

VARIABILITY IN CROSS ISLAND (ARCTIC ALASKA) SUBSISTENCE WHALING: AN EXAMINATION OF NATURAL AND ANTHROPOGENIC FACTORS

Michael Galginaitis, Applied Sociocultural Research, msgalginaitis@alaska.net

Post Office Box 101352, Anchorage AK 99510-1352

Task Order 7 of the cANIMIDA Project, for which Battelle was the Core Contractor

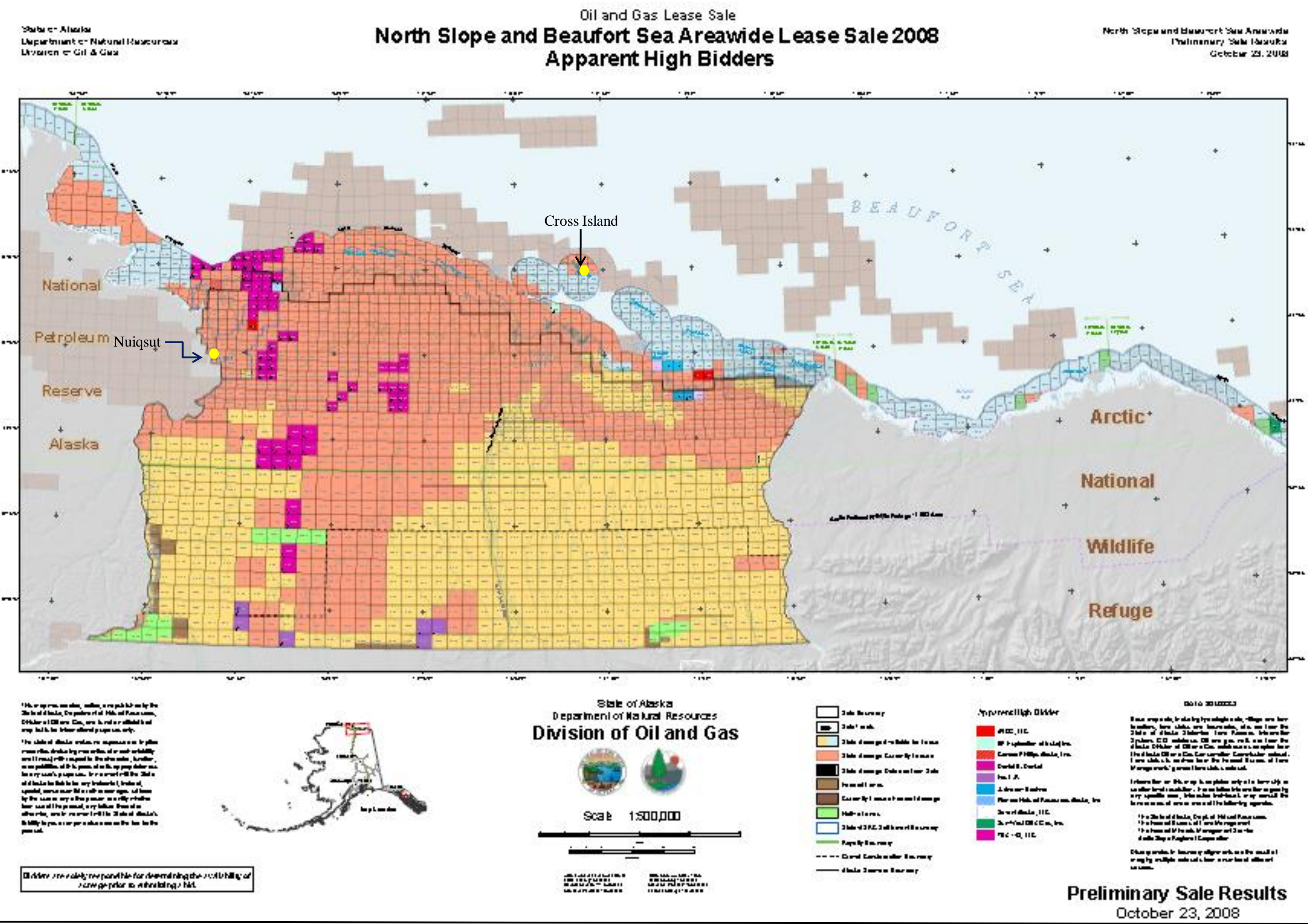
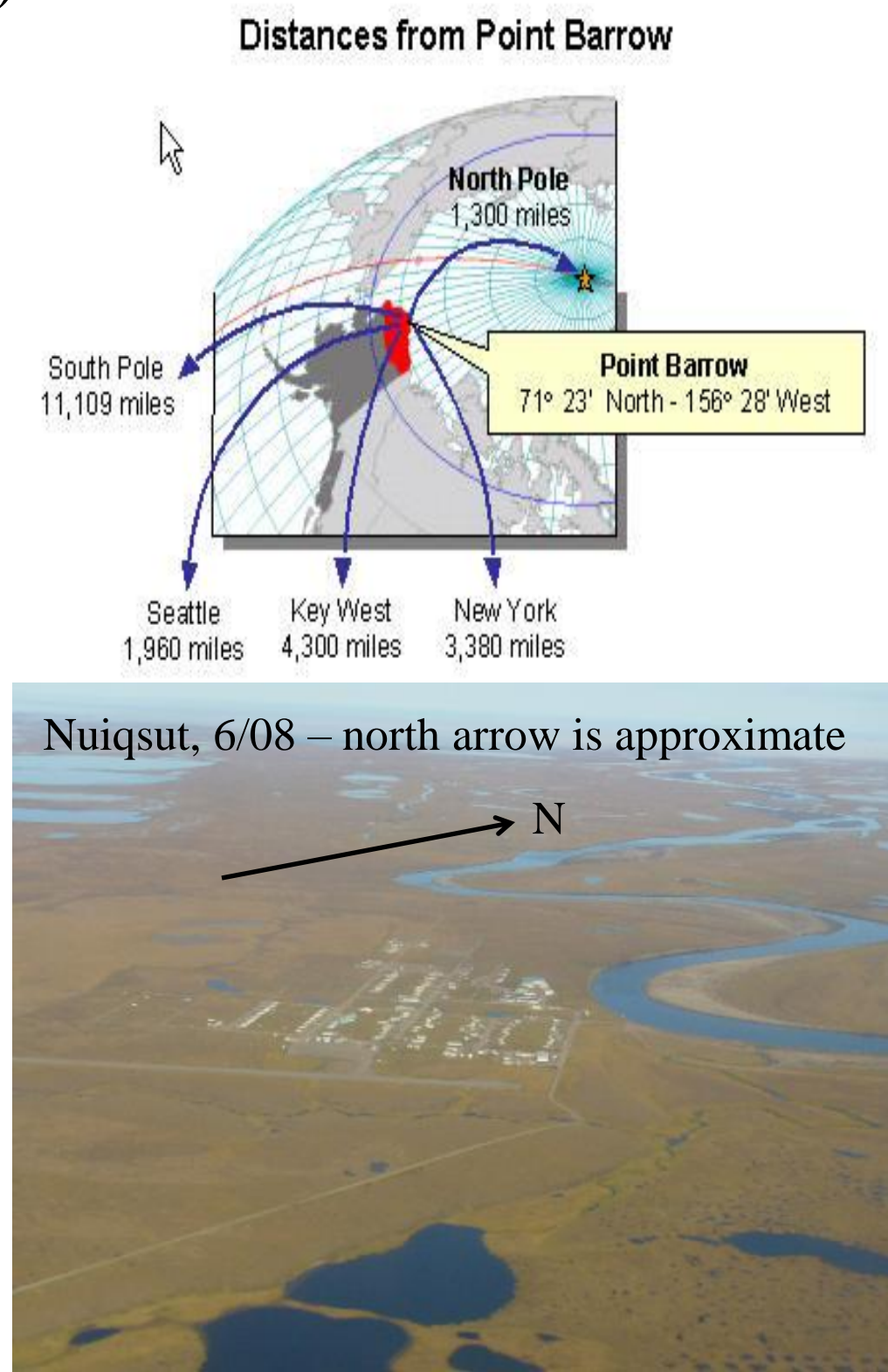
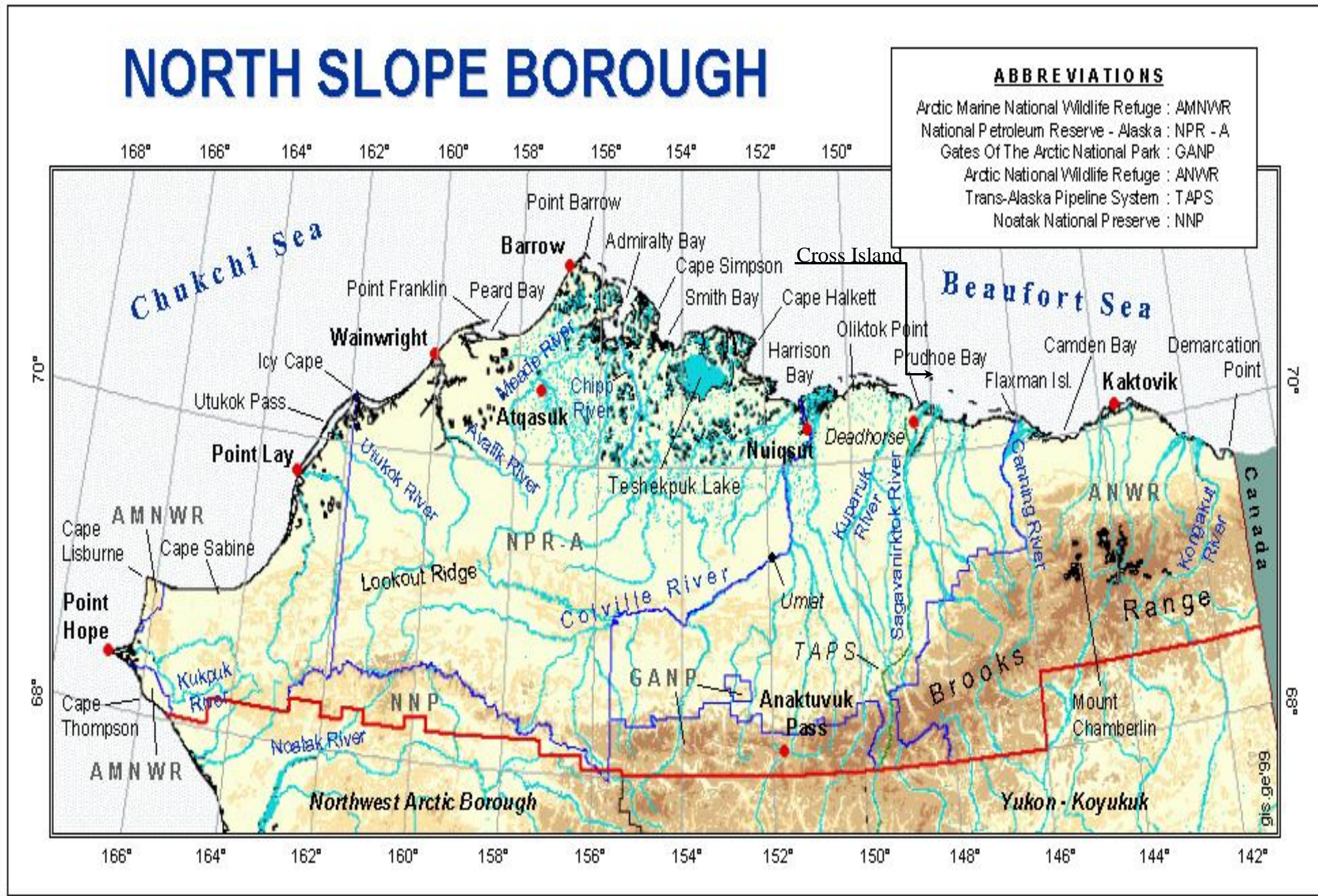
Funding provided predominately from the Minerals Management Service, U.S. Department of the Interior (Contracts 0104CT32149, M04PC00032)

