Groundfish Trawl Fishery, Pacific Walrus, and Local Fishery Interactions in Northern Bristol Bay – An Updated Discussion Paper

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1 Introduction

This document is an updated discussion paper, originally initiated by the North Pacific Fishery Management Council in late 2008. At the April 2009 meeting, the Council reviewed the original discussion paper, dated March 2009, on the groundfish fishery in the Northern Bristol Bay Trawl Area (NBBTA), information on Pacific walrus, and a description of interactions that have occurred between local fishing activities and walrus or their habitat. The discussion paper was prompted by comments from the public about concerns over interactions between trawl fishing activities and Pacific walrus and their habitat in northern Bristol Bay, and at the April 2009 meeting, the Council received additional public comment focusing on concerns over bycatch of halibut in the yellowfin sole fishery in the NBBTA. The Council was also informed of an agreement to begin in 2009, between certain northern Bristol Bay halibut fishermen and the Best Use Cooperative, whereby yellowfin sole trawl vessels were willing to voluntarily avoid fishing in the southwest portion of the NBBTA as well as an area southwest of the Nushagak Peninsula to avoid conflicts with local halibut fishermen.

In light of this voluntary agreement, the Council directed staff to update the discussion paper with 2009 groundfish fishery data, particularly including bycatch of halibut and walrus prey items (clams, other invertebrates). After the 2009 fishery, as conducted under the voluntary constriction of the fishing grounds, the Council would have new information on the performance of the yellowfin sole fishery and new bycatch data. The Council also requested the updated discussion paper include new information on walrus if it becomes available.

2 Supplemental information provided for the November 2009 update to the discussion paper

The discussion paper has been updated accordingly, in response to the Council request. To facilitate the reader, we have identified below the areas where the discussion paper has been updated. The appendices from the March 2009 version have not been included in the updated discussion paper, but are available online at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf.

Voluntary agreement restricting the yellowfin sole fishery in the NBBTA in 2009

- map of the restricted area, and description of the agreement: Section 5.5.1
- reports from the Best Use Cooperative and community members about the effectiveness of the agreement: Section 5.5.1

2009 yellowfin sole fishery

- catch data: Section 5.1
- vessel information: Sections 5.2 and 5.3
- incidental catch and bycatch (halibut, walrus prey species) data: Section 5.4
- distribution and timing of fishery: Section 5.5

Halibut fishery

- information on the halibut fishery in the areas adjacent to the NBBTA: Section 6.1

Walrus information

- update on the status of ESA-listing for walrus: Section 7.7
- Note, the results of the U.S.-Russia range-wide survey of the Pacific walrus is expected very soon. As of the time of preparation of this updated discussion paper, those results were not available.
- Additional data on walrus in northern Bristol Bay are provided in another Council discussion paper, dated November 2009, which focuses on a new haulout on the west side of Hagemeister Island.

3 Background

3.1 The Issues Brought to the Council

In February 2008, the Council received letters from the Qayassiq Walrus Commission and Bristol Bay residents outlining concerns over interactions between Pacific walrus and the groundfish trawl fishing activities in the Bristol Bay region (Figure 1). These letters are attached as Appendix A. The Qayassiq Walrus Commission requested regulatory changes to reduce trawling in the Nearshore Bristol Bay Trawl Area[1]. The Council acknowledged receiving this information, and responded in a letter dated February 25, 2008 noting that their concerns are largely addressed under the existing walrus protection areas adopted by the Council under Amendment 17 to the BSAI groundfish FMP and the larger Bristol Bay closed area adopted by the Council under Amendment 37. This letter is part of Appendix A (available at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf).

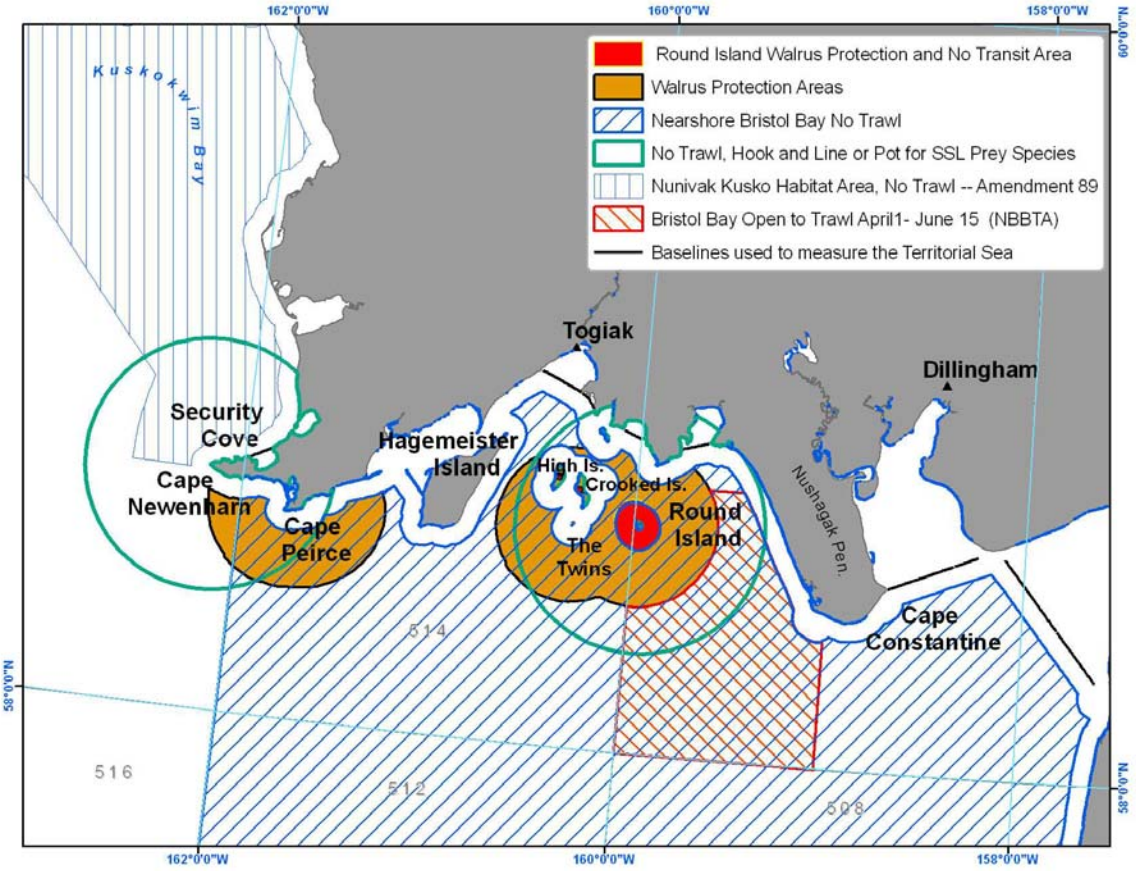
In late August 2008, the Council received a request from the Qayassiq Walrus Commission to consider several proposals to increase protection for walrus habitat in the Nearshore Bristol Bay Trawl Area. The Council also received a similar letter of concern from the Traditional Council of Togiak. These letters are in Appendix B. And at the October 2008 meeting, the Council received public comment on concerns over interactions between trawl fishing activities and Pacific walrus and their habitat in Bristol Bay. Specifically, some residents of this region testified to the Council their concerns over potential disturbance to walrus and adverse impacts on walrus feeding areas in the vicinity of the Nearshore Bristol Bay Trawl Area. One person testified about adverse interactions between the trawl fleet and halibut gear and one instance of potential physical contact between a trawl vessel and a local vessel. Letters from the public provided to the Council in October 2008 are in Appendix B (available at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf).

Based on the materials sent to the Council from the Qayassiq Walrus Commission and other individuals in the Bristol Bay region, and testimony presented to the Council at the October 2008 meeting, the Council requested a discussion paper on the characteristics of the fishery in the Nearshore Bristol Bay

[1] While all of Bristol Bay federal waters are generally closed to trawling east of 162° W longitude, an exception is the trawl area defined above where trawling primarily for yellowfin sole occurs during the open period April 1 to June 15.

Trawl Area including groundfish harvests, bycatch amounts, vessel participation, and levels of observer coverage. The Council also requested a review of information on the Pacific walrus population, and a description of conflicts that have occurred between fishing activities and walrus or their habitat during trawling, offloading, and any information on walrus takes in commercial fishing activity.

Figure 1 Map of northern Bristol Bay, showing the Northern Bristol Bay Trawl Area (NBBTA), walrus protection areas, and other area restrictions



And more recently, on February 17, 2009 the Council received another request from the Qayassiq Walrus Commission for regulatory changes in the Bristol Bay region to establish a marine mammal habitat protection zone as defined in the attached Resolution from the Commission (Appendix C, available at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf). The concerns expressed in this resolution relate to protection of walrus feeding habitat offshore from walrus haulouts in the Bristol Bay region.

Finally, Council staff has been informed of several voluntary industry initiatives to explore some of the concerns raised by the Qayassiq Walrus Commission and residents of the northern Bristol Bay region (Dorothy Lowman, BUC, pers. comm.). Industry has also contacted the U.S. Fish & Wildlife Service (USFWS) to present information on the groundfish fishery and to seek information on any USFWS concerns over groundfish fishery interactions with walrus in northern Bristol Bay (Jason Anderson, BUC, pers. comm.). The stated goal of these meetings as reported to Council staff by industry is to define the issues, identify problems, and seek solutions outside the Council or regulatory process (Jason Anderson, BUC, pers. comm.). Council staff has been advised that industry will report on these initiatives at the time when this discussion paper is presented to the Council.

3.2 Summary of Concerns

In the above listed communications with the Council, residents and other groups in the northern Bristol Bay region are concerned over potential adverse interactions between Federal groundfish fisheries and Pacific walrus inhabiting this region, interactions with other local fisheries, and possible impacts of groundfish fisheries on walrus habitat including prey items.

Cited in correspondence from the Qayassiq Walrus Commission are concerns over disturbance of walrus haulouts and feeding habitat by the yellowfin sole (YFS) fishery in northern Bristol Bay, and transmission of noise from fishing activities to Round Island, a traditional Yupik Eskimo hunting site. Letters also cite concerns over bycatch of salmon, herring, and halibut in groundfish fisheries in this area, potential trawl disturbance of walrus prey items such as clams, and walrus catch in trawls. Other groups included in correspondence include the Bristol Bay Native Association, the Bristol Bay Marine Mammal Council, the Traditional Council of Togiak, and several other groups.

Other concerns voiced in correspondence or testimony to the Council include alleged incidents of groundfish fishing in closed waters, adverse interactions among groundfish fishing vessels and local salmon, herring, and halibut fishing activities, and noise from offshore groundfish fishing activities disturbing local residents on shore. Some have expressed concerns over disturbance of walrus from fishing activities or from product offloading at roadsteads (see Section 5.3).

Several remedies have been suggested by these groups. These include extension of the 3 n mi closed areas around the islands of the State's Walrus Islands State Game Sanctuary to 10 n mi, a Walrus and Marine Species Protection Zone out to 25 n mi from Cape Newenham to Cape Constantine (Figure 2), and more recently a 0 to 50 n mi closure to groundfish fishing from Security Cove and Cape Newenham eastward throughout Bristol Bay and south to Port Moller (Figure 3).

Figure 2 Proposal to create a Walrus and Marine Species Protection Zone from Cape Newenham to Cape Constantine, 0 to 25 nm.

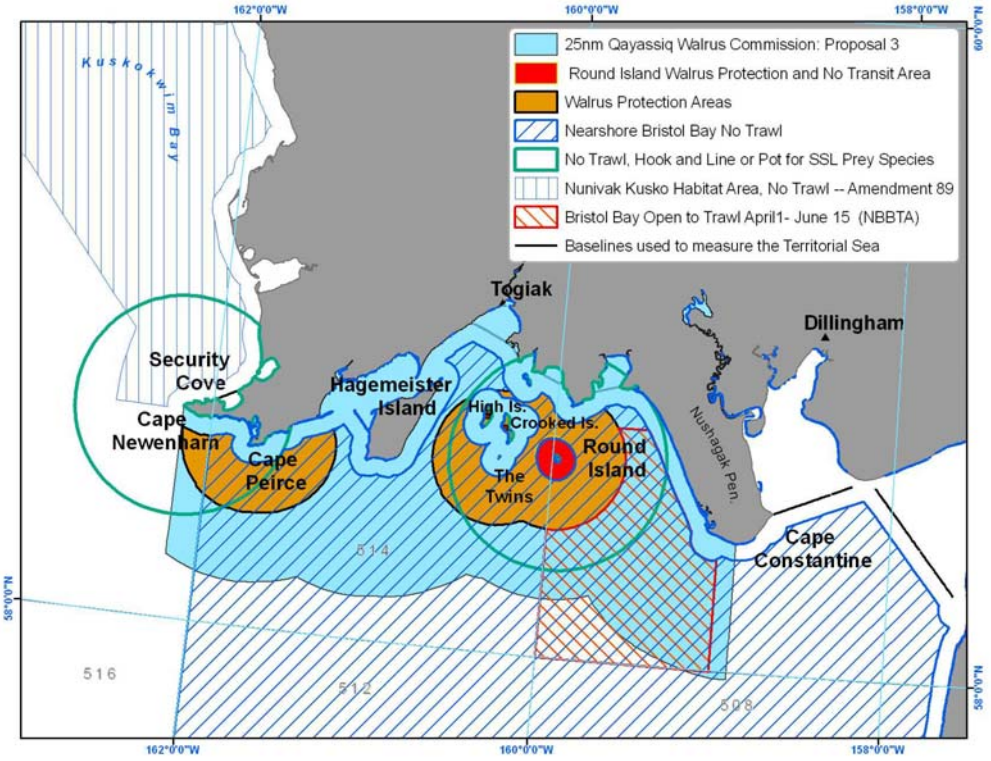
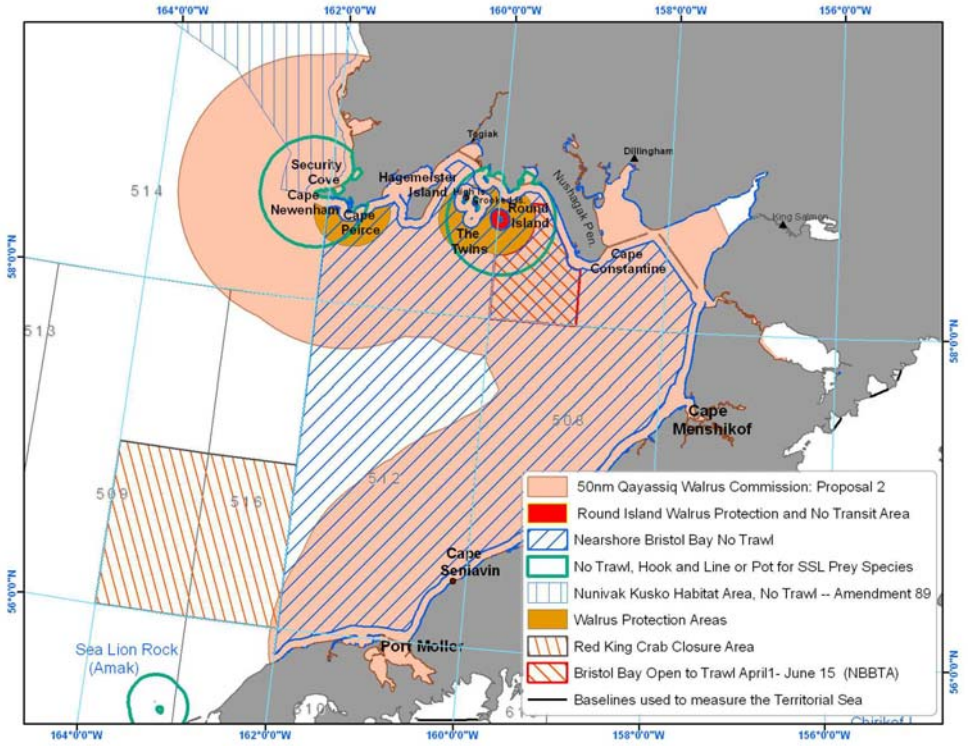


Figure 3 Proposal to prohibit groundfish fishing from Security Cove and Cape Newenham, throughout Bristol Bay, to Port Moller in the south, 0 to 50 nm.



