“The World has Changed”:
Iŋalit Traditional Knowledge of Walrus in the Bering Strait

North Pacific Research Board Project 1013

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Abstract
This project documented, through a multidisciplinary approach, Little Diomede experts’ local and traditional ecological and cultural knowledge of Pacific walrus (*Odobenus rosmarus divergens*), and examined the “cultural-ecological relationship” between walruses and people to document a variety of changes and adjustments in both walrus and human populations over time. This project was set within a context of increasing concerns over changes and threats to walrus, their environment, and indigenous people whose lifeways are tied to their relationships to walrus populations. Additionally, it was set within a context of limited existing bio-ecological and anthropological knowledge of Diomede human-walrus relationships; of a concern for the need to better interface local traditional knowledge with western science, policy, and management; and of a desire amongst Little Diomede people to document their knowledge and language relating to walrus. Through archival research, linguistic and ethnographic interviews, and synthesis of data from other important ongoing projects, this project synthesized and analyzed archival data and over 50 ethnographic, mapping, and linguistic interviews with 19 indigenous experts on Diomede and walrus. This work was conducted with the ongoing consent and participation of the Little Diomede community, and was accomplished through the work of a multidisciplinary project team over a three-year period. Key contributions of this project include data-driven policy and management recommendations relating to walrus, a unique synthesis of bio-ecological and anthropological data relating to Diomede and walrus, and a rich portrait of the interconnected and systemic changes relating to walrus and Diomede.

Key Words
Iŋalit
Diomede
Iŋaliq (Little Diomede Island)
Bering Strait
Pacific Walrus (*Odobenus rosmarus divergens*)
Local Traditional Knowledge (LTK)
Iŋupiaq
Ethnographic interviews
Linguistic interviews
Archival research

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Study Chronology

After funding for this project was received, there were several personnel changes which resulted in a number of changes in project scope. Changes to the scope of work included limiting archival research and literature review primarily to materials housed in Kawerak’s Eskimo Heritage Program, and the removal of mapping activities and participant observation as data collection methods. Six progress reports have been completed for this project; the progress reports detail changes in personnel and project scope, as well as challenges related to traveling to Diomede and the translation of project materials.
Introduction

Little Diomede Island is a small Alaskan island (encompassing approximately 2.8 square land miles) in the narrowest portion of the Bering Strait (approximately 51 miles wide in this area). The island is adjacent to the international dateline with a larger sister island on the Russian side, Big Diomede. Little Diomede is approximately 2.5 miles from Big Diomede, 25 miles from the Alaskan mainland, and just under 30 miles from the Siberian mainland. One community, Diomede, is located on the island, with a population of 115 people in 2010, approximately 92% of whom are American Indian or Alaska Native (State of Alaska DCED 2013); the majority of residents are Iñupiaq Eskimo. Transportation to and from the island occurs primarily through weekly helicopter service throughout the year, as well as plane service during a small portion of the winter when the shorefast ice is thick enough to support an ice runway offshore of Little Diomede Island. Walrus hunting and consumption are an important part of the Diomede way of life, and are an extension of practices going back thousands of years to the origins of the Thule tradition on St. Lawrence Island to the south. Diomede and the two communities on St. Lawrence Island have harvested the most walrus of all the Alaska villages for over half a century (Robards 2008: 18). In the local Iñupiaq Eskimo dialect, Little Diomede Island is referred to as Iñaliq, and the people of the island are known as Iñalit.

This research had two main objectives, detailed in greater detail further below in the subsequent section. These objectives were:

- To employ a multidisciplinary approach which would contribute to biological, ecological and anthropological knowledge of walrus, addressing both a need to supplement current limited knowledge about walrus as well as a need to interface LTK with scientific processes.
- To address Little Diomede residents’ desires and concerns about the need to document their knowledge relating to walrus, as well as concerns about walrus and environmental change.

Additionally, the project also aimed to produce products which spoke to these concerns and were of value and utility to Little Diomede and other region communities.

This research was based on the premise that residents of Diomede have a wealth of information about Pacific walrus (Odobenus rosmarus divergens) that can be useful in a variety of areas such as marine planning, policy, and management, and heritage preservation. The information presented in this report from Diomede experts is Local Traditional Knowledge that is based on intimate observational, evidence-based understandings of walrus behavior in context that has been collected, tested, and shared over many generations. This project was initiated for a number of reasons, all of which speak to the particular scientific, management, and societal contexts in which this work was proposed.
The first reason this project was initiated is that documentation of bio-ecological and anthropological
knowledge of walruses is limited, while at the same time - from both a scientific and policy/management
perspective - there is a growing chorus suggesting an imperative for greater understanding of this marine
mammal in the face of global climate-related changes. This project sought to work in the vein pioneered
by Fienup-Riordan’s (1986) work on Yup’ik subsistence patterns in the Yukon Delta region, in that it
sought to systematically analyze annual human and community adjustments to crucial subsistence
resource fluctuations. Previous local traditional knowledge (LTK) research on Little Diomede has
focused on the topics of population structure, ecological adaptation, and hunting boat crews (Ellana
2006). This work seeks to build off of those previous works by examining in greater depth the
considerations just noted above, by focusing on walrus, and by integrating in-depth linguistic research.

Our examination of human usage of walruses has the potential to enhance regional knowledge of
human/marine mammal relationships, walruses, climate change, and LTK throughout the Bering Strait
region. Equally, as noted above, even in light of the importance of walrus and the potential impacts of
dramatically reduced sea ice coverage, there is still limited bio-ecological work pertaining to walrus (see
e.g. Fay and Kelly 1980; Fay 1982; Fay et al. 1997; Sheffield et al. 2001; Sheffield and Grebmeier 2009).
A number of such works stressed implicitly or explicitly a need for better understandings in light of
concerns about the adaptability and survivability of Pacific walrus in the face of environmental changes
(especially in sea ice) linked to climate change (e.g. Bluhm and Gradinger 2008, Laidre et al. 2008, Ragen

The work of Robards and collaborators (2008, 2013) attended to factors involved in variation in walrus
harvest rates in Bering Strait communities and argued, particularly strongly in the case of Diomede and its
recent decrease in harvests, for the necessity of joining understandings of social factors alongside physical
ecological factors to better understand variability in harvest rates from year to year. Furthermore, the
work of Zdor et al. (2010) on Chukotkan indigenous LTK regarding walrus supports the argument that
LTK research on walrus can lend valuable information on human-walrus relationships and their
connections to environmental changes which speak to current scientific, management, and societal needs.

Following from this point, a second and not unrelated reason this project was initiated is that more work
is required towards the end of interfacing LTK and science. This has been a stated goal of the North
Pacific Research Board (NPRB) (2005). Using this information for educating wider audiences, such as
state and federal resource managers, is also crucial, given the dramatic changes occurring in the Bering
Strait which are bringing increased attention and non-Native human presence to the region. As Thornton and Manasfi argue, northern indigenous peoples are “on the front lines of climate change,” and are intimately engaged in adapting to environmental stresses and changes, as well as engaged in “shaping more just and efficacious national and international climate policies based on diverse but comparable local knowledge, cultural practices, and adaptation processes” (2010: 133). A review of some recent work in western walrus science, policy, and management processes strengthens the argument being presented here that a stronger interfacing of indigenous LTK with these processes is critically needed, as will be illustrated immediately below.

The 2011 US Fish and Wildlife Service (USFWS) Status Review for the consideration of a petition to list Pacific walrus as an endangered or threatened species and to designate critical habitat (and the subsequent finding of warranted but precluded status) illustrated the current level of concern about walrus in light of extant and potential environmental changes. It also, however, highlighted the limitations of pertinent current scientific knowledge, and revealed an inadequate consideration of the body of knowledge of the one group (i.e. Alaskan Inuit people) who has successfully coexisted with the marine mammal in question for thousands of years (Garlich-Miller et al. 2011, USFWS 2011). In addition to indigenous LTK and the long-standing history of indigenous stewardship of marine mammal resources being inadequately considered in the generation of these seminal documents, the panel of experts used in their creation did not include any traditional knowledge holders. Additionally, it was disconcerting to find the USFWS forwarding that, while “[t]he intensity of most stressors acting on the Pacific walrus population is driven primarily by projected changes in sea-ice over time,” “[f]rom a management standpoint, managing subsistence harvests for sustainability and reducing disturbance related mortalities at coastal haulouts are examples where mitigation is practical and likely to be effective. In contrast, mitigating the primary stressor associated with Factor A – greenhouse gas emissions – will require comprehensive international agreements (e.g. Huntington 2009)” (Garlich-Miller et al. 2011: 108). Additionally, the USFWS’ (2011) highlighting of other aspects of policy which impede their ability to focus more directly on the cause of the walrus-related concerns (greenhouse gas emissions) also make the attention paid to concerns over future subsistence harvests seem more a matter of convenience and/or a failure to adequately recognize the long-standing history of Inuit walrus stewardship rather than of sound and just science and policy.

Unfortunately this approach does not seem to be isolated. A recent work by a prominent figure in Pacific walrus management laid out a variety of potential future scenarios for Pacific walrus populations (MacCracken 2012). This work also turned a substantial amount of attention to the subsistence harvest
from a management perspective. Setting aside a number of scientific problems with the analysis, perhaps most concerning was the following statement:

The exemption of Alaskan Natives from hunting restrictions associated with the Marine Mammal Protection Act currently makes implementing western science-based harvest management practices problematic (Robards et al. 2009; USFWS 2011). However, Pacific walrus are a candidate for listing under the ESA [Endangered Species Act] and revising their status to threatened or endangered allows for the development of harvest quotas. Hunters in the Bering Strait region may be the last to perceive a walrus population decline because animals are concentrated within a relatively narrow corridor as they migrate through the region and changes in weather patterns are also limiting opportunities for hunters to observe population trends. (MacCracken 2012: 2085)

A suite of problems are evidenced in the western scientific, policy and management positions detailed above, some of which have just been noted. It should also be noted that the net result of these positions would be that the burden of conservation would be shifted to a people (i.e. Inuit walrus hunting communities) whose activities are not connected with the etiology of the inciting environmental problem (i.e. climate change), yet who ironically are the population with the long-standing history of stewardship of the resource of concern (i.e. walrus). Further, it is troubling that these positions rely so heavily on estimates of walrus population numbers and the effects of subsistence harvests on these population numbers, both of which lack evidentiary and methodological robustness. What precipitates appears to lean at best towards policy and management born of convenience whereby control is exerted upon people whose activities are disconnected from the etiology of the problem but who happen to have the least political power, and at worst a sort of ‘crisis politics’ where a critical situation is utilized to further a pre-existing, colonial management objective. What is lost here are both just and scientific avenues whereby indigenous LTK holders and their knowledge participate in the process. More robust understandings of Alaska Native subsistence culture and practices which could inform these scientific, policy and management discourses are missing. This includes, for example, alternative conceptualizations of human-animal relationships other than the ‘dismal’ western biological one (see also Sahlins 1996), as well as understandings of hunting communities as having sufficient knowledge and capacity to self-regulate walrus harvests (as is evidenced by their history of having done so, in the communications amongst hunting communities along the walrus migration routes, in their regular utilization of external sources of relevant information, etc.). Understandings like these could correct systemic problems in the western scientific, policy and management discourse, such as the overemphasis on one privileged way of knowing the world. There is little reason to accord, from a logical or evidentiary perspective, the power
which these western approaches are afforded in these processes. For example, they are, after all, cultural products of the same broader sociocultural forces and trajectories which created the potential crisis (i.e. climate change and its impacts) at hand, they lack the detailed in-situ knowledge of walrus behavior that their indigenous counterpart possesses, and they lack reliable understandings of walrus populations and distribution yet propose using these understandings to dramatic management effect.

The need to interface LTK with science, policy, and management appears to be as dire as the conditions driving decision-makers to seek that very same scientific research. When management, policy, and scientific processes fail to seriously take into account indigenous LTK and culture, the results may not only evidence incomplete analyses, and policy and management actions informed by them, but also a lack of a sense of justice and fairness in policy and management and even a derogation of indigenous people and their knowledge, rights, lifeways, and heritage of stewardship. This is one of the broader contexts in which this work, as a study of indigenous LTK related to walrus, is being conducted, and it is hoped the project can add to the remedying of the problems of that context.

Finally, a third reason this project was needed is that Little Diomede residents have expressed desires and concerns about the need to document their knowledge and native language related to walrus, as well as concerns about walrus and ongoing environmental changes, all with an awareness of a potentially limited window of opportunity for working with fluent Little Diomede Iñupiaq speakers. (In fact, unfortunately, four such speakers who participated in the project passed away prior to this report’s completion.) This project was needed to provide hunters and elders and opportunity to document and share their knowledge of walruses and their social, cultural, and economic value in contemporary life.

The project was designed to address these concerns by documenting, through a multidisciplinary approach, Little Diomede hunters’, elders’, and other experts’ local and traditional ecological and cultural knowledge of Pacific walrus, and to examine the cultural-ecological relationship between walruses and people to document a variety of changes and adjustments in both walrus and human populations over time. Among other things, this includes information about walrus abundance, health, and other biological and habitat information, usage of walrus on Little Diomede Island, significance of the resource, local management practices, and other information about the ways walrus remain crucial to the subsistence lifeways of the community. A more specific elaboration of the objectives of this project are detailed in the following section of this report. Some of the hypotheses and research questions which were initially suggested for this project included the following:
• Systematic collection of traditional information from residents of Little Diomede can provide information regarding Pacific walrus such as: distribution, abundance, and/or availability of walruses relative to ice conditions and time of year; overall health, and other indices to population status; food habits; changes over time to all of the aforementioned variables; and changes in historic harvest levels that may have been interconnected with changes in the socioeconomic conditions and subsistence lifeways of Little Diomede.

• What do hunters and elders know about walruses in the areas they encounter them?

• What can LTK highlight in regard to historical observations of walrus, hunting, environmental phenomena, the relationships and variability with and between these factors, and their interconnections with sociocultural adjustments?

• What are the linkages between recent, ongoing, and historical human community adjustments related to environmental and non-environmental variability?

Objectives

This project had two main objectives.

Objective 1

The first objective was to employ a multidisciplinary approach which would contribute to bio-ecological and anthropological knowledge of walrus, addressing both a need to supplement current limited knowledge about walrus as well as a need to interface LTK with scientific processes. Specifically, this objective was to be met through documentation and examination of human-walrus sociocultural and ecological relationships on Little Diomede Island, including an attention to changes and adjustments in this relationship and related variables over time.

To address this objective, project staff from multiple disciplines (anthropology, linguistics, archival research, and marine mammal biology) collected data from ethnographic and linguistic interviews with Diomede walrus experts as well as from archival sources. Additionally, relevant data from two other current Kawerak projects (on ice seals and walrus, and on ocean currents) were incorporated into this project’s data for analysis. In total, over 50 interviews from 19 experts conducted over a three-year period, in addition to the archival materials, were synthesized to produce this report. Extensive data was collected on the Little Diomede Iñupiaq Eskimo language related to walrus, on historical data relating to Diomede and walrus, and on information from contemporary experts relating to walrus abundance, health, behavior, habitat, migration, relationship to environment, hunting, uses, and their importance and integration into Iñalit society and culture.
In this report, data collected pertaining to these topical areas are discussed in detail in the Results section, and this material is analyzed and discussed in terms of key elements of its epistemic and social context in the Discussion section. Key contributions from this project’s work in this regard are: 1) the uniqueness of its synthesis of this particular data in one work, 2) the portrait provided of the ecology of change relating to walrus and Diomede presented herein, 3) the explication of the value of Diomede traditional knowledge relating to these topics for management, science, society, and our understanding of Diomede society, culture and history, and 4) the support this work provides for ongoing educational and cultural heritage activities in Diomede and the region as a whole. Implications and potential suggestions stemming from this analysis are discussed as well in the Management or Policy Implications section of this report, which highlights in particular the value of Diomede traditional knowledge to broader society, policy and management, science, existing knowledge, and the environment, as well as particular areas where this traditional knowledge and other issues addressed by Diomede experts have bearing on contemporary policy and management.

**Objective 2**

The second objective was to address Little Diomede residents’ desires and concerns about the need to document their knowledge relating to walrus, as well as concerns about walrus and environmental change (all of which was against a backdrop of a possibly limited window of opportunity for working with fluent Little Diomede Iñupiaq speakers). Additionally, the project also aimed to produce products which spoke to these concerns and were of value and utility to the study community and other region communities, e.g. for educational and cultural heritage purposes.

This objective was meant to dovetail with the first objective. That is, the documentation of Little Diomede LTK regarding walrus was intended to not only contribute to scientific knowledge and to interface LTK with science, but it was also intended to meet a community need for the documentation of such knowledge and the generation of materials of utility to the community with regard to this topic. The research design of the project was indeed based on interfacing LTK and scientific knowledge through a multidisciplinary approach grounded in a strong relationship with the participating study community. As such, the means by which Objective 1 were met are also relevant to how Objective 2 was met. Through ethnographic and linguistic interviews, knowledge about Little Diomede human-walrus relationships was documented in both English and Iñupiaq. Additionally, archival research was conducted which resulted in the collection of historical information related to these Little Diomede human-walrus relationships. The results of all of this data collection - ethnographic, linguistic, and archival - are discussed at length further below.
Additionally, the educational and outreach components of this objective were also met through a number of means. All of the data collected for this project has been systematically organized, consolidated and delivered to the Eskimo Heritage Program (housed at Kawerak, Incorporated in Nome) for the long-term benefit of the region. Two community meetings were also conducted in Little Diomede to discuss the project and to solicit community feedback on the work, as well as a community meeting with Iñarlit living in Nome. Additionally, the three appendices to this report include three products in addition to the main body of this report which are anticipated to be of significant community value. The first is a glossary of Little Diomede Iñupiaq walrus-related terms assembled through the linguistic work conducted for this project. The second is a guide to methods for walrus preparation (for consumption) as elicited in the ethnographic interviewing with a Little Diomede resident who was an expert in these matters. Finally, the third is a poster which the Native Village of Diomede may display in public places which illustrates the importance of walrus to the village, drawn from information collected in this project. Additionally, the first two appendices are being made into a separate booklet. This final report and the booklet are being distributed to every household in Diomede as well as to the Native Village of Diomede (tribal council), Diomede school, and each of the other region’s tribal councils and schools. The poster is being distributed to the Native Village of Diomede and the Diomede school. The report, booklet, and poster will also be available to the general public on the Kawerak Social Science Program’s website at http://www.kawerak.org/socialsci.html.

Methods

This project was conducted with the prior consent of the Native Village of Diomede Tribal Council as well as individual project participants. A letter of informed consent was sent to the Tribal Council requesting permission to conduct the research via tribal governing resolution, and a resolution was received from the Tribal Council. A list of experts was solicited from the Tribal Council for possible participation in the project as interviewees. Participation in the research was completely voluntary; individuals were given the opportunity to decline to participate without negative consequence, or to decline to continue participation at any time during the research. Each interview participant signed a written consent form prior to their participation in the project. Honorariums were paid to interview participants and door prizes awarded to participants in community meetings.

Archival research was conducted at Kawerak’s Eskimo Heritage Program in Nome, Alaska. These archives contain audio, video, and written records on each community in the Bering Strait region which Kawerak serves. Research was conducted on these archives by Kawerak staff for materials relating to walrus and Diomede.
Linguistic interviews were conducted by Dr. Lawrence Kaplan (a linguist and specialist in Inupiaq Eskimo research), and also by Eva Menadelook (former Eskimo Heritage Program Specialist) and Gay Sheffield (marine mammal biologist, currently with the University of Alaska Fairbanks SeaGrant Program’s Marine Advisory Program). Fifteen interviews were conducted with nine Diomede language experts on Little Diomede Island and in Nome over a three-year period. Kawerak Social Science Program intern Meghan Topkok worked with Dr. Kaplan to produce Appendix 1 of this report, a glossary of Little Diomede Inupiaq walrus-related terms.

