

Traditional Knowledge Regarding Bowhead Whales and Camden Bay, Beaufort Sea, Alaska

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Introduction

Camden Bay is the site of proposed exploratory drilling for oil. It has also been identified by residents of Kaktovik and Nuiqsut as an important area for bowhead whales and other marine mammals. While many individuals have stated this observation over the years at various hearings and in other forums, a systematic attempt to document their traditional knowledge had not been undertaken prior to this study. This report summarizes information gathered from interviews with hunters in Kaktovik and Nuiqsut, Alaska, in January 2013, in an attempt to fill this important gap with regard to the ecological significance and sensitivity of Camden Bay.

Methods

This traditional knowledge project used the same approach that the Native Village of Savoonga used when documenting traditional knowledge about bowhead whales on St. Lawrence Island (Noongwook et al. 2007). I used the semi-directive interview method, in which the interviewer raises a number of topics with the person(s) being interviewed, but does not rely solely on a formal list of questions (Huntington 1998). Instead, the interview is closer to a discussion or conversation, proceeding in directions determined by the person(s) being interviewed, reflecting his/her knowledge, the associations s/he makes between bowhead whales and other parts of the environment, and so on. The interviewer uses his/her list of topics to raise additional points for discussion, but does not curtail discussion of new topics introduced by the person being interviewed. The interviews may be conducted with individuals or with groups of two or more

hunters. The group setting allows participants to discuss topics with one another during the interview, which often spurs more memories or additional information, and can help resolve any differences in recollection or experience at the time of the interview.

Once the interviews were completed, I wrote a draft report, which was sent to all the participants for their review. I traveled again to Kaktovik and Nuiqsut, in June 2013, to meet with the participants and identify any changes that were needed to the report. I was able to meet with all but one participant in each village. The suggested changes were relatively minor, and have been incorporated into the final report.

The topics identified in advance of the interviews were:

- Physical setting
- Biological setting
- Bowhead whale presence, use, behavior, and seasonal patterns, including changes over time and interannual variability
- Human interactions with bowhead whales, including sensitivity to disturbance and local practices to minimize such disturbance
- Other observations, concerns, and ideas about bowhead whales, Camden Bay, and offshore human activity.

The results are presented under different headings, reflecting the actual information collected and the fact that some of the subjects blend together, especially changes seen over time in regard to all of the topics. Figure 1 shows the coast of northeastern Alaska, with places mentioned in the text. Figure 2 shows the Camden Bay area, with places mentioned in the text as well as key marine mammal aggregating areas (both figures are on p. 15). The information presented in the Results sections is from the people interviewed, unless otherwise noted.

Results: Kaktovik

In Kaktovik, I interviewed a total of six people: Charles M. Brower, Joseph Kaleak, and four persons who chose to remain anonymous. The participants ranged in age from young adult to

elder, and included five men and one woman. The interview was conducted in a group on January 16, 2013, at the North Slope Borough Village Coordinator's conference room. The review of the draft was conducted at the same location on June 10, 2013.

Local use

Kaktovik residents fish in Camden Bay for the Arctic char (*iqalukpik*) and Arctic cisco (*qaaktaq*) that are abundant after the ice goes out. They also hunt seals and beluga whales in the Camden Bay waters and caribou and geese along the shore where they congregate, and pick berries in the area. Camden Bay is also a travel route for people heading to rivers such as the Canning or points farther west. Kaktovik residents have experiences in the waters of Camden Bay throughout the ice-free summer season. In May and June, before the rivers open up, Kaktovik residents travel by snowmachine to the Camden Bay area to hunt ducks.

Bowhead whaling season occurs primarily in September. Kaktovik whalers used to start in August, but it was more difficult to preserve the meat during warmer weather. Now, they wait until September to start. They noted that in some recent years, Nuiqsut whalers have seen whales earlier than Kaktovik whalers, which they find odd since the migration comes from the east and should pass Kaktovik first. This is a recent change.

Physical setting

Camden Bay has deeper water than other areas along the eastern Beaufort Sea coast of Alaska. Sea ice is present through much of the year, but in the past 15-20 years is not seen in summer as long or as regularly as in the past. Whalers used to wait on ice floes when hunting, saving on gas as they watched for whales. They were also able to hunt bearded seals not far offshore, when the ice was present. Today, there is less ice in summer. Hunters used to be able to find ice easily, to stop and get out on ice floes to have lunch or look around, but this is no longer possible. After break-up, the ice retreats and is largely gone until fall freeze-up.