The following provides background information on the State and Federal groundfish fisheries in the Bristol Bay area, the current trawl closures in Bristol Bay, a brief review of walrus life history and abundance in Alaskan waters, and information on fishery interactions with walrus in the Bristol Bay region.

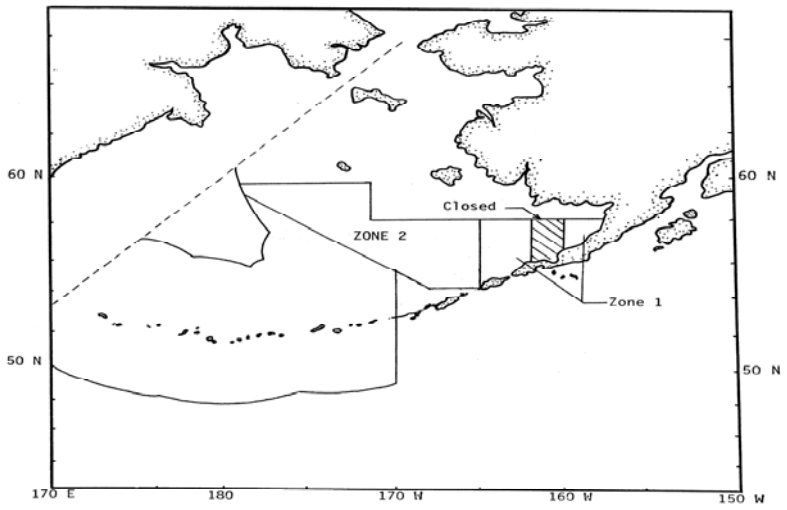
4 Overview of Northern Bristol Bay Fishing Closures

Concerned over bycatch of crab and halibut in the Bering Sea foreign fisheries of the 1960s and 1970s, the North Pacific Fishery Management Council adopted a series of regulatory changes under the new Magnuson Fishery Conservation and Management Act (now the MSA) to limit incidental mortality of these species in groundfish fisheries of offshore Alaska. Closed areas were a principal tool for regulating and limiting bycatch. Prior to U.S. management of offshore fisheries in the Bering Sea, foreign fleets often self-regulated to avoid bycatch or to reduce other fishery impacts. Japan instituted a no-trawl zone in Bristol Bay to limit interactions between trawl and pot fishing vessels (Witherell and Woodby 2005). With the passage of the MSA, regulations affecting foreign fisheries were initiated in 1976, and the Council increasingly limited bycatch in foreign and joint venture fisheries through the 1980s. Closed areas are also a tool for reducing fishery interactions with marine mammals. The following summarizes the regulatory changes implemented to reduce bycatch and fishery impacts on walrus in the Bristol Bay region.

4.1 Amendment 10 Crab and Halibut Protection Zone

Based on concerns over bycatch of red king crab, Tanner crab (*C. bairdi*), and halibut in foreign and domestic groundfish fisheries in the eastern Bering Sea, primarily the joint venture yellowfin sole fishery, the Council approved Amendment 10 to the BSAI groundfish FMP in March 1987. This amendment closed a portion of the eastern Bering Sea to all trawling, set limits on incidental catch of *bairdi* Tanner crabs, red king crab, and halibut in BSAI foreign and domestic fisheries for YFS and other flatfish, and required these fisheries to close when PSC limits were reached. The closed area is cross-hatched on Figure 4.

Figure 4 Cross-hatched closed area for YFS and flatfish trawl under Amendment 10.



4.2 Amendment 12a Modify Bristol Bay Crab and Halibut Protection Zone

In September 1989, Amendment 12a replaced the bycatch controls of Amendment 10 and continued bycatch limits in BSAI trawl fisheries for *bairdi* Tanner crab, red king crab, and halibut. These provisions applied to the now nearly entirely domestic groundfish fishery. PSC limits were apportioned to four fisheries, each of which would close when a PSC limit was reached – DAP flatfish, DAP other (mostly pollock and cod), JVP flatfish, and JVP other[2]. Amendment 12a also retained the Amendment 10 trawl closed area, but extended its western boundary to 163° W. during March 15 to June 15 for additional red king crab protection (Figure 5). Many additional amendments to the BSAI groundfish FMP ensued to refine the bycatch controls initiated under Amendment 12a.

Figure 5 Bycatch protection zones established under Amendment 12a.

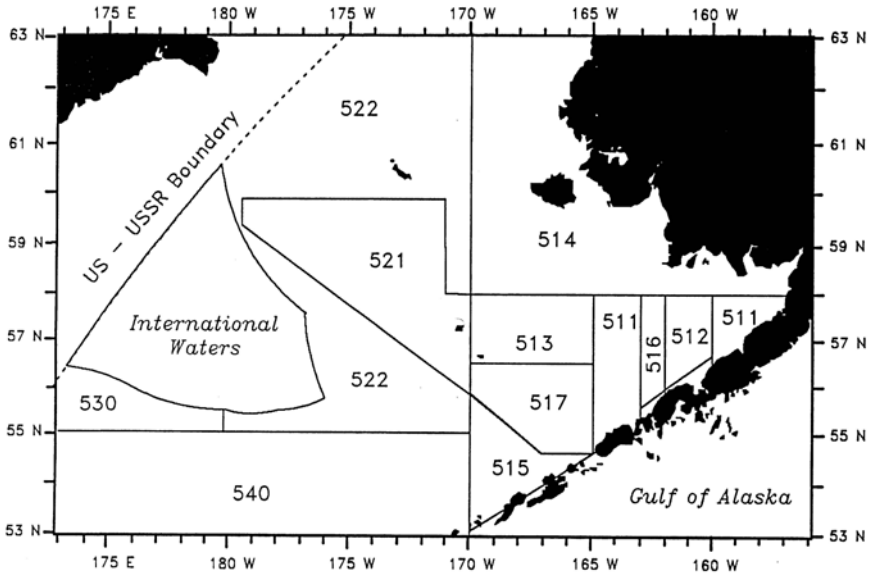


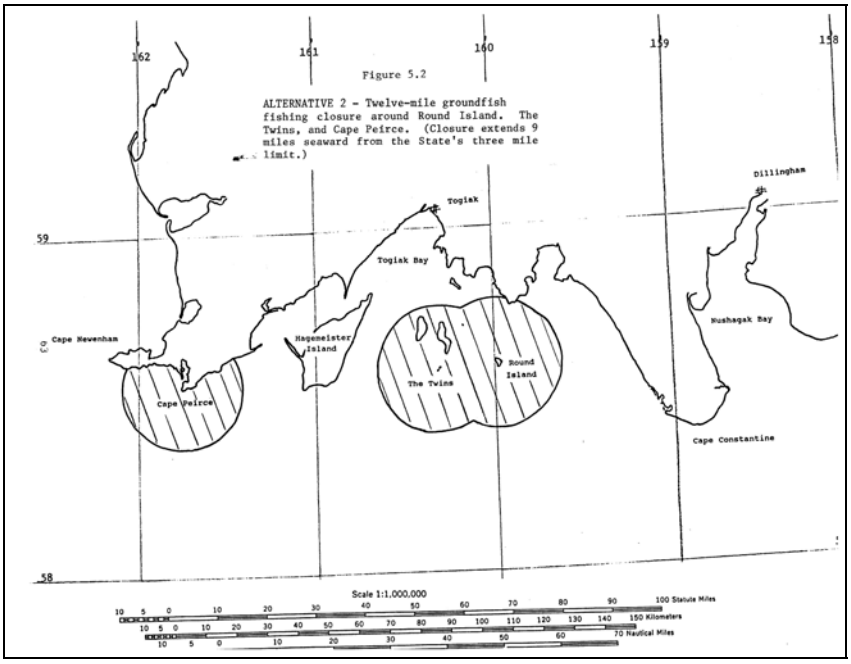
Figure 2. Statistical reporting areas in the BS/AI (Amendment 12A)
Bycatch protection zones: Zone 1 = 511 + 512 + 516
Zone 2 = 513 + 517 + 521
Zone 2H = 517

4.3 Amendment 13 Walrus Islands closure

In January 1990, Amendment 13 was implemented with measures to prohibit groundfish fishing activities within 3 to 12 n mi closed areas around the Walrus Islands (Round Island and The Twins) and Cape Peirce in northern Bristol Bay April 1-September 30. Specific concerns were expressed by the public and the USFWS over noise emitted by fishing activities of the JVP yellowfin sole fishery and apparent correlations between increased noise and observed declines in numbers of walrus using haulouts in northern Bristol Bay. This measure was put into place to reduce disturbance to walrus that inhabited these haulout areas. Figure 6 shows the Amendment 13 closed areas in this region.

[2] DAP = Domestic Annual Processing; JVP = Joint Venture Processing

Figure 6 Walrus protection zones established under Amendment 13



4.4 Amendment 17 Renew Walrus Islands Closure

Amendment 17 was adopted in April 1992 to permanently close from April 1-September 30 the 3-12 n mi zones around Round Island, The Twins, and Cape Peirce to reduce disturbance to walrus. This measure prohibits all Federally-permitted vessels from entering or transiting these closed areas during the closure period, including fishing support vessels. The Council indicated its intent that the State should match these closures around Round Island and The Twins in State waters (see Section 4.6). The specific regulation at 679.22(a)(4) is:

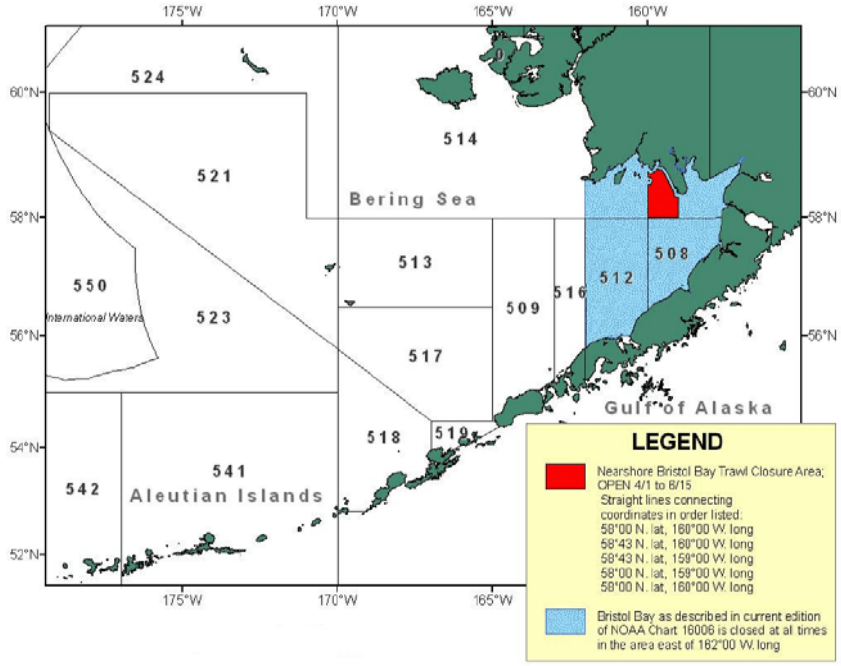
> (4) Walrus protection areas.
> From April 1 through September 30 of any fishing year, vessels with a Federal fisheries permit under § 679.4 are prohibited in that part of the Bering Sea subarea between 3 and 12 nm seaward of the baseline used to measure the territorial sea around islands named Round Island and The Twins, as shown on National Ocean Survey Chart 16315, and around Cape Peirce (58° 33' N. lat., 161° 43' W. long.).

4.5 Amendment 37 Nearshore Bristol Bay Trawl Closure Area

Implemented January 1, 1997, Amendment 37 prohibits all trawling year round in the Nearshore Bristol Bay Trawl Closure (NBBTC) area, specifically all waters east of 162 ˚ W, with the exception of an area bounded by 159 ˚ to 160 ˚ W and 58 ˚ to 58 ˚ 43’ N that remains open to trawling April 1 to June 15 (Nearshore Bristol Bay Trawl Area [NBBTA]). This closure is to protect juvenile red king crab habitat while at the same time allowing trawling in an area known to have high catches of flatfish and low bycatch of other species (Ackley and Witherell 1999). The area north of 58 ˚ 43’ N was closed to reduce bycatch of herring. The April 1 – June 15 period was chosen to avoid bycatch of halibut which move into the nearshore areas in June. Amendment 37 also requires that any catcher vessel or catcher processor used to fish for groundfish in the trawl closure area must carry an observer during 100% of its fishing days in which the vessel uses trawl gear. Figure 7 illustrates the NBBTC area and the NBBTA. The specific regulation at 679.22(a)(9) is:

(9) Nearshore Bristol Bay Trawl Closure.
Directed fishing for groundfish by vessels using trawl gear in Bristol Bay, as described in the current edition of NOAA chart 16006, is closed at all times in the area east of 162° 00' W. long., except that the Nearshore Bristol Bay Trawl Area defined in Figure 12 to this part is open to trawling from 1200 hours A.l.t., April 1 to 1200 hours A.l.t., June 15 of each year.