Semi-structured ethnographic interviews were conducted by Brenden Raymond-Yakoubian (anthropological contractor to Kawerak), Eva Menadelook and Gay Sheffield. These interviews were conducted over a three-year period, and included two separate trips to Little Diomede as well as interviews with current or former Little Diomede residents living in Nome. A total of 21 ethnographic interviews were conducted with 15 different experts under this project’s activities. All of this project’s interviewees were either adults or elders. Eleven interviewees were men and four were women.

Interview topics included walrus health, behavior, population, habitat, relationship to environmental factors and elements, walrus hunting processes, hunt timing and location, hunt abundance, hunting challenges, uses of walrus, preparation and storage of walrus-related products, gender differences in involvement with walrus, the teaching of local practices to young people, stories about walrus and walrus-related topics, walrus-related rules and taboos, community activities related to walrus and walrus hunting, views on walrus-related policy and management, and the importance and significance of walrus and walrus hunting to Diomede people.

Two other current Kawerak Social Science Program projects contributed data to this project: the Community-Based Documentation of Ice Seals and Walrus project, and the Indigenous Knowledge and Use of Ocean Currents in the Bering Strait project. Seventeen ethnographic and mapping interviews conducted by four Kawerak Social Science Program staff with 13 experts involved in these other Kawerak projects contributed data to this project.

Two community meetings were held in Diomede, one in 2012 and one in 2014, as well as one meeting in Nome in 2014, to solicit community feedback on project research, its progress, and its products. The feedback from the Tribal Council, community, and from participants in the project has been incorporated into all final products for this project. In total, over 50 ethnographic, mapping, and linguistic interviews with 19 experts during the course of three social science projects contributed to the data which is presented in this report.
Data analysis was conducted through the creation of codes, based on interview guides and interview content, and the coding of the data collected for the project through ethnographic, linguistic, and archival research. This data was organized by code, summaries were created for topics of data discussion and analysis, and the data was finally synthesized and analyzed to produce the project’s report, which was reviewed by project staff, other Kawerak staff, the Diomede Tribal Council, and project participants, with appropriate revisions being made in light of these reviews.

Results

Spatiotemporally (and especially spatially) specific data and discussion will not be addressed in detail below, as this type of data is a main focus of two other ongoing Kawerak projects: the Community-Based Documentation of Ice Seals and Walrus project, and the Indigenous Knowledge and Use of Ocean Currents in the Bering Strait project. Therefore, for example, specific locations, routes, migration timing, habitat locations, harvest locations, walrus feeding locations, ice movement, ocean current locations, and so on - and their spatiotemporal interconnections - will not be discussed in great detail below, and the reader is referred to the products from these other related projects for this information (see e.g. Kawerak 2013a, 2013b, 2013c, 2013d, Oceana and Kawerak 2014, and J. Raymond-Yakoubian et al. 2014).

Differentiating Walrus

A number of differentiations amongst walrus were identified by project participants. Pacific and Atlantic walrus were identified as two separate kinds of walrus. The walruses which are on the Russian and Alaskan sides of the Bering Strait were identified as the same; one interviewee stated that the walrus which Canadian hunters harvest are smaller.

In terms of Pacific walrus, the walrus with which Iŋalit interact, a number of further distinctions are acknowledged as well. Gender and age delineations with the most importance ascribe differences between males and females, baby walruses (calves), mothers, pregnant females, young females and young bulls with small tusks.

One key distinction amongst the Pacific walrus population made by interviewees was to distinguish “green palms” (or “green flippers”) walrus from others. These walruses have green flippers (and some also noted green lips), which was largely attributed to their having spent a substantial period of time on rocks with algae. These walrus were seen as participating in a separate, later migration from the other Pacific walrus which pass by Diomede with the ice (and water) going north in the spring. The location of the primary southern habitat of these green-palmed walruses was variously speculated on as being Round
Island, the Aleutian Islands, the Pribiloff Islands, or an island or islands in the vicinity of one of those areas. Some interviewees noted, however, that they are the same kind of walrus as the others, and one said they even taste the same. Some interviewees identified them as being larger than the walrus which migrate earlier in the spring with the ice, and while two interviewees suggested they were not seen anymore or as regularly anymore, others seemed to indicate they are still a regular feature of the annual migration past Diomede.

A number of interviewees also singled out walrus which kill and eat seals as an important subtype of walrus. Some interviewees identified these walrus as being larger, even much larger, than other walruses, and as having tusks stained yellow from the seal oil. A number of interviewees discussed that these walruses somehow cut the seals’ skins in a manner which looked like cuts from a knife. Some participants suggested that Iñalit did not hunt these walrus, but others did not seem to agree.

Walrus Population

Many interviewees expressed the view that Iñalit are seeing less walrus now than in the past. However, it is unclear what this is seen as being indicative of. With a number of interviewees, it is not clear which view they hold on this matter, if they hold one at all. Additionally, a number of possible explanations are suggested by other interviewee responses, such as:

- The possibility that the total walrus population has decreased, e.g.: “[T]here’s less walrus man, I know that” (Iyapana 2012b).
- The population has moved to other areas, e.g.: “This year, well I guess because of the ice condition now [...] maybe, maybe they go over on Russia side but not too much over on this side because of the [ocean] current pattern.” (E. Soolook 2012b).
- Environmental variability leading to a perceptual change: “Or not mean less but it’s just, maybe that’s why the weather’s always bad too and they’re traveling in the bad weather and they’re already traveling up north or they’re already down south.” (E. Soolook 2012b)
- Population density has changed, e.g.: “The herds at this time seem to have lessened” (A. Kunayak and G. Iyahuk 2012b)
- Changes in hunter behavior, e.g.: “Andrew: Now, as I think of it; at this time, it seems as though the walrus herds are less around Little Diomede. Those who hunt do not give reports of seeing walrus on scattered ice at this time. Glen: Because they don’t boat [around the island].” (A. Kunayak and G. Iyahuk 2012b)
- Multiple causes are involved, e.g.: “Interviewer: Do you think they’re dying? I mean that there’s just less of them or they’re in different places? Jerry: Both.” (Iyapana 2012b)
As will be discussed later, a number of interviewees detailed changes to the ice conditions that have been observed in the lifetime of Diomede hunters, such as the ice becoming thinner, there being much less old, thick ice and large icebergs now and more young ice, that (young) ice crumples up now more than ice did in the past, and that ice is coming later and breaking up sooner. And, as many interviewees noted, walrus and ice conditions are intimately linked. A number of experts also drew connections between walrus populations and ice conditions.

It was frequently noted by interviewees that herd size has decreased over the lifetimes of hunters. It appears to have been common in the past to see much larger herds of walrus on the old, thick, large ice, and that owing to a dramatic decrease in this type of ice, the herds of walruses are fewer in number and/or size. Additionally, other stories were recounted of very large, seemingly endless, herds of walrus being seen - including in the water - passing near Little Diomede, that simply are not seen in more recent times.

For some, these changes to ice conditions are an ominous portent: “Pretty soon there’ll be no more walrus” (A. Ahkinga 2012). For others, however, things are not so bleak:

Patrick: Our resources, the walrus, will never be gone or finished. The white people say the ice is melting. Right now, at this time, we are not concerned or worried about the walrus. The walrus will not be gone for, maybe, for so many years. For future generations it may be different. The people that are making decisions about walruses and the regulations are just hurting the Eskimos that depend on the walrus for food. These people who make our regulations have their food from the land. For us it is hard. Just like the walrus will never be gone. There is lots of it right now. James: There is lots of it right now. Patrick: Right now there is lots of walrus. It will never be gone. James: Long time ago there was thousands of them. Patrick: Also the polar bear. The ice, the white people are concerned about this, at this time it is not a hardship. James: White people are too concerned about the ice, but it will not melt right now. It will not melt for so many years yet. And the walrus will never be gone. We grow up with it. It will never be gone. The walrus meat hasn’t really changed. The tusk is also used for carving and traded at the store because we didn’t have any food stamps, welfare, and they didn’t have any jobs. Also for centuries the walrus was our food on the island. (P. Omiak and J. Omiak 2010a)

Walrus Behavior and Interaction with the Environment

This subsection covers a large array of data, including: walrus personhood and other behavioral characteristics; walrus sociality (amongst walruses, between walruses and humans, and between walruses
and other animals); walrus, ice, currents, weather, and climate; walrus migration; walrus and haulouts; walrus and other habitat considerations; walrus diet and feeding.

**Walrus Personhood and Other Behavioral Characteristics**

One important observation that came out of the research for this project is that amongst Injil people there are views about the nature and behavior of walrus that are markedly in contrast to western views. There are also views which are similar to western views. For example, some interviewees described walrus in ways that can be considered as constituting personhood. Additionally, it seems that there may be varying definitions of what constitutes “behavior,” some of which may be at odds with standard western definitions used either explicitly or implicitly in biological research. This strongly suggests that western walrus researchers should be attuned to these issues as they highlight ways in which particular cultural beliefs and assumptions underlie analyses, and call for a critical and reflexive understanding of these beliefs and assumptions and their impact on these analyses (e.g. on their “objectivity” and truth value).

Interviewees who discussed the matter explicitly seemed split over whether walrus behavior has changed. Two interviewees felt that it had. One interviewee noted that walrus do not come around like they used to, and are afraid, either because perhaps they may want to be on their own, or because of changes in the marine environment. Another interviewee noted that you used to see walrus playing around but not now (though he said this may be because of weather and people simply not being able to see it now); he also stated that they look more tired now, and some are quite pale; some tired walrus will just stay in the current to keep themselves afloat. One elder stated that their behavior had not changed, and that they behave now as they did in the past. Two other elders also held this belief, as noted in this excerpt from a joint interview:

Patrick: The behavior of the walrus has not changed to my knowledge. James: It will not change. Patrick: The behavior has not changed. James: It will not change. Patrick: Only the ice and current. It is due to the current. James: The weather has changed. (P. Omiak and J. Omiak 2010a)

Interviewees were also split as to whether they believed walrus were similar to human beings. One noted that they were like people, but more aggressive; he also said they have spirits and feelings. Another interviewee stated that animals can sense things, have feelings (he had seen them cry as well), and know more than people give them credit for; he stated that his grandfather told him to have respect for animals. Two other interviewees noted that they were not like people and were different, and another stated that they had their own way of life, though he was not sure if it was similar to that of humans.
All interviewees who commented on the matter stated that walrus were smart. Two who stated this also noted, however, that walrus do not know or are not aware of what humans are doing. A number of interviewees, however, did expand on some things they felt walrus were knowledgeable about. One stated that walrus may know if people are being wasteful, and if so would come around less. Another stated that walrus know if another walrus gets killed or hurt, that they can sense when they will die, that they can sense if a hunter is thinking too much about their prey (or are being greedy) or if they are not being that way, and that walrus will come to a hunter if you are just being natural; he was of the view that animals give themselves to the hunter. Another interviewee concurred with the view that walrus give themselves to hunters, saying they make a decision to do that. One interviewee stated that walrus have knowledge of human behavior; they are able to tell the difference between polar bears and humans. One hunter noted that walrus would not know if a hunter was wasteful, but that a wasteful or disrespectful hunter might find less success (when pressed for a reason, he argued that there is more to this world than we can see). When asked, an elder was also of the view that walrus would not know if hunters had been wasteful; he also stated that only whales give themselves to hunters, not walrus. Two other elders noted that walrus know things, and one noted that you cannot “play around” with them.

Some other characteristics and behavior pertaining to walrus which were noted by interviewees was the view that they have good senses of smell and hearing but poor eyesight, and that they scare easily and are sensitive to noise. Their good sense of smell dictates particular hunting strategies to avoid being detected. One interviewee noted that walrus have breathing holes like seals. Two interviewees discussed walrus who cry, wipe their eyes, and call out (these are to be left alone), walrus that lay on their backs, and walrus that dance (they have a dance, and they are to be left alone when dancing); walrus who click their teeth, which they will do loudly, are also to be left alone.

Walrus Sociality

Two elders stated that walrus have their calves in May and June, on the ice. One hunter noted that this takes place where there is no danger; this hunter also guessed that walrus mated in February before migrating south. Another hunter noted that when walruses hear mating sounds, they turn upside down, clatter their teeth, and make a sound from inside their air sac.

In terms of interactions with humans, a number of interviewees pointed out that young walrus (young bulls in particular were sometimes singled out) with small tusks are aggressive. It was stated that they guard the herd, mothers, and the elderly; that they will act as a lookout and alert the herd if they sense hunters; that they will attack hunters’ boats; and that they will continue to attack even when shot at, only
stopping when killed. Other interviewees noted that you could put a paddle into the water alongside the boat and this will scare off walruses, as they believe it to be a killer whale. One interviewee noted that female walruses may also attack boats. It was also noted that when in a group, females will protect all the young walruses. One interviewee stated that you should leave walruses alone when there are too many in the water, as that was a dangerous situation. One elder also noted that walruses who were up north would come down off the ice when shot at, but would always climb back up when the shooting stopped; it only happens with walrus up north, and he did not know why.

Some walrus are carnivorous and will eat seals; these walrus have yellow tusks from the seal oil. They are also able to cut the skin of the seal very thin. A number of interviewees discussed how killer whales will attack walrus, and that walrus are afraid of them. Walrus will flee killer whales and will even climb out onto land to escape. Igaliit have traditionally been told by their elders to not disturb killer whales, and that if they do not disturb them, the killer whales will give people a share of their catch; if, however, one hurt or killed them, the killer whales will go after the person who did that.

*Ice, Currents, Wind, Weather, Climate*

The relationships between walrus, walrus hunting, and ice, ocean current, wind, weather and climate phenomena and systems are clearly highly interlinked based on the information received from project interviewees. Systemic historical changes are also evident and significant amongst these interconnections.

Interviewees conveyed numerous aspects of the importance of ice to walrus. Calves are born in May and June on thick ice, and breeding occurs near older, thick ice as well. Most interviewees stressed how crucial ice was as habitat for walrus - for example, that walrus preferred to be on the ice to being in the water, that walrus needed large, thick, dense ice to haul out on to rest (and even moreso in large numbers), and as an integral part of the system of ice and currents on and with which walrus migrate. However, it was also noted, to a lesser degree, how walrus can and do live and survive (to varying extents) without ice; one interviewee even forwarded the argument that walrus would be able to manage without ice as they are very adaptable.

Interviewees consistently noted that the ice conditions have changed substantially within the past 50 or so years. The ice is thinner now, and melts, breaks up, and goes away sooner and/or quicker, and is also less stable. The ice now is almost entirely ‘young ice’ as opposed to old, thick, dense ice. Young ice is formed more by the colder conditions of the particular winter season. Old ice used to be thicker and
could form into large ice cakes and icebergs. Old ice could also have a blue color because it contained freshwater (which could be used for drinking). This thick ice was capable of supporting large numbers of walrus; this is not reported to be seen much if at all anymore. Walrus will still go up on good ice if they are able to find it, and were reported to also be seen on tall ice as well.

Alois: There is no more ice that has water in it anymore. James: The ice has changed.
There is no more good ice. Alois: Yes, yes. The world has changed. (P. Omiak et al. 2010b)

It was noted that the spring break-up of ice is occurring much sooner and/or quicker now. Walrus were noted to be around and migrating northwards earlier and quicker during the spring; this also has effects on the timing of the spring hunt. Spring walrus were reported as being seen near Diomede as early as February, and June hunting was reported as being nearly a thing of the past. The normal period, at least in the past, for the spring migration was between April and June, mainly in May. Additionally, it was noted that walrus appear to be migrating through different areas than in the past, and that people have to go further to harvest walrus than they used to. Most of the data, though not all, seems to point to a view of the fall/winter freeze-up happening later and possibly the ice moving southward later as well. Most of the data (though not all) also indicates the view that walrus are, however, migrating south in the fall sooner than in the past, as early as August (in the past, it appears the most normal time was October), though the range of times given varied quite widely from August to December.

A number of interviewees pointed out that changing ice conditions have made hunting more difficult. It is important to note that, in regard to ice conditions as well as the other environmental factors discussed in this section, there was variability in the responses of project interviewees and, additionally, several interviewees noted that there was variability (sometimes patterned) in one or more conditions from year to year.

As one interviewee noted, changing ice conditions may play a role in assessing population numbers. As will be demonstrated throughout this report, there were varying views forwarded by study interviewees on walrus population numbers (whether or not they are decreasing, and what any changes - if any - in visible numbers are caused by - e.g. real declines, populations moving to other areas, changing hunting practices, etc.), and the conditions of the ice - and changes to it - are one key environmental factor among others (e.g. changes in weather) impacting any such assessments. For example, the possibility that apparent lower walrus numbers could be explained at least in part to walrus being more dispersed as a result of the diminishing amount of thick ice cakes (which used to support large numbers of walrus) was mentioned by
a number of interviewees in this project and a concurrent Kawerak project (J. Raymond-Yakoubian at al. 2014).

Ice conditions, then, are quite important for walrus and walrus hunting in the views of study interviewees. One local expert succinctly noted broader ice-related conditions and factors and their bearing on subsistence in general:

Frances: [I]t seems like later now with our ice, we don’t get ice as early as October any more. It’s later now and it goes away - from what I see the past few years - a lot sooner. And the pattern of the ice too has some effects with our subsistence. How it comes in, is it young, is it old […]. Sometimes it’s hard for them to go and get seals due to our ice conditions. Is it gonna be safe enough. [A] lot of the elders do relate … we don’t got that older ice anymore, with the icebergs. Lot of the young ice form here and thickens, so it’s not as strong as the one we get from up north. We do see them from up north, they just … the current takes them down south and it’s back up again, goes back and forth, before it gets stuck here in Diomede. But not all of it’s … most of it’s young ice. Interviewer: And how does that affect the animals or the hunters? Frances: It makes a big change, depending on how it comes in and how it’s formed due to the weather. It’s gotta be cold. The current … is the current strong or weak. ‘Cause we have different ice pressure buildups every year. We expect them, you know, to be similar but it’s always been changing. Since I recall, and I’ve been here for a while. (Ozenna 2011b)

The above comment, among other things, also points to the importance of considering the interrelationships between the ice system and other environmental systems, a fact that a number of interviewees addressed. In particular, ice, ocean currents, wind, weather and climate were understood as being highly interlinked in terms of the lives of walrus and the conduct of walrus hunting. A number of interviewees highlighted the importance of knowing about wind relating to the movement of ice, game, and the conduct of subsistence activities. For example, one study participant noted that a west and southwest current will bring the ice, and thus the game, over towards Diomede. Changes between systems are also interlinked; for example, one study participant noted that “[the ice is now] thinner. Don’t see real big icebergs no more like I used to when I was a kid. And the ice used to be flat a lot because the weather was more steady north wind” (Iyapana 2011).

Weather patterns and broader climatic changes were linked by interviewees to these other factors as well. In general, a number of interviewees noted that another significant general trend along with thinning and
more rapidly melting sea ice within the past 50 years has been substantially worsening, more rapidly
crunching and increasingly unpredictable weather, which can significantly impair subsistence activities, 
decreasing the number of days during which hunting can take place and the length of time out on the 
ocean a hunt can last, reducing the visibility of ocean conditions, changing the calculus about where 
hunters may travel and how they must spend their time and focus their attention when out hunting, and 
increasing safety concerns for hunting activities. One interviewee noted that marine mammals have 
knowledge about the weather, and another study participant stated that the walrus, in the changes 
evidenced through them, are “telling us something now. They’re telling us. Earth is changing. They’ll 
tell you. The animals will tell you. You just gotta listen. [...] You gotta listen real careful” (J. Ahkvaluk 
2011). This interviewee also noted the possibility that walrus were confused by changing ice conditions. 
Additionally, an interviewee in a concurrent Kawerak project on indigenous knowledge and use of ocean 
currents (J. Raymond-Yakoubian et al. 2014) also noted that perhaps the changing abundance of walrus 
near Wales (where this interviewee is from) owes to walrus themselves being confused by changes to the 
weather.

While some interviewees noted caveats to the above-discussed patterns, such as year-to-year fluctuations 
in environmental patterns, the patterns discussed above appeared to have been held by experts consulted 
on these matters for this study. A number of interviewees connected changes in several of the above- 
noted systems - including ice behavior and walrus habitat and migration - to global warming. Another 
interviewee, when asked what was causing the changes to ice and ocean currents he had mentioned, stated 
that it was caused by “[p]eople. We’re the guilty ones. People. Too many” (Ahkinga and Ahkvaluk 2012).