Biological setting

Camden Bay is biologically rich, with abundant fish and marine mammals. It is an important feeding area for many marine mammals. River mouths and deltas are especially important, with large fish populations that attract seals and beluga whales.

Bowhead whales

Bowhead whales (*agviq*) have been seen throughout Camden Bay from July, after the ice goes out, until September and the main fall migration arrives from the east. They are most abundant during the fall migration, when they may pause there for one or more weeks. But a few animals may be seen in July and August. Bowhead whales may be close to shore in Camden Bay. One young bowhead was seen near shore in early July. Individual bowhead whales may be seen at other places along the Beaufort Coast, such as east of Herschel Island in the Yukon Territory, Canada, and off the barrier islands east and west of Kaktovik. Bowhead whales are seen more frequently now than in the past.

In Camden Bay, bowheads stay to feed rather than migrating straight through. The plankton can be plentiful and it is a prime feeding ground, with excellent feeding. Feeding whales leave an oily sheen behind them, from the plankton on which they are grazing. This “whale trail” can be seen in the water, marking the path of the whale. The smell of this sheen is distinctive, too.

They are also seen close to shore off the Jago and Hulahula Rivers, and off other river mouths where food can be found. Demarcation Bay, near the Canadian border, is another feeding area for bowheads. They may stay in these feeding areas for a few weeks, even during the fall migratory period.

Other marine mammals

Camden Bay has abundant ringed seals (*natchiq*), especially between Collinson Point and Anderson, on the eastern side of the bay. Ringed seals have been seen on the beach at Collinson Point, amid the driftwood logs, basking in the sun.

One May, 50-100 bearded seals (*ugruk*) were seen on the ice in Camden Bay, from the air during a flight from Kaktovik to Prudhoe Bay.

Spotted seals (*qasigiaq*) frequently haul out on the boulders along the shore to the west of Konganevik Point.

Walrus (*aiviq*) are occasionally seen in the Kaktovik area. Formerly, they were seen once in a while, but now are seen almost every summer. They may haul out of the beaches of the barrier islands west of Kaktovik. They may be attracted to the area by the seals, on which walrus sometimes feed. One walrus stomach was found to be full of ringed seal, in square pieces that looked like they had been cut with a knife.

Beluga whales (*qilalugaq*) are found in Camden Bay all summer long. They often gather in groups near river mouths, feeding on the fish that are abundant there. Groups of 50 or more belugas may be seen on occasion, but abundance varies over time.

Gray whales are also seen in Camden Bay in July and August, sometimes right next to shore. The gray whales may be scratching themselves on the bottom.

Killer whales are seen once in a while in the Kaktovik area. One was seen following a barge coming from the west. Killer whales sometimes chase beluga whales in to the shore.

Harbor porpoise (sometimes call “dolphins”) are seen occasionally in the Kaktovik area.

Camden Bay is not unique along the Beaufort Sea coast in attracting marine mammals, but the aggregations are especially plentiful here, with large groups of animals at times, and the productivity of the area is consistently high.

Fish

Arctic cisco and Arctic char are abundant in Camden Bay. They are found in large numbers shortly after the sea ice breaks up, indicating their presence under the ice in spring. The fish attract seals and beluga whales. Arctic char usually come first, but in recent years the cisco have been coming early, too.

Kaktovik residents have seen unusual fish in recent years, including wolfish and a live squid caught in someone's net. Salmon are more abundant in recent years. A different kind of cod was caught the last two summers. These have yellowish stomachs and were identified as saffron cod. They were seen in large schools. These changes are seen as an effect of global warming.

Caribou

Thousands of caribou come to the Camden Bay coastal area in summer in some years. They cross rivers and also swim to the barrier islands. These caribou could be affected by an oil spill in the area that reached the lagoons inside the barrier islands, the coastal beaches, or the estuaries of the rivers.

Birds

Murres have been seen in recent years in the Kaktovik area. They were not seen prior to the past few years. They were recognized for looking "like penguins," with their white chests and black backs and wings, and by the way they fly.

Disturbance

Kaktovik residents remembered when a drilling rig was active in Camden Bay. Most or all marine mammals left the area or avoided it on their migration. Kaktovik residents thus regard industrial activity as a major disturbance to marine mammal distributions, and an impediment to safe and successful hunting, because the animals are more dispersed and farther offshore: "We know the effects of drill rigs."