Figure 7 Nearshore Bristol Bay Trawl Closure Area, Figure 12 to Part 679 (679.22(a)(9))



4.6 State of Alaska Closures

All State waters in Bristol Bay east of Cape Newenham to Cape Menshikof are closed to trawl fishing year round (5 AAC 39.165). Historically, the State of Alaska has mirrored the NBBTA trawl opening in adjacent State waters as defined under Amendment 37, allowing non-pelagic trawling to occur during the open period. Some confusion over whether the Alaska Board of Fisheries' intent that these waters be closed or open during the April 1 – June 15 period was discovered by NOAA's Office of Law Enforcement (OLE) (see email and report in Appendix D, available at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf). It was noted by NOAA OLE that while State waters were open during the time period and area defined in Amendment 37, ironically the opening was for non-pelagic trawl gear and not to pelagic trawl gear (all of Bristol Bay State waters are closed to all trawl gear under 5 AAC 39.165 and 5 AAC 06.100 – only non-pelagic gear were allowed in the Amendment 37 area under 5 AAC 39.164(b)(7)). This confusion was addressed by recent Board of Fisheries action. The Board repealed 5 AAC 39.164(b)(7) at their December 31, 2008 teleconference meeting (Proposal 369), thereby prohibiting non-pelagic trawling in State waters in the Amendment 37 area (Kerri Tonkin, ADF&G, pers. comm.). State waters in Bristol Bay (defined at 5 AAC 06.100) are closed to all trawling throughout the entire year – no exemption is allowed during the Amendment 37 time period and area. Note also that outside the Amendment 37 area, Federal walrus protection closures under Amendment 17 are NOT mirrored in State waters. Figure 1 illustrates the combined effect of the closures described in the above sections (including closed areas described below in Sections 2.7 and 2.8.

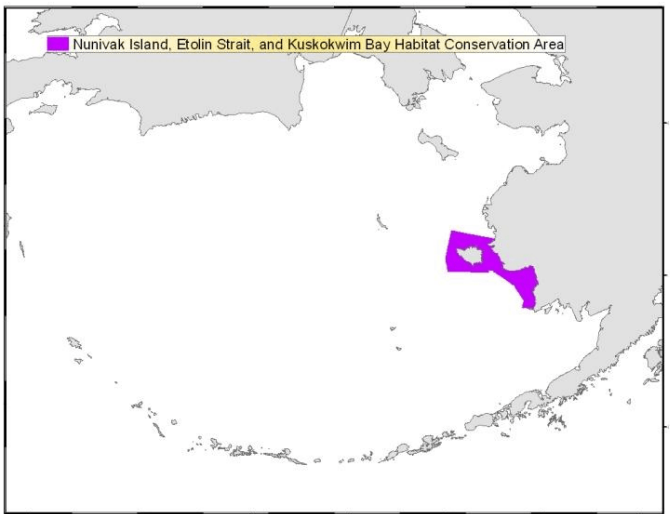
4.7 Steller Sea Lion Closures

Cape Newenham and Round Island are SSL haulouts, are designated SSL critical habitat, and have 20 n mi closures year round for pollock and Atka mackerel trawl and cod trawl and fixed gear fisheries. These closures overlap other closures in northern Bristol Bay (Figure 1). SSL closed areas are Federal groundfish fishery mitigation measures, and are mirrored in adjacent State waters through an annual Emergency Order issued by the State at the beginning of the calendar year (Appendix E, available at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf). State waters within the 20 n mi SSL protection areas around Round Island and Cape Newenham are closed to fishing for SSL prey species.

4.8 Amendment 89 Nunivak Island, Etolin Strait, and Kuskokwim Bay Habitat Conservation Area

One of the proposed conservation measures submitted by the Qayassiq Walrus Commission included areas west of Cape Newenham and overlapping the Nunivak Island, Etolin Strait, and Kuskokwim Bay Habitat Conservation Area (Figure 8). In 2008, the Council adopted Amendment 89 to the BSAI groundfish FMP to establish Bering Sea habitat conservation measures. This amendment prohibits nonpelagic trawling in certain waters of the Bering Sea subarea to protect bottom habitat from the potential adverse effects of nonpelagic trawling. The amendment also established the Northern Bering Sea Research Area for studying the impacts of nonpelagic trawling on bottom habitat. The Council's action was deemed necessary to protect portions of the Bering Sea subarea bottom habitat from the potential adverse effects of nonpelagic trawling.

Figure 8 Nunivak Island, Etolin Strait, and Kuskokwim Bay Habitat Conservation Area (Figure 21 to Part 679)



5 Yellowfin sole trawl fishery in Bristol Bay

5.1 Harvest levels

Yellowfin sole is the only target fishery that is prosecuted in the Northern Bristol Bay Trawl Area (NBBTA). Table 1 illustrates the total amount of yellowfin sole that was harvested in the NBBTA, based on data from observed tows. The total includes catch attributable to both CDQ and non-CDQ operations.

Table 1 compares observed catch from the NBBTA to the extrapolated catch of yellowfin sole for the BSAI as a whole. From 2005 to 2008, the NBBTA yellowfin sole catch accounted for between 3% and 14% of the total BSAI yellowfin sole harvest. Fishing effort in the area varies on a periodic cycle (see also Section 5.6), and many factors influence whether the fleet will pursue the yellowfin sole fishery in the NBBTA. If there are opportunities in May and June for good yellowfin sole fishing in other areas that involve less travel time, but still yield high yellowfin sole catch rates and low halibut bycatch, these may be more desirable to the fleet. Additionally, the market for yellowfin sole varies on an annual basis, and may affect whether the fleet choose to fish for yellowfin sole in May and early June, or turn to different targets (for example, Pacific cod or other flatfish). The NBBTA fishery is generally considered by the fleet to be a good area for catching yellowfin sole with very low halibut bycatch (L. Swanson, Grndfsh. Forum, and J. Gauvin, BUC, pers. comm.). In 2006 to 2008, effort was notably higher in the NBBTA than it had been in the previous five years. Effort in 2009 was greatly reduced compared to the three previous years, and was similar to levels in 2005. Vessels participating in the NBBTA in 2009 waived confidentiality protections in order to allow staff to release the catch and bycatch totals for the area. 2,266 mt of yellowfin sole were harvested in the NBBTA, representing two percent of the total yellowfin sole catch in the BSAI in 2009 (through October 31, 2009).

Table 1 Yellowfin sole catch, mt, in the Northern Bristol Bay Trawl Area (NBBTA) compared to catch in the BSAI as a whole

	2001	2002	2003	2004	2005	2006	2007	2008	2009 (through 10/31/09)
NBBTA (observed catch)	**	**	0	**	2,906	9,345	16,946	10,434	2,266
BSAI (extrapolated catch)[1]	63,577	74,971	79,815	75,509	94,385	99,108	121,029	148,860	102,501
NBBTA as proportion of BSAI	**	**	0	**	3%	9%	14%	7%	2%

** Catch amounts are confidential

[1] To give some idea of the degree of extrapolation, NMFS catch accounting has prepared data for the Council in the past about the proportion of observed catch in each target fishery, although note that the above data is for all yellowfin catch, not just catch in the yellowfin sole target. The yellowfin sole catcher processor target fishery was 95% observed in 2004, 94% in 2005, 92% in 2006, and 95% observed in 2007 (J Hogan, NMFS catch accounting). In 2008, the majority of the fishery was prosecuted by Amendment 80 vessels, which are required to have 200% observer coverage (see below). Data from the catcher vessel fishery for yellowfin sole in the BSAI for 2004-2007 are confidential.

Source: NMFS observer database, March 2009 (observed catch 2001-2008), November 2009 (observed catch 2009); NMFS year-end catch reports for BSAI extrapolated catch, http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm.

Observer coverage

Amendment 37, which implemented the NBBTA in 1997, also required that any trawl catcher vessel (CV) or catcher processor (CP) used to fish groundfish in the area must carry an observer during 100% of its fishing days. Note, although an observer is onboard the vessel at all times, this does not necessarily mean that all tows are sampled. Since the implementation in 2008 of Amendment 80 (see Section 5.2), all CPs fishing in the Amendment 80 sector must have two observers onboard during their fishing operations, so that every tow is observed.

5.2 Vessels fishing in the NBBTA

The majority of vessels harvesting yellowfin sole in the NBBTA are now part of the Amendment 80 sector in the BSAI, originally known as the head and gut sector, or the non-AFA (American Fisheries Act) CP sector. BSAI Amendment 80 was implemented in 2008, and vessels which qualify for the

Amendment 80 sector (and apply for quota) are allocated a portion of the total allowable catch for BSAI yellowfin sole, rock sole, flathead sole, Atka mackerel, and Pacific ocean perch, along with an allocation of prohibited species catch quota for halibut and crab. All of the allocations are managed as a hard cap. Since the implementation of the program, one cooperative has been formed, the Best Use Cooperative, in which 16 vessels participate. Seven vessels fish in the Amendment 80 limited access fishery.

Only two CPs fished in the NBBTA in 2001-2002 and 2005. Beginning in 2006, the number of CPs fishing in the NBBTA increased, with 8 vessels fishing there in 2006, and 14 in 2007. In 2008, there were also 14 vessels fishing in the area, all of which are affiliated with the Best Use Cooperative. In 2009, three CPs participated, two of which were affiliated with the Best Use Cooperative, and one with the Amendment 80 limited access sector.

There are also five CVs which have fished in the NBBTA from 2004-2008, one regularly and the others each in a single year. Table 2 illustrates the relative proportion of CP versus CV catch in recent years. No CVs fished in the NBBTA in 2009.

Table 2 Relative proportion of trawl catch in the NBBTA that is attributable to the catcher processor and catcher vessel sectors

	2001	2002	2003	2004	2005	2006	2007	2008	2009
CP catch as percentage of total	**	**	na	**	**	**	**	93%	100%
Number of CP vessels	2	2	0	0	2	8	14	14	3
CV catch as percentage of total	**	**	na	**	**	**	**	7%	0
Number of CV vessels	0	0	0	1	1	1	1	3	0

Source: NMFS observer database, March 2009 (2001-2008) and November 2009 (2009).

Note: Data for 2001, 2002, 2004, and 2005 are confidential (indicated by **). There was no trawl fishing in the NBBTA in 2003 (na = not applicable).

Some of the vessels harvesting yellowfin sole in the NBBTA from 2005 to 2008 have fished for CDQ groups, off the CDQ allocations. In 2005, the CDQ harvest represented 48% of the total yellowfin sole catch harvested in the NBBTA. Since that time, though, it has represented between 8 and 13% of the total yellowfin sole catch harvested in the NBBTA, and has been harvested by both CP and CV vessels. No CDQ fishing occurred in the NBBTA in 2009.

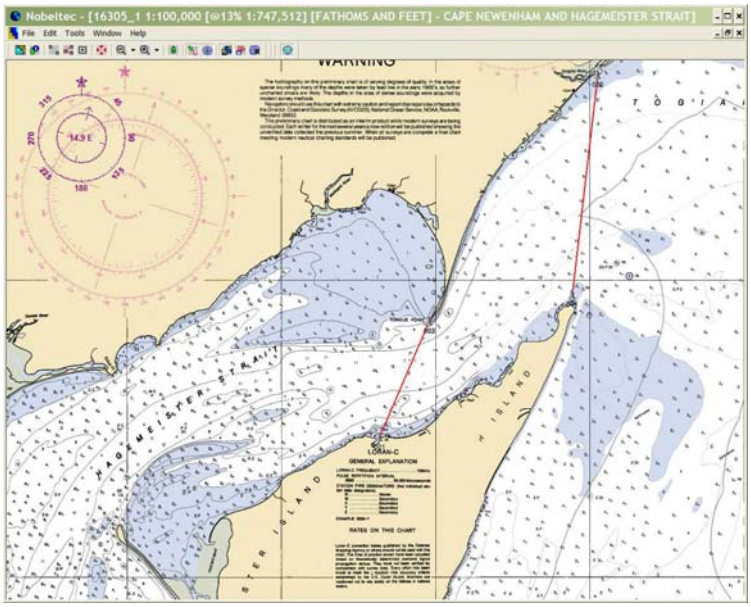
5.3 Motherships and inshore floating processors

CV catch in the yellowfin sole fishery in the NBBTA from 2001 to 2008 was delivered either to a CP acting as a mothership, or to an inshore floating processor. Two floating processors have received catch offloads during the time series, but in the last three years, only one processor has participated each year. In addition, one CP has received delivery of offloads during the time series, occurring during the last four years. In 2009, no CVs participated in the NBBTA fishery.

The available data do not identify where a processor anchors to receive offloads from CVs fishing in the NBBTA. There are restrictions in place that require any offloads being delivered to foreign vessels to occur in designated locations or “roadsteads” which, in the NBBTA area, is a site located in Hagemeister Strait (Mike Adams, NOAA OLE, pers. comm.). These roadsteads must be used if offloading occurs onto a foreign vessel; offloading is considered “fishing” under the Magnuson-Stevens Act and thus must

comply with Federal Law. Roadsteads are located in areas of historical usage, so it is likely that the area has good anchorage. Hagemeister Strait is also used by resident salmon, herring, and halibut fishermen.

Figure 9 **Hagemeister Island Roadstead.** Includes all waters within the maritime boundary of the State of Alaska in Hagemeister Strait which are west of a line extending from the northeast end of Hagemeister Island to the mouth of Quigmy River, and east of a line extending from the mouth of an unnamed river to the tip of Tongue Point (lines marked in red on map).



There do not appear to be any restrictions on where a domestic processor may receive delivery of CV offloads, however the walrus protection areas limit the opportunities for anchoring in many of the bays in the area. Anecdotal reports suggest that the floating processor has, in the past, received offloads just outside of Kulukuk Bay, which is directly north of the NBBTA, as well as at the mouth of Nushagak Bay and at Clarke's Point, in Nushagak Bay. The last two of these areas are outside of the NBBTA, and CVs must traverse around Cape Constantine to deliver product to the processor. It was noted that because yellowfin sole is a fish that bruises easily, lowering its market value, a processor will seek to minimize the distance travelled from the fishing grounds to the area of offload, particularly if the weather is rough and buffeting seas are likely to increase damage to the fish (R. Hatton, pers. comm., 3/12/09). Nushagak Bay can sometimes be too rough for vessels to tie up and offload their catch.

5.4 Incidental catch in the yellowfin sole fishery

Groundfish incidental catch

Yellowfin sole comprised between 88 and 97% of the total groundfish catch in the NBBTA in the years 2005 to 2009, with the remaining groundfish consisting primarily of other flatfish species. The catch composition of groundfish harvested in the yellowfin sole fishery in the NBBTA is described in Table 3.