This brings us to the fourth major environmental factor discussed by project participants with regard to 
walrus and walrus hunting alongside ice, weather/climate, and wind, and that is ocean currents, which 
were discussed perhaps the most of all other factors in their connection to the ice. One interviewee noted 
that “[w]hatever is out there, it [...] impacts us, hunting-wise. That’s why we rely on the currents, we rely 
on the wind, the weather. We see how it looks at first” (R. Soolook 2012a). Ocean currents and ice 
movements were described as the two environmental pathways - most often together, though potentially 
separately (e.g. in the case of walrus traveling in the absence of ice) - crucial to walrus migration. The 
relationship of ocean currents to the migration of walrus was described in ways indicating interviewees 
saw it as important to walrus on the whole as ice is. The migration of the marine mammals Diomede 
encounters is seen as happening with the currents and the ice (though, as noted earlier, it may occur 
somewhat independently of the ice given that walrus can swim for quite a ways without ice). It was also
noted that walrus will use ocean currents as areas for feeding. Currents also factor into walrus hunting decisions as well, such as in understanding where game will be, what areas to avoid, and how and whether to use and navigate particular currents in boats during harvest activities. Most interviewees noted that the ocean currents had changed over the years; some argued they were moving faster, others stated they were dying, and still others simply noted that they had changed their behavior from earlier times. As noted earlier, Kawerak has conducted a separate extensive study on indigenous knowledge and use of ocean currents in the Bering Strait region, and Diomede was one of the participating communities in that study (J. Raymond-Yakoubian et al. 2014).

**Walrus Migration**

A concurrent Kawerak project on ice seals and walrus included research with Diomede and contains more detailed information pertaining to walrus migration than that which was focused on for this project; the reader is encouraged to pursue that project’s material if interested in this topic (e.g. Kawerak 2013b, Oceana and Kawerak 2014).

There are two separate migrating populations of walrus which constitute the migration that passes by Diomede traveling north in the spring and south in the fall. The first group in the spring comes up with the northerly-moving ice. The walruses which have green flippers are the last group in the spring, coming after the others, at the end of the spring migration. There was not as much discussion amongst interviewees of the order of migration of green palms in the southward fall migration in comparison to the other walrus group, though one interviewee indicated that the green palms were the first to migrate south in the fall.

The spring walrus migration of walrus heading north would normally run from late April through June. However, interviewees indicated this timing was changing to earlier and/or quicker. This change is an apparent accompaniment to the changes in ice break-up, which was reported to similarly be happening earlier and/or quicker in the spring. It was noted that June hunting is essentially a thing of the past now, and that walrus had recently been harvested as early as February and March. The order of the migrating animals are generally whales, seals, and walrus (though seals can migrate both before and after walrus). Of the walrus, females with calves come up first, sometimes with some males interspersed, followed by the males. The order is repeated during the fall, when walrus head south. Hunters did not report seeing calving, and it was stated to occur prior to and away from the migration through their hunting area; one interviewee noted that umbilical cords were still present when they were out on the spring hunt. Most, though not all, of the data used for this project indicates that hunters felt that the southward movement of
ice, and the period of freeze-up, were coming later in the fall/winter than in the past, while the southward migration of walruses was coming earlier. A range of August to December was given for the current migration period (with a slight favoring of August, September, and October), whereas in the past the data appears to indicate October was the norm for the migration of walrus past the Iñgalit hunting area. This migration occurs ahead of freeze-up.

Walrus migration was reported to be associated with the movement of ice, and perhaps even more importantly and necessarily, tied to the flow of ocean currents. Walrus will migrate on the ice, in the water, and both in the presence of ice as well as without ice. In the spring, walrus mainly migrate with and after the northerly-moving ice, and in the fall, walrus mainly migrate before and with the southerly-moving ice and ahead of freeze-up. It was suggested by a number of interviewees that walrus are migrating through different areas than they used to be, perhaps as a result of changing ice conditions. Additionally, wind patterns are highly important in terms of where walrus migrate; wind can push ice in particular directions and also change the direction of ocean currents.

Herds that are migrating currently appear to be less numerous, as has been indicated elsewhere. There is no set pattern to the migration, as walrus follow the currents and ice. Walrus migrate throughout the span of the Strait. Interviewees had varying opinions about whether walrus were around in winter, ranging from answers of ‘no’ to ‘rarely’ to ‘currently but not in the past’. Some walruses do stay around in the summer, and will haul out regularly on Big Diomede, for example; it was suggested that it was mostly bulls who stayed around in the summer, but that in the winter the walruses which were seen could be bulls, females, or calves. One interviewee also stated that it appeared walruses knew about the international border, using it for protection from being hunted.

Hauling Out, and Other Habitat Notes

A number of observations pertaining to haulouts were made by project interviewees:

- During times when they are hauled out, walrus will also make forays into the sea for feeding.
- Hauling out gives walruses an opportunity to rest.
- Walruses will haul out when killer whales come around.
- Walruses can climb up quite high on the land.
- Little Diomede regularly has haulouts, but one interviewee noted that it had recently occurred two years in a row, the only time which this had occurred in her memory.
- Diomede people will generally leave walruses alone when they are hauled out.
• Walruses regularly haul out on Big Diomede in the summer every year, though one interviewee indicated that this only started in the past 50 years or less and that it did not used to be a haulout location.

• One elder indicated that their ancestors had told them in the qagri (a traditional Eskimo community house) that walrus would climb onto the land when there is no ice.

• Walrus will haul out on Fairway Rock, but this is more infrequent than hauling out on Little or Big Diomede Islands.

• Some interviewees said that walrus haulout locations have changed, whereas others said the opposite or did not note anything regarding this either way.

• There can be a lot of walrus in the water when there is a haulout.

• There may be an increase or change of hauling out activities on Little Diomede more recently.

More detailed information about haulout locations was documented in a concurrent Kawerak project on ice seals and walrus, a project which included Diomede (Kawerak 2013b).

It was indicated that walrus can be seen at any time of year around Little Diomede. Walrus staying around the area in the summer may have been left behind from the spring migration, and may be mostly bulls, and there may be more now than in previous times. Most walrus go up north in the summer. Additionally, there may be more walrus being seen more recently in the winter (the vast majority of walrus having gone south during the winter); it is unclear whether, if this is the case, this owes more to an increased occupation of this area during this time or to earlier migration of animals during the traditionally spring migration north. One interviewee indicated that those which are being seen in winter are mostly bulls. Several interviewees indicated changing peri-Island patterns between sex and spatiotemporal distributions, though there was insufficient data and consistency on this matter to make firm pronouncements.

Diet and Feeding

Clams were identified by all respondents as the main food source for walrus. While some interviewees stated that clams were the walrus’ only food source, most stated that clams are simply the main food source, and some noted other food sources in addition. One interviewee noted that while walruses mainly eat clams, they will eat whatever they can find. A number of interviewees noted that some walrus eat seals. One interviewee stated that he has found a number of things in the walrus stomach other than clams (including a few sea peaches), but did not know what they all are. Another interviewee noted that they also seem to eat small rocks. One interviewee noted that the walrus he catches from around the
Diomede area have in more recent times had nothing in their stomachs, which was a change from in the
1960s and 1970s.

One hunter noted that the walrus go with the ice and will feed at the same time, and that they are
continuously feeding. Interviewees discussed a number of areas near Little and Big Diomede islands that
they have noticed walrus utilize for feeding on clams (see also Kawerak 2013b). As one hunter noted,
clams prefer the sand to boulders, so walrus can be found feeding wherever the sand is. Feeding areas
were seen as predicated on being clam habitat. Walrus will also rest on the Diomede islands and feed on
the clams in the nearby areas. Two types of clams were identified around Little Diomede which walrus
feed on.

An important point to note is that the clams from walrus stomachs are considered an important
subsistence item for Injaliit. People will get the clams from the stomach, which are not yet digested, and
then are able to eat these clams themselves. One is supposed to be careful in removing the stomach so as
to avoid punching a hole through it for this reason, according to one elder. Some interviewees seemed to
suggest that one would see more clams in walruses caught in the spring than the fall.

Most interviewees did not identify any changes in walrus diet or feeding areas over time. However, one
respondent said he had heard that they are eating smaller clams now compared to before, and that there
has been a large decline in the number of clams. Another interviewer said walrus are feeding in different
places now. And another interviewee posited that the ocean currents were dying, and that this spelled
trouble for animals which Injaliit hunt; the currents, he argued, provided food for these animals, so without
the currents, there would no longer be food.

Walrus Health

One elder who last hunted in Diomede in the early 1950s reported that he had never seen any sick walrus,
and another elder who lives on Diomede stated that walrus health had been the same over his lifetime, and
that he had not seen any sick walrus.

However, some other interviewees noted that they have seen some levels of sickness amongst the walrus
population. One hunter, while noting that he had not seen much in the way of changes to walrus health
over his lifetime, did note that it was now being said that walrus were getting the disease problems that
bearded seals have been having (see also Garlich-Miller et al. 2012, NOAA and USFWS 2012). They are
getting little lumps on the flippers. A hunter would not know until after he shoots the walrus; in these
cases, they would not eat the meat, and would send samples in for testing, when possible. Another hunter stated that, once in a while, they would encounter a sick walrus, but that it is rare. In these cases, only the ivory could be salvaged because one does not know what is in the meat. A hunter is able to determine the health of the walrus by visual inspection (see also Gadamus 2013). The fatness of the blubber and the color of the skin (which can range from pink-reddish to brownish-reddish) are indicators of health. In addition to thin blubber and being skinny, a walrus having lesions or sores around the tusk area and cheeks would be a sign of sickness. Two hunters stated that they had noticed some walruses that are thin. Another interviewee noted that he had not heard of reports of sick or diseased walrus, but that he told hunters if they saw such a thing to turn in samples to the Alaska Department of Fish and Game. He noted that previous testing had been done on samples and had turned up mercury in walrus liver and cadmium in walrus kidney (see also USFWS 1994: 23, Garlich-Miller et al. 2011: 62-66). One hunter noted that some walruses, seals, and bearded seals are sick, and that you cannot touch them, and have to throw it all away if you get such an animal. He felt this was a big change, and that more diseases were being seen on these animals now. You could see lumps on the neck, chest area, or inside the body, eyes with pus, discoloration, or detect a rotten smell in sick animals.

Hunt Abundance

Diomede has endured marked declines in walrus hunt abundance within the last 25 years. Robards and colleagues (2008, 2013) have discussed this dramatic reduction in both overall catch and per-capita catch rate on Diomede within the last two environmental regimes dating back to 1989, though they attribute the decline primarily to changing societal factors. The weight of this decline in hunt abundance is evident in Diomede; indeed, a photocopy of a table with walrus harvest results from 1989 to 2011 (from a recent report) on which this dramatic decline is illustrated is on full display in the Diomede Community Hall. One hunter noted that only 12 walrus were taken in 2012 (another indicated it was an even lower number), and none at all in the spring, which may have been the first time ever for the latter occurrence (another hunter said that only a few had been harvested that spring). The spring hunt appeared to be identified as the most important season for the walrus hunt for Diomede.

Interviewees indicated that hunt abundance has decreased. One hunter noted that the trend has been less and less harvest over time, and another argued that it seemed like it was the past five years where people were getting less walrus. While one interviewee stated that people are able to harvest what they need now, and another noted that hunting seasonality has changed because people are able to procure non-subsistence foods now, another local expert on walrus preparation indicated that the hunt is not as abundant currently as the community would like it to be:
Our hunt now is not as abundant as we’d like it to be. Especially when we ran out of food in Diomede last fall, and that spring, the ones that did collect the food, really benefit from it. But it was still not enough. But it, you know, if there was maybe a dozen more walrus and a dozen more ugruks, would’ve made a difference. (F. Ozenna 2011b)

For this study, the most common cause attributed to decreased hunt abundance by interviewees was weather. One interviewee noted that the weather is bad now, changes quickly, and is unpredictable, and this means people do not get to hunt as much. One hunter suggested that perhaps it was bad weather in the most recent spring which had caused the very low harvest numbers for that season. Another interviewee held the same view, but also added that hunters are not currently getting as much as they theoretically could be. One hunter suggested a number of sociocultural changes as possible causes of decreased hunt abundance, including changes in dietary practices, lack of interest, tradition not being perpetuated, and a preoccupation with technologies such as computers, television, and other electronics. This hunter also suggested that people are seeing less walrus now because they go out to hunt less, and put in less effort, though noted that walrus may also be using the ice differently now than in the past.

Two interviewees suggested that the shift to a decline in hunt abundance could be attributed to a significant degree to the involvement of “Fish and Game” [the phrase “Fish and Game” is often used by region residents to refer to numerous state and federal resource management agencies, so it is not clear who specifically was being referred to by this interviewee] during his lifetime. One hunter provided a more lengthy list of possible causes:

Weather, ice condition, people not preparing to go right away or you know, making trails is a lot of hard work through the ice and not many people are willing to do that in the storm while it’s cold and whatnot. But a good hunter and his crew would always try to make the best effort, find a way to get out there. But yeah, we do have, we do have game that are all over though. (R. Soolook 2012b)

Hunting Walrus

This section is a discussion of results relating to Inalit hunting rules and safety, hunting technology, hunt timing and location, and information on how walrus are hunted.

Rules, Safety, and How Walrus are Hunted

With regard to hunting safety, rules, and guidance, much of this topic was the exclusive focus of a recent booklet produced by Kawerak as part of another project, one which contributed data to this project (Kawerak 2013c); the reader is encouraged to consult that work, which was informed by data from Diomede as well as a number of other communities, for a more detailed discussion of the topic of hunting
safety. Additionally, another recent Kawerak booklet (Kawerak 2013d) similarly covered the topic of
traditions of respect related to hunting activities, and was also informed by data from Diomede; the topic
of respect is briefly noted below in this section as well as elsewhere in this report as relates to the
relationship between Iñialit and walrus. Some safety notes, rules, and guidance which hunters and former
hunters noted during interviews included:

- Safety comes first.
- Be careful. This also includes being careful with firearms (especially young people).
- Be alert and attentive.
- Be adaptable.
- Be alert when around walrus in the water. They can come up to, and attack, the boat. If they are
close, you can put an oar in the water on the side of the boat; walrus will leave because they think it
is a killer whale. One interviewee noted you could also touch them to scare them off if necessary,
another said you should shoot low to scare them off, and another said you shoot a walrus that is
being very aggressive towards you.
- Take the safety gear you need to survive out with you.
- Try to get walrus on the outside, rather than the inside, of ice, so as to avoid getting trapped in
  between ice that is coming together.
- Avoid killer whales.
- Tell people when you are going out to hunt and when you are coming back.
- Plan properly for hunting.
- Bring the necessary provisions for the hunt.
- Listen to the captain.
- The weather is not good anymore, does not stay good for long, and is unpredictable. As a result
  hunters can not stay out for long periods like they used to be able to.
- Do not go right up to a walrus unless they are dead.
- When there are many walrus in the water or on the ice, leave them alone.
- Take note of the environmental conditions before going out hunting, and also when out there, such
  as: ocean currents, wind, weather, clouds, temperature, and the ice. It is important to know these
  conditions.
- It is important to know where the currents are and whether to use or avoid them.
- Do not let someone who doesn’t know what they are doing drive the boat.
- The one who knows most should be in charge.
- Work hard; people would work hard and forego sleep, especially during spring hunting.
- Use teamwork. Be optimistic.
- Be quiet.
- Stay downwind of walrus (so they do not smell you, which would lead them to move off the ice).
- Butcher as much of harvested walrus as you can while you are out on the ice.
- The first boat that sees walrus or a herd gets to go after them; crews are not supposed to encroach on other crews’ locations (but crews will help each other if needed).
- Be ready with a harpoon right away after shooting at a walrus, because a dead walrus will sink.
- Places identified as where to shoot: base of neck area/where the brain is; right below the ear; the neck or the eye.
- Your hunting knife should always be at hand when needed.
- Show respect towards animals (e.g. do not harm them for no purpose, do not waste).
- Try to get a lot of meat, but do not be wasteful and do not kill what you can not eat. Hunters also keep the community’s needs in mind when harvesting, and not just themselves.
- Do not think about walrus too much, or want to get them too badly, or be greedy, or you will not get them.
- Interviewees identified a number of times in which one would generally not hunt walrus, though there could either be exceptions, or other interviewees who made comments to the contrary or did not mention that as a rule. The situations identified were when walrus are hauled out, when they are feeding, or leaving females with calves alone unless they attack the hunters.
- In general people do not hunt walrus that are hauled out.
- In spring when walrus first come, you let the first ones pass; they are like scouts, and if you go after them they will go back and tell the others and then the walrus will not come through your area.
- Leave alone walrus who cry, wipe their eyes, call out, lay on their backs, click their teeth, or are dancing.
- If someone in the community dies, people should not conduct subsistence activities or hold any community event until that person is buried. This is still practiced but is not taken as seriously as it was in the past.

Walrus are hunted from boats. Hunters can mimic walrus language, and holler at them, which will make them come in, if needed. Most shots are taken at close range; one can successfully use even small caliber rifles if the hunter knows where to shoot and is accurate, although it appeared that young interviewees were using larger caliber rifles. Whatever environmental conditions are extant - such as wind, currents, the weather - can impact hunting. Hunters will hunt whatever game is present when they are out hunting.
walrus; they will often thus be hunting walrus, seal, and *ugruk* (bearded seal) at the same time. Crews are chosen largely based on family ties, though others can fill in. The boat captain is in charge of the boat and crew, and is responsible for food and gas. The captain sits in the back, and directs where to go. Positions on the boat crews have changed with changing technology, as some positions are no longer needed. For example, paddling, bailing, and inflating seal pokes are jobs on skin boats, which are not currently being used at Diomede. Bailing and cooking are typically tasks for younger, inexperienced members of the crew. The bow man is second in charge, and gives guidance as to where the boat should navigate. One interviewee noted that an elder would be part of a crew as well. Skin boats carried 8 to 9 people, whereas the aluminum boats currently in use carry 4 to 5 people. Crew members are responsible for helping to butcher harvested walrus as well. Crew members will talk to each other as well as use standardized hand signals while out on the water (see also J. Raymond-Yakoubian et al. 2014).

Interviewees had varying opinions about the extent of change which had occurred related to hunting. Elders tended to indicate that much had changed (e.g. clothing, how much is hunted, how hunters behave), whereas younger interviewees were more split in terms of their opinions on the matter.

**Hunting Technology**

Elders seemed to prefer animal-based hunting clothing, while younger interviewees did not comment on a preference for this, and also did not mind using synthetic ropes and many other non-traditional technological items (e.g. GPS). However, all interviewees who commented on the matter preferred skin boats to aluminum boats. Skin boats, which are no longer in use, are considered to be more flexible, hold more meat, ride over waves and rough conditions better, are easier to haul over the ice, are good for shelter if caught out on the ice, and are easier to patch if they get a hole (see also J. Raymond-Yakoubian et al. 2014). One skin boat was reported to have been used in the fairly recent past, though none are currently. In addition to aluminum boats, other non-traditional technology which is currently used includes high-powered rifles, ammunition, GPS, radio, and satellite phones. One interviewee commented that in current times there is a need to bring out more safety gear than in the past. Other equipment used while hunting include a walking stick, throwing line, harness, and a rope to put through the mouth of a harvested animal for dragging it (these items are essential for seal hunting).

