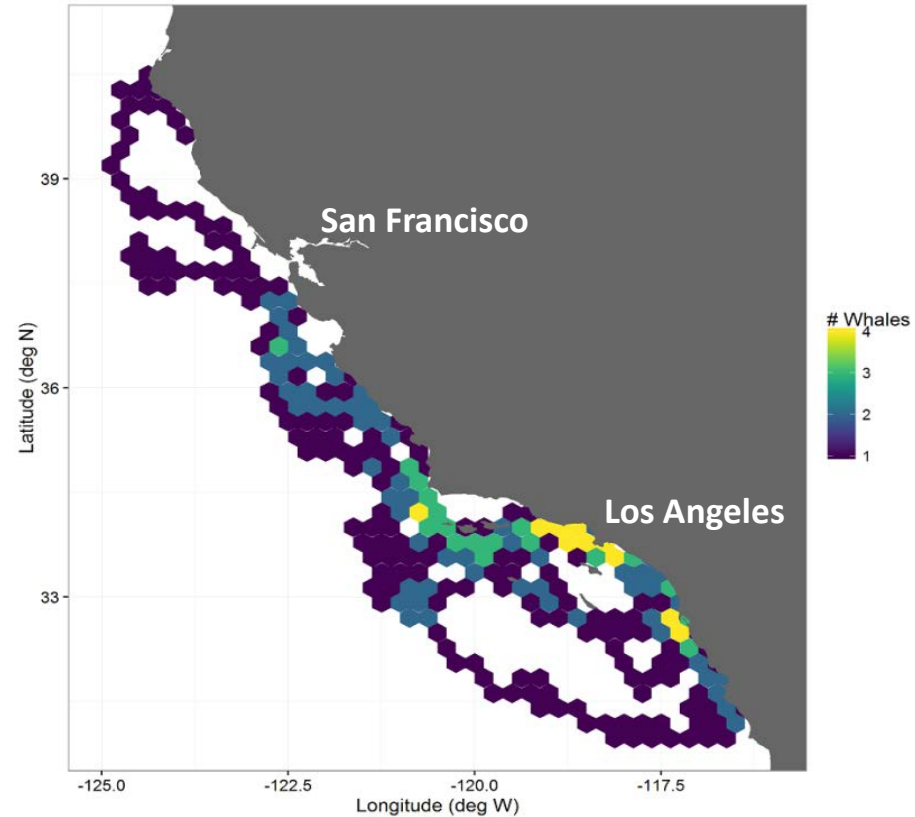
Spatial distribution of feeding effort

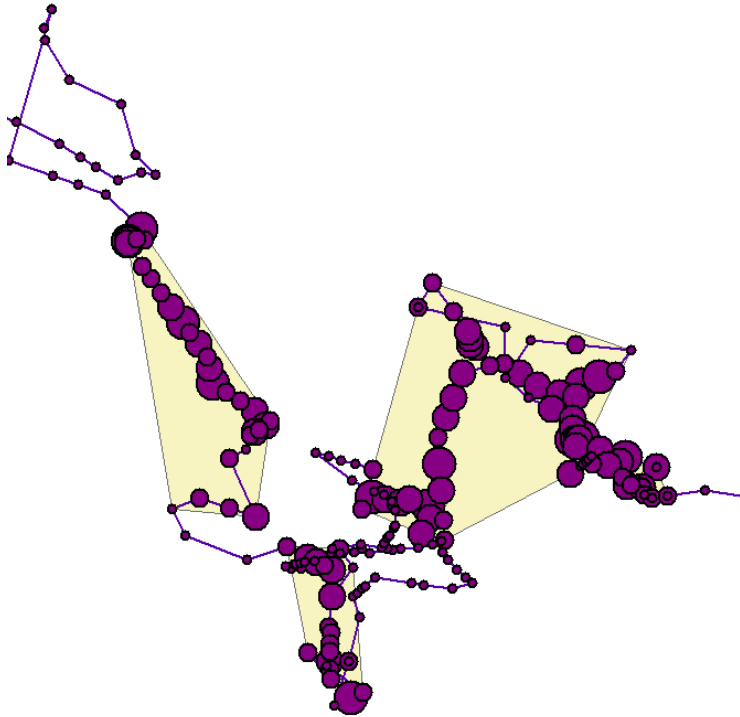
(N = 7)

Relative Feeding Effort



Number of whales

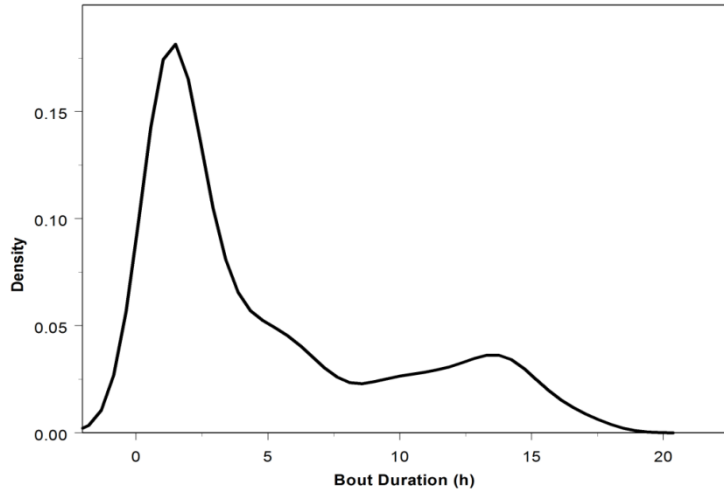




Sequences of dives with no more than 2 h between feeding dives.