Table 3 Groundfish catch composition in the trawl fishery in the Northern Bristol Bay Trawl Area (NBBTA), in mt.

Species	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yellowfin sole			na		2,906	9,345	16,946	10,434	2,266
Starry flounder			na		66	242	1,458	774	44
Rock sole			na		70	72	389	112	3
Alaska plaice			na		34	52	206	156	3
Sculpins			na		1	40	261	345	9
Other groundfish			na		2	15	38	34	1
Yellowfin sole as a percentage of total groundfish catch			na		94%	96%	88%	88%	97%

Source: NMFS observer database, March 2009 (2001-2008), November 2009 (2009).

Note: Data for 2001, 2002, and 2004 are confidential. There was no trawl fishing in the NBBTA in 2003.

Prohibited species bycatch

There is very little bycatch of prohibited species in the NBBTA. Table 4 provides the bycatch of halibut, herring, salmon, and crab species in the trawl fishery prosecuted in the area.

Table 4 Bycatch of halibut, herring, salmon, and crab in the trawl fishery in the Northern Bristol Bay Trawl Area (NBBTA).

Species		2001	2002	2003	2004	2005	2006	2007	2008	2009
Halibut mortality	mt			na		3.4	12.5	15.9	7.3	0.4
	rate - mt halibut/mt yfs					0.001	0.001	0.001	0.001	0.000
Herring	mt			na		0.3	1.2	34.6	8.2	0.4
	rate - mt herring/ mt yfs					0.000	0.000	0.002	0.001	0.000
Chinook Salmon	number			na		-	-		-	-
Non-Chinook Salmon	number			na		-	-	-	-	-
Crab (all species)	number			na		-		520	165	-
	rate - #/mt yfs							0.03	0.02	na

Source: NMFS observer database, March 2009 (2001-2008), November 2009 (2009); halibut discard mortality rates, Williams 2008a,b.

Note: "-" = none. Shading = data are confidential. There was no trawl fishing in the NBBTA in 2003 (na = not applicable). yfs = yellowfin sole

It is generally considered by industry that the NBBTA has consistently lower halibut bycatch rates than other yellowfin sole fishing grounds in the BSAI. Table 5 compares the bycatch mortality rate of halibut in the NBBTA fishery to the halibut bycatch mortality rate in the BSAI yellowfin sole trawl fishery for the years 2005-2009. Additionally, the table looks at the proportion of the total BSAI yellowfin sole catch that comes out of the NBBTA, and compares it to the proportion of total halibut bycatch mortality in the yellowfin sole fishery that is attributable to the NBBTA. In both cases, the assertion is borne out that fishing in the NBBTA results in lower halibut bycatch mortality than yellowfin sole fishing in other areas of the BSAI.

Table 5 Halibut bycatch mortality in the Northern Bristol Bay Trawl Area (NBBTA) compared to the BSAI yellowfin sole trawl fishery, 2005-2008.

		2005	2006	2007	2008	2009
NBBTA	mt halibut bycatch mortality in the trawl fishery	3.4	12.5	15.9	7.3	0.4
	rate - mt halibut mortality / mt yellowfin sole	0.001	0.001	0.001	0.001	0.000
BSAI	mt halibut bycatch mortality in the yellowfin sole target fishery	568	451	504	959	959 (through 10/31)
	rate - mt halibut mortality / mt yellowfin sole	0.006	0.005	0.004	0.006	0.009
yellowfin sole catch in the NBBTA as proportion of total yellowfin sole catch in the BSAI		3%	9%	14%	7%	2%
halibut bycatch mortality in the NBBTA as proportion of total halibut bycatch mortality in the BSAI yellowfin sole fishery		1%	3%	3%	1%	0.04%

Sources: NMFS observer database for NBBTA halibut catch, March 2009 (2001-2008), November 2009 (2009); halibut discard mortality rates, Williams 2008a,b; NMFS PSC database (BSAI halibut mortality); NMFS catch accounting year-end reports (BSAI yellowfin sole catch).

Note: NBBTA halibut and yellowfin sole catch data derives from observer-sampled tows. While vessels fishing in the NBBTA are required to have 100% observer coverage, not all tows are sampled. BSAI catch data is based on observed tows which are extrapolated by NMFS catch accounting to represent all effort in the BSAI. See note in Table 1.

Walrus prey species bycatch

As discussed in Section 7.3, bivalves are the primary prey species of walrus. Using data from observer samples, Table 6 provides an estimate of the bycatch of walrus prey species in the trawl fishery in the NBBTA, including bivalves and other species. Unlike previous tables in this section, these values are presented in kilograms, not metric tons, as these species appear in very small amounts in the bycatch recorded for the yellowfin sole fishery. As the data are confidential in many years, the results are aggregated over the nine year period, 2001 to 2009.

Table 6 Bycatch of walrus prey species in the trawl fishery in the Northern Bristol Bay Trawl Area (NBBTA).

Species		2001-2009, aggregate
Mussels, Oysters, Scallops, Clams	kg	334
Ascidian, sea squirt, tunicate	kg	112
Polychaete, unidentified	kg	11
Sea cucumber, unidentified	kg	-
Snail, unidentified	kg	**

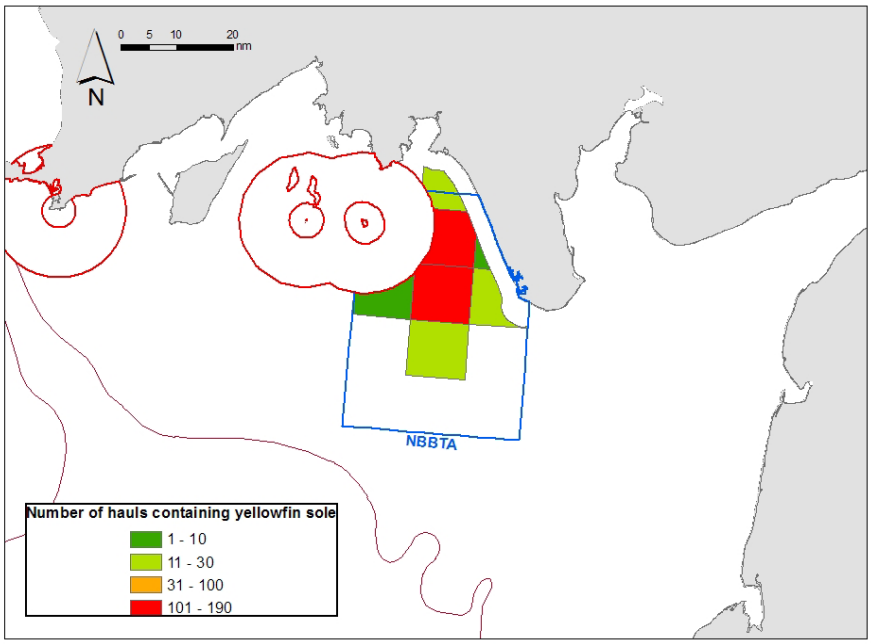
Source: NMFS observer database, March 2009 (2005-2008) and November 2009 (2009).

Note: "-" = none. ** = data are confidential.

5.5 Distribution and timing of fishery

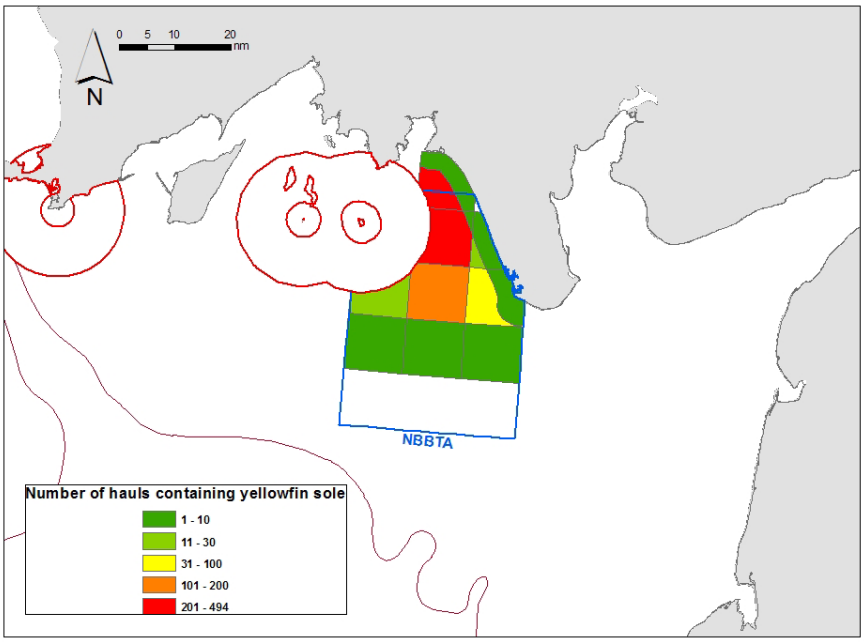
Fishing for yellowfin sole within the NBBTA tends to occur predominantly at the northern part of the open area. Figure 10 and Figure 11 show the distribution of fishing effort in the NBBTA. The figures show the number of hauls containing yellowfin sole that occur in each of the blocks of a 20 km^2 grid superimposed on the NBBTA. Note, although blocks in the grid may extend outside of the NBBTA, this does not necessarily mean that catch occurred outside of the area; it is an artifact of the mapping process. No observed hauls have occurred in the lower part of the NBBTA during the 2005 to 2008 time period. In 2009, no observed hauls were in the southern part of the NBBTA.

Figure 10 Distribution of trawl hauls containing yellowfin sole in the Northern Bristol Bay Trawl Area (NBBTA), 2005-2006, number of hauls per 20 km^2 area. Note: although blocks of the grid may extend outside of the NBBTA, this does not necessarily mean that fishing occurred outside of the NBBTA. It is an artifact of the mapping process.



Source: NMFS observer database, March 2009

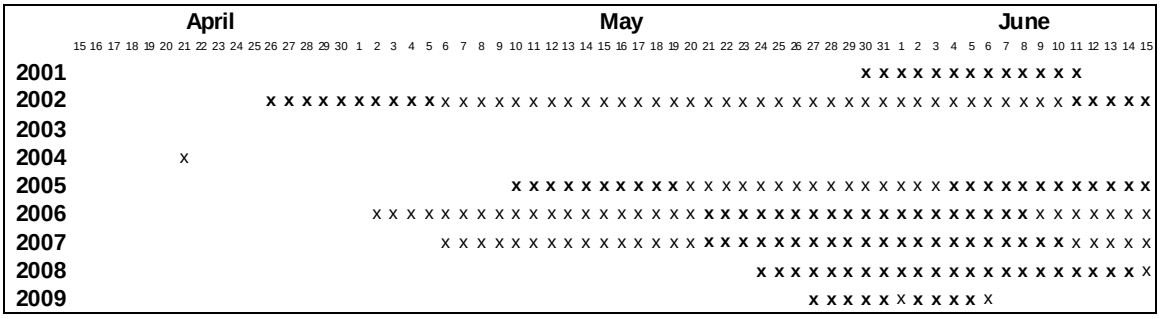
Figure 11 Distribution of trawl hauls containing yellowfin sole in the Northern Bristol Bay Trawl Area (NBBTA), 2007-2008, number of hauls per 20 km^2 area. Note: although blocks of the grid may extend outside of the NBBTA, this does not necessarily mean that fishing occurred outside of the NBBTA. It is an artifact of the mapping process.



Source: NMFS observer database, March 2009

The NBBTA is open to trawl fishing from April 1 to June 15, annually. In practice, the fishery occurs in the area in May or June. Figure 12 illustrates when fishing took place in the area in the years 2001 to 2009.

Figure 12 Timing of the yellowfin sole fishery in the NBBTA, 2001-2009



Source: NMFS observer database, March 2009 (2001-2008) and November 2009 (2009)

5.5.1 Voluntary agreement for 2009 fishery

At the April 2009 Council meeting, the Council was informed of an agreement to begin in 2009, whereby yellowfin sole trawl vessels were willing to voluntarily avoid fishing in the southwest portion of the NBBTA as well as an area southwest of the Nushagak Peninsula to avoid conflicts with local halibut fishermen. The agreement was presented in public testimony by Kenny Wilson, a halibut fisherman in northern Bristol Bay, on his behalf and that of Frank Logusak, a fellow Bristol Bay resident, and John Gauvin, representing the Best Use Cooperative. The agreement was presented in writing to the Council, and the pertinent sections are reproduced in the box below.

Agreement:

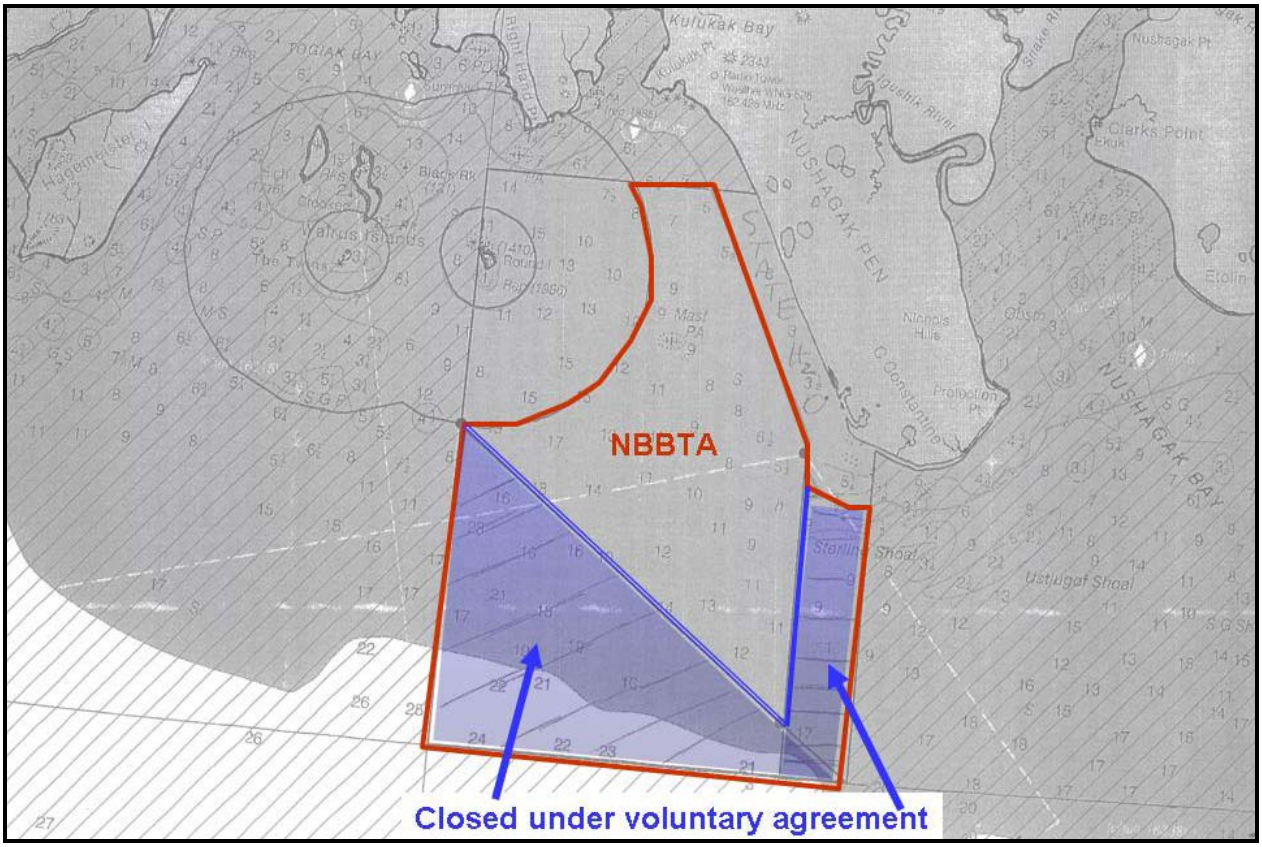
First, the area open to trawling would be modified to exclude trawling in the southern portion of the NBBTA. Additionally, an area on the east side of the "box" north to Sterling Shoals would be closed (see Figure 13). This new closed area encompasses the portion of the "box" that trawl fishermen believe tends to have relatively higher halibut bycatch rates (deeper portion of the area). Also, the northern extension of the closure to Sterling Shoals includes an important halibut fishing area identified by local fishermen.