Two Diomede elders provided an interesting discussion on a variety of aspects of change incorporating technological, cultural, ethological, and environmental considerations:

Patrick: The old people long ago used to talk about harpooning them in the past when they had climbed below our house, and because there wasn’t any guns, motors or machines. There was no noise on the land. James: When they had no guns they were
hunting walruses by harpoon. Patrick: It has changed. Even the ice has changed, it is no longer as it was in the past. The old ice comes first in the fall. First the slush in the fall from there the ice formed. There are no massive piles of ice, they are no longer seen at Diomede. James: We used to use it for water long ago. The clear ice was used for our drinking water, at one time. Patrick: It is no longer seen; we don’t see any of it any more. Long ago, our ancestors would try and get lots of meat and that was it. Right now, they have changed, the young men see a walrus and he comes carrying a gun, running to the walrus and making lots of noise like the walrus, and you could hear them. I always tell them, “How many years have we been here?” There are lots of walruses that are coming to Diomede. Last year there were lots of them on the east of the island, and the other year. There were many aaq̲luit [killer whale], once again, the aaq̲luit attacked the walrus. The current has changed. It no longer moves at it did, the currents. When the old ice comes it used to be on the beach and we could go hunting. They used to tell us not to come from the north because the current is going both ways. Also, we were told not to come in through Eqauqneun. The behavior of the walrus has not changed to my knowledge. James: It will not change. Patrick: The behavior has not changed. James: It will not change. Patrick: Only the ice and current. It is due to the current. James: The weather has changed. Patrick: We don’t have any traditional clothes, because all of it is white men clothes. They are not worth it. (P. Omiak and J. Omiak 2010a)

Hunt Timing and Locations

As noted earlier, detailed spatiotemporal information about hunting (i.e. hunt timing and location) were a specific focus on another recent Kawerak project involving Diomede hunters (as well as hunters from other communities; see e.g. Kawerak 2013b); therefore, to avoid redundancy, information about hunt timing and location will be kept to a minimum here. A 100-mile radius appeared to be the outer boundary for what was reported as a possible range for walrus hunting. In terms of distance hunted from Little Diomede Island, spring walrus hunting appears to have the largest range, with fall hunting coming next, and then summer and winter hunting being conducted even closer in from Little Diomede. People will hunt when they are able throughout the year, with certain exceptions (e.g. if the hunter avoids hunting walrus when they are feeding), but in general the bulk of walrus hunting occurs in the spring and fall with the corresponding walrus migrations through the Diomede area.

There was a general preference expressed for hunting south of the island as opposed to north; a number of factors were posited by interviewees for this: to hunt north means coming back against the current to get
home, to hunt south means you can go back home with the current if the weather is good, and there is a
dangerous eddy north of Little Diomede Island which is to be avoided. Some hunters reported changes
over time to where the walrus are or where they hunt (because of changes to where the walrus are
migrating, changes in ice and ocean current conditions, and changes in the weather). The timing, speed,
and process of ice break-up and freeze-up, as well as the direction of wind and ocean currents, can impact
when and where the walrus are and when and where hunting can take place. It was commonly reported
that where the ice is will be where the game is, and thus where the hunters want to go. Hunters will also
use lookouts offering a good vantage point to get an idea of where they should go to hunt. Hunters will
go hunting when they can get out (e.g. the ice conditions allow) and when the game are close enough to
hunt. People will generally hunt wherever they are able, though will ask permission of other villages if
they are hunting right in front of their community. Hunting starts when the walruses migrate through, and
stops when enough food has been obtained, when the animals are so far away it is not prudent to follow
anymore, or when the environmental conditions do not allow. There are particular areas that are avoided,
such as a dangerous eddy north of Little Diomede, for safety reasons.

Dividing the Harvest

Interviewees identified a number of different processes associated with the dividing of walrus parts from
a successful harvest. This is ethnographically interesting, as it suggests that there is less standardization
in the details of this practice than community members assume. Some discussions and descriptions
during interviews also seemed a bit contradictory as well, which further indicates a non-standardization.
However, a general theme of equality and fairness do permeate most of the reports of this practice. Some
of the different practices associated with dividing walrus parts reported by interviewees are presented
below:

• The boat captain is in charge of the division of meat. He is always the first to pick, and always
  receives the heart. If he wants to share with the crew, he will. He always receives tusks to
  compensate for gas money and other provisions, which he is responsible for providing.

• The captain buys the gas (though others may contribute). As captain he gets the first pick of ivory,
  and some captains take a bit more when they divide up the meat, selecting choice pieces (though
  this captain did not practice this). On some boats the one who shoots the baby walrus gets it
  entirely. However, this captain does not allow that, and when multiple baby walruses are shot,
  everyone in the boat gets one.

• The person who shot the animal gets half, and the other half is distributed amongst the rest of the
  crew.

• For those who did not get a tusk the first time they went out, they will receive it the next time.
• Half of the walrus catch was divided amongst the crew.
• The captain always lets the crew pick the meat.
• There is a particular way to divide game, with people of particular status receiving particular shares.
• Everyone in the boat gets an even share.
• Everyone in the boat shares equally. The captain is in charge of the dividing, and gets the first choice. The captain may take the whole head, or share it. However, this interviewee also stated that the supervising elder in the boat would get the first choice, or that the captain would ensure he received a choice selection, and then the crew divides the rest, with an attempt to divide it equally so that nobody gets a big share.
• The person who shoots the baby walrus is usually the one to get it.
• Meat is divided when the boat gets home, and it is always split equally. The captain will tell the crew to pick whatever they want. The crew would pick equally.
• The catch used to be divided from front to back (in the boat), but now crew members just take what they want.

The overriding patterns here appear to be that, despite some non-standardization in practice (both between and amongst interviewee age sets), the boat captain is in charge of the division of meat, and while he may receive some of the choice parts, a spirit of fair and equal division of parts amongst all the members of the crew directs the process. A few interviewees did, however, voice the opinion that the division of parts was not currently done as it had been done in the past.

Preparing, Storing, and Using Walrus

In general, men and women have different roles in terms of their interactions with walrus. Men are responsible for hunting, field or on-shore butchering, and dividing (amongst crew members) of the animal upon a successful hunt. Women are responsible for most aspects of turning the harvested animal into food or some other item (e.g. Eskimo raincoats). There are some exceptions (two bachelors did their own preparation work, and it was reported that one woman occasionally participated in hunting), but this is the general rule. In terms of women’s tasks, this would involve, for example, cutting and preparing meat and organs into different final food products, splitting skins for use in skin boats, and preparing clothing products; more of these uses of walrus are discussed below. Some of these post-harvest processing activities do involve both men and women at some stage, however. For example, there was no discussion of any strict gender differentiation in terms of the actual storage of meat in meat holes. Additionally, both men and women were responsible for different tasks in the construction of a skin boat (women would split the skins, identify where skins should go on the frame, and do the skin sewing, while men would put
the split skins on racks to dry, soak the skins to make them soft, and do the framing and assembly work for the boat and its skins).

Walrus are now, and were in the past, used in a variety of ways by Iŋalit. The primary way is for food, prepared in a variety of ways, and using almost the entire walrus. Appendix 2, for example, details a number of ways walrus may be prepared as food. Additionally, walrus tusks and penis bone are used by hunters for carving (including selling these carvings to provide income). Walrus parts were in the past also used to make a number of other items as well, such as: skins for the hulls of boats, for containers (including Jolles et al. 2001: 28-29), for a ball to play games with, as a covering under which food items could age; baby walrus skin for rawhide rope and harpoon line; stomach for drums, bags, waterproof jackets, windows, and pouches (Kaputak 1979); intestines for waterproof jackets, doors and windows (including Jolles et al. 2001: 280); jawbone for harpoon heads; blubber rendered for oil; and inflated dried walrus bladder could be tied to the end of a harpoon and used as a paddle (Kayouktuk 1983).

There are many ways in which the parts of a walrus are prepared and stored for their various usages. Butchering of the walrus is largely the men’s job, and is done either out on the ice or once on shore. After the animal has been butchered and divided up, the work of preparing and storing the parts begins. Edible portions of the animal include the kauk, meat, offal, female breast milk, and blood, many of which can be prepared in a variety of ways. Parts of the animal can be dried, half-dried, boiled, baked, fried, and/or aged (i.e. fermented or soured). Appendix 2 of this report details food preparation techniques for various walrus parts derived from interviewing with a Diomede expert for this project. Other non-walrus foods are important as well in regard to walrus as a food; for example, clams are obtained from walrus stomachs and eaten, bearded seal is often eaten with walrus, and seal oil is often used to preserve walrus meat. Appendix 3 of this report contains, among other things, some information pertaining to the preparation of walrus skins for use in skin boats, and walrus stomach for use in traditional drums.

One elder noted that,

the only time that we rest is in the winter when we stop boating and the ice comes in. And then it is the time for storing food by putting it away and aging it. The women also rest in the fall time until the ice returns. They work constantly on the meat storing it, cooking it. They fill up the meat holes (P. Omiak and J. Omiak 2010a).

Another elder noted that famine prevention was why people on Diomede put food away in the spring, in case come winter no animals had arrived and the weather was bad (J. Omiak 2012). Meat holes were traditionally the main way of storing and aging walrus meats and organs. Jolles reported that in 1999,
“[o]f the sixteen meat holes, one was said to have been abandoned, and a second one appeared to be in disrepair but may still have been in use” (Jolles 2006: 280). It appears that meat holes are not (or only barely) used anymore currently in Diomede. One interviewee attributed this change to the use of freezers, another said people have forgotten, another attributed it to temperature increases causing the temperature inside the meat hole to be too high in the summer thereby leading to spoilage, and another resident claimed it was simply because there was no meat. There appears to be less fermented walrus currently being eaten in the community. In the past, there were also some other means of aging and storing walrus. Sometimes, walrus was aged on the beach (particularly under skins), and also skins would be aged inside the qagri. People also had cellars underneath their homes for storage. Another means of storage were containers made of walrus skins sewn together (these could be placed in the meat hole) which would hold foods and blubber. Walrus stomachs were also used to make bags as well to store and carry food.

Freezers are now the main, if not sole, means for walrus meat and organs storage (in addition to what is used when walrus is stored while fermenting). Meat and organs were placed in the meat hole in July, and left there until just before the first snow arrived. This used to mean removing the meat in early October, though as temperatures have increased owing to climate change, the time for waiting to remove items was extended into November. Before families placed their meat in a meat hole (which could be shared amongst families), they would place a mark or tag on their meat to indicate their particular ownership; the meat hole owner did not tag his items (P. Omiak 2011a, Kawerak 2011). Meat holes were filled with kauk on the bottom, then placing the items into it that were to be stored there, then covering it up with another kauk and placing whale jaw bones atop that. Someone would be inside the meat hole during this process, packing items in and ensuring that water will drain.

A number of local rules pertaining to food (e.g. preparation, storage, and consumption), and in some cases changes to them, were noted during this research:

• People used to put meat away right away; now people do not put it away very fast.
• One interviewee noted that there are now more bugs on Diomede, which has changed how she prepares some of the meat so it doesn’t get eggs on it.
• Cut out the eyes of a harvested walrus, throw back the head (after removal of parts of it), and say to the animal to come back again. This is so the walrus doesn’t see you, so it will come back to hunters and give itself to them. (Other interviewees contra-indicated that this was something that is done. Another interviewee only cut out the eyes, and only sometimes, mostly when there isn’t an abundance of walrus.)
• If you are pregnant and eating walrus, you shouldn’t eat the soft bone.

• Fermented walrus head used to only be eaten by old men gathered at *Eleqleeq*. Now, however, anyone eats it.

• Wasting is not allowed - this is now a law, but before formal western legal regulations, it was also simply a Diomede rule. Additionally, harming or killing animals just for the fun of it, and mistreatment of animals, is not allowed. Respect for walrus is a value.

• Sharing is valued. As one elder noted, “[w]e gotta share that’s the way we are, you gotta share yeah, that’s my life the others too share, share, share fresh meat, yeah” (P. Omiak 2011a).

**Traditional Stories**

The most important story Diomede residents associated with walrus is the story of Avuuna. This story involves a man who used to enjoy eating walrus whiskers, but did not eat other parts of the walrus. One day when out hunting, he was dragged under the water by a walrus, who gave him the ability to breathe underwater and took him to live with the walrus. He travels south with the walrus to where they are from, and during his travels learns how they live, and in a walrus *qagri* he confronts shades (spirits) of walruses he abused by removing their whiskers. During the annual migration back north, when they are approaching the Diomede islands, the man, who has now started to become (like) a walrus, escapes from the group to Little Diomede on land. He lives outside the community, unable to bear the odors of humans; this spot on Little Diomede is still known today by its native placename (*Tuveq*). When the people of Diomede experience a time without walrus, they ask the man, whose name is Avuuna, to go to a point on the Island and call out to bellow like a walrus, bringing the walrus in (Q. Milligrock 1981).

A number of interviewees were familiar with this story and during interviews recounted different portions of it; one interviewee commented that everyone knows that story. For a number of people, it was the only narrative of this kind which could be identified as existing that related to walrus (one interviewer explicitly stated that this is the only story of its kind relating to walrus). Interviews elicited only one other possibly traditional story, and it was of a man who had grabbed the tusk of a walrus and broke its neck (the story had been told to the elder when he was a child). One hunter identified the story of Avuuna as being about wasteful take, and described it as a story that had “already come true.” In the conversation following discussion of this story, this hunter noted that wasteful take was something people should know not to do, and that it was a rule that people tried to lived by now. When asked if walrus knew if people were being wasteful, he stated that it was possible, and perhaps that was why fewer were coming around now, because people were being wasteful.
One individual who, upon questioning, indicated that he was not familiar with any traditional stories relating to walrus, noted that all that matters are that the walrus are there, and that they arrive with the currents. Another individual noted that he had taken the advice of his father, choosing Christianity instead of believing in traditional stories and songs. Another individual took discussion of this story with an interviewer as an opportunity to reflect upon the current absence of intergenerational story-telling on the island between elders and youth.

Community Activities

Other than the preparing and storing of walrus parts as food, skins, and other items, which occurs after successful harvests, it was widely agreed-upon that no special community activities such as celebrations are currently practiced in Diomede when walrus are harvested. Some interviewees stated that no such activities took place in the past either. Some interviewees, however, identified a number of these types of activities which used to occur upon such an event:

• a large meal was cooked
• the old men would ferment a walrus head and eat it (it appears, however, that this was not necessarily associated with a particular successful harvest)
• a feast would sometimes also be held and the walrus skin and a walrus head brought in
• a small Eskimo dance would be held atop the meat holes and various community houses
• people would go down to the beach, play on the beach, and so on

One interviewee noted that a current community event which sometimes occurs when a walrus is harvested is that new people (e.g. teachers) to the island who have not seen a walrus butchered before would come down to the beach to watch.

Three other forms of community activities can be gleaned from the archival sources and interviews as occurring after major hunting periods. The first is the gathering of people in the qagri for story-telling, which in fact was a regular occurrence throughout the year. One interviewee described qagris as a place where elders gathered in the winter and told stories, while another simply noted that hunters - especially old hunters - used to go the qagris every night, and would talk of the weather, ice conditions, game, and so on, and this was also a place where people learned from their elders.

A second activity which occurred after a hunting period had ended were games. As noted in Jolles et al. (2001: 8-9), walrus skin could be used to make a small ball which was used for playing a game where people could win prizes by catching the ball. The game was played in July, when hunting for walrus and
whales was over. Anyone and everyone could play. At the end of hunting, games were said to have always been held. One particular person was identified as sponsoring these games.

A third activity after hunting was travel and trade. Diomede people would travel to Kotzebue, Point Hope, and Shishmaref bringing walrus skins and possibly other walrus parts as well (Jolles et al. 2001: 80-81, J. Omiak and A. Ahkvaluk 2010b, Sinnok 2011).

Children and Young People

Interviewees were asked about the involvement of children and young people in walrus hunting and preparation. They also in the course of other discussions talked about their own experiences when they were younger, which gave a good insight to the involvement of youth in these activities. There are some obvious limitations and biases to the data, however, in that data was collected solely from individuals who are now adults and elders; the reader is advised to bear this in mind.

Both girls and boys appear to start explicit learning about walrus hunting or preparation on average between the years of 8 and 14, though one interviewee reported learning as early as age 6. Boys learn about hunting and carving from men, girls about preparation and storage from women. Most learning, for boys at least, comes mostly from within the family, particularly fathers, uncles, and grandfathers. Boys generally begin hunting seals on foot before learning to hunt walrus in a boat. Boys typically began their work in a boat as a bailer (when skin boats were used) and also inflating seal pokes and cooking, later progressing in terms of responsibility. One woman who was interviewed talked about how hides which had problems with them were used as training tools for learning how to work on or fix skins, even though they would not be able to be used in the end. Men reported that scolding from their elders was a common feature of the teaching process. A great deal of learning used to occur in the qagris, where story-telling and other forms of knowledge-sharing were conducted regularly; however, qagris are no longer in use in Diomede. Additionally, of course, at any age children were reported as watching and sometimes trying to help adults in their walrus-related tasks, e.g. observing butchering, watching as skins were dried, and so on.

Project participants indicated a number of current problems, however, with intergenerational learning. A number of interviewees stated that many younger people do not want to learn from adults and elders about subsistence practices and traditions. Various reasons were reported for this: that younger people seem to not care, that they think it is a joke, that they are afraid to learn or make mistakes, that they are overly sensitive, that they are uninterested in learning about hunting and stories, that they feel they
already know what is needed to be known about these activities, that they do not pay attention to their elders, and that younger people are not as nice or respectful as they used to be. Two interviewees discussed the ways in which younger people not learning about hunting from older people can have bad consequences, including leading to injury. Some other responses from interviewees mitigated these negative assessments, however; one interviewee noted that he feels that children are still interested and that they are also very adaptable. Another interviewee commented that some children are interested, and some not. And the aforementioned interviewees who discussed the negative consequences of not learning from one’s elders also admitted that they too had been like this when they were young.

One elder pointed out an institutional problem that was hinted at above and which likely plays an important role in contemporary problems in this area of Igilat social life: the current absence of qagris in the community.

Patrick: These young people probably forgot now days you know, but the reason why we don’t get together with young people because we got no more qagri. [...] You know talk about something, something important especially hunting wise, hunting wise. (P. Omiak 2011e)

This assessment hints at problems lying not just with one particular community age set, but with both young and old, as well as at a larger institutional level. As other interviewees noted, qagris were an important place for stories and knowledge about hunting, environmental conditions, and game populations to be shared; the absence of such a regular feature in the community can reasonably be seen in important ways as cause and effect for a breakdown in intergenerational learning about traditional modes of interaction with walrus.

**Current Hunting Challenges**

Some of the regular challenges identified by interviewees involved in the process of hunting were weather, the currents, and the ice conditions. For example, one interviewee noted in response to a question about what challenges exist that hunters face nowadays that:

Edward: The current. The ice pack. We try to avoid the swift current, if the ice moving real fast, sometimes the current will pick up and move ice real fast. So we try to avoid that. Interviewer: And is that happening more often? Is that a new challenge or is that something that you’ve always had to deal with? Edward: We’ve always had to deal with it. Because every year is a different, it’s always different it may be fast it may be slow. It’s like I said to Julie, I told her it all depends on the current. We try to avoid where [...] it’s already hang[ing] on to the main ice. You try to avoid that because the ice will come
Two interviewees noted that vessel traffic posed challenges for hunting. It was noted that increased shipping traffic - as well as other commercial activities like air travel - in the area of Little Diomede presents a number of potential problems. First, it scares off walrus, who will continue to move north following the ice; additionally, it wakes them up, makes them more lively, which makes it more difficult to hunt them as compared to when they are sleeping and sunbathing undisturbed. It was also stated that it could impact walrus haulout behavior. Another concern ships present is that hunters are concerned a bullet shot at a walrus could ricochet and hit a vessel, and thus they wait until passing vessels are out of range, which takes away a sizable portion of their hunting opportunities. One interviewee noted that Diomede people had already lost potential harvests to vessel traffic. It was suggested that it would be good if ships were not around during the hunting seasons.

Several interviewees stated that environmental changes and walrus population changes presented a challenge for walrus hunting. One interviewer noted that animal migrations appeared to have changed, and hunters are having to go further to find them, but that hunters like to stay close because of changes to the sea. Another interviewer noted several challenges for hunters, all of which have the potential to be interconnected: changes to currents, less walrus being around, changes to the ice (the ice goes up north sooner and quicker than it used to), changes to the weather patterns (the weather changes to bad weather more quickly now), and the high price of gasoline. Regarding the weather, he stated, “Bad weather all the time. Weather changes fast now, you know. Those kids are lucky they don’t remember the weather I grew up in. They’d be bummied out” (Iyapana 2012b). As this interviewee also noted, changes to currents may be leading to less walrus being around, and with less walrus around hunters have to go further, which can be difficult to accomplish because the weather changes so quickly to bad weather nowadays, as well as because of the cost of gasoline.

