

Related Tables to Preliminary Results Of An Evaluation Of The Potential Threat To Sea Otters Posed By The Nearshore Finfish Trap Fishery

Brian Hatfield and James Estes

U.S. Geologic Survey

Table 1 - Revised Commercial Finfish Trap Landings (Pounds, Gear Code 21*) for the Morro Bay Complex (Morro Bay and Port San Luis) and Monterey Bay Area (Monterey, Moss Landing, and Santa Cruz) Ports, 1993 – 1999.

Year	Morro Bay Complex	Monterey Bay Area	Total
1993	136	0	136
1994	14,005	556	14,561
1995	50,269	538	50,807
1996	97,856	1,550	99,406
1997	106,821	7,240	114,061
1998	81,510	60,377	141,887
1999	50,520	34,009	84,529

Landing data provided by California Department of Fish and Game
 *excluding deep water sable fish and other deep water species that were most likely caught incidentally in traps set for sable fish or were recorded as gear code 21 by mistake.

Table 2 - Otters drowned in other types of traps of various design.

Date	Location	Gear Type	Shape of Opening	Size of Opening	Depth (ft.)	SEA OTTER			Comments	Source
						Sex	Length (cm)	Wt. (lbs.)		
Aug-74	65 mi off Cape Mordinol, AK	Crab trap			264	F	103	30		Terrel C. Newby [The Murrelet

										56(1)]
Nov-87	Santa Cruz Is, CA	Lobster trap			?	M		27	Wt on 29 Aug 1987	Reported by fisherman who had tag #'s
Dec-87	Monterey Harbor, CA	Experimental trap?	circular	25.4 cm dia	?	F	123	49.1	Bloated carcasses floated trap to surface	CDFG
Dec-87	Monterey Harbor, CA	Experimental trap?	circular	25.4 cm dia	?	M	89	20.1	Trapped w/mother (above)	CDFG
1991	w/in 5 mi of Attu Is, AK	Pacific cod trap	Rectangular	15 x 21.5 cm	?	No data			Skull in trap lost from 1991 season, recovered in 1992	NMFS Observer Program
1991 (?)	5 mi of Pt Santa Cruz, CA	Rock crab trap			30-60	No data			SA skeleton recovered June 1992	CDFG, USFWS, USCG
May-92	w/in 5 mi of Attu Is, AK	Pacific cod trap	Rectangular*	15 x 21.5 cm*	150	?	125	?	Curvilinear length	NMFS Observer Program
"	"	"	"	"	240	?	120	?	"	"
"	"	"	"	"	228	?	64	?	This curvilinear length is suspect: this would be	

									a small pup	
Jun-92	"	"	"	"	144	?	95	?	Standard length. This length or depth also suspect	
Jul-92	"	"	"	"	150	No data				"
Jul-92	"	"	"	"	168	No data				"
Jul-92	"	"	"	"	198	No data				"
Aug-92	"	"	"	"	?	No data				
Four additional otters taken in the same area in same gear observed by the same vessels during June -August 1992. Reported to NMFS observers by fishers.										
Total number of otters taken in trap gear summarized above: 18										
Converted Tanner crab trap										
*Based on photos and illustrations of trap gear with dimensions										

Table 3 - Finfish Trap Fishery Observations

Area	No. Vessels	No. Days	No. Traps	No. Traps Set Overnight	No. Fish Per Trap	No. Crabs Per Trap	No. Birds	No. Sea Otters
Monterey to Pt. Sur	4	14	1173	24	0.86	0.08	0	0
Pt. Sur to Pt. Buchon	9	28	451	182 [^]	0.5	0.68	1 [#]	0
Total	13	42	1624*	206	0.8	0.18	1	0
[^] all were observed prior to legislation prohibiting fishing overnight								
[#] unidentified bird observed on 5 January 1997, near Pt. Piedras Blancas								
* 1226 were observed from June to November 1999; 398 were observed from August 1995 to November 1998, between Pt. Sur and Pt. Buchon								

Table 4 - Results of experiment in which ten sea otters were exposed to a commercial finfish trap in a controlled setting at Monterey Bay Aquarium. Inner trap funnel openings were 5.5 inches in diameter.

Otter No.	Date Tested	Sex	Wt. (lb)	Estimated Age (mo.)	No. Hours Since Last Feeding	Estimated Stranding Age (wks)	Days in Captivity	Time Exposed to Trap (min.)	Attempted to Enter Trap (min.)	No. Times Attempted
1 (Thelma)	13-Jan-99	F	37.6	9.5	12	2	270	60	yes	31*
2a# (Eddie)	13-Jan-99	M	42	12	13	13	282	40	yes	73
2b# (Eddie)	13-Jan-99	M	42	12	14	13	282	35	yes	26
3 (Quinn)	9-Feb-99	M	23.8	6	3.5	12	71	112	no	
4 (Hunter)	9-Mar-99	M	42.4	13	12	1	388	66	yes	55
5 (Bud)	24-Mar-99	M	26.5	6	11	5	138	64	yes	20
6 (Pippin)	25-Jun-99	F	15.5	5.5	9.5	13	72	37	no	
7 (Doc)	25-Jun-99	M	26.5	4.5	10	1	127	60	yes	5
8 (Emalin)	13-Oct-99	F	24.3	6.5	12	24	25	60	no	
9 (Maria)	13-Oct-99	F	18.2	4.5	13	12	53	60	yes	3^
10 (Loretta)	13-Oct-99	F	40.7	adult	15.5	adult	11	60	no	

* Due to safety concerns, this first otter was exposed to a trap w/out

funnels.

Otter no. 2 was exposed first to a trap w/ one funnel for 40 min. (a), then for 35 min. to a trap w/ both funnels (b).

^ This sea otter entered the trap completely all three times and apparently could not escape on two occasions.