Second, the NBBTA would be closed to yellowfin sole fishing at a time when halibut fishermen and other local fishermen are concerned about incoming migrations of halibut, salmon, and other species of importance to local fishermen and harvesters. To accommodate these concerns, trawling for flatfish and other groundfish in NBBTA would end on June 7 instead of the current June 15th.

Finally, BUC and local fishing and walrus hunting representatives have committed to ongoing communications during and after yellowfin sole fishing in the NBBTA. These communications are intended to reduce any remaining potential for gear conflicts in the reduced open area.

The Best Use Cooperative agrees to voluntarily implement the closed area and season changes described above for its member vessels in 2009 for any fishing inside the NBBTA. Additionally, BUC will also strongly encourage other trawlers who fish in the NBBTA to abide by the terms described above. Following the 2009 fishing season, BUC will continue via this agreement the above changes to trawl fishing in the NBBTA in the years following 2009 if discussions with local fishermen indicate that they believe the measures in this agreement have been successful and they would like us to keep them in place.

Figure 13 Map of voluntary agreement



Implementation of the agreement

All trawl vessels fishing in the NBBTA adhered to the two components of the voluntary agreement that curtailed trawl fishing in the NBBTA, both the two vessels fishing in the NBBTA that are part of the Best Use Cooperative (BUC), and also the other Amendment 80 CP that fished in the area. The observer data for all three vessels bears out that the location of their fishing was within the open area of the NBBTA, and that yellowfin sole fishing ceased in the NBBTA on June 6, 2009. With respect to the final component of the agreement, several communications occurred between BUC representatives and Mr Kenny Wilson regarding the occurrence of the yellowfin sole fishery. Staff are not aware of any reports or complaints that the trawl industry did not abide by the agreement. BUC has affirmed that they upheld the agreement, which they had understood would address the concerns of the local halibut fishermen by curtailing trawling activities in areas held to be migratory corridors for halibut.

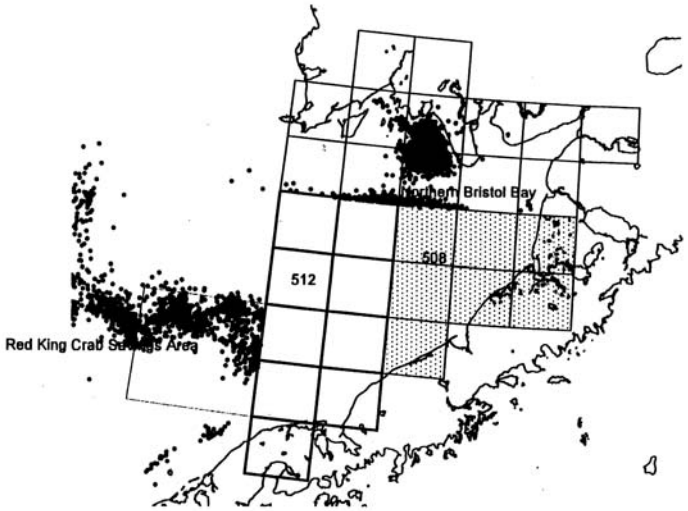
In autumn 2009, staff also received feedback from the four halibut fishermen who provided written or oral testimony at the April 2009 Council meeting: Kenny Wilson, Dave Pederson, Nels Johnson, and Carl Flensburg. The latter two fishermen disapproved of the voluntary agreement that was made between Mr Wilson and the BUC. All of the halibut fishermen identified that halibut fishing was very poor in 2009, and reported that some fishermen chose not to go out fishing because they believed, based on reports from colleagues, that it would not turn out to be cost effective. All of them pointed to high halibut bycatch in the yellowfin sole fishery in previous years as contributing to the current condition of the halibut fishery in northern Bristol Bay. Three fishermen also contended that ecosystem damage caused by the trawl fishery has contributed to the problem, by depleting the prey available for the halibut. Mr Pederson is concerned that trawling activities will also impact salmon returns in the future, by depleting the forage

available to outmigrating salmon juveniles. The fishermen believe that the Council should close the NBBTA to trawl fishing, and Mr Wilson is also in favor of closing the halibut fishery for 2010, in order to allow the stock to rebuild.

5.6 Historical importance of the NBBTA area for the yellowfin sole fishery

The analysis supporting BSAI Amendment 37, which implemented the Nearshore Bristol Bay Trawl Closure, contained some information about the importance of Bristol Bay to the yellowfin sole fishery. Figure 14 maps the distribution of effort in the joint venture yellowfin sole fishery, in 1988. Central and southern portions of Bristol Bay were closed to trawling at this time, but it is evident that the northern part of the Bay was an area of importance to the fishery in that year. The analysis notes that the area south of Kulukak Bay (where the NBBTA is now located) continued to be important to the domestic fishery from 1991 to 1994, in the months of May and June. In 1991, a high of 50% of the yellowfin sole observed catch was taken in Bristol Bay, but by 1994 this percentage had declined annually until only 2% of the directed catch was taken in the Bay. In 1993 and 1994, the highest CPUE was actually found to be near Nelson Island, to the west, but the area in question produced high halibut bycatch in some years. Consequently, the vicinity of Kulukak Bay and Cape Constantine had the greatest number of observed tows during the May-June periods.

Figure 14 Effort distribution in the 1988 joint venture yellowfin sole fishery.

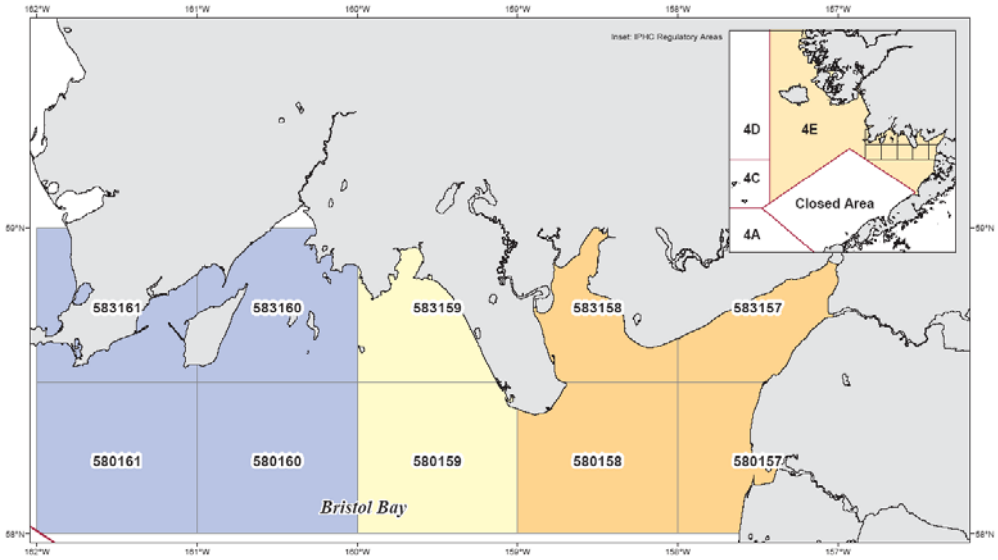


6 Other fisheries occurring in the area

6.1 Halibut fishery

The International Pacific Halibut Commission (IPHC) statistical areas in northern Bristol Bay are illustrated in Figure 15. Statistical areas 580159 and 583159 most closely coincide with the NBBTA. According to the IPHC database, over a 10 year period (1998-2007), eight of the years had one to three vessels active in the area (580159 and 583159, combined). Landings by year ranged from less than 100 net lbs (head-off, dressed, ice and slime deducted) to 9,300 net lbs, or <1% to 4% of the Area 4E landings by weight. Less than three vessels were active in the area in 2008 (information from 2009 is not yet available; T. Kong, IPHC, pers. comm., 3/3/09 and 10/21/09). Over the time period 1998 to 2007, eight distinct vessels fished in 580159/583159 and delivered 23,721 net pounds of halibut (Table 7).

Figure 15 IPHC statistical areas in the Northern Bristol Bay
Statistical areas 583159 and 580169 most closely approximate the area of the Northern Bristol Bay Trawl Area.



Source: T. Kong, IPHC

Table 7 Halibut catch in Area 4E, the Northern Bristol Bay Trawl Area (NBBTA), and in areas to the west and east of the NBBTA (see Figure 15), and halibut bycatch mortality in the NBBTA trawl fishery.

Year	4E	West of NBBTA to Cape Newenham		NBBTA	East of NBBTA		NBBTA bycatch[1]
	Net wt (lbs)	Net wt (lbs)	Catch as % of 4E catch	Net wt (lbs)	Net wt (lbs)	Catch as % of 4E catch	Net wt (lbs), halibut mortality
1991	104,297	-			15,463	15%	na
1992	66,818	-			14,036	21%	na
1993	64,235	-			21,781	34%	na
1994	120,226				57,408	48%	na
1995	127,180	7,139	6%		27,929	22%	na
1996	119,931	-			34,652	29%	na
1997	250,723	-			69,253	28%	na
1998	188,057	15,562	8%		43,359	23%	na
1999	263,868				22,857	9%	na
2000	351,326	14,820	4%		40,699	12%	na
2001	478,682	96,205	20%		36,880	8%	
2002	555,481	97,691	18%		105,829	19%	
2003	414,660	98,684	24%		61,194	15%	-
2004	313,911	25,833	8%		52,672	17%	
2005	369,299	56,843	15%		52,484	14%	6,540
2006	363,302	25,547	7%		53,798	15%	24,203
2007	578,425	24,052	4%		46,714	8%	30,941
2008	599,596	13,642	2%		17,450	3%	14,101
2009	na	na		na	na		812
Total, 1998-2007	**3,877,011**	**455,237**		**23,721**	**516,486**		

Source: T. Kong, IPHC (except for NBBTA bycatch)

[1] This approximation of NBBTA bycatch is arrived at by converting the weights from Table 4 to pounds, and deducting 12% for the weight of the head and for ice and slime (IPHC regulatory conversion factors).

Note: "-" = none. Shading = data are confidential, as three or fewer vessels participated. "na" = not available

In comparison, significantly more halibut was harvested from statistical areas to the east and west of the NBBTA (Table 7), according to the IPHC. Over the time period 1998 to 2007, vessel participation in the halibut fishery in the area to the west of the NBBTA varied between less than three vessels and 36 vessels, harvesting from 15,000 to over 98,000 lbs annually. Over the same period, between 11 and 34 vessels were active to the east of the NBBTA, harvesting between 22,000 and 106,000 lbs on an annual basis (note, many of these vessels may have been active in both areas). On an annual basis, between 5% and 39% of the total halibut catch from Area 4E was harvested from the northern Bristol Bay over the time period 1998-2007, or an average of approximately 25%. Most of the poundage was delivered in June, with May a distant second, and all the vessels were local (T. Kong, IPHC, pers. comm., 3/3/09 and 10/21/09).

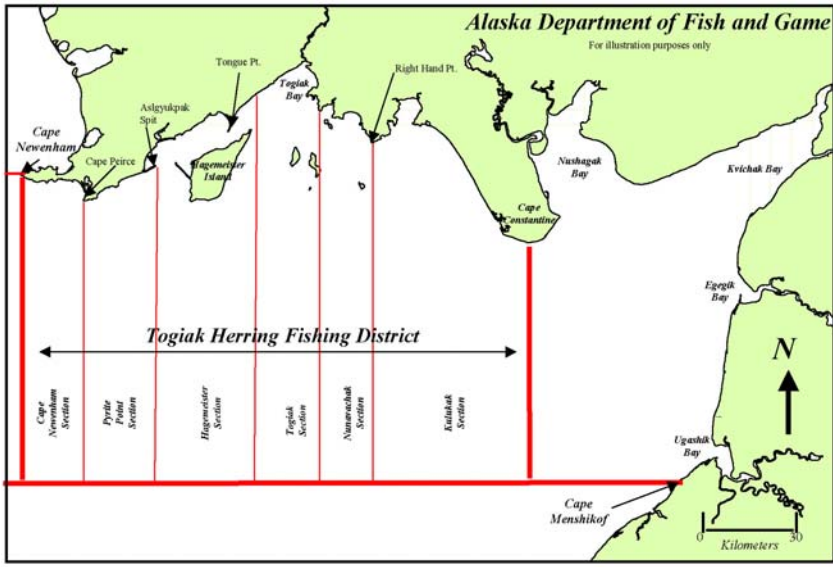
There is insufficient information to provide an estimate of catch per unit effort (CPUE) for the halibut fishery in the northern Bristol Bay. IPHC port samplers are stationed in major landing ports, and for trips delivered in the more distant areas, such as the northern Bristol Bay, the IPHC relies on skippers to mail in their logs. Log submission is voluntary, and at this time, there is insufficient data to evaluate CPUE (T. Kong, IPHC, pers. comm., 10/21/09).

