

Preliminary Seabird bycatch Estimates for Alaskan Groundfish Fisheries, 2007-2010.

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This preliminary report provides estimates of seabirds caught as bycatch in commercial groundfish fisheries operating in federal waters of the Alaska U.S. Exclusive Economic Zone for the years 2007 through 2010. Bycatch estimates for 1993 through 2006 have been previously reported in the Ecosystem Chapter of the annual Stock Assessment and Fishery Assessment reports (Fitzgerald et. al, 2008). The groundfish fishery includes the gear types demersal longline, pot, pelagic trawl, and non-pelagic trawl. The estimates provided here do not apply to gillnet, seine, troll, jig, or halibut longline fisheries.

Estimates are based on two sources of information. The first is data provided by NMFS-certified Fishery Observers deployed to vessels and floating or shoreside processing plants. Observers provide a suite of information on many parameters of the catch (Alaska Fisheries Science Center (AFSC) 2010). These data are expanded from the sample up to the fleet using weekly processing reports of total landings. The numbers provided here are produced from the NMFS Alaska Regional Office Catch Accounting System (Cahalan et. al 2010). This is the third approach since 1993 used to generate estimates of seabird bycatch in these fisheries (Figure 1). The first approach was carried out by the USFWS and covered the years 1993 through 1997 (Stehn et. al 2001). The second analytical approach was completed within the AFSC, in the National Marine Mammal Laboratory and covered the years 1993 through 2006 (Fitzgerald et. al, 2008). These estimates were provided annually beginning in 1998. Given staffing and database changes that occurred in 2007 and 2008, the AFSC has been revising the approach to developing these annual estimates. While all three approaches used the same two primary data sources, each approach is slightly different and produces slightly different results, although the results shown in years of overlap for the demersal longline fleet (Figure 1) show good agreement. The current analytical method being employed (Catch Accounting System) results in estimates that are about 8% higher in the demersal longline fleet than the previous method used. This is due to an improved ability to extrapolate to portions of the fishery that are not directly observed.

While numbers here are summarized into broad species groups in some cases, observers identify each bird from their sample to the most accurate species or species group that they can. For the analysis and reporting of bycatch, many of these are consolidated to a larger grouping (Table 1). For example, the species group “Gull” includes all Laridae except Kittiwakes. Most gulls that are identified to species within this group are Glaucus, Glaucus-winged, Herring, and unidentified (typically juvenile) or hybrid gulls.

Estimated bycatch for the years 2007 through 2010 (Tables 2 through 11) are based on observer sample data. Biases do exist, however, with sampling on commercial fishing vessels. On demersal longline vessels, seabirds may drop off the hook while the gear is fishing or being retrieved. Drop-offs that occur alongside the vessel are seen by observers and included in their sample data. Only those seabirds that drop off underwater and out of sight are not recorded. On trawl vessels, seabird mortality can occur due to interactions with gear such as net-monitoring equipment (paravanes or third wires) or be caught in the net wings and not be landed with the fish catch. These mortalities would not be included in the estimates reported below. The AFSC

is working on an evaluation of these additional sources of mortality on trawl vessels and how best to monitor and include them in annual estimates (Fitzgerald et. al, in prep).

This preliminary report addresses only the point-count estimates for seabird mortality associated with groundfish. Estimates are provided for all gear types (pot, longline and trawl) across all Fishery Management Plan Areas (Bering Sea and Aleutian Islands, Gulf of Alaska) for each year (Table 2). Estimates for demersal longline across all Alaskan waters (Table 3) is provided followed by demersal longline bycatch by major fishery management plan area (Tables 4 through 6). The combined trawl fleet bycatch (Table 7) and trawl bycatch by fishery management area (Bering Sea and Aleutian Islands or Gulf of Alaska) or by gear type (pelagic and non-pelagic) are then shown (Tables 8 through 10). Finally, the pot fishery bycatch is noted in Table 11. A comprehensive report is being prepared that will also provide information on the actual number of birds observed, measure of units of effort for each fishery, bycatch rates, and other features.

Of special note is the incidental takes of two Short-tailed albatross (*Phoebastria albatrus*) observed in August and September of 2010 which leads to an estimated take of 15 birds (Tables 2, 3, and 5). These 2 individual birds were taken in the demersal longline cod fishery in the Bering Sea. The Biological Opinion for the Short-tailed albatross (USFWS 2003) allows for an expected incidental take of 4 birds in each two-year period for the demersal longline fishery. Note that this take is based on numbers of birds observed rather than the estimate of total take derived from the observed take. The takes recorded in 2010 were the first ones observed since 1998.

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Citations

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Table 1. Species and species group categories used in this report¹ and the individual species included in the grouping.