Supplemental data processing and reportage funding provided by BPXA, logistical assistance provided by BPXA and Shell

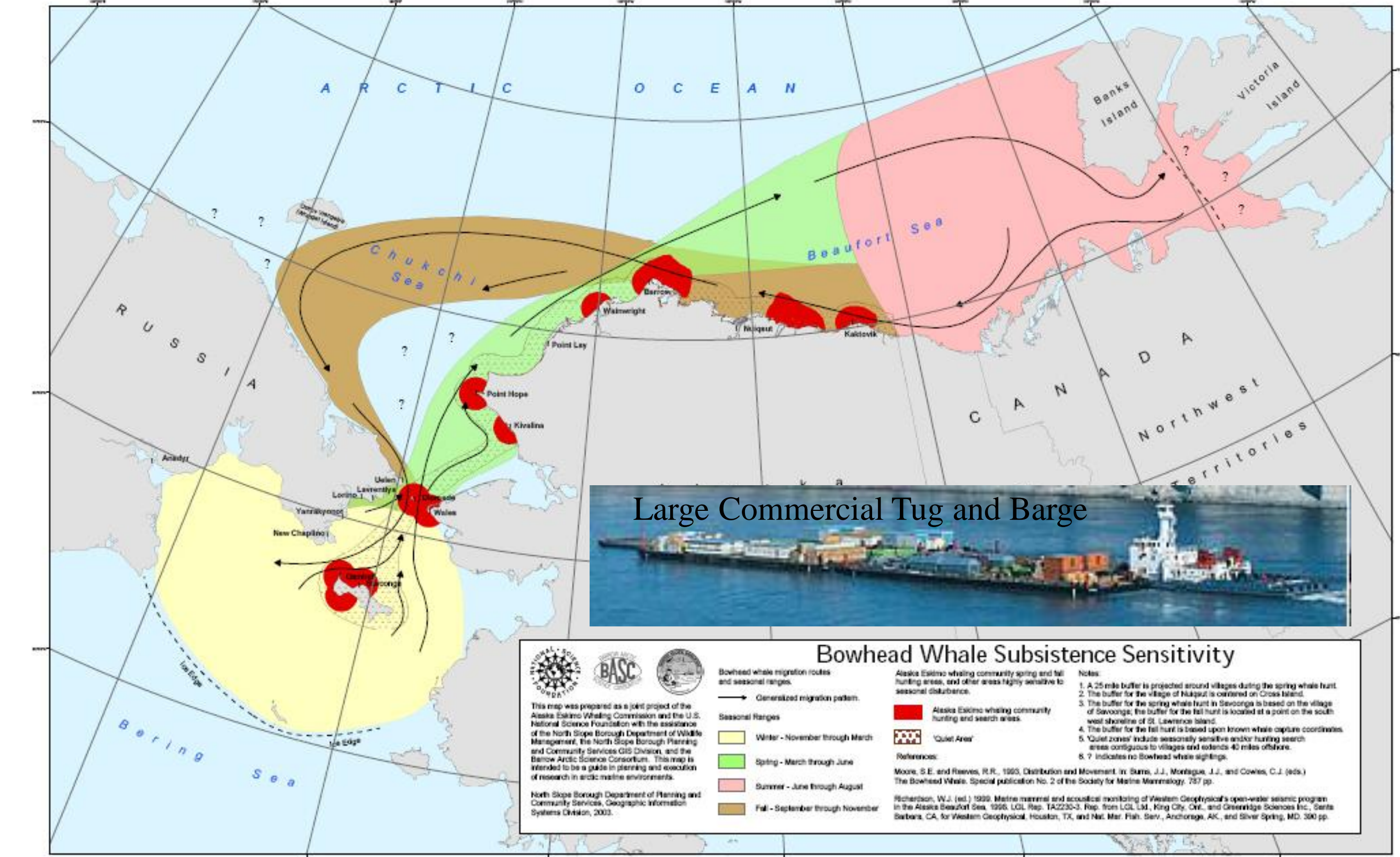
MMS

Abstract: Humans constitute an important, but often overlooked or neglected, element of Arctic ecosystems. Monitoring changes in this human component presents substantial challenges, and tends to be most successful when focused on especially significant socioeconomic aspects of local human activity. Contemporary subsistence (aboriginal) whaling is one such nexus for Native communities in northern Alaska. The Bering-Chukchi-Beaufort Sea stock of bowhead whales population is estimated at 10,500 individuals (2001) and increasing at a rate of 3.2 percent since 1978, the year the International Whaling Commission (IWC) first set a quota for the bowhead subsistence hunt. The current quota is flexible, to accommodate variable hunting conditions, but is conservatively limited to 280 whales landed for the five-year period of 2008-2012 (with no more than 67 strikes in any one year). While the bowhead population has continued to increase, intensified oil and gas (and other commercial) activities may adversely affect these whales, and the subsistence hunt. This research, one part of the ANIMIDA/cANIMIDA project, gathered measures to assess the potential effects of industry activities, weather and ice conditions, and non-industry vessel and aircraft activities on subsistence whaling near Cross Island, Alaska. The Cross Island harvest is a relatively small part of the overall hunt, with a annual quota of four strikes, but takes place at the whaling location closest to both onshore and offshore oil and gas activities. This poster presents eight years of data to allow discussion of how year-to-year variability in subsistence whaling can be related to the factors identified above. Additional potential factors affecting whale behavior (and the subsistence hunt) such as whaling technology and climate change can also be addressed using grosser, but longer-term, data.

