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INCIDENTAL CATCH OF MARINE MAMMALS AND SEABIRDS
BY DOMESTIC GROUND FISH VESSELS IN ALASKA

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ABSTRACT

Data collected by ADF&G observers indicate that the incidental catch of marine mammals by domestic groundfish vessels has generally been low. Although yearly observer coverage from 1978 to 1988 was limited, total coverage of domestic bottom trawlers amounted to 108 vessel trips and 1176 trawl hauls. All observed mortalities (n=3 sea lions) occurred in 1980 when sea lions were frequent visitors to fishing boats. In more recent years, the domestic harvest of groundfish has increased greatly but observed mortalities of marine mammals have been nil.

INTRODUCTION

Populations of northern (Steller) sea lions have declined in parts of western Alaska, for reasons that are not clear (Merrick et al. 1987). A contributing factor, or at least a source of potential mortality, is the incidental catch of marine mammals in the extensive gamut of fisheries that occur in the north Pacific Ocean and Bering Sea. Estimates of incidental catches in these fisheries are not well-documented except for the foreign groundfish fishery. Using data collected by on-board observers, Loughlin et al. (1987) estimated that incidental catches of sea lions by foreign trawlers and longliners averaged 724 animals during the period 1978-1981. In Shelikof Strait, sea lion mortalities in midwater trawls were estimated at 1436 animals in 1982 and 200-350 in 1983 and 1984 (Loughlin and Nelson 1986).

Potential mortalities of marine mammals in another component of the groundfish fishery, the DAP (Domestic Annual Production), are of current interest because of the recent growth of this fishery. The groundfish fishery is in transition from a foreign fleet to a domestic fleet due to the Magnuson Fishery Conservation and Management Act. In 1988 groundfish harvests by U.S. fishermen in the Bering Sea and Gulf of Alaska may reach 1 million metric tons (Fig. 1).

For the past 10 years, the Alaska Department of Fish and Game (ADF&G) has operated a small program of observers aboard DAP vessels. The purpose of this report is to summarize this information with regard to the incidental catch of marine mammals and seabirds.

METHODS

ADF&G's observer program for the domestic fleet is similar to that of the National Marine Fisheries Service observer program for the foreign fleet, with two notable exceptions. The foreign observer program is mandatory, and trips at sea are long (about 1-3 months). DAP vessels, in contrast, take short trips

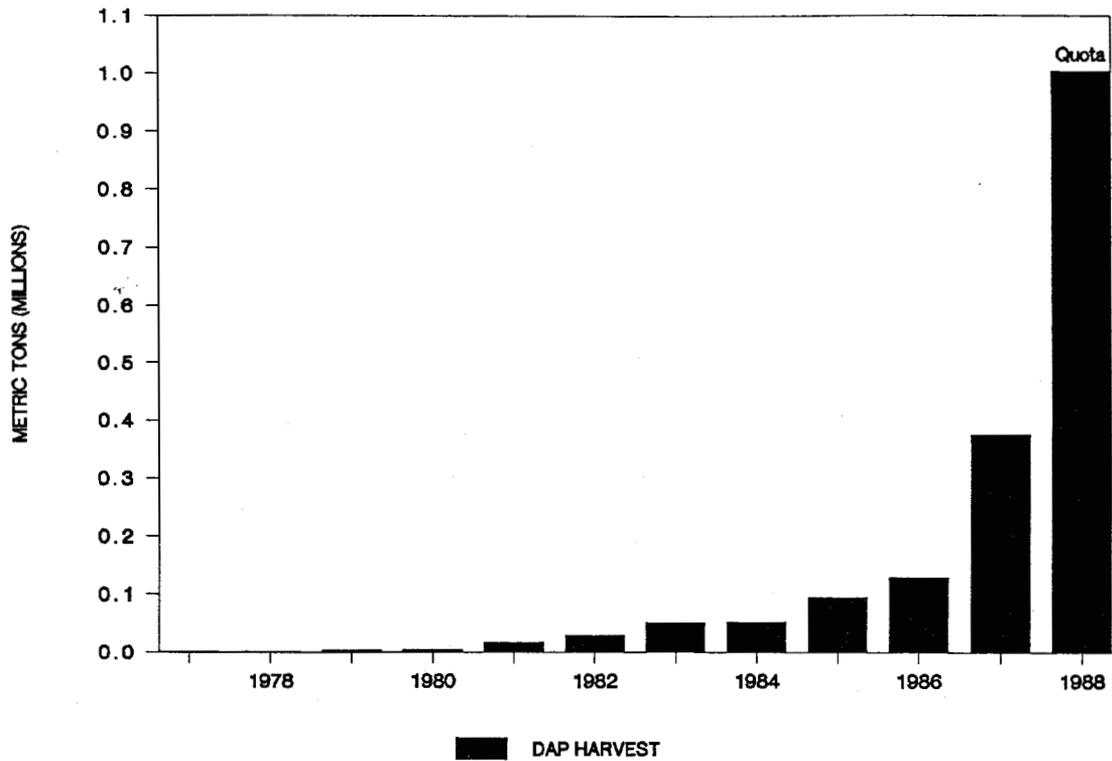


Figure 1. Yearly increases in the domestic harvest of groundfish in Alaska (DAP, Gulf of Alaska and Bering Sea). Although this figure represents the catch by all gear types, the bulk of the 1988 quota consists of midwater trawling for pollock. Source: PacFIN.