Species/species Group	Includes	Scientific Name
Short-tailed Albatross	n/a	<i>Phoebastria albatrus</i>
Laysan Albatross	n/a	<i>Phoebastria immutabilis</i>
Black-footed Albatross	n/a	<i>Phoebastria nigripes</i>
Unidentified Albatross	Short-tailed, Laysan, or black-footed.	n/a
Northern Fulmar	n/a	<i>Fulmarus glacialis</i>
Shearwaters	Unidentified Shearwater	<i>Puffinus</i> spp
	Sooty Shearwater	<i>Puffinus griseus</i>
	Short-tailed shearwater	<i>Puffinus tenuirostris</i>
	Unidentified dark Shearwater	<i>P. griseus</i> or <i>tenuirostris</i>
	Unidentified procellariid	Procellariiformes
Storm Petrel	Unidentified Storm Petrel	<i>Oceanodroma</i> spp.
	Fork-tailed Storm Petrel	<i>O. furcata</i>
	Leach's Storm Petrel	<i>O. leucorhoa</i>
Gull	Unidentified gull	<i>Laridae</i>
	Herring gull	<i>Larus argentatus</i>
	Glaucous gull	<i>Larus hyperboreus</i>
	Glaucous-winged gull	<i>Larus glaucescens</i>
	Slaty-backed Gull	<i>Larus schisti</i>
	Gull hybrids	<i>Laridae</i>
Kittiwake	Black-footed Kittiwake	<i>Rissa tridactyla</i> ,
	Red-legged Kittiwake	<i>Rissa brevirostris</i>
Murre	Unidentified Murre	<i>Uria</i> spp.
	Thick-billed Murre	<i>Uria lomvia</i>
	Common Murre	<i>Uria aalge</i>
Puffin	Unidentified Puffin	<i>Fratercula</i> spp.
	Horned Puffin	<i>F. corniculata</i>
	Tufted Puffin	<i>F. cirrhata</i>
	Rhinoceros Auklet	<i>Cerorhinca moncerata</i>
Auklet	Unidentified Murrelet or auklet	Several genera
	Murrelets	<i>Brachyramphus</i> spp and others
	Auklets	<i>Aethia</i> spp and others
Other Alcid	Unidentified alcid,	<i>Alcidae</i>
	Guillemot, unidentified	<i>Cepphus</i> spp.
Other Bird	Miscellaneous birds – could include:	
	Loons	<i>Gaviidae</i>
	Grebe	<i>Podicipedidae</i>
	Cormorant	<i>Phalacrocoracidae</i>
	Seaduck	<i>Anatidae</i>
	Jaeger/skua	<i>Stercorariidae</i>
	Terns	<i>Sternidae</i>
Unidentified Seabird	All of the above	

¹ A complete list of the species and species group categories used by North Pacific Groundfish Observers is available in the Groundfish Observer Manual (AFSC 2010).

Table 2. Total estimated seabird bycatch in Alaskan federal groundfish fisheries, all gear types and Fishery Management Plan areas combined, 2007 through 2010.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	16	0	0	0
Short-tailed Albatross	0	0	0	15
Laysan Albatross	17	420	114	267
Black-footed Albatross	176	290	52	44
Northern Fulmar	4,581	3,426	7,921	2,357
Shearwater	3,602	1,214	622	647
Storm Petrel	1	44	0	0
Gull	1,309	1,472	1,296	1,141
Kittiwake	10	0	16	0
Murre	7	5	13	102
Puffin	0	0	0	5
Auklet	0	3	0	0
Other Alcid	0	0	105	0
Other Bird	0	0	136	0
Unidentified	509	40	166	18
Total	10,228	6,914	10,441	4,596

Table 3. Summary of estimated seabird bycatch in the Alaskan demersal longline groundfish fishery, all Fishery Management Plan areas combined.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	16	0	0	0
Short-tailed Albatross	0	0	0	15
Laysan Albatross	17	420	105	267
Black-footed Albatross	176	290	52	44
Northern Fulmar	3,556	2,860	7,161	1,782
Shearwater	2,876	1,201	576	492
Storm Petrel	0	0	0	0
Gull	1,006	1,403	1,214	1,084
Kittiwake	10	0	10	0
Murre	5	5	13	0
Puffin	0	0	0	5
Auklet	0	0	0	0
Other Alcid	0	0	0	0
Other Bird	0	0	0	0
Unidentified	493	40	122	15
Total	8,155	6,219	9,253	3,704