One hunter identified weather, decreased hunt abundance, and changes to currents as present or future challenges and problems for walrus hunting. He argued that while this presently creates a problem for some people, most families were getting as much walrus as they needed. He blamed “Fish and Game” for decreased hunt abundance (another interviewee expressed a similar view as well). Additionally, some other interviewees believe concerns with changes to ice and walrus populations are either currently overblown or inaccurate (one of these interviewees argued that the only hardship is in fact being created by those who regulate and manage walrus). Two interviewees identified the international border between
Russia and the U.S., which runs between Little Diomede Island on the American side and Big Diomede Island on the Russian side, as a problem for hunters. People on Little Diomede have relatives in Russia, hunting used to be quite common across the border by indigenous people from both sides, and there has been a history of prohibitions and repercussions for Little Diomede hunters when crossing the dateline for hunting in the past - all of which illustrate the potential for hardship presented by a barrier to the migration of seafaring hunters. Two other interviewees discussed in detail the breakdown of intergenerational communication between older hunters and young people, illustrating how it could be seen as a hardship for hunters (Kunayak and Iyahuk 2012b). According to these interviewees, younger people claim to already know that which older hunters try to tell them, and this can result in negative consequences for hunting, including injury. A number of other interviewees also corroborated the decline of traditional institutions for knowledge-sharing on Diomede.

Other Aspects of the Injalit-Walrus Relationship

One aspect of the Injalit-walrus relationship which has been touched on briefly above are issues of respect and care on the part of Injalit people towards walrus. A number of interviewees noted that Injalit have respect for walrus. Other than this being the case for reasons which went unstated, or simply as a matter of principle and belief, several explicit reasons were also offered by interviewees for why this was the case: 1) because walrus are their food, 2) because animals have feelings, and 3) to ensure there would always be walrus. This respect would also manifest in a number of externally obvious ways, such as, e.g.: 1) not wasting animals (e.g. utilizing as much of the harvested animal as possible), 2) not bothering walrus when they are eating unless necessary, 3) leaving females with calves alone unless necessary, 4) knowing when and when not to kill, and 5) not hunting walrus that are hauled out on the Island, except under particular circumstances. Kawerak has recently produced a booklet from another study whose data contributed to this project; this work was entitled “Traditions of Respect: Traditional Knowledge from Kawerak’s Ice Seal and Walrus Project,” and dealt more directly and in greater depth with the topic of respect, and included data from Diomede experts; the reader is encouraged to consult this work for more information on this issue (Kawerak 2013d).

Some interviewees indicated aspects of a connection with walrus which go beyond mainstream western empirical understandings of human-animal relationships. One interviewee, for example, noted that he had heard that animals know when someone is going to die, and highlighted a story about a walrus which had cried when looking at a man, after which the man’s daughter died a few days later. Another interviewee, an elder, noted that when there is a walrus that is killed which still acts as though it is alive after its head has been removed, this is a sign that a relative will die. Another interviewee stated that she was told when
she was young that if one saw seals or walruses in your dreams, it meant that they were coming to pick
somebody, a spirit, up.

Finally, a number of rules and taboos related to walrus were identified by project participants which have
not been noted elsewhere in this report. Some of these are listed below. Note, however, that some of
these rules were contradicted by other data (e.g. one interviewee claimed a particular rule exists while
another stated there were no rules for such an occasion). Some interviewees noted that there were no
special rules pertaining to walrus (e.g. regarding treating them with respect). It should also be noted in
general that project research seemed to indicate that men and women were much more familiar with rules
and guidance which pertained only to their gender.

- For all animals except birds (in which case this is the hunters’ choice), including walrus, one must
give away their first kill (or their share of a kill) to an elder. (However, this view is contradicted in
Jolles et al. 2001: 83-84, other than to note in the latter that the individual’s first walrus was shared
amongst the crew.)

- One interviewee had heard about customs for showing respect towards marine mammals, but does
not know any of them.

- If someone dies, subsistence activities should not be practiced until that person is buried, especially
by the family that is mourning. Additionally, no community event should occur until the person is
brought to rest. This is still practiced in Diomede, but not practiced as strictly as it once was.

- One elder noted that when he was growing up, you could not throw anything out; this was a strict
rule. It was also considered taboo to dispose of human waste into the sea, as is practiced now, as
that is where Igalit get their food.

- Two interviewees indicated that they performed a similar ritual upon butchering a walrus. One
interviewee indicated that he would cut out the eyes of the walrus, throw back the head, and may
also say something for the walrus to come back again. The saying was done to ensure walrus will
come back again, and the removal of the eyes is so that they do not see you, so they will come back
to the hunters and give themselves to them. The other interviewee stated that sometimes - mostly
when there isn’t an abundance of walrus - he will take out the eyes of the butchered walrus, in a
similar vein as people further north do with seals. This was done so that the animal would come
back. He was not sure if he believed this ritual was efficacious.

- Note the following was indicated in 1981 with regard to proper care of meat and animals, and the
ideals contained herein were noted as being still held today:
  Those with huge boats would return with great loads of walrus meat. They did not throw
away the meat and did not leave it just anywhere. They loaded the boat to the extreme
with walrus meat. They did not leave the walrus meat anywhere, these people our ancestors. They took care of the walrus, seal, and oogruk meat and did not mistreat them. They took the time to care for the meat. They took care of the blubber. They did not just toss them out, because this was their food and a source of heat. (Kaputak 1981)

The Importance and Significance of Walrus to Diomede

Study participants were asked about the significance and importance of walrus to them, their families, and their communities. Additionally, participants were asked what it would be like if walrus were no longer available to Diomede. In addition to the discussion below, Appendix 3 highlights some of the ways walrus are important to the people of Diomede. This Appendix is a (miniaturized version of a) poster which was produced for the community of Diomede to display in a public place.

Two key, interrelated, ways in which walrus is important and significant to Ingalit were stressed by interviewees. The first key aspect of walrus importance is nutritional, i.e. as food. Almost all interviewees noted this as a key element of this animal’s importance to themselves, their families, and their community. A number of interviewees noted, for example, how walrus is the main source of subsistence food for people living in Diomede. As one interviewee stated, “it’s vital, it’s very important for our community because it’s our diet, we live off it. It’s the main source what our main diets here” (R. Soolook 2012b). While one interviewee argued that in the absence of walrus the people of Diomede would be able to adapt dietarily, another interviewee stated that without walrus “[w]e’d starve. They are important. We eat them every which way we can, aged and fresh.” (A. Soolook et al. 2011b). Other interviewees noted the quality of walrus as a food; one noted that “that’s our main source of food, it keeps us full longer than the other food here and it lasts longer and if we don’t see those no more it’s just gonna, what we gonna eat after? Gonna have to learn to adapt to it I guess. But that’s our main food, that’s healthy food” (J. Ahkvaluk 2012a).

The connection between walrus and Ingalit is the way things are, and have been. And this leads us to the second aspect of walrus importance, the link between walrus and a sense of identity and history. Jolles has noted regarding Diomede that “it can be said that in Diomede subsistence as a life system is extremely important as a source of identity and tradition and continues to be major source of the cultural, social, and economic characteristics deemed by community members as important elements of heritage and belonging” (2006: 244). With regard to tradition, one interviewee noted in response to a question about whether walrus were important to Diomede: “Yes. [...] Walrus, at one time we had nothing but walrus” (A. Ahkinga 2012), and another noted in response to the same question “Yes. [...] Maybe ten thousand...
years now they killing, hunting walrus. They need it for their food, for their food. Even skin for the boat” (J. Omiak 2012). The deep historical connection entailed in the subsistence way of life between people and animals is matched by a deep connection to the Iñaliit sense of identity. As one interviewer so eloquently stated with regard to subsistence in general,

When I cut my first seal I was maybe 11, 10 or 11 - [a] little old. And I was, I was…it was done after the spring hunt where the ladies were sitting by Standing Place, so I had 7 expert ladies in front of me. Made me nervous, you know. And, because I was living in a world with education, so I was more adapted to this outside world, you know learning more from a book than doing things with your hands, so I kind of felt like an outsider. It was not like something I grew up with. I think that was my first understanding about subsistence. Who am I? Because I am taught this way, but I was brought up this way. And where do I start learning about, you know, tying this into my life where I feel comfortable with living with both. In Diomede, you, you, when you’re isolated here, you, you make choices, how you wanna live your life. You want to waste it away, complain and, you know, do no good, for your family or the community? Or do you wanna fill it up with stuff that interests you. Stuff you can feel, taste, see. And out here you got that opportunity, if you want it. May look just the same - it’s just seal, it’s just walrus, it’s just birds, it’s just eggs, it’s just this, it’s just picking. But, it all takes time, to have just those. It takes skill and practice. I really like Diomede. I do. (Ozenna 2011b)

It is worth noting here Jolles’ (2006: 244) remark that,

Diomede, like other Alaskan Eskimo communities (Iñupiaq, Yupik, and Yupiit), demonstrates contemporary identity (Jolles 1999; Jolles with Oozeva 2002) through active engagement in a mixed market-subsistence lifeway (Langdon 1986). […] The continued reliance on a domestic subsistence economy for food, with its attendant role as an underlying thought system or philosophy, shapes contemporary community social relationships, notions of gender-defined work, and more generalized conceptions of male and female roles that derive from these. Thus, it can be said that in Diomede subsistence as a life system is extremely important as a source of identity and tradition and continues to be major source of the cultural, social, and economic characteristics deemed by community members as important elements of heritage and belonging.

A number of other less common, but nonetheless quite interesting, views on the importance and significance of walrus were voiced by some of the interviewees for this project. Two interviewees highlighted the key importance of obtaining ivory in terms of reasons for hunting, as it enabled hunters to
carve and then sell those items to get money and thus be able to obtain items they and their families need. Additionally, two other interviewees noted the importance of having walrus as food given the low income levels in Diomede. Finally, one interviewee noted a connection between practicing a subsistence way of life and decreased pollution; when people do not practice subsistence, this interviewer reasoned, more waste is generated which is dumped into the sea and onto the ice. (It should be noted here that there is no flat land available on Diomede for a landfill, so trash is disposed of on the sea ice or directly into the sea. A small incinerator is also used for certain items.) The interrelationships hinted at in this observation as well as in the variety of reasons why walrus are significant and important to Diomede as discussed above are highly illustrative of the complexity of the interconnections between human-animal relationships, environment, economy, identity, history, and diet. Additionally, it also serves as a reminder of the potential for powerful changes in any part of this socioecological system to have significant effects across that system.

Discussion

This project, and the LTK data it synthesizes and presents, makes several key contributions.

The first is the manner in which the data confirms much that is known from the perspective of walrus-related bio-ecological and anthropological data. While this is not a main thrust of this project, it is worth noting similarities between interviewee responses and scientific data in terms of, for example, changes to ice conditions, weather and climate changes, the nature of walrus migration patterns, haulouts, and habitat, walrus diet, recognition of threats to walrus populations, understandings of changes to harvest activities and patterns, and so on. When coupled with 1) the far-greater temporal depth of repeatability and evidentiary weight upon which this knowledge base is founded in comparison to western walrus science, and 2) its deep history of epistemic applicability towards the simultaneous and integrated stewardship of human and walrus populations (in comparison to a western history of dramatic population exploitation necessitating managed recovery, followed by further proposed management in response to a western-originated global climate crisis), this project makes the case that LTK (and in particular, Diomede LTK about walrus) should be taken seriously in management, policy, and science discourse.

The synthesis of LTK presented here also contributes to a greater understanding of Diomede society, culture and history at a broad level, and at a specific level, to human-animal relationships in the community, both of which are in limited supply in the available anthropological literature, as mentioned earlier in this report. This is the first project of its kind to holistically gather data on Little Diomede sociocultural, historical, linguistic, ecological, and biological knowledge related to walrus. This project
also supports ongoing educational and cultural heritage efforts in Diomede as well as the region more broadly. For example, this project produced a glossary of Little Diomede Iñupiaq walrus-related terms as well as collecting a substantial body of data on walrus preparation and storage processes, both of which are of potential value to Diomede in educational and cultural heritage activities. Additionally, this project integrated data with two other ongoing projects on cultural heritage in the region - one project on indigenous knowledge about ice seals and walrus, and another on indigenous knowledge and use of ocean currents.

Further, the data synthesized in this report demonstrates a rich local understanding of an ecology of change which includes numerous human, animal, and environmental factors. Interconnections were drawn in a variety of ways (as shown in the Results section of this report) by interviewees between, for example, ice conditions, walrus harvest, weather patterns, economic considerations, walrus behavior, walrus habitat and migration, hunting practices, and social changes in ways in which it is impossible to understand one component without considering others. Additionally, changes amongst these interconnected elements can be not only interconnected but potentially cascading, building upon and imbricating with each other, often to the great detriment of Diomede people.

Further, this work supports particular expressed needs in the scientific and management realms that are highly germane in developing our understanding of walrus. For example, Fay (1982: 28-29), in discussing the harvests of different walrus concentrations, noted that:

At Diomede and points north, the harvests probably are of animals from both concentrations, for the distributional data suggest mixing of the two in the Chuckchi Sea.

Since the animals from both wintering concentrations appear to transcend international boundaries and to be cropped by both the Soviet Union and the United States, the case for bi-national research and management of the Pacific walrus population is strong.

Not only is one argument here confirmed by Diomede experts through their information about the types of walrus involved in the migrations and harvest near Diomede, the other is supported by this report’s work in that it complements other work on LTK of walrus in Chukotka, and in that a number of its interviewees share a frustration with the practical implications of the political boundary between Russia and the US (which clearly has both social and scientific ramifications with regard to walrus).

Another need expressed in the recent scientific literature on walrus and change which this report addresses was stated by Robards et al. (2013: 78):
Interannual variability in the timing and magnitude of the spring walrus hunt at Diomede, Gambell, and Savoonga reflects the dynamic social-ecological system in which hunting takes place. Although the broad patterns we describe here correlate with climatic regimes and known walrus ecology, we strongly emphasize the contribution of social factors. Diomede, in particular, during the latter two regimes has been subject to a suite of societal changes that reduce their capacity to hunt walrus.

Sociohistorical factors were noted, both by a number of interviewees as well as in the general process of research with the community, as having played a crucial role in the changing shape of life on Diomede itself in general and subsistence in particular. Subsistence-related enforcement actions, outmigration from the community, deaths of community members, a possible decrease in the necessary subsistence-related knowledge and skills in the community, and changes in human behavior in general as well as interpersonal communication in particular (some of the latter assuredly owing to a decrease in important traditional institutional forms of communication) were all mentioned by interviewees or noted in the course of research as important sociohistorical events and factors. Interviewees in this project highlighted even more strongly the impacts of environmental changes on subsistence, as detailed in a number of places further above. Additionally, the portrait of change in the data is one which demonstrates an interconnected ecosystem of human, animal, and environmental concerns. Thus, aside from confirming the importance of particular sociohistorical factors and their impact on harvest abundance in Diomede, this report clearly supports the sentiment expressed in the above quote from Robards et al., which emphasizes the need for understanding walrus-related systems as “dynamic social-ecological” in nature and which requires understandings of social (and not just physical-ecological) factors to be satisfactorily robust.

Finally, a value of this work, as in much work with a substantial anthropological component, is that it offers the opportunity to expose in a constructive manner oft-unrecognized assumptions and biases in that which is familiar. For example, as discussed in greater detail above in the Results section, it is worth considering what assumptions and biases underlie considerations about walrus behavior when considering changes to that behavior over time; cross-cultural analyses (such as one which took into account the data presented in this report) could assist in this, making overall analyses more robust and meaningful. Another example demonstrating this type of value for this work is the view, expressed by some interviewees, that walruses give themselves to hunters. Alternate conceptions of human-animal relationships such as this should be incorporated into science, policy, and management when they are held by an impacted community - all of whose mainstream assumptions they dramatically complicate - in order for intellectually honest and ethically just science, policy, and management to occur.
Conclusions

What follows are the overall conclusions from this project.

The first objective of this study was to contribute to bio-ecological and anthropological knowledge of walrus, addressing needs to supplement current limited knowledge about walrus and to interface LTK and scientific processes. The second objective of this study was to address Iñalit concerns about a need to document their knowledge about walrus and their concerns about walrus and environmental change. This project utilized a multidisciplinary team to conduct archival research and integrate data from over 50 ethnographic and linguistic interviews with 19 LTK experts over a three-year period on a variety of walrus-related topics. Furthermore, the data collected for this project was organized and delivered to the Eskimo Heritage Program, two community meetings were held in Diomede and one in Nome to discuss project results and solicit feedback, a glossary of Little Diomede Iñupiaq walrus-related terms was prepared as was a guide to preparing walrus for consumption, and a poster was prepared for the Native Village of Diomede which illustrates the importance of walrus to the community.

The following results from collected data were synthesized in this report:

• The various distinctions amongst the walrus population which Iñalit encounter were discussed in this report.

• Information about the walrus population, including any changes to it, were noted. In general, the total walrus population visible to Iñalit has decreased, but the cause is unclear, especially regarding whether it is caused by a population decrease or by changed migration routes. Herd sizes appear to have decreased. Levels of concern about the future of walrus populations vary.

• A rich body of data exists in Diomede about walrus behavior. A number of interviewees identified characteristics of walrus behavior which are different than western understandings of animals, including the attribution of a greater degree of person-like qualities to walrus than are typically found in western understandings. Walrus are viewed as being intelligent. The different views of walrus behavior amongst Iñalit call for a more complex understanding of questions about behavioral change.

• Walrus health is viewed to be good in general and to have stayed the same by most interviewees. Some interviewees have noticed signs of walrus diseases, and avoid the meat when these signs are present. Walrus exposure to toxins was also noted.

• Clams were identified as the main food source for the walrus diet, though other food sources were identified by some interviewees.
• Injalit have a substantial body of knowledge about walrus migration processes (including changes to it, which have been quite noticeable, and are connected to changes in the icepack, ocean currents, and possibly other environmental changes), haulouts (including changes to walrus selection of haulout locations), and other habitat features.

• Injalit are keenly aware of the interconnections between ice conditions, weather patterns, climate change, ocean currents, and walrus. Significant changes have been noted in the ice conditions and concomitantly in walrus migration. Coupled with changes in weather patterns, these have entailed changes for hunting practices on the island.

• The community currently identified some, but not many, rules and taboos as currently associated with walrus. Commonly expressed rules include having respect for walrus, not wasting, and practicing safe hunting techniques.

• Many changes to hunting technology have occurred, and many are not well-regarded. While rifles are well-regarded, the move away from skin boats and traditional clothing is not.

• Walrus hunting crews have fairly standard composition in terms of roles. Young children learn to hunt walrus (boys) or prepare walrus (girls) generally starting around the ages of 8 to 14, and family members are generally responsible for this tutelage (at least for boys). Dividing meat amongst boat members is generally considered to be done on an equitable basis.

• Hunt location and especially timing appears to have been significantly impacted by changes manifested by climate changes. The window for walrus hunting has shifted and shrunk, and for many, hunting itself has become more difficult owing to changing ice, current, walrus migration, and weather patterns and conditions.

• Walrus hunt abundance in Diomede has steadily decreased and is approaching what may be near-record lows. There has also been a decrease in traditional walrus storage (in meat holes) as well as a decrease in a number of uses for walrus (e.g. for traditional raincoats and boat skins). Many methods of preparing walrus for food are practiced.

• Community activities associated with walrus hunting (other than the hunt itself and subsequent preparation) do not appear to be extant in Little Diomede. Additionally, some interviewees lamented a decrease in the interest in traditional forms of communication about walrus-related knowledge between young people and adults/elders. Blame for this was not infrequently placed on young people (it should also be noted that only adults and elders participated in this project), though not everyone did, and the lack of the qagri institution is also a noted and potentially contributing factor to this perceived social problem.