The trawl fishery's halibut bycatch mortality in the NBBTA is discussed in Section 5.4. By converting the weights to pounds, and deducting 12% for the weight of the head and for ice and slime (IPHC regulatory conversion factors), an approximation of comparable bycatch figures are included in Table 7. Halibut bycatch varies in proportion to the trawl fishery's catch of yellowfin sole, although the bycatch rate in 2009 was considerably lower than in the previous four years.

6.2 Herring fishery

Two herring fisheries occur in northern Bristol Bay: herring are harvested for sac roe using gillnets and purse seines, and herring spawn on wild kelp (*Fucus spp.*) is harvested by hand (Westing et al. 2005). A map of the management districts for Togiak herring is included as Figure 16.

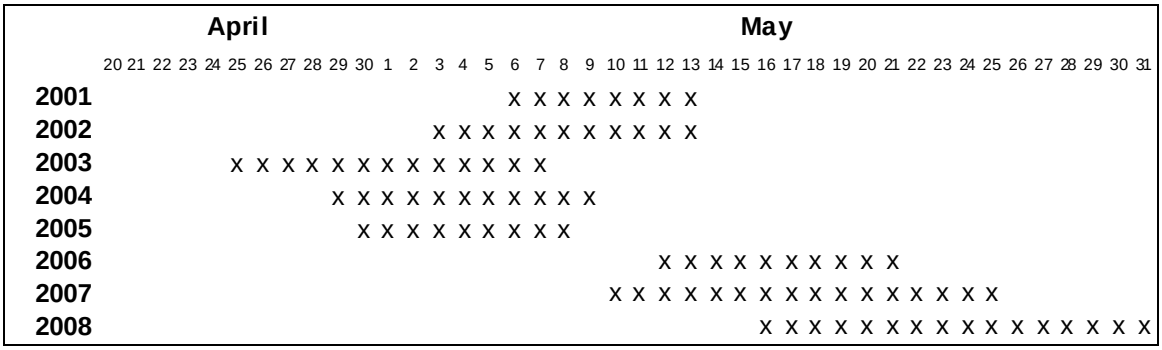
Figure 16 Togiak Herring Fishing Districts



Source: Westing et al. 2005.

Effort levels in the Togiak sac roe fishery can vary substantially from year to year. The fishery occurs during the period from late-April through May, and lasts for a period varying from 8 to 16 days, based on the last ten years (Figure 17). Table 8 provides harvest information for the herring sac roe fishery for 2001 to 2008, compared with the amount of herring bycatch taken in the NBBTA by the groundfish trawl fishery. The herring fishery tends to be prosecuted close to shore, in State waters (T. Sands, ADF&G, pers. comm., 2/11/09). At least one of the floating processors that has been active in the yellowfin sole fishery will also process herring from the Togiak fishery (R. Hatton, pers. comm., 3/12/09).

Figure 17 Timing of the herring sac roe fishery in the Togiak District, Bristol Bay, 2001-2008



Source: Westing et al. 2005, ADFG in prep.

Table 8 Herring sac roe harvest in the Togiak District, Bristol Bay, and herring bycatch in the Northern Bristol Bay Trawl Area (NBBTA) yellowfin sole fishery, 2001-2008, in mt.

Year	Gillnet Harvest [a]	Purse Seine Harvest [a]	Total Harvest [a]	NBBTA bycatch [b]
2001	6,491	15,879	22,370	**
2002	5,216	11,833	17,049	**
2003	6,505	15,158	21,663	na
2004	4,980	13,888	18,868	**
2005	5,841	15,071	20,912	0.3
2006	7,132	16,821	23,953	1.2
2007	4,012	13,120	17,132	34.6
2008	4,832	15,533	20,365	8.2

Source: Westing et al. 2005, ADFG in prep.; NMFS observer database, March 2009.

[a] Harvest total includes dead loss and test fish.

[b] From observed tows only. Data are confidential (**) for 2001, 2002, and 2004, and there was no trawl fishery in 2003 (na = not applicable).

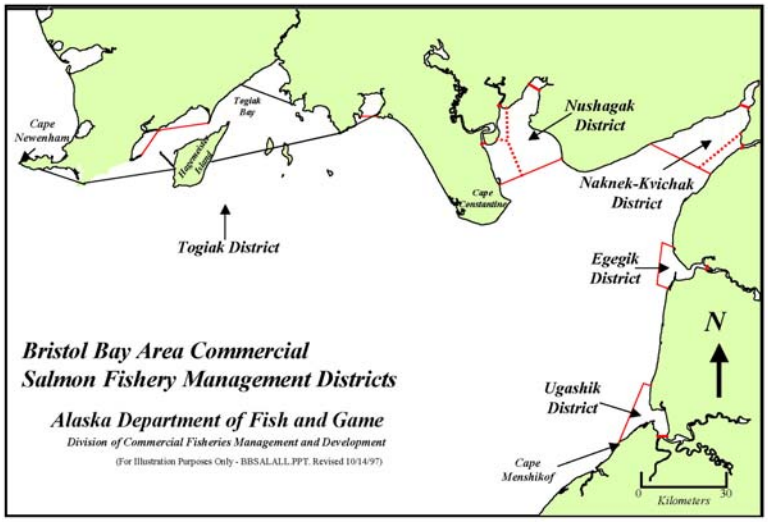
The herring spawn-on-kelp fishery has only occurred twice in the last 8 years, in 2002 and 2003. In 2002 the fishery was open on May 14th and in 2003 on May 3-4th. Data for the 2003 fishery are confidential, but the 2002 fishery harvested 67,793 lbs or the equivalent of 260 tons of herring.

6.3 Salmon fishery

A map of the commercial salmon fishery management districts is provided in Figure 18. The Togiak district opens to commercial salmon fishing on June 1, but typically no fishing occurs until about June 20th. In 2008, the commercial salmon fishery in the Togiak district made deliveries from June 19th to

August 6th. Approximately 45 vessels participate in the Togiak salmon fishery, and 70 set net permit holders participate (T. Sands, ADF&G, pers. comm., 2/9/09).

Figure 18 Bristol Bay Area Commercial Salmon Fishery Management Districts



Source: Westing et al. 2005.

Table 9 illustrates the Chinook salmon harvest in the Togiak district, and compares it to observed Chinook salmon bycatch in the NBBTA. It does not include harvest from the Kulukak section of the Togiak district, but the vast majority of harvest and effort occurs in the Togiak River section (T. Sands, ADF&G, pers. comm., 2/9/09). There has been no observed bycatch of non-Chinook salmon in the NBBTA.

Table 9 Chinook salmon harvest in the Togiak District, Bristol Bay, and Chinook salmon bycatch in the Northern Bristol Bay Trawl Area (NBBTA) yellowfin sole fishery, in numbers of fish, 2001-2008.

Year	Harvests by Fishery				NBBTA bycatch[b]
	Commercial	Sport[a]	Subsistence	Total	
2001	9,937	1,006	1,612	12,555	**
2002	2,801	76	703	3,580	**
2003	3,231	706	1,208	5,145	na
2004	9,310	1,388	1,094	11,792	**
2005	10,605	1,734	1,528	13,867	-
2006	16,225	1,064	1,630	18,919	-
2007	7,755	1,501	1,234	10,490	120
2008	3,094	1,279 [e]	1,339 [e]	5,712	-

Source: Westing et al. 2005, ADFG in prep.; NMFS observer database, March 2009.

[a] Sport fish harvest estimate only includes the Togiak River Section

[b] From observed tows only. Data are confidential (**) for 2001, 2002, and 2004, and there was no trawl fishery in 2003 (na = not applicable).

[e] Data not available at the time of publication. Five year average used.

6.4 Interactions between local vessels and the trawl fishery

The sac roe herring fishery occurs at the same time when trawl vessels are fishing in the NBBTA for yellowfin sole. In five of the last eight years there has been overlap of dates between the herring fishery and the yellowfin sole fishery, although the first half of June tends to be the time when the yellowfin sole fishery is most heavily prosecuted, at which point the herring fishery is over.

It is also possible that there is some overlap between the halibut fishery and the trawl fishery. In most years, one to three local vessels fish for halibut in the NBBTA. The commercial salmon fishery, although it opens on June 1st, is generally not prosecuted until after the NBBTA is closed to trawling.

The Council received a written complaint in early 2008 from the Qayassiq Walrus Commission (see explanation in Section 3.2). Additionally, the Council received public testimony in October 2008 reporting interactions between fishermen during the May/June period of 2008 (Appendices A, B, and C, available at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf).

Staff contacted ADFG and NOAA Enforcement to see whether there were any additional reports of gear conflict or other conflicts reported in the area. NOAA Enforcement has been contacted about reports that trawl vessels have been fishing in closed waters, or have been involved in unlawful takes of marine mammals, but these claims have not been substantiated (K. Hansen, OLE, pers. comm., 2/9/09). In response to the concerns of the local community, a NOAA representative has made semi-annual visits to the communities of Dillingham, Togiak, and King Salmon over the last couple of years, as a form of outreach to the communities. ADF&G has not received any specific complaints other than the Qayassiq Walrus Commission letter from early 2008 (T. Sands, ADF&G, pers. comm., 2/11/09).

7 Pacific Walrus Life History and Other Information

The walrus family is represented by a single modern species *Odobenus rosmarus*. Two sub-species of walrus are generally recognized: the Atlantic walrus (*O. rosmarus rosmarus*) and the Pacific walrus (*O. rosmarus divergens*). These two sub-species occur in geographically isolated populations and have evolved into slightly different forms. Pacific walrus are somewhat larger in body size and skull dimensions than Atlantic walrus and have proportionally larger tusks.

Walruses have a discontinuous, although nearly circumpolar distribution around the perimeter of the Arctic Ocean and the contiguous sub-arctic seas. Their distribution appears to be constrained by water depth and by severe ice conditions. Walruses are usually found in waters of 100 m or less, probably because of the higher productivity of their benthic foods in these shallower regions. The Atlantic walrus ranges from the central Canadian arctic eastward to the Kara Sea. Several more or less discrete stocks of Atlantic walruses are recognized in Canada, Greenland, Norway and Russia. The Pacific subspecies is represented by a single stock of animals that inhabits the continental shelf waters of the Bering and Chukchi seas.

Walrus are managed by the U.S. Fish and Wildlife Service with scientific research support from the U.S. Geological Survey and the State of Alaska, and management cooperation from the Eskimo Walrus Commission (EWC). Created in 1978 by Kawerak, Inc., the EWC is the organization representing Alaska's coastal walrus hunting communities. Initially formed as a consortium of Native hunters, the EWC is a recognized statewide entity working on walrus co-management issues on behalf of Alaska Natives. Walrus are an important cultural and subsistence resource to the Alaskan coastal Yupik and Inupiaq communities. Walrus are a primary resource of food for Alaska Natives and are used to produce

handicrafts and artwork from its ivory and bone (http://www.kawerak.org/servicedivisions/nrd/ewc/index.html).

The following review of information on walrus is abstracted primarily from USFWS (1994).

7.1 Seasonal Movements

In winter, virtually the entire population of Pacific walrus inhabits the Bering Sea using the pack ice for haulout habitat to facilitate foraging on the seafloor. Breeding occurs in January through March, and the fetus develops for about 15 months and calves are born in the following spring as the population moves northward from April to June. Wintering areas are primarily southwest of St. Lawrence Island and in outer Bristol Bay and Kuskokwim Bay. As the pack ice recedes, most walrus, and nearly all females and young, move northward and enter the Chukchi Sea in May and June, but also are distributed widely in the northern Bering Sea up to Bering Strait (Figure 19). Walrus migrate into the Chukchi Sea and follow the ice edge, using the ice as haulout habitat during their summer foraging throughout the Bering Strait area and eastern Siberia, around Wrangel Island, and the western Beaufort Sea near Point Barrow. Several thousand walrus, mostly adult males, remain in Alaskan waters in the Bristol Bay area throughout the summer. As winter encroaches, walrus in the Chukchi Sea follow the southward advancing ice edge back through Bering Strait, using haulouts on Big Diomede, St. Lawrence, and King Islands. They continue to move to the south and by December inhabit their wintering grounds of the northern Bering Sea and outer Bristol and Kuskokwim Bays (Figure 20).

Figure 19 Summer distribution of Pacific walrus – from USGS (Undated)

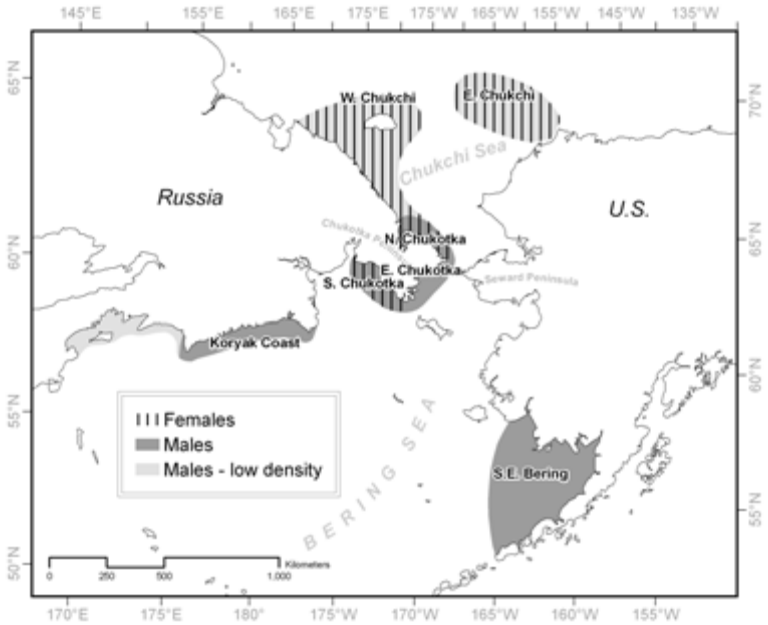
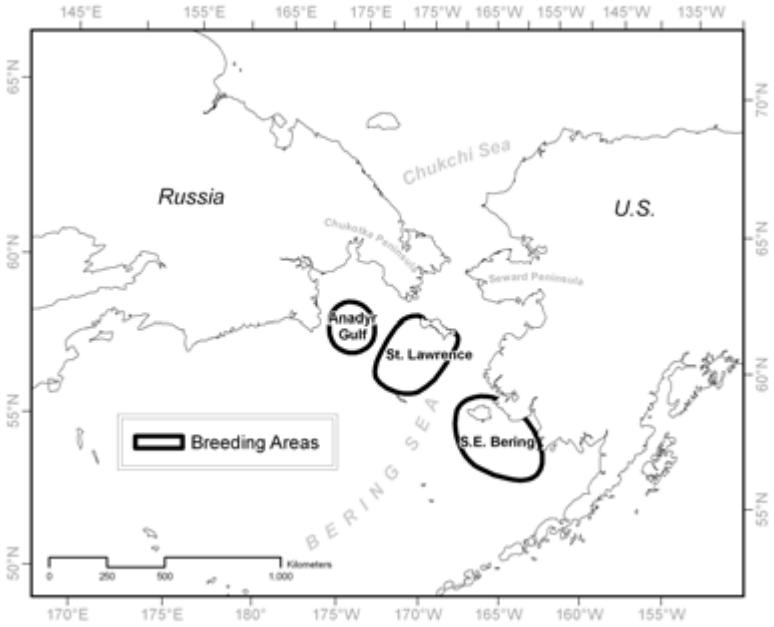