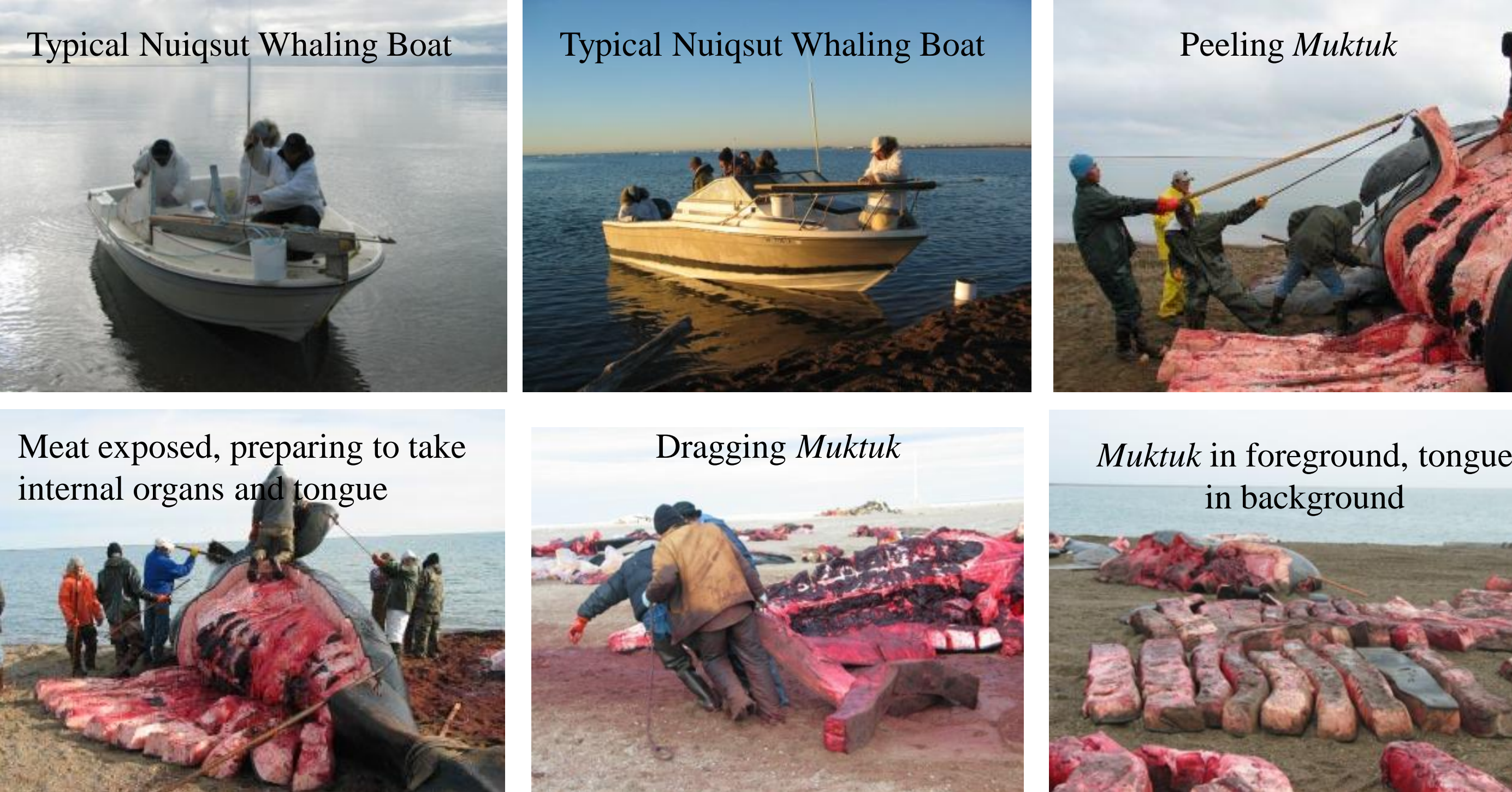
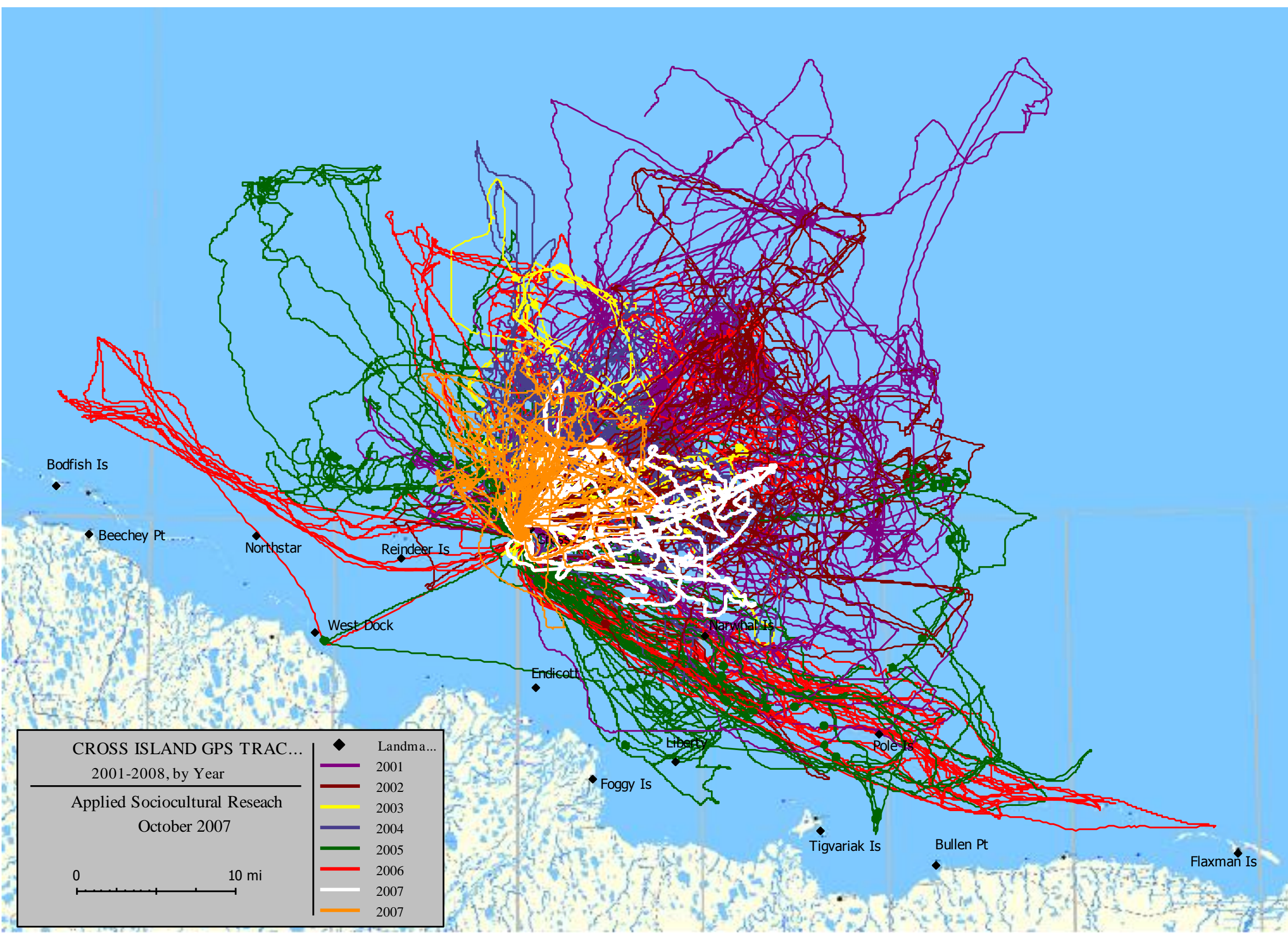
LOCATION: North Slope of Alaska - Cross Island is 10 to 15 miles offshore (north) of the Prudhoe Bay industrial complex, and about 73 miles NE of Nuiqsut. Nuiqsut is located on the Colville River, about 16 miles inland from the Beaufort Sea. (maps from NSB Planning Department)



WHALES, OFFSHORE OIL DEVELOPMENT, and OTHER COMMERCIAL ACTIVITIES pose potential, but not necessarily inevitable, conflicts (map from the North Slope Borough Planning Department). The Bowhead population has been increasing since the start of co-management of the subsistence hunt.