• A number of hunting challenges were identified by interviewees. This included standard challenges a hunter faces like the weather and the ice. It also included ‘abnormal’ (or historically unique)
challenges presented by contemporary circumstances, such as changing ice conditions, weather, and ocean current conditions; a breakdown in intergenerational communication about walrus-related knowledge; less walrus being around; large vessel traffic near Little Diomede Island; and the international border between Russia and the US which Little Diomede is directly adjacent to.

- Interviewees considered walrus to be very important to themselves, their families, and the community. Walrus are considered the main subsistence source of food for the residents of the island, and a healthy form of food at that. Other reasons walrus was considered significant or important were its role in identity and constancy, the role of practicing subsistence in decreasing pollution, and the ability for carvers to carve ivory and sell it to provide for their families.

This project has demonstrated the utility and importance of Diomede walrus LTK and social science research for scientific, management, and policy considerations related to walrus. The project also contributes to local and regional educational and cultural heritage efforts. Finally, the project has a number of policy and management implications, including items noted by interviewees which are important for scientists, managers, and policymakers to take into account and/or address.

Some changes were made during the course of the project due to transportation difficulties involved in traveling to Diomede, as well as to changes in personnel. However, the original project aims were met in the end nonetheless. This project has synthesized and presented data which would be valuable for interfacing with scientific, policy, and management processes, including in the generation of questions, research problems, and hypotheses (e.g. What are the determinants of decreases in the walrus seen by Igaliit? What are the reasons for the difficulties in interfacing the knowledge of Diomede LTK experts with western science, policy, and management processes? What are the confounders which may be impacting the assessment of walrus population numbers? How adaptable are walrus when taking into account Diomede LTK and existing western scientific data? What is the appropriate level of concern about the current walrus population, when taking into account Diomede LTK as well as existing western scientific data? Is disease becoming an issue amongst the Pacific walrus population? Etc.).

Some areas which future work could engage, and key variables related to long-term policy, management, and monitoring which should be taken into account, include the following:

- Are any noticed changes to walrus populations a result of decreased populations or differently dispersed populations? What are the confounders, including environmental confounders, in assessing this?
- Is disease becoming a growing issue with the walrus population?
• How can western walrus-related policy, science, and management better interface with and take
into account Diomede LTK, subsistence rights and concerns, and methods of empirical observation
and knowledge-generation into their practices, products, and measures?
• How can the systemic negative effects of aspects of modernity (e.g. anthropogenic climate change)
on Diomede be addressed, and how can all policy and management (including that which is walrus-
related) be made to take this into account?
• How can future impacts related to walrus populations resulting from climate change be addressed
through work on the causes of these impacts rather than via unfairly placing the burden of
conservation on a hunting community which does not have a negative impact on the walrus
population and possesses a record of long-term stewardship of resources?

Management or Policy Implications

There are a number of key implications of this report for resource management and policy:
• Diomede LTK of walrus, and Iñjilí people, society, culture, and history in general, should be
interfaced with, worked with, and respected on an equal footing in scientific, policy, and
management processes. A recognition should be made that Diomede LTK of walrus contains
valuable knowledge and also has the capacity to extend scientific knowledge in its content and
methodology, and that interfacing with it is necessary to create more robust analyses. Interfacing
with this LTK, as well as recognizing Iñjilí rights and history of resource stewardship, is also
necessary to create not only more informed but also more just and fair outcomes and analyses.
Indigenous knowledge holders should be consulted early and often in all scientific, policy, and
management activities which relate to them, and their input should be respected, valued, and taken
seriously. Additionally, it is recommended, with regard to concerns over the future of Pacific
walrus populations, that shifting the burden of conservation unfairly to Iñjilí people (considering
that causes of ecological concerns lie elsewhere), for whatever reason (including but not limited to
political expediency and/or an inadequate consideration of the excellent Iñjilí history of
stewardship regarding walrus populations) not be allowed to occur. Rather, it is suggested that,
despite impediments to addressing the root causes of concerns (i.e. anthropogenic climate change),
a way should be found to address and focus on these concerns by researchers, policymakers, and
managers; further, it is suggested that attempts to do this cooperatively with Iñjilí be made, who
share an interest in the effects of climate change being addressed appropriately.
• Social science research, especially with LTK holders, should play a prominent role in marine
environment research.
Western scientists studying walrus should also consider integrating indigenous human-animal interaction types into their practice; indigenous relationships with animals are often based on long-term intimate contact with animals, allowing for a rich understanding of their behavior, whilst western biological and ecological studies of walruses are often based on very little sustained close contact with these animals in their natural habitats.

More efforts should be put into gaining an adequate understanding of total walrus population numbers over time, and to measuring changes in those numbers (and tying them to particular causes wherever possible). This remains an unanswered question from this (and other) research on walrus.

Consider that enforcement actions against Diomede hunters have had a demonstrably negative impact on community and individual well-being whilst Diomede hunting practices do not have negative impacts on the walrus population.

There are concerns amongst community members over the impacts of pollution from a variety of sources on the environment and subsistence foods. Managers and scientists should work with the community to come up with effective means of addressing and monitoring the causes of this pollution.

Efforts should be made by relevant managers and policymakers to address or account for policy- and management-related issues and concerns raised by Iñait during the course of this study. This includes:

- Studying and adequately addressing the already-evident (and likely to increase) impacts of shipping/vessel traffic as well as other commercial, industrial, and development activities on walrus and hunting. Additionally, Diomede should be kept informed about all vessel traffic near their community and subsistence areas; providing Diomede with a publicly-accessible, no-cost Automatic Identification System (AIS) so that hunters can track large ship movements would be a helpful step towards achieving this goal.
- Taking steps to make it as easy as possible for Iñait to conduct walrus hunting and kinship-related activities across the international dateline.
- Ongoing efforts should be made to communicate concerns about any increase in diseases amongst the walrus population to Diomede.
- Regulations and management of hunting activities pertaining to walrus should be kept to the necessary minimum. As noted elsewhere, this report’s authors would suggest that those involved in these regulatory and management processes also respect the far longer-standing history of successful stewardship Iñait have had with regard to human-animal relations than any western institutions have had when making decisions in this regard.
Diomede should always be consulted in the development of research activities which pertain to them, and these activities should be kept to the necessary minimum. As noted just above regarding regulations and management, it is worth reiterating here as well that it is recommended that those conducting research activities respect the far longer-standing history of successful stewardship Injiliit have had with regard to human-animal relations than any western institutions have had when working in this regard.

**Publications**

No publications have resulted from this project as of yet.

**Outreach**

The following outreach activities have been performed for this project:

- *Exhibitions/Displays/Demonstrations Developed*

  A poster utilizing information collected during this project on the importance of walrus to Little Diomede has been developed for the Native Village of Diomede. This poster is appended to this report (Appendix 3; see also Topkok et al. 2014). This poster is being printed and distributed to the Native Village of Diomede, and is available to other interested parties throughout the region on Kawerak’s website at [http://www.kawerak.org/socialsci.html](http://www.kawerak.org/socialsci.html).

  Additionally, the data gathered during the conduct of this project has been organized and archived with the Eskimo Heritage Program housed at Kawerak, Inc.

- *Community Meetings*

  Two community meetings in Little Diomede and one in Nome were held for this project to disseminate draft results and receive feedback on those results: one in September 2012 (Diomede), one in January 2014 (Diomede), and one in February 2014 (Nome).

- *Workshop Participations*

  A workshop was held at the 2011 Bering Strait Regional Conference in Nome, Alaska to discuss work on the project to date and to collect additional data (Kawerak 2011).

- *Factsheets Produced*
A summary of methods for preparing walrus for consumption based on information provided by a Little Diomede expert has been produced. This summary is appended to this report (Appendix 2). A glossary of Little Diomede Iñupiaq walrus-related terms was also produced as part of this project (which has been appended to this report as Appendix 1). These two appendices are also being published as a separate bound document and distributed throughout the region (this is also available for download on Kawerak’s website at http://www.kawerak.org/socialsci.html).

Radio/Television Interviews

Project Co-Investigator Julie Raymond-Yakoubian was interviewed about this project (and others) by the Nome, Alaska radio station KNOM in October 2013. Followup interviewing about this project is planned.

Conference Presentations (Scientific and Non-scientific)


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Appendix 1: Little Diomede Iñupiaq Glossary of Walrus-Related Terms
Little Diomede Iñupiaq Glossary

**KEY**

<table>
<thead>
<tr>
<th>sg.</th>
<th>singular form of noun or verb, indicating one, e.g. “you”</th>
</tr>
</thead>
<tbody>
<tr>
<td>dl.</td>
<td>dual form of noun or verb, indicating two, e.g. “you two”</td>
</tr>
<tr>
<td>pl.</td>
<td>plural form of noun or verb, indicating three or more, e.g. “you all”</td>
</tr>
</tbody>
</table>

**Note**: verb stems require an ending to be complete, e.g. the verb stem ağut- “to steer a boat” + tuq [3rd person singular ending] = ağutuq “he or she is steering a boat.” Verb stems are given with a hyphen (-) following to show that they require an ending.

---

**--A--**

| a’aanjq | oldsquaw, long-tailed duck |
| aaqluit | killer whale |
| aaka | mother |
| aakaiqtq izqvak | an orphaned walrus with no mother |
| aakauraq | elder sister |
| aana | grandmother |
| aanuran | your little grandma |
| aanjq | father |
| aanuuraq | older brother |
| aqagriq | ptarmigan |
| aqinaniq | fermented food, “stink food” |
| aqginq | sealskin backpack |
| aqgirugut | we are holding a dance |
| aqgutaq | a container for meat, made of walrus stomach |
| aqiaq | stomach |
| aqinaq | fermented walrus head |

*Women removing blubber from walrus hides, 1950s. (Eskimo Heritage Program)*

*Queenie Milligrock (mother) and children. (Eskimo Heritage Program)*
agituvaktuq – it is very expensive

aglanen riqtaaq – he is reading something written

aglatuaq – someone who is writing

agliusrinagu – do not take a picture of it!

agliusrinasi! – do not take pictures [you pl.]

aglutuun! or agliusiuñ! – take a picture of it!

agnaqan – female parallel cousin, child of mother’s sister

agnaqatea – s/he’s my female parallel cousin

agnamek aivatuña – I got a female walrus

agnaq or agnaq yuqqaq – female, female walrus

agnazaluk – female animal

agninaak [dl.] – tusks of young female walrus

agninaq – female walrus, not full-grown

agraa – gloves

agrait – forepaws

agruani – on the north side of Little Diomede

agua – walrus saddle, just below ribs (also for other animals, humans); boat stern

Ağupiağruk – name for a place on the south part of Little Diomede

ağupsaani ağupiruaq – man sitting in position #4 (see end of glossary for diagram) gets the breast share of walrus

ağut- – to steer a boat
ağute – the one who steers in stern of boat, generally the captain

ağutuaq – he is steering a boat

ağuun – rudder, also a wide paddle used for steering

ağuvitisi! – sit down [pl.]!

ağuvitin! – sit down!

ağuvsaaq – back seat in a skin boat, where elders sit

ağvaluaq – gray whale

ağvaniaqtut – they are whale hunting

ağveq – bowhead whale [pl. ağvit]

ağvia, ağvituq – (he/she/it) goes east

ağviağnituq – current is going toward the west

ağviniaq – whaler, whaling ship [pl. ağviniat]

ağvinilit – six

ağviuktuna – I am going to the south side of the village

ağvizuaq – porpoise

aiga – my sister-in-law (brother’s wife)

aimaq – walrus skin pack for carrying lots of meat

aimauraq – day pack, small backpack

aiparaq – raw or rare meat

aipayaaqluu – cook it a little! Make it half-cooked, rare

aiqatek – pair of mittens

aivatunža – I killed a walrus

Men hauling a walrus on to the ice. (Eskimo Heritage Program)

Pack for carrying supplies. (Eskimo Heritage Program)
aiviniq – aged walrus blubber
akkaa! – lots! so many!
akmaňasaq – east side
akmuinaq – toward the east side
akпалик – least auklet
aқsраtuq – something that rolls
aқsратуq – it is rolling
aleq – walrus-skin harpoon line [plural aqlit]
aɫlaagani – last year
Aɫлагаримiut – qagri on south side of island
alluaq – breathing hole for seal or walrus
aluiğaq – sourdock from the lower part of Island (closer to beach area), very sour (long leaf)
aluk – crowberry (Empetrum nigrum)
aluun – tongue (cooked and sliced)
amaglatut – they are many, there are many of them
amakŋатат [pl.] – last walrus to come to Little Diomede in spring, they have green on their palms and near their mouth (maybe from Round Island)
amеksraq – dried walrus hide
amigatut – they are few, there are few of them
амиɡлатуат yugguat – walruses (few)
amiksraq – outer part of a split walrus skin used to cover a skin boat, or used to form a barrel to store blubber
amiqtut – they (women) are sewing a boat skin; they (men) are putting skin on a boat

anauvaun – bird net on end of a long pole

anuqazuk– to be breezy, to be a breeze

anémarun – screwdriver

anímaaq – half-dried meat or fish

anímatut – they carry boat over the ice to open water

ánuaq– to paddle

ánuaqtet – boat crew; paddlers

ánuaqte – boat paddler, person who paddles

Añuniaqizitauq! – You [pl.] go hunting! (said to killer whales)

ánusaluk – male animal

ánutağan – male parallel cousin, child of father’s brother

ánutağatea – my father’s brother’s child, e.g. my cousin

ánuun – a paddle

ánuyak– to fight a war, do battle

ánuyaktut – they fight a war, do battle

ánuyuqte – soldier

aqlitit [pl.] – fancy elbow-length dance mittens with dangling ivory pieces attached (originally puffin bills)

aqpik – cloudberry (known locally as ‘salmonberry’)

Aqqaaya – John Iyapana’s Iñupiaq name

aqsaagayuk – jaeger
Araarak – Orville Ahkinga’s Iñupiaq name

asaagani – last year

Atneq – place on south end of Big Diomede where there is a building

atninaqtuanun sawituag – someone who works with sick people, health aide

atninaqtuq – s/he is sick

atpa – murre

atpalik – least auklet

atqatuq – s/he is going down

atqauktuŋa – I am going down

Atuayuq – Annie Ayahak’s Iñupiaq name

atunŋak – ugruk hide

aukpalitiniŋiq – red phalarope

aulatuq – she went picking greens

ava – sea lion, also grandfather

avaapazuk – giant

Avuuna – a man who went to live with the walrus, as described in an important Diomede story

avvazaaq – namesake

awataaq – to moisten a drumskin

awataaqtuŋa – I moisten the drumskin

awataun – water to moisten drumskin

awatavak – seal poke

awisalaŋaraŋnun tuugaaqtuaq – it has tusks that point outward

awisalaŋaruuaq uŋuaq [dl.] – (tusks) that point outward
ayagutauraak [dl.] – two sticks that form a frame to elevate caught birds (puffins, auklets) when suspended. Hanging live birds are strung through the “nose” to serve as decoys to attract others.

ayalak – board on which walrus hide is split

ayaupiaq – cane, walking stick

aziaq – pink plume, bistort

Azikazik – a shaman and healer, who appears in the film Eskimo, and who healed Oscar Ahkinga after he fell from the church onto rocks. He knew all shamans down into the Yupik area. He helped to find the King Island woman who fell off the cliffs. He died for two days and then stood up again. He would swallow all sorts of things, like needles, but gave them back when he died, taking them from his mouth.

---E---

eeraq – kittiwake

eerunj! – throw it out!

eet- – to throw out

eetkia – I threw it out

egaaq- – to cross, come across; also to cross to the Diomedes from East Cape, Siberia

egavagaatut – they are coming from the west, from direction of Big Diomede

egavatut – they crossed to Little Diomede from Big Diomede

egeq – sea

egeqsiujaqtut – they went by boat to the mainland from Diomede
eglatut – they are smiling
eglauk- – to smile
eglituat yuγγurat or puugratuat – swimming or traveling walruses
eglu – house (old word)
egluuraq – old word for a little house
egluvak – warehouse (modern style)
egmilaq – there is no water
egmun – bottle
eknuik – woodstove (mainland word)
elęk – sling
emęγnitųŋa – I have water now, have gotten water
emeqtaq- – to fetch water
emeqtegega – I gave him a drink, let him drink
emeqtiaa – he gave it a drink (including a dead seal)
ene – house (of any type, including a sod house)
enepiaq – old-style house constructed from rocks, wooden sides, and with sod insulation on outside
enęlhaq – seal retrieving hook
enęlhaunaŋ – wooden part of seal retrieving hook
ënigmaat – they “trampled” it, group of walrus smother an animal under them
ënitaq – walrus that died under a pile of animals
eqluq – large intestine
eqpeenait! – leave them alone!

eqpeenauŋ! – leave him/her alone!

eqpeenjilaqt – we left him alone

ereŋa – hiding person

ereŋin! – hide!

Ereŋnimiuruat – place name “Falling Rocks”
   (where rocks were about to fall and did fall)

erek [dl.] – eyes

ereq- – to hide

ereqsraq – sinew

eret- – to fall

esrrailaq – it got warmer, after having been
   very cold

euneq – ice pile

euruq – ice piles up, forms frost heaves

ewek – blade of grass [pl. ewiit]

ewelahainavauraq – there is lots of grass

--I--

ialiq – window

ig giaq – throat

igiaŋaa – s/he split it (skin for boat)

igiaŋraq – meat taken off of blubber and buried
   under rocks to age

igiak – deep-water bullhead

igiaq- – to split skin for a boat covering

igiaqsiruaq amiksramen – a split walrus hide

igiaqsiruq – she is splitting a walrus hide
igilik – wounded walrus (or other animal)

iglawik – intestine

igmituq – he is washing his face

igniruaq – giving birth (human or animal)

igviivik – washtub

igvituq – she is washing clothes

ilıaq – Ruth Milligrock’s Iñupiaq name (Patrick Omiak’s sister)

ilağanameen – thank you!

ilarak – ovaries [dl.]

ilhaliaq – fermented kidney; also used as verb: to eat fermented kidney

ilhaliaqtuña – I ate fermented kidney

illuq – cross-cousin [dl. illuiik – two cross-cousins]

imanıq – clam (any type, eaten by walrus) [pl. imanit]

imaniraktuáq – walrus stomach filled with clams

Imaqliq – main village on Big Diomede, also Big Diomede Island

imitqutailaq – arctic tern

imma tayaqtuáq! – a plane can be heard in the distance! A plane is coming!