(about 3-5 days) and are not required to take observers aboard. Despite the voluntary nature of the DAP observer program, we have no reason to suspect that the marine mammal data obtained on DAP vessels participating in the observer program differed from DAP boats that did not participate.

ADF&G has placed observers on domestic trawlers since 1978 and more recently on longliners and pot vessels. All but two of the vessels upon which this report is based were shore-based boats making deliveries to shore-based processors. The two exceptions were catcher-processors (factory trawlers). The vessels observed were typically 80-120' in length but ranged from 55-150'. Fishing trips generally lasted 3-5 days but ranged from day-trips to a few weeks. Most trips were taken on bottom trawlers near Kodiak Island and the southeastern Bering Sea near Unimak Pass (Table 1).

Observers sampled virtually every trawl or set brought aboard. They recorded the incidental catch of prohibited species (salmon, crab, halibut) and subsampled the catch to determine species composition. Because incidental catches of marine mammals and seabirds were infrequent, we contacted the original observers to confirm whether they had actually recorded all occurrences of capture. In the case of a large marine mammal like a sea lion, it is a memorable occasion due to the confusion it creates on a small vessel. In this report, we present only those data which were verified by the original observers. The verified data (which amounts to the data sets of 7 of the 14 observers employed) are then referred to as the total observer effort in this report. One of the authors (D. Owen) was ADF&G's principal observer during 1978-1988 and personally collected about 50% of the data.

RESULTS

ADF&G observer efforts were limited each year, generally amounting to only 3% or less of the bottom trawl fishery at Kodiak Island, and 1% or less of the various other segments of

Table 1. Observer sampling effort by region for domestic fishing vessels, 1978-1988.

Gear Type	Area	No. of trips Observed	No. of Hauls/Sets Observed
Bottom Trawl	Central Gulf (mostly Kodiak area)	66	663
	S. Bering Sea (mostly Unimak area)	38	485
	SE Alaska (inside waters)	3	17
	Aleutians (Seguam Pass)	1	11
Midwater Trawl	Central Gulf (Kodiak area)	7	29
	S. Bering Sea (Unimak area)	4	19
Longline	Central Gulf (Kodiak area)	12	114
Pots	Central Gulf (Kodiak area)	4	58

the domestic fisheries. Thus, estimating the total mortality of marine mammals for each separate year is not a particularly meaningful exercise. The combined sample size for the period 1978 to 1988, however, was considerably larger. Observer coverage of the DAP bottom trawl fishery (1978-1988) amounted to 108 vessel trips, 1176 trawl hauls, and 2278 trawl hours (Table 2).

The incidental catch of marine mammals by DAP vessels was generally low during the period of observer coverage. Only 4 sea lions were caught, one of which was released alive (Table 2). The average mortality rate was thus 0.001 marine mammals/trawl hour, 0.003 marine mammals/trawl haul, or 0.03 marine mammals/vessel trip.

All marine mammal catches occurred during a single year (1980) when sea lions were frequent visitors around trawlers. In subsequent years (1981-1988), no marine mammals were taken in observed harvests even though the observers' sampling effort was considerable, amounting to 75% of the total sampling effort for bottom trawls.

Observed mortalities of marine mammals in gear types other than bottom trawls were also zero.

Seabirds were caught in the longline fishery, with an average catch rate of 0.6 seabirds/set. All seabirds (fulmars) were taken by two vessels during an offshore sablefish fishery.

DISCUSSION

Although anecdotal accounts of marine mammal mortalities abound, our limited observations of DAP vessels in the groundfish fishery suggest that the catch of marine mammals has generally been low, for two reasons. In the year when the observed catch rate was highest (1980), the DAP harvest was low (Fig. 1). In more recent years the DAP has grown, but observed catch rates of marine mammals have been nil.

Table 2. Incidental catch of marine mammals and seabirds by domestic fishing vessels as recorded by ADF&G on-board observers.

Gear Type	Year	No. of Trips Observed	No. of Hauls/Sets Observed	Duration of Hauls/Sets (hr) Observed	No. of Marine Mammals Observed	No. of Seabirds Observed
Bottom Trawl	1978	3	20	74	0	0
	1979	8	53	45	0	0
	1980	16	157	360	4 ^a	0
	1981	3	34	66	0	0
	1982	5	30	43	0	0
	1984	20	227	506	0	0
	1985	9	191	260	0	0
	1986	8	85	147	0	0
	1987	19	248	493	0	0
	1988	17	131	284	0	0
Totals	108	1176	2278	4 ^a	0	
Midwater Trawl	1987	9	39	135	0	0
	1988	2	9	23	0	0
	Totals	11	48	158	0	0
Longline	1984	2	39	534	0	0
	1986	3	23	106	0	0
	1987	6	51	730	0	64 ^b
	1988	5	37	477	0	0
	Totals	16	150	1847	0	64 ^b
Pots	1987	3	39	3498	0	0
	1988	1	19	433	0	0
	Totals	4	58	3931	0	0

^a Steller sea lions: 3 dead, 1 released alive.

^b fulmars: all dead

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