In August 2012, a NOAA ship was seen near Kaktovik. Two residents reported that it was making noises that sounded like those produced by seismic guns. The vessel was there shortly before whaling season, but was seen heading east from Kaktovik. Bowhead whales that fall were farther offshore and were traveling singly or in pairs, with few if any groups of 10-15 whales, which are usually common during the fall migration. Hunters cited this experience as further evidence of the sensitivity of marine mammals to disturbance and the difficulties that such disturbance creates for hunting.

Results: Nuiqsut

In Nuiqsut, I interviewed a total of seven people: Carl S. Brower, Archie Ahkiviana, Billy Oyagak, Edward Nukapigak, Eli Nukapigak, Isiah Nukapigak, and Thomas Napageak Jr. The participants ranged in age from young adult to elder, and were all men. The interview was conducted in a group on January 17, 2013, at the Kuukpik Corporation Hotel. Additional information was provided by Isaac Nukapigak (Alaska Eskimo Whaling Commissioner from Nuiqsut, who was out of town on Jan. 17 and couldn't take part in the interview) to Craig George (North Slope Borough Dept. of Wildlife Management) via telephone on November 30, 2012, as this study was being organized. The review was conducted with each participant individually on June 11, 2013. One participant was not able to take part, but Isaac Nukapigak was able to go over the report and verify what he had said to Craig George.

Local use

Nuiqsut hunters use the Camden Bay area during the whaling season in fall. If whales are not found in the vicinity of the whaling base at Cross Island, the whalers will travel east along or inside the barrier islands as far as Camden Bay, in search of whales. Sea ice off of Cross Island and disturbance from human activity are the reasons why whales may not be found or may not be accessible in the Cross Island area.

In 1973, the first whaling season after the village had been established, the whalers caught their first whale off the mouth of the Hulahula River, on the eastern edge of Camden Bay. They were away from home for over a month, living off seals and obtaining gas from DEW Line stations so that they could keep hunting. After that, they explored different options for a base camp for whaling, before settling primarily on Cross Island.

Physical setting

Camden Bay has deep water close to the shore, so that whales are able to come close to land. The rivers flowing into the bay create a mixing zone of freshwater and seawater, which is a

productive area for marine life, and thus attracts many fish, birds, and marine mammals. The currents in Camden Bay parallel the shore, and their direction depends on the wind.

Ice may stay longer in the Camden Bay area and west to Cross Island. In 2005, the whalers could not go offshore from Cross Island due to ice, so they traveled east inside the barrier islands until they passed Flaxman Island and entered Camden Bay.

Biological setting

Camden Bay is biologically rich and very important for a number of marine mammal species. It is a productive area. There are always krill (probably copepods) there. Sometimes the ocean is red with the abundance of krill.

Bowhead whales

Bowhead whales use Camden Bay for feeding and resting. It also provides good shelter during storms, especially east winds, or if there is a lot of ice on the ocean. If there is a strong east wind, the whales will stay in Camden Bay, and may linger there after the storm dies down. This is especially important for young whales. The older whales will take the younger whales into Camden Bay for protection during a storm. Camden Bay will become more important as a refuge as the ice continues to disappear in summer, since there will be even less protection from storms.

Camden Bay is one of a series of refuge areas along the coast that the whales use to feed, gather together, or wait out storms. The area east of Herschel Island on the Yukon coast is another such important area. The area used as a refuge in Camden Bay extends from Arey Island in the east to Flaxman Island in the west. The whales may use different areas of the bay in different years, but the whole bay is used and is important to the whales. The whalers said, "Camden Bay should be recognized as a resting and feeding area for whales." They also said, "We've been trying to keep oil companies away from Camden Bay since the 1970s."

The whalers may find hundreds of whales on occasion. In 2005, when some whalers traveled east of Flaxman Island, they found hundreds of whales swimming westward, extending past Cross Island where other whalers had headed through the ice to open water about five miles

north of the island. The whales concentrated in Camden Bay that year because of sea ice north of the barrier islands.

Some whales, especially young ones, migrate inside the barrier islands, in places where the water is deep.

In years with no ice, the bowheads migrate closer to the shore or barrier islands, perhaps to help navigate. If there is snow on the shoreline, the whales will be even closer to the shore. In the fall of 2012, there were hundreds of whales in the shallows just outside the barrier islands, including many small whales but also large ones.

There are two groups of bowhead whales that migrate through the Cross Island area in fall. One is made up of medium and large whales (more than 40 feet long) and comes in from the north and feeds in the Cross Island area before the larger migration arrives from the east. The bigger group comes from the east later on.