Imøjana – Elizabeth Milligrock’s Iñupiaq name

imuuraq – coil shape into which intestines are wound after they are inflated

Inuasiaq – John Norbert
**inuksiutit** – small arrows used to fire on people

**Inupiuraaqtuq** – he is speaking Iñupiaq

**Iñalim nataani** – south side of Little Diomede Island

**Iñaliq** – Little Diomede Island

**iñanizaq** – way over there

**iñituq** – very big whale

**iñuñiq** – “Eskimo cabbage” [pl. íñuñit] *(saxifrage divurica)*

**irailin** or **erailitik** – intestine raincoat used by kayakers to tie onto the craft, to be waterproof [sg. and dl.]

**itaaɡayuk** – junco

**itaaɡuaatin** – if it brings you in

**itɑɡin!** – come in!

**iteq** – anus

**iteqsrɑq** – ice cellar in permafrost

**itigait** – hind paws

**Itiɑtawik** – place name for the second cliff south of village

**itqauktuŋa** – I am going northward

**ittuaq** – seat in skin boat [pl. ittuŋat]

**iugɑq** – mallard

**iugɑuaq** or **yuɡuɑaq** – walrus [pl. yuɡuɑrat or yuɡuɑat]

**ivlauq** – seal fetus

**ivlilt quiniin!** – you get the “qui” share of the walrus
ivun – oar

ivuruut – outboard boat motor (from Evinrude)

izağuq – wing

izagvak – baby walrus

izagvalik or izagvalaaq – female walrus swimming with a baby

izaqeruq – it is flapping its wings

izi – drumskin

iziğvik – stovepipe

iziksraq – membrane from walrus stomach used for a drumskin

iziksraq-paneqsiruaq – inflated drying walrus stomach

izivaniq – piece of walrus meat aged in meat hole [pl. izivanit]

izumaaluin! – think!

izumaaluq – to think

izumaruŋa – I am worrying

--K--

kagiaŋun – whale lance

kakkaŋuŋ! – take off the head bone!

kakkaaq – to take front head bones and tusks off of a dead walrus

kanaknaaq – to blow, of west wind

kanaknaŋaa – west wind has begun to blow (brings ice with game)

kanaqtuq – he had a heart attack

kanayuq – shore bullhead (red)
kanjiqaq – corner

Kanjilik – Bessie Menadelook’s Iñupiaq name

Kaniq – very top of Diomede Island, the highest peak

kaniq – peak, tip

kania or kağga – its tip

katimaruak – they two meet (could be people or tusks)

kaugutaq – hammer

kauk – walrus skin (eaten as food); “coak”

kauktuña – I am hammering something

kaumiin! or kaumeġisi! – push off!

kaumituat – they pushed a boat into the water

kauniaqtuña – I have to reach into the crack for birds, eggs

kauruña – I reach into a crack, cleft in rocks to get chicks or eggs

kavegaa- – he harpooned it (a whale; Big Diomede word)

kavennila – he missed it, did not succeed in harpooning (a whale)

kavuqluit! – spear them!

kavuuğun or kavuun – spear, walrus harpoon

kazak- – to beat a drum

Keekmiuraaq- – to speak Wales dialect Iñupiaq

Keektuaksiuqtut – they (Wales people) come toward Diomede for May hunting, when they pull their boat to open water

keeraq- – to crimp a hard sole, esp. with teeth
keeratuq – she is crimping a sole

keerağaa – she is crimping it

keeraun – crimp it!

kemagluk – long leaf sourdock from the top of Little Diomede Island

keņekpatuq – it is very high

Kesremuinaqtuña – I’m going to Lavrentiya

Kesreq – Lavrentiya

Kesrretuña – I went to Lavrentiya

Kesriukpizii? – Are you [pl.] going to Lavrentiya?

kiagiq – shoulder-blade

kiakiauraq – gyrfalcon or peregrine falcon

kiakŋazaq – way up there

kiataa – its torso

kilik- – to scrape (an intestine to remove the inside lining)

Kiŋilit – placename for a location on south side of Little Diomede Island where boats are launched

kiŋuagun suli – next time again

kipkat or kuapegayaq – spine vertebra, backbone [pl. kuapegayat]

kiutiq – tooth [pl. kiutit]

kiuva siuvaten? – who is your Bowman?

kuapegayaq – spine [pl. kuapegayat]

kuguuteraq – fire starter

Queenie Milligrock wearing hard bottom soled kammaks. (Eskimo Heritage Program)

Walrus teeth. (Julie Raymond-Yakoubian)
kumagilik – ice that has signs of walrus having been there

kumagitaq – sea mammal out of water on the ice

kumagiziruq – he (a hunter) is going after an animal on the ice

kumagvik – place where walrus have been, dirty ice

kumaŋnat [pl.] – lungs of any mammal

Kuŋa – village on north end of Big Diomede

Kuuk – creek south of the village of Little Diomede

Kuukpait – name of a stream on Big Diomede Island

kuusiq – pelvis bone

kuutaq – waterproof raingear or windbreaker made of ugruk (bearded seal) intestine

kuuturaq – intestine prepared for use as a raincoat, doorway cover, or windowpane

kuyaa – its pelvic area (animal or human)

Kuyanna – Queenie Milligrock’s Iñupiaq name

---L---

leğleq – goose

Łiŋaugə – Alice Kayouktuk’s Iñupiaq name

---M---

maimiun or maimiutaq – toggle on harpoon rope to keep it from slipping when one holds it, made of walrus teeth with hole in middle, with personal designs, such as a walrus head
makmaun – backpack
malik – swell on the ocean [pl. maglit]
mallituq – there are swells on the ocean
malukali– to be rabid, of animal
malukaliruq – it is rabid
mamaun – walrus mammary gland
manaun – rawhide line to attach or hang birds which were caught
manjiniağruŋ – go get eggs!
manjiq – egg
manjituq or manjizimaruq – she got eggs
mapkuq – inner part, inner half of split walrus skin
mapteaq – “white-man style” house (Big Diomede word) or Siberian-style walrus skin covered house
massiinat – machine, snow machine (from English ‘machine’)
Mayuqalik – cliff on Diomede Island
mautut – they are hunting on the ice
mayaqtivaktuq yuğguaq – skinny walrus
mayiğaa – ice goes far north, because of the current from the south
mayuaqtuq – he is climbing up the island
Mayuğuraq – Diomede place name (meaning ‘where you climb’)
mayuğutuŋa – I am going upward (climbing)
meglit [pl.] – rocks on sides of old houses

Little Diomede, “white-man style” houses. (Julie Raymond-Yakoubian)

Annie Iyahuk splitting walrus hide (see arrow indicating inner half of walrus skin). (Eskimo Heritage Program)
Melegruaq – Spike Milligrock’s Iñupiaq name
melgaarih – Siberian word for rifle
mervik – landing strip
mervimin taatut – they are coming from the airport
meteq – eider duck
metiapak – any big duck
minuah – cottongrass roots (gathered by mice, “mouse nuts”)
mitquq – feather
mittauraq or mittauraaziun – bone used to prop up the head of a dead crested auklet, done in August, to make the auklet appear to be alive in order to attract others (dl. mittauraak)
miziq – seal or walrus oil used for dipping food in
mumeq – drumstick

--N--

nagaqpanjilaq – it is not too low
nagasuq – bladder (used for water storage)
naqiktuaaruuq – it is low
nagimmatut – they lost their bearings, in weather or drunken stupor
nagin peruat? or nagit piat? – where do they come from?
nagruña – I went straight across to East Cape
nagrut – they went straight across to East Cape
nalikak [dl.] – pants

Helicopter landing. (Julie Raymond-Yakoubian)

Feathers. (Julie Raymond-Yakoubian)
naluaŋmiutamen eneqatuq – he has a white-man style house (Little Diomede word)

naluaq – seal or ugruk skin hung out to be bleached by weather

naluk – to dive (a seal or walrus)

naniŋuun – lantern

naniq – lamp

nunuaviniq – piece of polar bear (skin or meat)

nuayaaq – young polar bear

nuuq – polar bear

nappatat [pl.] – walruses sleeping in the water with their air sacs filled

Naqqak – Stanley Ahvaaklook’s Iñupiaq name

nassilik – pair of sealskin pants

nataaṅnaq – type of fish (not a flounder as on the mainland)

nataquq – cartilage

nateksraq – “hard sole” for mukluk

naulliaaqtuun! – go harpoon it!

nauligaa – he harpooned it

nauligaa – he harpooned it

nauligaq – to spear, harpoon

nauliq! – harpoon it!

naulizaun – spear for game

naunj! – said when someone enters a house, answered with Naami!

nausaniuragaqun – wait for it a little

nausaniuragaqlagut – we waited a little for it
nausiat – plants
navaaqtuq – tree
navağan or navaqte – mast
nayak – younger sister
nazaulek – emperor goose
nazauluauraq – smaller goose
neeqliq – one farthest north
neeqpmamun – (strong) north wind
neeqpatuq – north wind is blowing
neqluaq – he broke its neck, as was done
sometimes with seals and baby walrus
caught
neqlutuq – it broke its neck
neqluuktutin – you will break your neck! (said
as a warning to children playing
dangerously)
neqriağruq – spider
neqriağrun! – go get eggs!
neqruaa – he is lowering him down the face of a
cliff by a rope
nemeq – to swim around under breathing hole,
under the ice, of a bearded seal getting
ready to surface
neșauk – brother-in-law
neșayuq – open water crack in ice
neșaugaq – son-in-law
niaqiun – rope attached to the snout of a
walrus to tow it
niaqsiaq – young woman
niaquq – head

nikpatuaq – hunter waiting for a seal to surface in breathing hole

niksik – gaff, something with a hook on it

niqiq – share of meat

niqiqi! – get shares!

niqtuq – he got a share of meat

niu – leg

Niuuvak – Albert Ayahak’s Iñupiaq name (means ‘housefly’)

nivisiq – “sucker fish” that sticks onto rocks

nivisaniaq – to go to get a sucker fish

nugaq – younger brother

nugaq yuguaq – bull walrus

nugaqliq – youngest sibling, youngest child of a family

nugapiaq – young man or young male walrus

nugapiyaaalak or nugapiaasiq – young male walrus

Nuggazaq – Edward Penatac of King Island’s Iñupiaq name

nuilak – parka ruff

nukkinaak [dl.] – tusks of a young male walrus

nukkinaq – male walrus, not full-grown

Nunaqirat – place name of a cliff on Big Diomede Island

nunavak – walrus on top of the ice [pl. nunavait]
nunavatuq – it (walrus) is getting up onto the ice or it got onto the ice

nunavayunjat [pl.] – many walrus on (scattered) ice

nunavraqpaliarut – they must be killing walrus (out of the water)

nunavraqtut – they (hunters) are killing walrus, which are out of the water (said when you can hear the hunters, but cannot see them)

nunayatuq – I am camping

nunivautet – berry comb

nunuq- – to scold

Nuugatuq – I went to Naukan

Nuvaaluk – Edwina Omiak Krier’s Inupiaq name

--P--

paağun – high cloud (probably, cirrus) that indicates wind

Paamii – a Chukchi man (Suksi in Iñupiaq)

paaq – entryway

paganaruak [dl.] – bent tusks (that do not grow straight out, but bend downward)

pakułuk – cormorant

palak- – to be too much

palliq – wick

palliraq – moss used for lamp wick

pamiuq – mammal tail

pana – spear (used even for walrus, after it has been harpooned)

panagaa – s/he speared it

Walruses scattered on ice. (Joel Garlich-Miller)

Qaŋri entry. (Eskimo Heritage Program)
paneqtuaq neĝe – dried meat

paneqtuumaruat yuğuram tulimait – dried walrus ribs

paneqtuumaruat yuğurat neĝait – dried walrus meat

paplu – wood drum handle

Paugaq – Elizabeth Milligrock’s Iñupiaq name

pauğriruq – puts something underground or snow or ice, as meat to cache it

pauluk or paguluk – cormorant

pauvuyak– to cough

pavağliraqtuat or neğuaqtuat yuğurat – feeding walruses

paveŋuq – fish tail

Payana – Dwight Milligrock’s Iñupiaq name

peneksraq – dry grass used for insoles

penjkktat [pl.] – lumps on the skin of old bull walrus; small knolls

penjuq – frost heave, hump

penjurañauruq nuna – the land has “bumps” on it

perektuq – he/she/it went down

peruniaqtuna – I am hunting for chicks, using a small hook if I can’t reach into a crack

peruq – auklet chick

pilak– to butcher an animal

pipsiraq – dried fish

piqqaaŋruck – young kittiwake
pizukağruk – fox

pualaruq – s/he is dancing

pualatut or pularut – they are doing a common dance

puiğaagait – they blew them up, inflated them

puiğa – s/he blew it up

puiqtuq – they inflated something

pukta- – to float

puktaaq – floating ice pan, ice floe

Puqtuğmiut – Puqtuut qagri

purumuusiq – old-style kerosene stove (loud); primus stove (from the word ‘primus’)

puuğaa – caught a bird with a net

puuqtuna – I caught birds with a net

puuvratuq – it is swimming (active swimming, not a fish)

puvlatut – they smell something

puvluavut, naluktut – they (walrus) smell us and dive

puyalainavauruq – there is a lot of steam, as from a large herd of walrus

puyuq- – to be a dark cloud over open water

puyuqtuq – there’s a dark cloud over open water

puyuqtut – they’re going after a whale (boat crew)

--Q--

Qaaq – place name for the top of Diomede Island

Ice floes move past the village of Little Diomede. (Eskimo Heritage Program)

Dark clouds over the Bering Sea. (Julie Raymond-Yakoubian)
qaγa or qaγaq – root of aziaq plant or pink plume plant

qagaqpazimeea – there are walrus hauled out on the beach

qaγisaq – pole with net on the end to catch birds

qaγitaq – brain (animal or human)

qaγlutuat yuγγuaq – the walruses call or make a sound

qaγlutut – they (animals) call, or make a sound

qaγna – mouth [its mouth]

qaγri – a political, social, ceremonial and educational institution in Inupiaq communities

qaγri- – to go to a qaγri

qaγrim inuit – qaγri members

qaγriruq – he went to a qaγri

qaγruq – arrow (Eskimo style)

qaγuluagruq – shearwater (also known as the “walrus bird”)

qaγig [pl.] – waves onshore, breakers

qaγulik – ribbon seal

qaγkuin! or qaγlutin! – come in, meaning literally ‘climb up’ as from the qaγri tunnel into the house

qaγnauarauk or qaγnjaγrauak – tusks that touch at the tips

qaγneq – walrus on the ice, out of water
**qaknivak** – walruses on ice that look like an island from the distance; large walrus herd, or a big walrus on ice

**qaksrut** [pl.] – sea mammals out of water on land

**qaksrut** – they climbed up

**qalatuaq** – something boiling

**qalausriruq** – she is boiling something

**qalhavak** – axe

**qaluaq** – blue cod or meat hole (see also following term)

**qaluaq** or **ea** – meat hole (for storage and aging of meat; greens go in smaller holes with wood covers; auklets go in gunny sacks with walrus meat) where meat is stored until October

**qaluaqpak** – “codfish” (Arctic pollock)

**qalut** [pl.] – rocks on the beach

**qaluviaŋun!** – lance it!

**qaluviaq** – whaling lance, also used for walrus

**qamaut** – dogsled, freight sled

**qamigatut** – they are pulling a boat over the ice

**qaneqsruun** – telephone

**Qapqamiut** – highest **qagri** on Little Diomede

**qaqluuk** – [dl.] bird net with a frame (same word as ‘lips’)

**qaqqazuk** – raven

**qaqqin** – root pick

**qaqqiruŋa** – I am digging with a root pick

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**Walrus herd. (Julie Raymond-Yakoubian)**

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**Amy Iyapana in an “ea” (meat hole). (Eskimo Heritage Program)**
qaqsrauq – loon
qatek – bird breast
qatjuatatut – they are going to leave
qatjutut – they left, departed
qatqit – to reach the top of something
qauneq – windowpane
qawaqsiağruk – young male walrus with short tusks
qawaqsilaaq – mother with young walrus with new tusks
qawaqsilik – female walrus with young (older than baby); also, place name on north end of island where people pick greens
qawaqsiq – harpoon line made of young or baby walrus skin
qayakaa – he hears an echo
qayaksaagaa – he is listening for an echo
qayaktuq – there’s a echo
qayanjilat – there is no echo, they have no echo
qayaqtutuaq – someone using a kayak
qayauruaq – it tipped over (a boat or sled)
qayuq – walrus or seal broth
qayuqfluuraq – Bering chickweed; also anemone, not distinguished from chickweed, anemone grows only in one place
qazigiaq – spotted seal

Bird breast. (Julie Raymond-Yakoubian)

Jacob Ahkinga and friend make rawhide rope from baby walrus, Dora Ahkinga in background. (Eskimo Heritage Program)
qegemaruaq ne\u0303 – frozen meat

Qegeqtamiuraaqtuq – he is speaking in the
Shishmaref dialect of Iñupiaq

Qegeqtamun aulai\u00e7ugvisii? – Are you all going
to stop at Shishmaref?

Qegeqtaq – Shishmaref

Qegeqtaruguisii? – Are you all going to
Kotzebue?

Qegeqtarummiut – people from Kotzebue

qegetuumaruat yu\u00dfurat ne\u00e7ait – frozen
walrus meat

qeleqeun\u00e7! – lash it!

qelit- – to wind rope around in traditional rope
making process

qelliaqatuq – there is an underwater rock or
reef

qelliat [pl.] – rocks under water, reef

qene\u0103gautek [dl.] – binoculars

qeneqsi\u0103ta\u0103guit [pl.] – movie camera

qen\u0103a – its nose

qen\u0103lek – king eider

qerriuqtuaq – someone cutting firewood

qeruk – firewood

qeruktain! – go collect firewood!

qetquaq – seaweed

qiapiq – seagull

qiaq – inside of walrus stomach, which is
scraped, and eaten
qiiyaqui! – a boat is coming! people are coming to the island by boat!

Qilağruağmiut – place name for a location on the south side of Wales

qilainainaq – sail for a boat

qilaŋaagruk – puffin chick

qilaŋaq – puffin

qimaugatut – they fled

qimuksiaŋatuat [pl.] – dogsled racers

qissiq – when you make a handle through the skin or a split on the top of the head to tie a rope to

qitiqpiąłuu – getting right in the middle

qitiqutanaqsiaa – it’s lunch time

qitqa – its middle

qivuqaq – finback whale (with fin far back)

qizik – skin without hair, or tanned skin

quağugvin? – do you want to eat frozen meat?

Quapegat – place on Big Diomede Island

quaqflak – fermented walrus meat sewn up to store and ferment; aged meat

quaqlatugut – we are eating aged meat (especially flipper)

quaqsiaagruk – walrus with short tusks

quaqtuna teņuņmen – I am eating frozen liver

Quqanaq – James Iyapana’s Iñupiaq name

qugigaaagruk – dovekie

qugruaqnaq – large orange bottom fish

Rope attached to a walrus head, Enmelen, Chukotka. (Kawerak Subsistence Resources Program)

Walrus meat sewn up to be stored, Enmelen, Chukotka. (Kawerak Subsistence Resources Program)
qugruk – (tundra) swan
quvig – “pee pot”
qui – walrus bottom flipper and entire bottom part of animal
quiktivaktuq yuqvaq – a fat walrus
qulepsiq – walrus intestine stuffed with blubber
qulipsiun – cooking pot
quuk – honey bucket
qumklak – little cigar-shaped fish eaten by puffins and murres, which dive to get them
Quña – village on north side of Big Diomede Island
quuliq – sourdock (the small round ones), also known as oxyria or mountain sorrel [pl. quulit]
Quñamiut – people of Quña
quñasiq – neck
quñialiq – seat behind the bow seat in a skin boat where senior hunters sit
quñialituqaq – second man, behind bow man in skin boat
quñuyuqaaq – to smile
quppaq – crack (there is a big crack on top of the island)
quqquyak – (mythical) big polar bear with double ribs
quumatuq – wooden vat, big bowl where urine is used to cure skins, also used by shamans to see distant people and scenes by looking into the liquid
quuqsr−ku − to say ‘quu, quu’ which is a call for help

quvvanuaq − snow bunting
quvvanuqa—pak − snow goose

--S--

saqgit − chest, share of walrus “chest” given to elder crew member

Saatuñjuyait − place name

saayuq − upper part of storage shed

sagik − father-in-law

sagiuqaq − mother-in-law

sagriq − artemesia, “stink weed”

saqvaliqa − current has begun and ice is coming

saqvaq − ocean current [pl. saqvat]

saqvaq saqviñuq or saqvaqavaktuaq − strong current

saqvaqutuq − current is moving, flowing

saqvaqziun − compass (old word, thought to show where the tides would go)

sagvik − darting bomb for whaling

sailaq − sailor [from English]

salire − haircutter, barber

samuna − toward the west, toward East Cape, Siberia

sana− − to carve

sanalqitut [pl.] − tools

sanaruaq − carving on a tusk

Ivory carvings. (Eskimo Heritage Program)

Ice in a current. (Eskimo Heritage Program)
Sanimaq – place name for a point of land on the west side of the south end of Little Diomede Island

sanivaat [pl.] – people crossing to the mainland by boat

sanivata! – let’s cross to the mainland

sanivatuq – he crossed to the mainland

sapnaurut – they got stuck, e.g. in a storm

saqqiik – whale flukes

saqqiliaqtuq – its flukes are visible when the body is not visible

satkuq – bow

sauyaq – drum

sauyaq kazakaa – he is beating the drum

sauyatut – they (the women) are dancing in a seated position, doing a bench dance

savak – door

savakŋazaq – west side of island

sayuguuyuuguak – parakeet auklet chick

sayuguuyuuq – parakeet auklet or sea parrot

sayuqtut – they are doing a motion dance

sayuun – song with fixed dance motions

siqsraaq – dried rawhide rope

siqguuk – [dl.] bill of bird; snout of dog, seal, or human

Siŋnaq – Helen Pushruk of King Island’s Iñupiaq name

siŋnaq – channel

He is beating the drum. (Julie Raymond-Yakoubian)

Plane on landing strip on sea ice (see next page). (Eskimo Heritage Program)
sigu mervik – landing strip on the sea ice
sigu qaviaqtuq or qaviaqtugaa – ice is far out but appears close
siqvaagruk – young guillemot
siqvaq – guillemot
siigak – saxifrage
siiqsianiq or siiqsiaq – raw sour liver
siklaq – pickaxe (used on ice)
silalutuq – it is bad weather
silu – drifted carcass
silugaa – it (the carcass) drifted ashore
simiaqnaq – razor clam, large clam, siphon, or round clam found out from and north of village [pl. simiaqnit]
siqailik – female animal with a fetus, pregnant female
siqairuq or siqaiyauruq – she is pregnant
siqaiyiq or siqiaq – fetus
Siqnaziami perut – they came from Nome
sitiqpatut – they are very hard
sitquialaqtuq – its flippers (walrus or whale) are visible when it dives, body not visible
sitquq – walrus flipper (fore-flipper or tail flipper)
Situqauranmiuguruq – he is a member of the Situqauraq qagri
siua – bow of boat
siugaani ipkua – people of long ago
siugruk – Coleman stove

Siuqamiuraaq – to speak Siberian Yupik

siutaa – ear [its ear]

siuvate or siuvatuq – bow man in boat, who sits on front right, ready to harpoon.

siuvatega – my bow man

siuvatuq – he is seated in the bow

siuvaukipin? – do you want to be the bow man?

sugumaq – snipe or sandpiper

sumen anuvizi? – what did you catch?

sumen ninjipin? – what share did you get?
(asked of hunter by his wife)

snejgun! – remove its gall bladder!

sunjaq – gall bladder

sunjaqsitut – they have bile in them and are not good to eat

sura – willow leaf, found on top of the island of Little Diomede

Sutpak – name of a location in the middle of Big Diomede; there’s a creek with snow that doesn’t melt in the summer. Little Diomede people went there to get water when they had none. Walrus often haul out near this location.