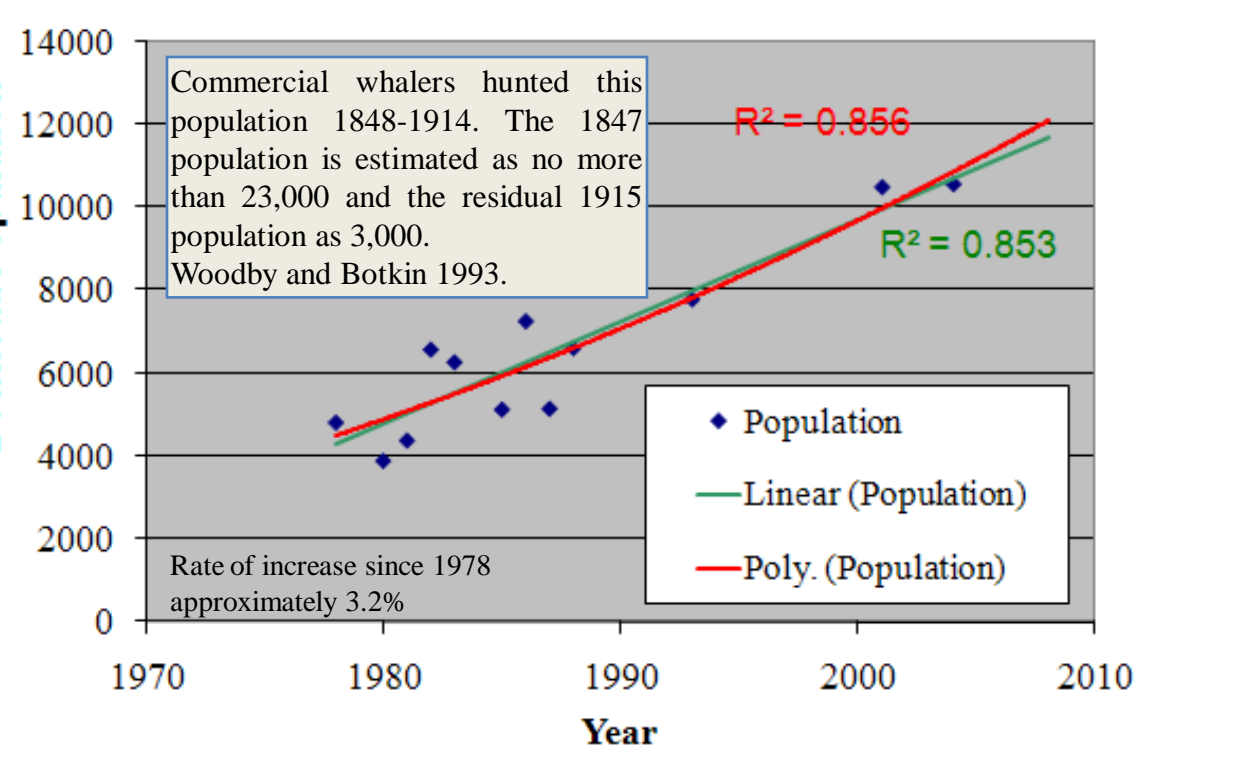
METHODS
All boats carried GPS units
Daily talks with whalers re GPS tracks, whaling experiences, and whale behavior
Daily researcher systematic observation and notes
Weather station at Cross Island during whaling season
Local review of all reports, with annual presentations in Nuiqsut
Coordination with NSB /AEWC
Archival/library research