The majority of whales landed at Cross Island have full stomachs, so the area to the east is recognized as a feeding area. Camden Bay is the most important area in this regard, though the whales may feed at other locations along the eastern and central Beaufort Sea coast as well.

Bowhead whales are sometimes seen feeding in Harrison Bay, but there is no way to land a whale taken there. Seal hunters have reported seeing bowhead whales north of the Colville Delta and Thetis Island area. The whales had their mouths open and were feeding.

The fall migration is taking place earlier now than it used to in the 1990s. The whales start coming past Cross Island in late August or early September.

One female with a calf was seen approaching whaling boats in the fall of 2005. As it came near, the female put her flipper over the calf and pushed the calf underwater as she dove.

Bowhead whales migrate in the currents along the 30-foot and 60-foot depth contours offshore. If whalers do not find whales in the 30-foot area, they go out to the 60-foot area to search.

Other marine mammals

Many seals are seen in Camden Bay, including ringed seals, spotted seals, and bearded seals. When the whalers started using Cross Island as a base, a time of no offshore oil and gas activity, there were hundreds of ringed and bearded seals in that area. Today, they may only see two or three seals in a day of scouting by boat.

Beluga whales migrate through the area in fall. In August and September, they can sometimes be seen in the shallows off Collinson Point, rubbing their old skin on the seafloor.

A pod of killer whales was once seen in Camden Bay. This is a rare sight. Bowhead whales were in very close to shore to avoid the killer whales. In the ice offshore, one walrus was seen trying to stay under the ice to avoid being found by the killer whales.

Few walrus are seen in the central and eastern Beaufort area. There is not much on the seafloor for them to eat. But walrus and bearded seals are coming east from Barrow more frequently as there is less ice in the Barrow area. The summer of 2012 had a record number of bearded seals in the Nuiqsut region.

Bearded seals can be seen near the mouths of the rivers in Camden Bay and elsewhere, feeding on the fish that enter the rivers in fall.

When there is ice, the seals will be amid the ice. When there is no ice, they will be at the river mouths or the barrier islands, sometimes hauled out on the beach. Polar bears sometimes work together to catch seals that are hauled out on the beach. One bear keeps the seals from getting into the water and another bear catches the seal.

In summer, polar bears concentrate near river mouths. When there is no ice, they are more common on the barrier islands.

Fish

Arctic cisco are an important subsistence food in Nuiqsut that is also shared with other villages and regions. They move westward through Camden Bay in large numbers in the fall, from the Mackenzie River towards the Colville River.

Birds

Ross's gulls, also known as "whale birds," are a reliable indicator of the presence of whales out on the ocean. Thousands of birds may be seen at the mixing zone of fresh and salt water in Camden Bay.

The barrier islands are nesting and molting grounds for many seabirds such as eiders, long-tailed ducks, arctic terns, and other species.

Disturbance

Nuiqsut whalers have direct experience with disturbance of bowheads due to human activity in the ocean. In Camden Bay in the early 1980s, there was drilling at the Hammerhead Prospect (now known as Sivulliq). In those years, the bay was empty of marine mammals. The whalers did not see any whales in the usual areas where they find them. The bowhead whales headed north to avoid the disturbance. Whalers had to travel 30-35 miles straight out from Cross Island to get whales, which was a big risk. While drilling was occurring, whalers saw grayish mudballs floating on the surface of the ocean at times. The mudballs were a few inches in diameter.

In 2005, the whalers were towing a whale back to Cross Island, and a barge was approaching from the east, making a lot of noise. There were many bowhead whales swimming west to stay ahead of the barge. After the barge passed the whalers, no whales were seen for some time. The whales appeared to be avoiding the barge, unwilling to let it go past them. The whalers said, "The impact was very clear."

Barges traveling to Kaktovik stay inside the barrier islands and then close to shore through Camden Bay to avoid bad weather, just as the whales do. This creates the potential for ship-whale interactions in an important area for the whales.

In years with human activity in Camden Bay, the whales may enter the area, but will not stay. Instead, they travel straight offshore to avoid the source of the disturbance. In years without human activity, the whales migrate along the coast without interruption or deviation from their migratory path.

When there is human activity offshore, marine mammals are pushed out of the area. For example, when Northstar was being developed, that area “was like a dead ocean,” even though whales had been plentiful there in previous years.