---T---

taanmuinaq or taatut – [they went] toward Diomede Island from the west

tagaq – blood vessel

tagraaqtut – waves crash on the beach
Tağuupik – William Kaputak’s father’s Inupiaq name

_taikaa palakman, sigu imna ağviaa_ – ice moves toward East Cape, Siberia

_taikañåguua_ – east wind has begun to blow

_taikañaq_ – east wind

_taisiñurut_ – they got lost in the fog

_taituk_ – fog

_taituuğaa_ – it got foggy

_taksiruŋa_ – I won (at cards, etc.)

Taktuk – Moses Milligrock’s Inupiaq name

_taliğuq_ or _taliq_ – foreflipper of walrus, seal; human arm

_talu_ – screen, barrier, could be a hunting blind of piled rocks

_taqqiq_ – moon

_taqtuq_ – kidney

_taqtuq ağinaziqtuumaruaq_ – fermented kidney

_tategraq_ – crane [pl. _tategrait_]

_tavra qaa_? – is that all?

_tayaq_ – crested auklet

_tayaqtuaq mittuq_ – a plane landed

_tayuuoq_ – to sneeze

_tegeruq_ – it flew away

_teggutek_ [dl.] – pliers, literally “grabber”

_telaiñainiq_ – sail

_tenjetkaa_ – it (an object) got blown away
teŋmialqhuziq – small bird

teŋmia – bird

teŋmiaqpak – eagle

teŋneq – someone who drifts away on an ice floe [pl. teŋnet]

teŋuŋaq – cooked sour liver, put away for winter

teŋuk – liver (fresh)

tepquuraq or tepquaq – coltsfoot (Petasites)

tiivum qaaga – table top

tiivuq – table [from English]

tilaiŋainek – with a sail

tilaiŋainitut – they are sailing

timik – inside “core” of tusk

tiŋmiuraq – auklet

traumii! – a ship is coming! (a call)

tugrun – lashing for the skin boat [pl. tugrutit]

tuktaq – walrus meat, including organs, tied in a waterproof bundle

tulak- – to reach something, in a boat

tulimaq – rib

tuluغاateut – it (the walrus) hit us

tunŋaq – black puffin [pl. tunŋait or tunŋat]

tuplriraŋiq – fermented food, not too strong

tuplitut – they aged (of meat)

tuplivakait – they got very aged, very strong
tipliziqnaŋ – not aging the meat

tupliziqtuŋa – I am aging the meat (pronounced tuffiziq-)

Tuqsruruuraak – place name for an area near the south of the village of Little Diomede

Tunu – back of island toward Wales

tunjɑq – sour liver

tuugaam qupait – cracks on a tusk

tuugɑq – tusk

tuugnagaa – he was haunted

tuqŋnaŋqtuŋ – it is haunted [literally ‘it has ghosts’]

tuqŋnaŋ – ghost

tuukaq – toggle spearhead

tuulik – type of loon, smaller than qaqsrautq

tuumiɑŋŋen – “picking bag” worn around neck, to put greens in when picking

tuusiniŋ – tusk with head bone attached

tuvautanaqsiŋ – it is breakfast time

Tuveq – place name for a location south of the village of Little Diomede

tuwaŋq – to go out (the shore ice)

tuwaq – shore ice

---U---

Ualeq – Ualen (Siberia)

Ualituŋa – I went to Uelen

uaruq – female walrus is sitting with her young, or a woman with a baby
**Ugatamatua** – people pulling boat along the shore or along edge of ice

**Ugneq** – place name for the first cliff south of Little Diomede village

**Ugijaa** – winter has come, winter is here

**Ugiuvamiurraq** – to speak King Island dialect

**Ugiuksraaugua** – fall has come

**Uguaksraq** – Aaron Milligrock’s Inupiaq name

**Uguaq or Ugukhaq** – daughter-in-law

**Uilataaa** – lead is starting to open

**Uiniq** – open lead, water

**Uituaq** – a lead opened up

**Ukkut** [pl.] – rock blind for seal hunting

**Ukpek** – snowy owl [pl. ukpiit]

**Ulemaun** – adze

**Umealuk** – front of walrus face, snout with whiskers

**Umialeraq** – future captain, also a man’s name

**Umialik** – boat captain; boat owner; boss

**Umiaq** – large skin covered boat

**Umiaq tuluga** – walrus hitting a boat [literally: ‘it hit a boat’]

**Umiaqpak** – ship

**Umiaqtut** – they are hunting sea mammals from a skin boat

**Umiaqtutut** – they are “boating”, hunting sea mammals from a boat;

**Umiaqtuzuilat** – they do not go out boating

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*Merge to be used for glossary:* Winter on Diomede. (Meghan Topkok)

Winter on Diomede. (Meghan Topkok)

Man in a small boat (see next page). (Eskimo Heritage Program)
umiyuŋaq – one-man skinboat (sealskin) which is rowed; a small boat

umiu–  – to capsize

umiuraq – wooden whaling boat

umiurut – they tipped over in a skin boat

unaaq – harpoon for walrus or seal [pl. unaat or uniŋat]

unaqsiaq – wood

uniat – upright sled

uniŋatin izakin! – pick up your harpoon!

unnuaq – yesterday

unuuta–  – to eat dinner

unuutanaqsiaa – it is dinner time

unuutatuŋa – I am eating dinner

unŋagraq–  – to be a north current, which takes ice out

unŋagraugaa – north current has begun

unŋaŋrimun – towards the northwest

Uŋaŋrit – northwest

unŋaŋrituamun – to become northwest

unŋagrituq – there is a north(west) current

unŋalauŋaa – south wind has begun to blow

unŋataa – the south side (of it)

unŋatmun – to the south

Uŋaukhyuk – Patrick Omiak’s Inupiaq name, known as Teŋaari or Teŋaare to Siberians

unŋmit – whiskers

“Dinner foods” - ugruk, seal and walrus meats. (Julie Raymond-Yakoubian)

Walrus whiskers. (Meghan Topkok)
upkut [pl.] – lower part of modern-type shed (attached to house)

uqqutaq or uqqutauraq – windbreak

uqsruaq – oil slick around dead sea mammal from their blubber

uqsrualuk – stove oil

uqsrluk – kerosene

uqsruq – fat, blubber

uqsruuraq – fuel oil, blubber for fuel

usrraq – fermented flipper or skin with blubber

usrruq – it lost its hair, the hair came off

uteğninaquiaumautin! – come home soon/early!

uteğninaqsiaa – it’s time to go home

utesiruńa – I aged (walrus) meat or sealskin so that the hair comes off

uti- – when hair slips off the skin after it has been prepared and aged

utqiq – Eskimo potato

uuklizuu – cook stove

uuktuaqluu – try it!

uumatiq or uuman – heart

uunazaun – wood stove

uuraq – cooked fish

uutumaruat yuğgurat negait – boiled walrus meat

uyağak – rock [pl. uyagaít]

uyağauraq – little stone

Shed. (Eskimo Heritage Program, L. Milligrock Collection)

Utqiq – Eskimo potato. (Etta Ahkinga)
uvañnaraq – spring

uvañnarasiun – small skinboat used in spring, easier to handle than larger boat; taken to south side of Little Diomede Island with a dog team in the past

Uyaanauq – Inupiaq name of the father of Avuuŋa

uyuguaŋniaqtut – they are walrus hunting

uyuguaq qakruq – the walrus hauled out, got out of water onto ice or land

uyugurat uutuumaruat [pl.] – cooked walrus meat

uzuk – penis, penis bone (baculum)

--Y--

yaanaq – rain

yaanituq – it is raining

yuŋgaŋyaak – pair of waterproof books, of ugruk or seal (blood used to waterproof it)

yuŋguaŋniaqtuat – walrus hunters

yuŋguaq qeleguŋqaqtuaq – walrus with a scar on its skin

yuŋguram iglawiit qalautuumaruat – boiled intestines

yuŋgurat atqatuat – diving walruses

yuŋgurat paamatuat – crawling walruses

yuŋgurat puerat or pueyatuat – surfacing walruses

yuŋgurat siniktuat – sleeping walruses

yuŋniaq – to whistle
--Other--

Seats and positions in skin boat:

1. siua – front
2. quŋalik – second seat
3. qetqa – middle place
4. aŋupsaaq – fourth seat
5. aŋua – rear seat

Hunters in skin boat – front of boat on left side, rear of boat on right side. (Eskimo Heritage Program)
Appendix 2: Little Diomede Methods of Preparing Walrus for Consumption
liver / teŋuk

Raw Sour Liver (siiqsianiq or siiqsiaq)

Liver from a bull or female can be used.

- First, cut the liver into thin strips and place raw and uncooked into a (preferably glass) bowl to sour for as long as desired, roughly 8-10 days. The bowl can be lightly covered with cardboard or paper, but the liver needs air to sour properly. You keep the bowl indoors, on the floor. Check every few days by dipping your finger in to test if the liver is soured to your taste preferences.
- You can eat the soured liver with cooked flipper or coke. You can also dip the coke or flipper into the juice of the sour liver, like a condiment.

Cooked Sour Liver (teŋuŋaq)

- Cook the liver in large chunks (it will shrink to about half that size as it cooks) that are 3-5 inches in diameter, on medium-high heat in a pot with spring or snow water (not chlorinated water) for about 30 minutes. As it cooks the blood will seep out from the liver and the liver will begin to harden or stiffen.
- Be sure to stir constantly to prevent the liver from burning. Cook until it’s a little more than half cooked (not fully cooked), as it will ‘cook’ more as it sours. There will be a little bit of blood foaming from its center when it is done.
- Separate the liver from the liquids to cool and then mix again in a bowl, wooden barrel, porcelain crockpot, etc.
- Leave the liver in the bowl (or other container) to sour approximately 20 days, or up to a month depending on the temperature of the place where it is set, in a place that isn’t too cold or too warm (such as out on the porch). You will be able to tell within 4-5 days whether or not the liver is in a place that is too cold and thus not souring. If so, change the location of the container to a warmer location to help it ferment. Or, if this does not help, it could be a sign that the liver was overcooked, when it does not sour as expected.
- When the liver is soured and ready to be stored in a barrel, dry the liver out for about a day before placing it in the barrel with seal oil.
- Alternately, instead of fermenting the liver in the pot, you can place the liver into a barrel and allow it to ferment either with the clear liquid broth or by adding snow to melt in the barrel, to prevent the liver from drying out. When liver is done fermenting, remove from it from the broth and enjoy. The sour liver will last in the barrel with seal
oil for long periods of time, but it tends to crumble if stays in the oil too long. For some families, this is the meat usually eaten first.

**breast / mamaun**

*Dried*

- Once you cut the breast meat away from the coke, you can remove it with part of the chest muscle/meat.
- Get a good sized triangle from the chest meat – about 1.5 feet in diameter – and cut into 2-2.5 inch strips, to form a coil. This way it will shrink and the inner side will dry a bit as well.
- Soak meat in water and then hang to dry.
- Hang the breast up to dry in the sun for about 15 days (so that it is about half dried). This will add taste to the meat, especially since not all mahmaun (breast) is filled with milk.
- Then cut the long strips into pieces about 1.5 inches long.
- Cook in water with salt on medium-high heat for about 35-45 minutes.
- Remove it from the pot and air dry on a pan for a day, then place in a barrel with seal oil. Meat will last as long as it is preserved in the oil.

**chest / saagit**

*Boiled*

The soft bone (in the chest) with meat attached can be cooked. In order to soften the bone and cartilage enough to be easily eaten the meat and bone should be cooked for a long period of time.

- Place soft bone and meat in a pot of water and cook for about 2.5 hours.
- Add onion and salt to flavor.
- If you have fresh greens, cabbage, roots or other vegetables you can add those as well.
  - Add roots and seaweed* about an hour before the meat is done cooking so the roots can soften.
  - Add about a quart of cut cabbage (or other similar vegetables) about 15-20 minutes before the meat is done cooking.

*Note: the time of year that the seaweed is harvested should be taken into account when adding to the pot. If it is gathered in the early summer it tends to be thinner and harder, so you can add this seaweed when you first start cooking the walrus meat. Seaweed that is gathered in the fall, however, tends to be thicker and softer, and should be added later when
cooking. Alternately, you can cook the seaweed in a separate pot in order to prevent the taste of seaweed from overwhelming the walrus meat.

**heart / uumatiq or uuman**

*Half-dried heart*

- Best part of heart to half-dry is the thinner parts in the back of the heart (as it can be hard to chew on).
- Cut into strips and hang to dry in the sun.

*Boiled heart*

Best part to boil is the thicker, meatier parts of the heart.
- First, cut these parts into strips, about 1-1.5 inches thick/wide.
- Hang them to dry.
- Once the parts are dried cook them. You can cook these with clams (taken from the stomach, see later section on how to prepare these) and with some pieces of white cartilage. Some families do not fully cook and prefer the heart to be bloody.

**kidney / taquuq**

*Half-dried kidney for a barrel*

- Split the liver in half and then cut the liver long ways into about 5 cuts that are approximately 2 inches thick, so that they are about the same shape as a round plate. You can keep or remove the outer membrane according to your preference, this membrane holds fat and flavor, and keeping it will add a chewy texture.
- Then hang the pieces to half-dry for 8-10 days, the pieces will shrink and age during this time. When it is done half-drying, cut the kidney into small sized portions and boil in a pot of non-chlorinated water for 30-35 minutes with salt.
- Remove the kidney from the broth and allow to dry for a day (to seep out any juice) and place in a barrel of seal oil. This way the meat will soften in the seal oil and be richer in flavor. However, you can also dry the kidney and place in barrel without cooking if you prefer.

*Aged kidney*

- Alternately, you can clean the kidney, slice it and place it in a bowl with a light covering, such as a piece of cardboard, light cloth, or paper, to age for 12-15 days (depending on the temperature of where it is placed).
• You can check the kidney periodically and test taste to ensure that you age the kidney as desired.
• When you are done aging the kidney, you can eat with cooked coke or store in a barrel with seal oil.

boiled intestines / yuqquram iglawiit qalautituumaruat

Intestines taste best when the fat on the outer intestines is not removed during butchering. If there is not much fat, insert strips of blubber inside intestines while aging to add richer flavor.
• First, rinse the intestines with non-chlorinated water and cut into 4 inch long strips and place into a large glass bowl or 2.5 gallon bucket (one intestine will usually fill up a glass bowl).
• Add some walrus blubber on top to keep from drying out.
• Age the intestines for 12-15 days.
• Once the intestines are done aging, turn them inside out and use a butter knife to scrape off the inner layer (it has a slimy texture). You can also squeeze off this layer using a paper towel.
• Cook the inside out intestines for 15-20 minutes on low or medium heat, leaving them a bit bloody.
• Add salt to water as desired.

clams from the walrus stomach
(walrus stomach filled with clams: imaniraktuaq)

When the walrus stomach is slit open, wash contents with sea water to rinse off. Choicest clams are those that are not fully digested, as they are softer and fresher with red or orange tips. Since the clams have been ‘cooking’ and digesting in the walrus stomach, they don’t require much cooking, and the longer you cook them the tougher they will become. Once the clams are cooked, you can eat with boiled walrus heart (see earlier section on how to prepare the walrus heart).

baby walrus / izagvak

• Allow body of baby walrus to age for a day or two before butchering. You can do this by leaving the body on the beach, or outside your house, covered with a tarp or oogruk (bearded seal) hide to prevent bugs from getting into the body.
• Then cut the body into large sized chunks – flippers, chest, ribs, spine, etc.
• Tie parts together – e.g. flippers together, ribs together – and hang to dry at least 12 days depending on the weather (hot and sunny weather is ideal for drying).
• Bring the parts inside and allow them to sit in a box for a few days to age further. Then cut the pieces into smaller chunks and cook in pot of non-chlorinated water with salt.
• Remove chunks from broth and allow them to cool and dry, then place in a barrel with seal oil and throw out the liquid.

*Note:* When drying parts be sure to check for the presence of bugs or eggs. Wash these off with salt water. Don’t cut slits in joints, or on the spine, so that there are no small crevices where bugs (such as flies) can lay eggs. You can cover the baby walrus with an ugruk hide (with no blubber on it) to prevent bugs from laying eggs while it ages prior to butchering.

**Preparing izagvak for the meat hole (meat hole: qaluaq or ea)**

• Leave the baby walrus out (but covered in a cardboard box, under a tarp, or under an oogruk hide) to age.
• Place the body in a meat hole around July.
• Take meat out not long after Halloween (or after the first snow, but before the first freeze up) and cut in half.
• Can eat the flipper and other parts you want at this time, as they are already fermented and will cook fairly quickly in a pot of salted water.
• The other half of the baby walrus can be put back into the meat hole to freeze, and be eaten later.

**Izagvak blubber (blubber: uqrsuq)**

• Be sure you have sharp ulus when removing the blubber from a baby walrus as there are lots of sinew tacks to cut through.
• Then render and boil the blubber. Sterilize the seal oil and drop in some murre eggs carefully.
• Only add murre eggs that haven’t been washed, as the water will contaminate the eggs. The eggs will help preserve the meat, as well as add flavor to it when storing in the barrel. You can also fry them up, usually around November. When collecting murre eggs, try to collect around 30 of cleanest ones you can find (e.g. not covered much with bird excrement, dirt). This is a great breakfast/snack type food.
Appendix 3: Poster – “We depend on the sea”: The Importance of Walrus to Little Diomede
We depend on the sea:
The Importance of Walrus to Little Diomede

The Inait, or people of Little Diomede, maintain a long-standing and complex relationship with walrus. Traditionally, every part of the walrus had its own specific use so that no part was wasted. Walrus meat provides nourishment, the stomach can be made into drums, the hide can be used to make boats, and the tusks can be made into harpoon tips and jewelry, just to name a few of the many uses Diomede people have for walrus. Great cultural value and meaning are attached to walrus, as the community has relied heavily on the harvest of walrus to sustain them for millennia. Although this relationship between Diomede people and walrus has changed over time, walrus remain a critical resource for people on Little Diomede today.