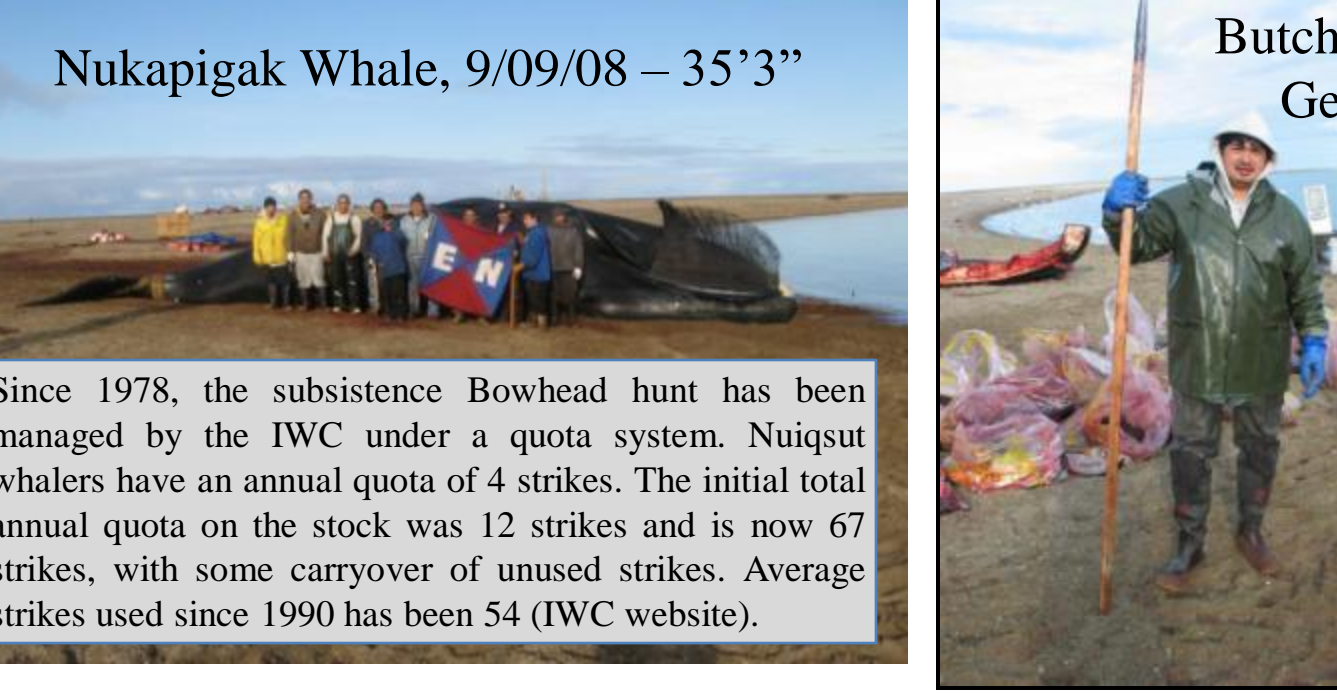
NOAA Archive



Bering-Chukchi-Beaufort Seas Bowhead Whale Population by Year, 1978-Present



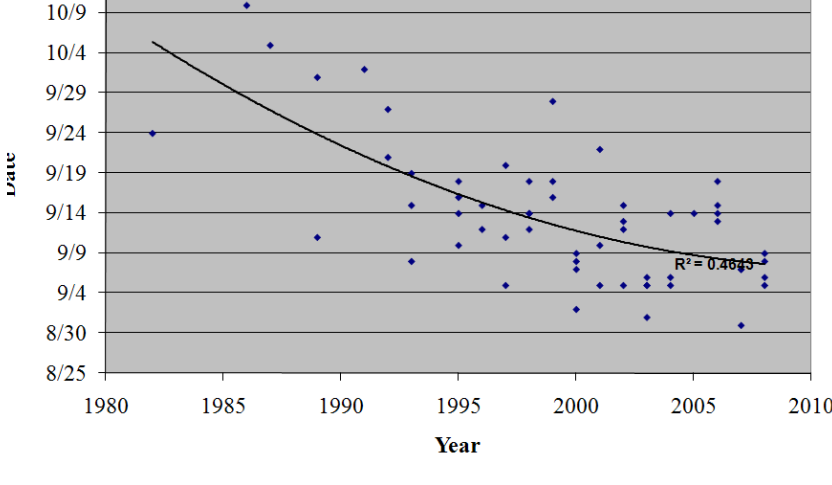
Source: Zeh, J.E. and Punt, A.E. 2005. Updated 1978-2001 abundance estimates and their correlations for the Bering-Chukchi-Beaufort Seas stock of Bowhead whales. JCRM 7 (2):169-175 and Craig George, personal communication 2007.



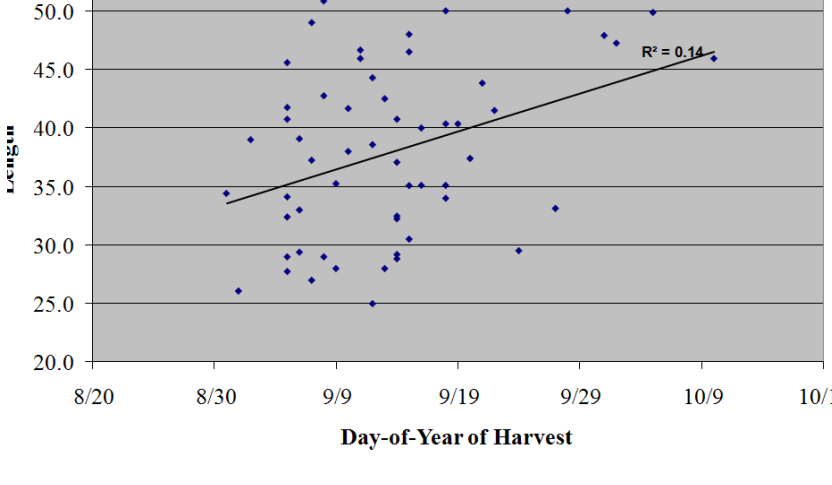
Selected Measures of Cross Island Whaling, 2001-2007									
Metric	Measure	Type	Season	2001	2002	2003	2004*	2005*	2006
Whales Taken/Whales Struck and Lost	count	3/0	4/1	4/0	3/0	1/0	4/0	3/1	4/0
	Active Crews on Cross Island (maximum)	count	4	3	4	4	5	4	5
Scouting Boats on Cross Island (maximum)	count	7	9	10	8	8	7	9	12
	Cross Island Population	average	27.7	26.6	20.4	18.9	29.8	29.2	26
Length of Season	count	24	23	19	30	27	21	13	14 (7)
	Weather Days	count	8-9	4	8	10	11-15	4	3
# days scouting	count	12	13	7	12	9	10	5	6 (5)
	# days whales seen	count	9	9	7	8	7	8	4
Boats scouting/day	average	4.8	4.3	4.9	3.4	4.0	4.8	3.2	4.8 (5.4)
	# boat days	count	57	65	34	41	35	48	16
# boat trips (possible # of GPS tracks)	count	59	67	42	46	48	53	22	33 (31)
	Actual # of GPS tracks collected	count	49	52	37	44	48	51	20
Length of trip (miles)	average	84.0	64.3	37.2	45.3	60.7	60.8	30.1	32.1
	Duration of trip (hours/minutes)	average	9:43	7:58	4:31	6:51	7:07	8:13	5:39
Farthest point from Cross Island (miles)	average	23.6	19.5	11.6	12.1	19.1	22.2	10.4	8.3