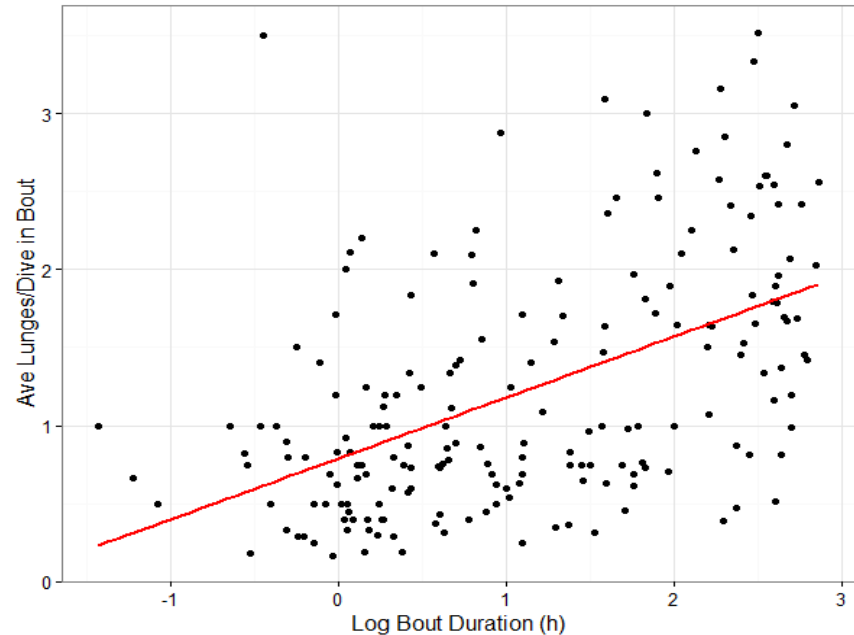
Feeding Bouts were temporally distinct (median = 7.2 h apart) and generally small (median = 2.6 km²)

Feeding Bouts

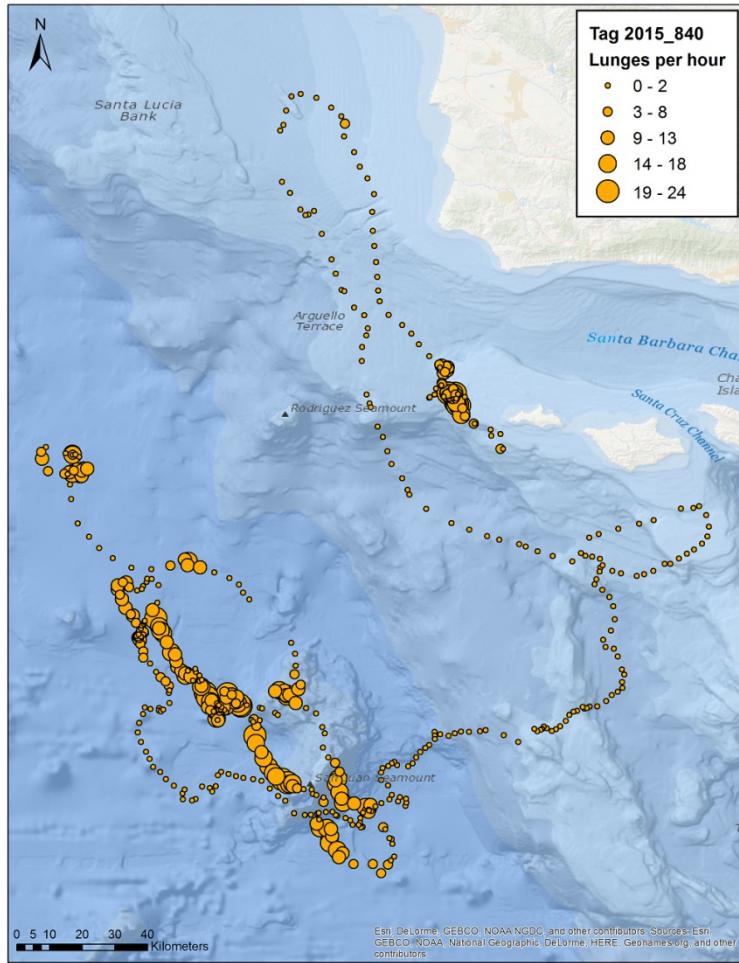


**Suggests they left low quality
prey patches quickly
(Hazen et al 2015)**

**Average lunges per dive was
correlated to bout duration ($p < 0.001$,
 $R^2 = 0.37$)**



Two Feeding Modes?



- Bouts were more dispersed further offshore ($P < 0.001$; Mixed effects regression)
- No difference in number of lunges per dive compared to the distance from shore ($p = 0.055$).
 - Blue whales feeding at a similar rate everywhere
- Localized nearshore, broad scale offshore

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