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Leatherback Sea Turtle Bycatch in U.S. West Coast Groundfish Fisheries 2002-2021

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The NWFSC Groundfish Observer Program observes commercial sectors that target or incidentally catch groundfish and may incidentally take protected species (e.g., ESA-listed sea turtles and marine mammals) as bycatch. For an overview of all fisheries covered by these programs, please see the [fishery descriptions](#) on the NWFSC website. Under a 2012 biological opinion for the groundfish fishery, NMFS anticipated a maximum allowable level of leatherback entanglements across 5 years to be 1.9 turtles (0.38/year). No leatherback sea turtles were observed taken as bycatch in the most recent 5-year period (2017-2021). The single take observed in 2008 in the Open Access (OA) Pot fishery and reported in previous iterations of this report, remains the only observed take of leatherback sea turtles in fisheries observed by the NWFSC. We also reviewed recent reports of leatherbacks entangled in fixed gear such as pot/trap fisheries. In 2019, a dead leatherback was found floating offshore in Ventura County entangled in lines attached to two buoys (unknown fishery), which was subsequently identified as rock crab gear. Because no leatherback takes have been observed in groundfish fisheries since 2008, no sightings in groundfish fisheries have been observed since 2014, and no leatherback entanglements in groundfish gear have been reported to our stranding network, we present an abbreviated summary here, and refer readers to [Agenda Item G.4.a, NMFS Report 5, June 2021](#), for more detail and background. Fishing effort and observer coverage for the OA Pot fishery can be found in Table 1. Table 2 summarizes observed leatherback entanglements, observed groundfish landings, the bycatch ratio, and the total (fleet-wide) groundfish landings from OA fixed gear vessels fishing pot gear during the last three 5-year

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periods. We use a ratio estimator to estimate 5 total takes in 2007-2011, based on the single observed take in 2008 and zero takes in the most recent five year period, when zero takes have been observed (see [Agenda Item G.4.a, NMFS Report 5, June 2021](#) for further methods).

Year	Sector	Gear	Observed					Fleet-wide		
			vessels	trips	sets	pots	LBT takes	catch	landings	proportion landed observed
2003	OA Fixed Gear	Pot	7	16	50	345	0	2.94	190.58	0.02
2004	OA Fixed Gear	Pot	17	96	185	1,950	0	16.99	186.03	0.09
2005	OA Fixed Gear	Pot	14	43	50	835	0	10.67	379.29	0.03
2006	OA Fixed Gear	Pot	15	38	39	666	0	7.90	442.93	0.02
2007	OA Fixed Gear	Pot	21	46	75	624	0	8.75	257.86	0.03
2008	OA Fixed Gear	Pot	20	55	75	833	1	10.43	248.39	0.04
2009	OA Fixed Gear	Pot	18	30	45	540	0	8.82	373.51	0.02
2010	OA Fixed Gear	Pot	26	40	71	648	0	10.66	318.28	0.03
2011	OA Fixed Gear	Pot	29	61	85	831	0	18.94	255.79	0.07
2012	OA Fixed Gear	Pot	19	35	70	610	0	9.13	125.85	0.07
2013	OA Fixed Gear	Pot	17	25	48	590	0	6.30	72.16	0.09
2014	OA Fixed Gear	Pot	21	41	63	686	0	11.66	147.70	0.08
2015	OA Fixed Gear	Pot	17	49	64	604	0	14.60	222.94	0.07
2016	OA Fixed Gear	Pot	27	55	73	687	0	15.27	206.50	0.07
2017	OA Fixed Gear	Pot	44	87	126	1,249	0	24.87	211.18	0.12
2018	OA Fixed Gear	Pot	33	58	89	892	0	17.22	175.66	0.10
2019	OA Fixed Gear	Pot	26	46	70	637	0	16.74	155.92	0.11
2020	OA Fixed Gear	Pot	7	11	22	110	0	4.21	64.56	0.07
2021	OA Fixed Gear	Pot	6	9	25	302	0	3.82	83.09	0.05

Table 1: Observed number of vessels, trips, sets, pots and leatherback sea turtles (LBT takes), observed landed catch (mt = metric tons), total fleet-wide landings (mt = metric tons) and the proportion of landings that were observed (a.k.a., observation rate or coverage rate = observed catch/fleet-wide landings), for the Open Access (OA) pot fishery, 2003-2021.

Five Year Period	Observed LBT (# indiv.) 5 yr. sum	Observed Groundfish (mt) 5 yr. sum	Bycatch Ratio	Fleet-wide Groundfish (mt) 5 yr. sum	Estimated number of individuals caught by the fleet
2007-2011	1	57.6	0.02	1,453.8	5
2012-2016	0	57.0	0.00	775.1	0
2017-2021	0	66.9	0.00	690.4	0

Table 2: The observed number of leatherback turtle (LBT) entanglements, the observed groundfish landings, the bycatch ratio, and the total (fleet-wide) groundfish landings from OA fixed gear vessels fishing pot gear during the last two 5-year periods. Landings and LBT values are summed across years within each 5-year period; bycatch ratio is calculated as the number of LBT / observed landings for each 5-year period.