Table 4. Estimated Seabird bycatch in the Aleutian Islands Area demersal longline groundfish fishery.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	0	0	0	0
Short-tailed Albatross	0	0	0	0
Laysan Albatross	13	127	25	147
Black-footed Albatross	0	0	0	0
Northern Fulmar	62	97	117	101
Shearwater	53	39	10	12
Storm Petrel	0	0	0	0
Gull	31	19	41	183
Kittiwake	0	0	0	0
Murre	0	0	0	0
Puffin	0	0	0	0
Auklet	0	0	0	0
Other Alcid	0	0	0	0
Other Bird	0	0	0	0
Unidentified	5	0	0	0
Total	164	282	193	443

Table 5. Estimated Seabird bycatch in the Bering Sea Islands Area demersal longline groundfish fishery.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	0	0	0	0
Short-tailed Albatross	0	0	0	15
Laysan Albatross	4	130	13	40
Black-footed Albatross	18	7	5	9
Northern Fulmar	2,526	1,791	6,582	1,647
Shearwater	2,795	1,162	566	480
Storm Petrel	0	0	0	0
Gull	421	1,279	808	640
Kittiwake	10	0	10	0
Murre	5	5	13	0
Puffin	0	0	0	5
Auklet	0	0	0	0
Other Alcid	0	0	0	0
Other Bird	0	0	0	0
Unidentified	445	31	122	15
Total	6,224	4,405	8,119	2,851

Table 6. Estimated Seabird bycatch in the Gulf of Alaska Area demersal longline groundfish fishery.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	16	0	0	0
Short-tailed Albatross	0	0	0	0
Laysan Albatross	0	163	67	80
Black-footed Albatross	158	283	47	35
Northern Fulmar	968	972	462	34
Shearwater	27	0	0	0
Storm Petrel	0	0	0	0
Gull	554	105	365	261
Kittiwake	0	0	0	0
Murre	0	0	0	0
Puffin	0	0	0	0
Auklet	0	0	0	0
Other Alcid	0	0	0	0
Other Bird	0	0	0	0
Unidentified	44	9	0	0
Total	1,767	1,532	941	410

Table 7. Estimated seabird bycatch for Alaskan groundfish trawl fisheries, pelagic and non-pelagic gear combined, all Fishery Management Plan areas combined.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	0	0	0	0
Short-tailed Albatross	0	0	0	0
Laysan Albatross	0	0	9	0
Black-footed Albatross	0	0	0	0
Northern Fulmar	653	537	635	506
Shearwater	726	13	41	155
Storm Petrel	1	44	0	0
Gull	303	9	82	57
Kittiwake	0	0	6	0
Murre	2	0	0	102
Puffin	0	0	0	0
Auklet	0	3	0	0
Other Alcid	0	0	105	0
Other Bird	0	0	136	0
Unidentified	16	0	44	3
Total	1,701	606	1,058	823

Table 8. Estimated seabird bycatch for the Alaskan groundfish Bering Sea and Aleutian Islands Fisheries Management Plan area, pelagic and non-pelagic trawl gear combined.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	0	0	0	0
Short-tailed Albatross	0	0	0	0
Laysan Albatross	0	0	9	0
Black-footed Albatross	0	0	0	0
Northern Fulmar	562	498	635	384
Shearwater	726	13	41	155
Storm Petrel	1	44	0	0
Gull	303	9	82	57
Kittiwake	0	0	6	0
Murre	2	0	0	102
Puffin	0	0	0	0
Auklet	0	3	0	0
Other Alcid	0	0	105	0
Other Bird	0	0	136	0
Unidentified	16	0	44	3
Total	1,610	567	1,058	701

Table 9. Estimated seabird bycatch for the Alaskan groundfish Gulf of Alaska Fisheries Management Plan area, pelagic and non-pelagic trawl gear combined.

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	0	0	0	0
Short-tailed Albatross	0	0	0	0
Laysan Albatross	0	0	0	0
Black-footed Albatross	0	0	0	0
Northern Fulmar	91	39	0	122
Shearwater	0	0	0	0
Storm Petrel	0	0	0	0
Gull	0	0	0	0
Kittiwake	0	0	0	0
Murre	0	0	0	0
Puffin	0	0	0	0
Auklet	0	0	0	0
Other Alcid	0	0	0	0
Other Bird	0	0	0	0
Unidentified	0	0	0	0
Total	91	39	0	122

Table 10. Estimated seabird bycatch for the Alaskan groundfish pelagic (P) and non-pelagic (N) trawl gear types across all Fisheries Management areas.