Figure 20 Winter distribution of Pacific walrus – from USGS (Undated)

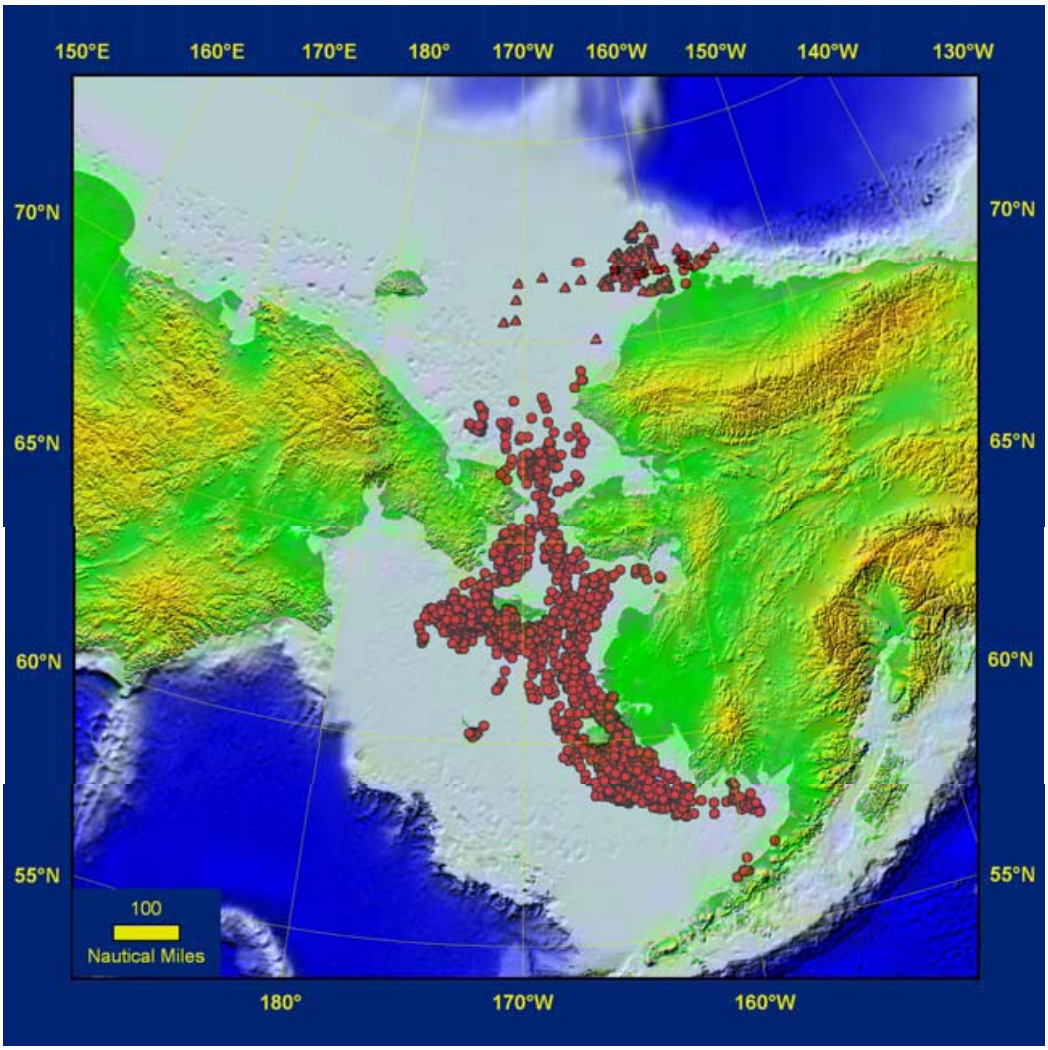


Major terrestrial haulout habitats in Alaska include Round Island, Cape Peirce, Cape Newenham, Cape Seniavin, and the Punuk Islands. Recently, Cape Seniavin and Hagemeister Island have become significant haulout areas (Joel Garlich-Miller, USFWS, pers. comm.).

Jay et al. (2001) studied movements and dive behavior of walruses in Bristol Bay. Using time-depth recorders attached to individual walrus, Jay et al. (2001) noted that walrus dived deep (41 m) and long (7.2 min) about half of the time when swimming offshore and these were likely related to feeding episodes. Other behavior included shorter duration dives exploring the sea floor, or short dives while traveling. This study observed that when offshore, walrus spent about 60 % of that time diving. New satellite radio-tags are being developed to record when walrus are feeding or not feeding during forays offshore to compare energy budgets of walrus using land in ice-free conditions or sea ice as a resting platform (Jay and Fischbach 2008).

Other tagging studies conducted from 2004 to 2007 show the broad distribution of walrus from Bristol Bay throughout the Bering and Chukchi Seas as far north as the western Beaufort Sea (Figure 21). These data show locations of over 90 walruses tagged in the Bering and Chukchi Seas but may not give a complete picture of habitat use in this region because of the uneven distribution of tagging effort (USGS Undated). Information on more recent tagging studies can be found at http://alaska.usgs.gov/science/biology/walrus/tracking.html and at http://alaska.usgs.gov/science/biology/walrus/2008animation.html.

Figure 21 Daily locations of over 90 walruses tagged in the Bering (circles) and Chukchi (triangles) Seas, from 2004-2007. Note that the absence of walrus locations in some areas can be due to an uneven distribution of tagging effort, and therefore, the distribution of locations depicted here should not be construed as preferred habitat.



Source: USGS (Undated)

7.2 Population Size

The population size of Pacific walrus is unknown, but previous speculation based on review of 18th and 19th Century harvests suggested a pre-exploitation population size of possibly several hundred thousand individuals (Fay 1982). Large scale commercial harvests reduced the population to an estimated 50,000 to 100,000 animals in the mid 1950s, but since then the population has rebounded to higher numbers. Kenyon (1972) reported a range-wide population size of 123,640 in 1972. By 1980, the population was estimated to be about 250,000 (USFWS 1994). The cooperative U.S./Russia survey in 1985 estimated a population size of about 230,000 animals. Another survey was completed in 1990, but unusual ice conditions may have affected the results (population estimate of 201,039 animals)(USFWS 1994). No surveys were conducted from 1990 through the mid 2000s.

In 2006, a range-wide survey was conducted as a joint effort between the U.S. and Russia. This survey utilized new technology that was thought to provide improved accuracy and greater reliability than visual observation (Burn et al. 2006). The study involved aerial surveys of walrus during spring when the entire population was likely present in the Bering Sea study area. This survey employed thermal imaging to detect walruses on ice throughout its range along strip transects which sampled a series of survey blocks. An estimate of the total walrus population size will also require an estimate of the number of walrus not hauled out on ice. Results are still pending but should be available later in 2009 (Suzann Speckman, USFWS, pers. comm.). However, a progress report summarizing the best available information on the walrus population was recently completed; this report estimates only the on-ice walrus population during the 2006 survey. Additional analysis of data is underway to estimate the proportion of walrus in the water and not available for detection by thermal imaging. The range-wide estimate of walruses detected hauled out on the sea ice within the surveyed area in 2006 was about 22,000 animals (Speckman et al. 2009). The 95 % confidence interval around this mean is 8,453 to 45,439 individuals. These data are not corrected for areas not surveyed (about half the available walrus habitat)(Suzann Speckman, USFWS, pers. comm.). An estimate of the total population size will be available when estimates of the number of walrus in the water and in areas not represented by survey blocks are completed.

Other data on walrus abundance include surveys conducted by the USFWS at the Togiak National Wildlife Refuge, and annual counts by ADF&G on Round Island. Overall, walrus use of haulouts in the general Bristol Bay region seems to be shifting; in some years, walrus abundance fluctuates up and down depending on geographic location. Some groups, such as at Cape Peirce, are declining, yet in other areas such as Cape Seniavin, walrus abundance is increasing (Joel Garlich-Miller, USFWS, pers. comm.). Consistent walrus counts in this region are only conducted at Round Island and at haulout sites within the Togiak National Wildlife Refuge.

7.2.1 Round Island

Round Island is the largest of a group of seven islands that comprise the Walrus Islands State Game Sanctuary. Annually, the State permits visitors to the island for wildlife viewing or research, and counts of walrus are completed annually by refuge staff. Peak summer walrus counts have varied from around 1,700 to over 8,000 animals over the past ten years. In 2007, the peak count was 5,245 animals (Okonek et al. Undated). Counts at Round Island vary considerably; an aerial survey in 1978 counted 15,000 animals, and the lowest peak count of 1,746 animals was made in 1998 (Okonek et al. Undated; Raymond 1998).

7.2.2 Togiak NWR

According to the Togiak National Wildlife Refuge, Cape Peirce is one of the two largest regularly used terrestrial haulouts for Pacific walrus in the United States. Other terrestrial haulouts in southwest Alaska include Cape Newenham, Cape Seniavin and Round Island. The Refuge summarizes walrus use in these areas as follows (http://togiak.fws.gov/walrusmon.htm).

Cape Peirce

Walrus on haulouts at Cape Peirce have been counted from the ground from May to September since 1981. The annual peak number of walrus hauled out during a single day has ranged from 284 to 12,500 walrus, with the peak numbers occurring between June 10 and October 6. The timing of peaks may be related to males migrating north in the fall to join females at the edge of the ice pack.

The number of walrus using the Cape Peirce haulout increased during the years 1981 to 1985, when the high count of 12,500 walrus was recorded. Walrus numbers at the haulouts at Cape Peirce generally

declined from 1986-1990 and have been rising, but variable, in the ensuing years. Beginning with 1989, a pattern appears of alternating higher and lower peak counts from year to year.

Within individual years, strong fluctuations in numbers of walrus onshore occur during the census period at Cape Peirce. Telemetry studies suggest that these variations may be synchronous with resting and feeding cycles. Such differences in numbers may also be related to severity of storms and to human disturbances. During storms with strong onshore winds and heavy surf, hauling grounds are usually abandoned.

Cape Newenham

Walrus on haulouts at Cape Newenham have been counted from the ground from April to December since 1986. The annual peak number of walrus hauled out during a single day has ranged from 4 to 5,444 walrus, and peak abundance has occurred between June 30 and July 21.

Walrus haulouts at Cape Newenham were monitored daily throughout the summer season in 1991-1993, 1996, and 1997. From 1998-2003, the walrus haulouts were monitored only from late June to late July as part of a cooperative Bristol Bay walrus monitoring program. Beginning in 2004, the haulouts were monitored by aerial survey on a weekly or bi-weekly schedule.

The beaches at Cape Newenham have been used sporadically by walrus during the last 10 years. From 1978 to 1984, when observations were very irregular, walrus numbers ranged from a few individuals to several thousand animals. Between 1988 and 1990 few walrus were seen at Cape Newenham. In the 4 years of regular censusing (1991-1993 and 1996), annual peaks ranged from 870 to 5,444.

7.3 Feeding Habits

Walrus feed in waters generally 80 to 100 m in depth or less (Fay 1985), and forage in areas of soft sand and mud. They prefer bivalve mollusks, but will feed on many other organisms if bivalves are not abundant. Food preferences are clams (of the genus *Mya, Serripes, Hiatella, Macoma*) and secondarily annelids, echiuroids, gastropods, and some crustaceans. Walrus infrequently consume fish, and are known to prey on phocid seals, but rarely (Fay 1985). Walrus can consume more than 50 clams in a single dive and consume 35-50 kg of food per day (Jay and Fischbach 2008).

Walrus require ice as a platform for birthing and resting during foraging activities, primarily using seasonal ice. Walrus generally reside within areas of moving ice where its constant motion creates an abundance of leads and polynyas (Fay 1985). Females and young walrus move northward in spring and summer to follow the receding ice pack, but in recent years, the annual ice pack has receded so far northward that walrus were forced to use shoreline habitat in northern Alaska and Siberia for hauling out, limiting their foraging areas and making them susceptible to human or other terrestrial-related disturbances.

In 1976-1978, industry-government surveys in the southeast Bering Sea reported the presence of potential commercially-exploitable clam (surf clams – *Spisula polynyma*) populations on the north side of the Alaska Peninsula (Hughes et al. 1977; Hughes and Nelson 1979) which they termed the clam zone. In the early 1980s, prompted by the results of these surveys, the NPFMC funded a survey of walrus feeding on clam resources of Bristol Bay (Fay and Lowry 1981) to determine if a commercial clam fishery could adversely affect the walrus' food supply. Results indicated walrus were present in the clam zone and fed almost exclusively on bivalve mollusks, and that surf clams were an important component of their diet. Fay and Lowry (1981) calculated that in 1980, walrus using the clam zone could have consumed 17-33 %

of the total biomass of harvestable surf clams and in 1981 about 5-11%; the decline from 1980 to 1981 was speculated to be the result of heavy foraging in 1980.

7.4 Walrus Mortality

Human-caused disturbance, injury, or mortality to Pacific walrus is prohibited by the Marine Mammal Protection Act (MMPA) unless specifically authorized. Alaska Natives are allowed to hunt walrus for traditional subsistence purposes, and some "take" may be authorized under the MMPA for commercial fisheries or scientific research activities. The following briefly summarizes sources of mortality and disturbance take in the Pacific walrus population.

7.4.1 Natural

Information on natural causes of walrus mortality is scant, and generally the only evidence of natural mortality events is from carcasses washed ashore. Walrus suffer disease and parasite infestations (reviewed in USFWS 1994), and also may be killed as a result of territorial fighting and occasional predation from killer whales or polar bears. Some pups may be abandoned and pups and juveniles may be trampled by larger individuals, and some walrus have been killed as a result of scientific research activity. Anecdotal reports of frightened groups of walrus fleeing beaches in Russia and northern Alaska in recent years due to ice recession far to the north indicated some injury and mortality to some individuals (Jay and Fischbach 2008). Walrus have been reported entrapped in heavy ice, with possible starvation as a result but this has not been well documented (USFWS 1994).