When there are vessels or other forms of disturbance, the whales’ behavior changes. They become skittish and very wary. When they surface to breathe, they only put their blowhole above the water, rather than rising higher and arching their backs as they usually do. Bowheads can swim very fast when scared.

In a good year for whaling, the whalers can get what they need quickly and efficiently. With offshore disturbances, it becomes much harder. The whalers said, “It is our responsibility as whaling captains to make sure our village has meat and maktak and to provide for festivals.” They take this responsibility very seriously, and regard offshore disturbance as a substantial threat to their duty to the community.

Nuiqsut whalers are very concerned about the potential for permanent industrial activities in the Camden Bay area. They expect that such activity would change the patterns of behavior and distribution for all marine mammals, not just bowhead whales. A pipeline carrying oil to shore would be a potential source of disturbance, due to noise and vibrations from the moving oil. This would be especially troublesome if the pipeline went between Flaxman Island and the mainland, as this passage is used by whales that migrate inside the barrier islands.

The whalers are also concerned that Camden Bay would be a refuge for vessels or drill ships during a storm, at precisely the time that it is used by whales as a refuge.

Whalers have seen vessels interfere with whaling on many occasions. These vessels are typically those not part of the Conflict Avoidance Agreement (CAA), which helps put the needs of the whalers first. In past years, the whalers feel that the barges and other vessels have taken precedence over the whalers. Communication with the vessels that are part of the CAA is a big improvement. The vessels can change course to accommodate the whalers, lessening the impacts on the whalers. This arrangement, however, does not affect the vessels that are not part of the agreement. Some vessels appear without warning, interrupting the hunt, spooking the whales and making the whales swim farther offshore. The whalers said, “Every barge that crosses our path during whaling is a definite impact.”

Nuiqsut whalers would like to see a thorough scientific study of Camden Bay, to determine how permanent industrial activity would affect marine mammals in the area.

Discussion

The whalers identify Camden Bay as an area of special importance for bowhead whales as a feeding and resting area, and perhaps especially as a refuge from heavy ice or fall storms. They also describe use of Camden Bay by other marine mammals, indicating that the area is biologically productive. The whalers have experienced human-caused disturbance in the region, and have seen bowhead whales and other marine mammals leave the area when vessels or drill rigs have been operating there. Thus, it appears that Camden Bay is a sensitive area in that disturbance causes changes in the behavior and distribution of bowhead whales and other marine mammals. These changes likely affect the animals, and they certainly affect the whalers by decreasing opportunities to harvest bowhead whales or by increasing the risk that is required to harvest whales because whales are farther from shore.

For these reasons, whalers in Kaktovik and Nuiqsut are understandably concerned about the prospects for industrial activity in the Camden Bay area. They note that the Conflict Avoidance Agreements (CAAs) have been helpful in reducing negative impacts from vessel traffic, though

not all vessels are part of the CAA. Permanent installations in the Camden Bay area, however, may be harder to mitigate if whales continue to change their distribution and behavior in response to these sources of disturbance. Whalers said that further studies are needed to investigate the likely long-term consequences of permanent operations in Camden Bay, both for marine mammals and also for those who hunt them.

Whaling captains in both communities take very seriously their responsibility to their community, to provide food, to keep their crews safe, and to sustain the environment that has sustained them. They therefore take very seriously the threats that they perceive to the Camden Bay area from industrial activity. Decisions that will be made regarding the future of Camden Bay need to take the whalers' knowledge and views equally seriously.