Species/ Species Group	Trawl	Year			
		2007	2008	2009	2010
Unidentified Albatross	P				
	N	0	0	0	0
Short-tailed Albatross	P				
	N	0	0	0	0
Laysan Albatross	P			0	
	N	0	0	9	0
Black-footed Albatross	P				
	N	0	0	0	0
Northern Fulmar	P	552	290	302	69
	N	101	248	333	436
Shearwater	P	21	13	3	22
	N	705	0	38	133
Storm Petrel	P	1	0		
	N	0	44	0	0
Gull	P	9	9	3	0
	N	294	0	79	57
Kittiwake	P			6	
	N	0	0	0	0
Murre	P	2			0
	N	0	0	0	102
Puffin	P				
	N	0	0	0	0
Auklet	P		3		
	N	0	0	0	0
Other Alcid	P			0	
	N	0	0	105	0
Other Bird	P			3	
	N	0	0	133	0
Unidentified	P	16		37	3
	N	0	0	7	0
Total	P	601	315	354	94
	N	1,100	292	704	728

Table 11. Estimated seabird bycatch for pot vessels fishing groundfish in Alaskan federal waters, all Fishery Management Plan areas combined

Species/ Species Group	Year			
	2007	2008	2009	2010
Unidentified Albatross	0	0	0	0
Short-tailed Albatross	0	0	0	0
Laysan Albatross	0	0	0	0
Black-footed Albatross	0	0	0	0
Northern Fulmar	372	29	125	69
Shearwater	0	0	5	0
Storm Petrel	0	0	0	0
Gull	0	60	0	0
Kittiwake	0	0	0	0
Murre	0	0	0	0
Puffin	0	0	0	0
Auklet	0	0	0	0
Other Alcid	0	0	0	0
Other Bird	0	0	0	0
Unidentified	0	0	0	0
Total	372	89	130	69

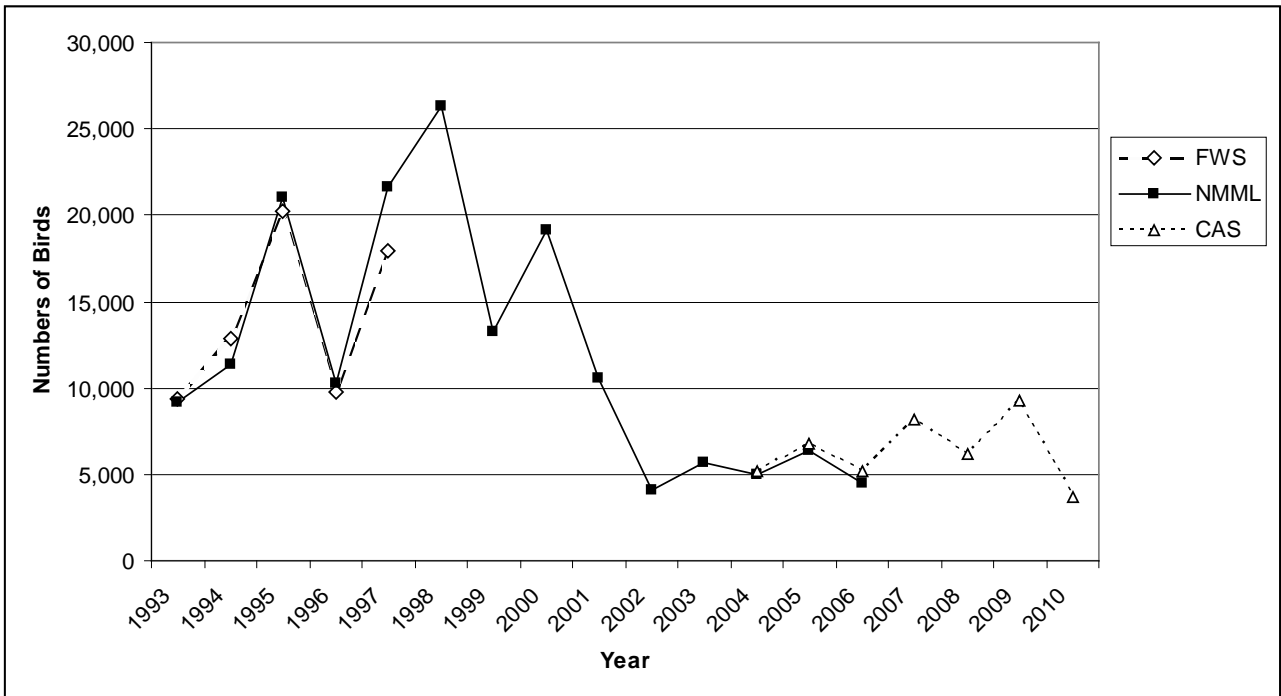


Figure 1. Total estimated seabird bycatch by year in the Alaskan demersal longline fishery derived by employing three methods: the Fish and Wildlife Service (Stehn et. al 2001), the National Marine Mammal Laboratory (Fitzgerald et. al 2008), and this preliminary report, using the Alaska Regional Office Catch Accounting System (Cahalan et. al 2010).