7.4.2 Fisheries

Walrus occasionally interact with trawl and longline fishing gear of U.S. groundfish fisheries with injury or mortality as a result, but no data are available from Russian waters. Until recently, the USFWS has used the average annual fishery mortality rate over the period 1996-2000 as a representative estimate of the current mortality rate (the most recent published walrus Stock Assessment Report was in 2002). More detailed information can be reviewed in Angliss and Outlaw (2008); using these data, the mortality to walrus from commercial fisheries in Alaska was estimated to be approximately 1.2 walrus per year, which is considered insignificant relative to other sources of human-caused mortality affecting this stock. The USFWS has recently updated the Stock Assessment Report for walrus, but it is under review by the Alaska Scientific Review Group and will not be available for public review until later this year (Suzann Speckman, USFWS, pers. comm.). Based on information in the draft revised stock assessment, NMFS observer data from 2002 – 2006 indicate that only the BSAI flatfish fishery has recorded interactions with walrus that resulted in injury or mortality; NMFS estimates that the mean annual mortality to walrus in this fishery is 2.66 animals per year (Robyn Angliss, NMML, pers. comm.; Perez, 2006; Perez, Undated). The table below is from the draft walrus Stock Assessment Report. This level of mortality is considered insignificant relative to other sources of human-caused mortality.

Table 10 Summary of incidental mortality of Pacific walrus due to commercial fisheries from 2002-2006 and estimated mean annual mortality. All mortalities occurred in the Bering Sea/Aleutian Islands flatfish trawl fishery.

Fishery	Year	Data type	Observer coverage (%)	Observed mortality (in given years)	Estimated mortality (in given years)	95% CI
Bering Sea/ Aleutian Islands flatfish trawl	2002	obs data	58.4	2	3.3	1.4 – 7.5
	2003		64.1	0	NE	NE
	2004		64.3	2	3.1	1.4 – 6.8
	2005		68.3	3	4.1	2.3 – 7.31
	2006		67.8	2	2.8	1.4 – 5.9
Mean	2002-2006	obs data	64.7	1.8	2.66	1.83 – 3.86 CV = 0.39

Fisheries observer data provided by NMFS. NE = no estimate made because no take was recorded.

7.4.3 Hunting

Commercial harvests occurred in the past, but have been prohibited in the U.S. and Russia since 1941 and 1957, respectively. Walrus were hunted throughout their range for tusks, skin, and oil (Fay et al. 1989). Large numbers of walrus were harvested commercially in the 1800s and early 1900s (10,000 to 20,000 animals per year); this level of harvest was thought to have caused major declines in the population (Fay et al. 1989). Fay et al. (1989) extensively review the history of population fluctuations from commercial exploitation of walrus. Sport and subsistence harvests in U.S. waters continued through Statehood and the 1960s (5,000 to 6,000 animals harvested per year), but under the MMPA in 1972, sport hunting was prohibited but subsistence harvests continued (see below).

Subsistence Harvest

Only Alaska Natives can participate in human harvests of walrus for subsistence and the creation and sale of authentic Native articles of handicraft and clothing, and similar subsistence harvests of walrus occur in Siberia (the Chukotka Region). Prior to the MMPA prohibition on hunting of marine mammals except by Alaska Natives, subsistence harvests were included in the overall harvest information presented above. In the mid 1980s, annual subsistence hunting harvest was estimated to be 10,000 to 15,000 animals (including those struck and lost) (Fay et al. 1989), but by the late 1980s harvests were considerably lower (USFWS 1994). In 1997, a Cooperative Agreement was developed between the USFWS and the Eskimo Walrus Commission to facilitate Native participation in walrus research and management and to develop local subsistence harvest regulations.

Limited hunting under a cooperative agreement between the USFWS, ADF&G, and the Qayassiq Walrus Commission with a set season and harvest quota occurs on Round Island. The only restrictions imposed on harvest outside the Round Island State Game Sanctuary are that the harvest not be wasteful, and that it be reported to the USFWS through the Marking, Tagging, and Reporting Program within 30 days of harvest. The bulk of the U.S. harvest occurs in the Bering Strait region, but some hunting occurs on Hagemeister Island and other locations throughout Bristol Bay (Jonathan Snyder, USFWS, pers. comm.). Based on 1996-2000 harvest statistics, the USFWS estimated the combined U.S. and Russia subsistence harvest mortality level at 5,789 animals per year (Angliss and Outlaw 2008). These data are corrected using estimates for animals struck and lost (the USFWS estimates 42% of animals struck are not retrieved). In the period 2003 to 2007, the USFWS reports an average U.S. subsistence harvest of 1,638 to 1,926 walrus; combined with Russian data and corrected for animals struck and lost, the average total subsistence removals from the entire Pacific walrus population ranged from 4,974 – 5,470 animals in this period. A small portion of the subsistence walrus harvest occurs from hunting by residents of villages in

the Bristol Bay region. In the last decade, annual hunter reported harvest data obtained through the USFWS Marking, Tagging, and Reporting Program indicate a harvest of 1 to 5 walrus/year in Dillingham, 1 to 2 walrus/year in Goodnews Bay, 1 to 10 walrus/year in Togiak, and very few animals, in some years none, from other villages (e.g. Manokotak, Egegik, Platinum, Twin Hills)(Jonathan Snyder, USFWS, pers. comm.). In 1995, the Qayassiq Walrus Commission was established to manage a small walrus hunt on Round Island; subsistence harvest limits have ranged from 10 to 20 animals annually during a fall hunt after the visitor season ends. This quota is often not filled, and in 2008 no walrus were harvested on Round Island (Jonathan Snyder, USFWS, pers. comm.).

7.5 Walrus Disturbance

In addition to hunting, walrus may be disturbed by other human activities. As noted above, some incidents of stampeding walrus have been reported, recently in relation to loss of seasonal ice in the northern Chukchi Sea area. When ice melts, and is not accessible to walrus, they may haul out on beaches, accessing nearby foraging habitat from land but without the refuge of offshore floating ice. In this situation, walrus are susceptible to disturbance from human activity, or predators, and may be induced to stampede into the water, possibly with injury and mortality to some individuals as a result. Jay and Fischbach (2008) note that as sea ice loss continues, more walruses may haul out on land, making them susceptible to increased predation and human disturbance and possibly changing their feeding behavior.

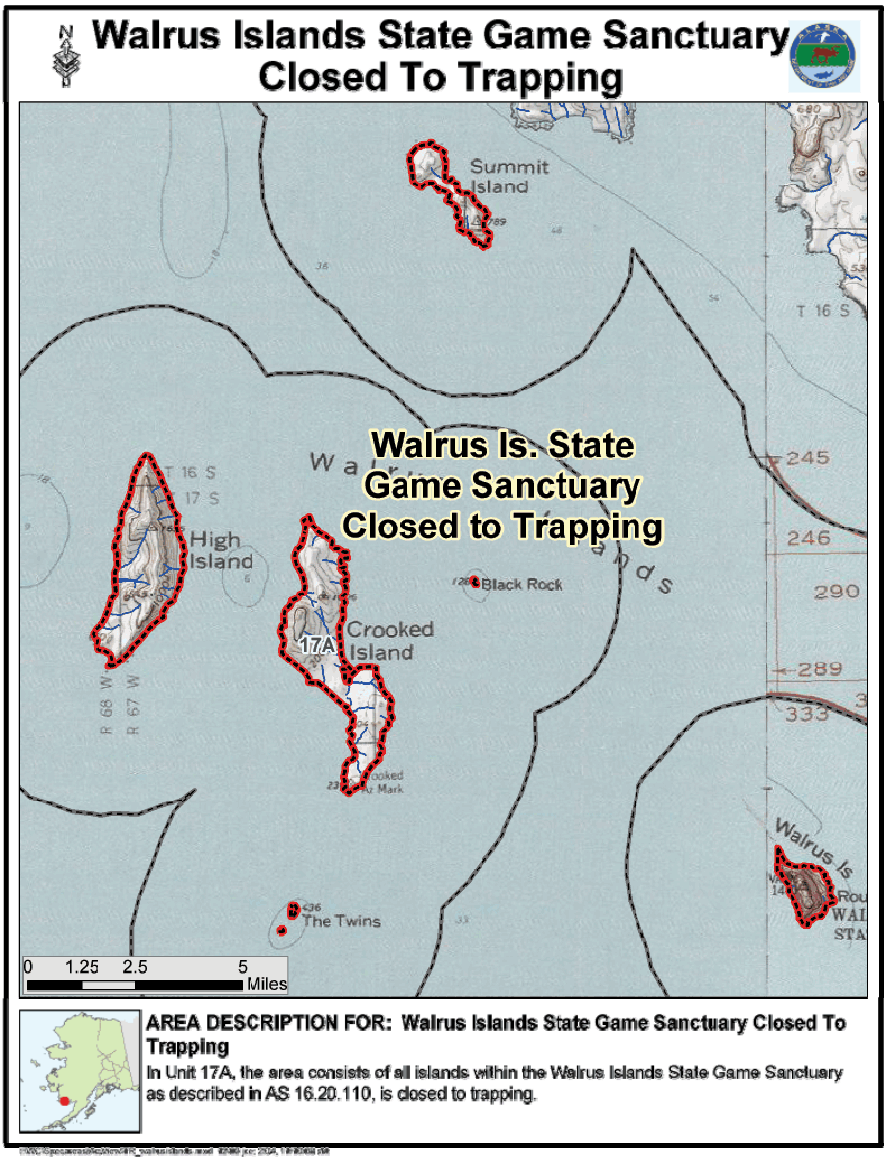
In the late 1980s, the Council responded to requests from Bristol Bay residents to limit fishing activities near some walrus haulouts. The Council was advised that noise from engines or propeller cavitation, net winches, other deck machinery, and other fishing activities disturbed walrus and made it more difficult to successfully hunt walrus for subsistence purposes. The Council adopted 3 to 12 n mi closures around the Walrus Islands (Round Island and The Twins) and Cape Peirce in northern Bristol Bay April 1-September 30 to reduce this disturbance.

And the State of Alaska established a 3 n mi year-round closure (vessel no transit zone) around Round Island within the Walrus Islands State Game Sanctuary[3] (Figure 22) partly to protect this haulout from human access and disturbance (AS 16.20-090). Permits may be granted for small groups of individuals to visit the island for wildlife viewing, generally during the period May-August under stringent conditions that limit disturbance.

Anecdotal reports indicate potential disturbance interactions between the yellowfin sole fleet and walrus that inhabit the areas around northern Bristol Bay (see materials provided from the public in Appendices A, B, and C, available at http://www.fakr.noaa.gov/npfmc/current_issues/ssl/Trawl_walrus409.pdf), and some indicate potential disturbance of walrus that haul out on Hagemeister Island from seafood product offloading and onloading in the NOAA-permitted roadstead in this area.

[3] The Walrus Islands State Game Sanctuary was created in 1960 by the Alaska Legislature to provide opportunity for wildlife viewing, scientific research, and to conserve a large population of Pacific walrus that hauls out on Round Island and 6 other small adjacent islands in the Sanctuary. Access permits are required and restrictions have been imposed on visitors (5 AAC 92.066).

Figure 22 Walrus Islands State Game Sanctuary includes the land area and adjacent State waters of Round, Crooked, High, and Summit Islands and The Twins and Black Rock (AS 16.20.092).



7.6 Mitigation of Walrus/Fishery Interactions

The USFWS (1994) Pacific Walrus Conservation Plan notes that historically some incidental take in fisheries, disturbance, and competition for prey resources were concerns for the Pacific walrus in Alaska. However, the Conservation Plan states that fishery impacts on feeding habitat and prey resources has not been an issue and could only be of concern if a commercial fishery occurs on clams on a large scale. Disturbance issues have largely been mitigated through several regulatory actions that minimize fishery activities close to walrus haulouts in northern Bristol Bay when walrus are present during spring and summer months. And incidental take in fishing gear has largely been of decomposed walrus, indicating those animals were already dead when captured in nets. Recent data on fisheries-related mortality were summarized above; fisheries interactions result in an estimated annual mortality of 2.66 walrus in Alaska commercial fisheries.

7.7 Petition to List Walrus under the ESA

On February 7, 2008 the Center for Biological Diversity (CBD) petitioned the USFWS to list the Pacific walrus as threatened or endangered under the Endangered Species Act (ESA), and to concurrently designate critical habitat. The CBD petition indicated concerns over the loss of walrus habitat, primarily seasonal sea ice, caused by climate warming from causes that include greenhouse gas emissions. Due to funding limitations, the Agency was unable to consider the petition in Fiscal Year 2008. On December 3, 2008 the CBD filed a lawsuit against the USFWS for failing to act on the listing petition. As part of settlement of this court case, the USFWS proposed the completion of a 90-day finding by September 2009.

On September 8, 2009, the USFWS announced its 90-day finding that a listing may be appropriate, and has initiated a 12-month status review. This 12-month finding will be completed by September 2010 (Douglas Burn, USFWS, pers. comm.). Should the USFWS list the walrus, then the Agency would convene a recovery team and pursue the designation of critical habitat for the Pacific walrus. An excerpt from the USFWS September 9 press release is as follows:

> *The U.S. Fish and Wildlife Service today announced that a petition to protect the Pacific walrus (Odobenus rosmarus divergens) under the Endangered Species Act presents substantial scientific or commercial information indicating that adding the species to the federal list of threatened and endangered species may be warranted. This preliminary finding is based, in part, upon projected changes in sea ice habitats associated with climate change.*
>
> *As a result, the Service is initiating a more detailed status review to determine if listing the species is warranted and opening a 60-day public comment period in order to give all interested parties an opportunity to provide information on the status of the Pacific walrus throughout its range. The 60-day public comment period will close November 9, 2009.*

A listing also would likely initiate procedures under the ESA Section 7 requirements that may affect how fisheries are prosecuted in the northern Bristol Bay area (and other areas where Federal fisheries or State fisheries overlap with walrus distribution in the general Bering Sea region). Most likely an informal consultation would be required between the Council (and NMFS, the Action Agency) and the USFWS (the Consulting Agency) to determine if Council-managed fisheries could be considered to adversely affect Pacific walrus, and if so, a more formal consultation to determine if these fisheries could jeopardize the continued existence of the Pacific walrus or adversely modify its designated critical habitat. Those findings would be published in a Biological Opinion.

A consultation process would include the Hagemeister Island walrus haulout and would review and assess the proximity of walrus to fishing activities. Protection measures for this haulout, if deemed necessary, could be included in any Reasonable and Prudent Alternative (RPA) that may be included in the Biological Opinion.

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