	Strike distance from Cross Island (miles)	average	19.5	13.4	9.3	9.7	25.9	17.0	12
Strike Direction from Cross Island -degrees*	average	64.4	67*	56*	36*	32*	59*	89*	65*
	average	3.9	3.6	2.9	3.6	4.4	4.3	4.2	3.5
Total Seasonal Boat Effort (Boat-Hours)*	sum	572.9	533.6	162.9	301.2	341.3	427.1	124.3	158.0
	average	191.0	106.7	40.7	100.4	341.3	106.8	31.1	39.5

*Number of days with at least one crew on Cross Island - includes day of arrival at and departure from Cross Island.
*Number of days when at least one boat went out scouting for whales
*Number of days when at least one crew saw whales while scouting from a boat. Blows were seen from Cross Island on a few non-scouting days, but are not included in these totals.
*Each boat scouting for whales on any given day counts as one "boat day" - regardless of the duration of the trip or if whales are seen or not. Thus if 2 boats scout on one day and 4 boats scout on the next, the total for the two days would be 6 boat days.
*Some boats made more than one scouting trip on a single day
*Includes "struck and lost" whales in 2002 and 2007
*Due north is 0 (and 360) degrees, due east is 90 degrees - includes struck and lost as well as landed strikes
*Yearly total equals aggregate sum of duration of all whaling trips by all boats. Includes estimates for missing information.
*One crew went to Cross Island well before other crews, so total season measures may be somewhat misleading. See 2004 and 2005 Annual Reports.