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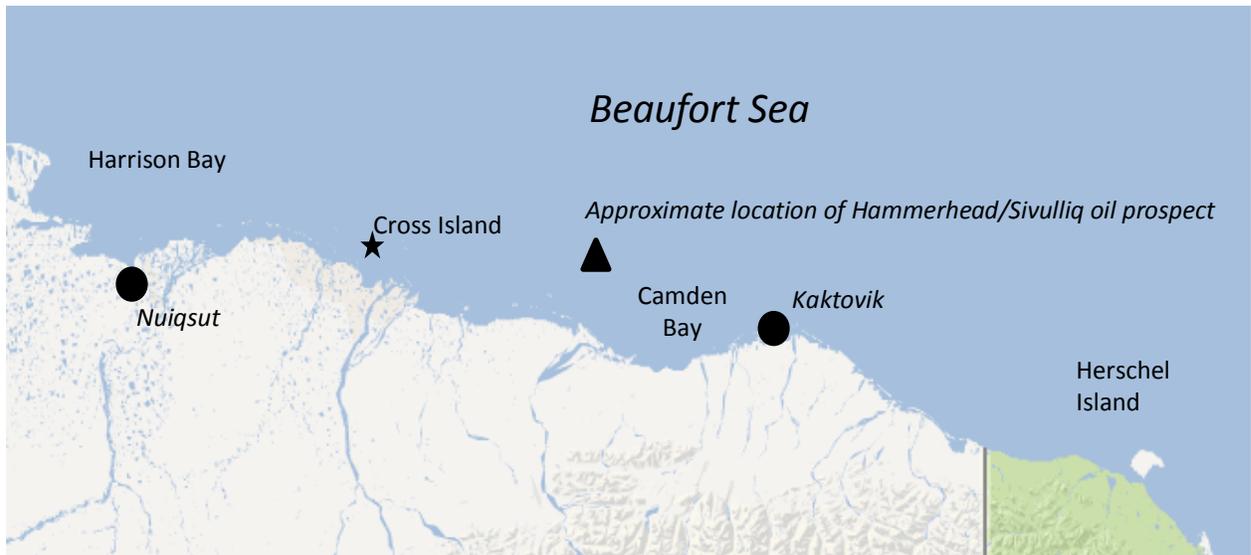


Figure 1. Beaufort Sea coast of northeastern Alaska, showing major locations mentioned in the text. Details of the Camden Bay area are shown in Figure 2.

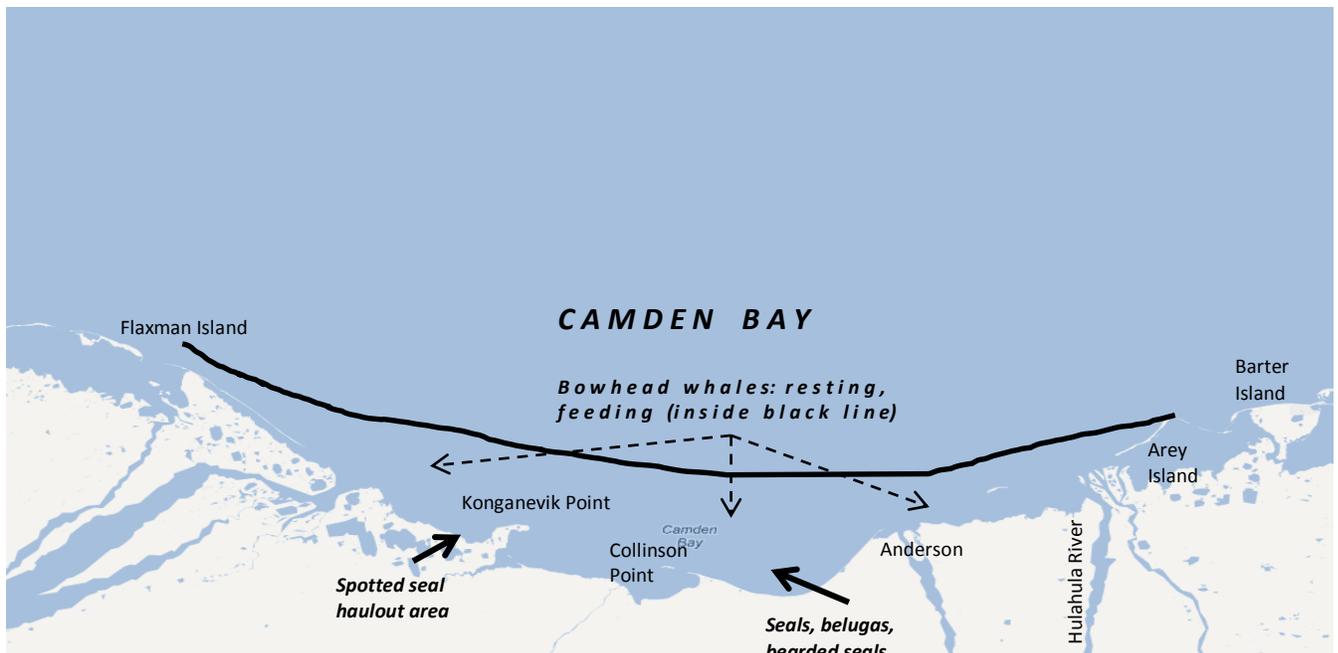


Figure 2. Camden Bay area, showing locations mentioned in the text, and key marine mammal aggregating areas.