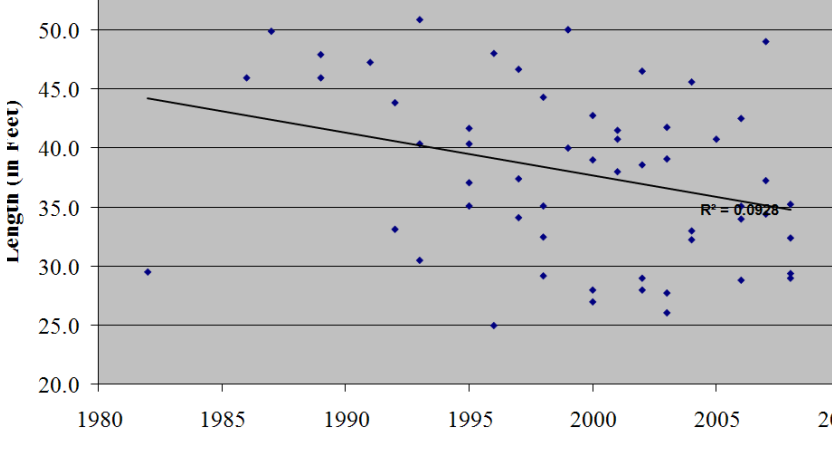
Date of Bowhead Harvest by Year



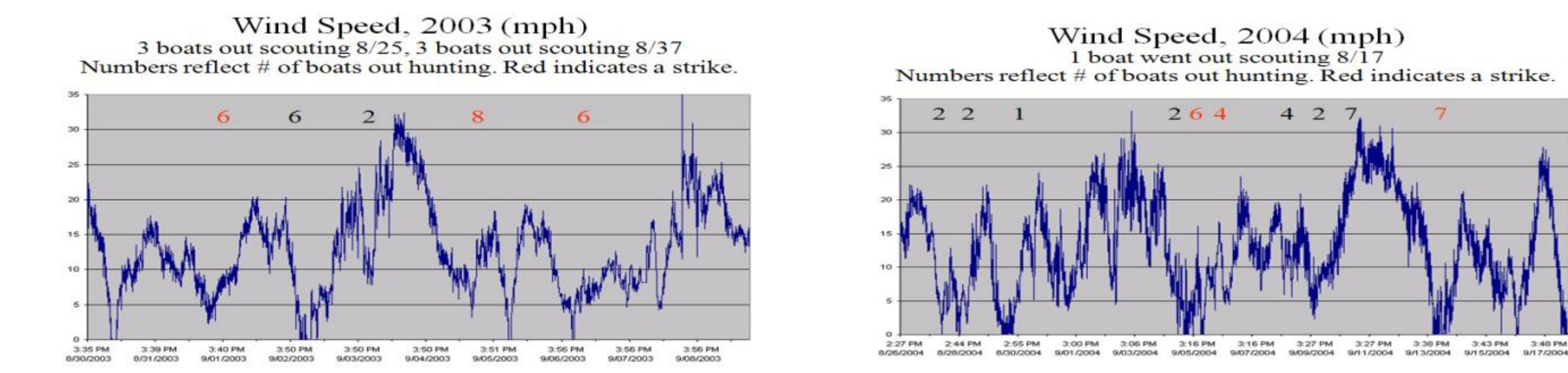
Length of Bowhead Harvest by Date



Length of Bowhead Harvest by Year



Wind speed was a significant factor for all seasons, and a limiting factor for some. **Ice conditions** were an important limiting factor for the 2005 and the first half of the 2006 seasons. Whalers encountered **commercial vessel traffic** on the one good day for whaling during the 2005 season, at a minimum hindering the hunt. Nuiqsut whalers have a season quota of four strikes, and have landed 3 or 4 whales in all study seasons except 2005, when they landed only 1. Existing **oil production** has thus far not directly affected Nuiqsut whaling adversely, although there is evidence that exploratory drilling and seismic surveys have.



Acknowledgements.

The Minerals Management Service has funded the Cross Island project since 2000 (first field season in 2001), but this is only the latest in a series of projects that started (for me) in 1982 with an ethnographic study of Nuiqsut. I thank them for this long-term support. The oil industry provided logistical assistance for the Cross Island project, and BPXA has funded some helpful supplemental data analysis and reportage since 2005, to support their annual North Star application process. The Cross Island project would not have been possible at all without the active support and participation of the Nuiqsut Whaling Captains' Association, whaling crew members, and residents of Nuiqsut. The Alaska Eskimo Whaling Commission and the NSB Department of Wildlife Management have also encouraged the research. While the project was dependent on all this local collaboration, this poster represents only the interpretations/conclusions of the author, and not necessarily those of the participants or sponsors. LGL Alaska assisted with the production of this poster, and was the prime contractor for this work for 2000-2003. ASR has been directly contracted with MMS for 2004-present.