Mapping Traditional Knowledge Related to the Identification of Ecologically and Biologically Significant Areas in the Beaufort Sea

L. Hartwig

Fisheries and Oceans Canada
Oceans Programs Division
Freshwater Institute
Central and Arctic Region
Winnipeg, Manitoba
R3T 2N6

2009

Canadian Manuscript Report of Fisheries and Aquatic Sciences 2895

Fisheries and Oceans Canada Pêches et Océans Canada

Canada

Canadian Manuscript Report of
Fisheries and Aquatic Sciences

Manuscript reports contain scientific and technical information that contributes to existing knowledge but which deals with national or regional problems. Distribution is restricted to institutions or individuals located in particular regions of Canada. However, no restriction is placed on subject matter, and the series reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries and aquatic sciences.

Manuscript reports may be cited as full publications. The correct citation appears above the abstract of each report. Each report is abstracted in *Aquatic Sciences and Fisheries Abstracts* and indexed in the Department's annual index to scientific and technical publications.

Numbers 1-900 in this series were issued as Manuscript Reports (Biological Series) of the Biological Board of Canada, and subsequent to 1937 when the name of the Board was changed by Act of Parliament, as Manuscript Reports (Biological Series) of the Fisheries Research Board of Canada. Numbers 901-1425 were issued as Manuscript Reports of the Fisheries Research Board of Canada. Numbers 1426-1550 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Manuscript Reports. The current series name was changed with report number 1551.

Manuscript reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out-of-stock reports will be supplied for a fee by commercial agents.

Rapport manuscrit canadien des
sciences halieutiques et aquatiques

Les rapports manuscrits contiennent des renseignements scientifiques et techniques qui constituent une contribution aux connaissances actuelles, mais qui traitent de problèmes nationaux ou régionaux. La distribution en est limitée aux organismes et aux personnes de régions particulières du Canada. Il n'y a aucune restriction quant au sujet; de fait, la série reflète la vaste gamme des intérêts et des politiques du ministére des Pêches et des Océans, e'est-à-dire les sciences halieutiques et aquatiques.

Les rapports manuscrits peuvent être cités comme des publications complèrwa. Le titre exact paraît au-dessus du résumés de chaque rapport. Les rapports manuscrits sont résumés dans la revue *Résumés des sciences aquatiques et halieutiques,*et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministére.

Les numéros 1 à 900 de cette série ont été publiés à titre de manuscrits (série biologique) de l'Office de biologie du Canada, et aprés le changement de la désignation de cet organisme par décret du Parlement, en 1937, ont été classés comme manuscrits (série biologique) de l'Office des recherches sur les pêcheries du Canada. Les numéros 901 à 1425 ont été publiés à titre de rapports manuscrits de l'Office des recherches sur les pêcheries du Canada. Les numéros 1426 à 1550 sont parus à titre de rapports manuscrits du Service des pêches et de la mer, ministère des Pêches et de l'Environnement. Le nom actuel de la série a été établi lors de la parution du numéro 1551.

Les rapports manuscrits sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur don't le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

Canadian Manuscript Report of
Fisheries and Aquatic Sciences 2895

2009

Mapping Traditional Knowledge Related to the Identification of Ecologically and Biologically Significant Areas in the Beaufort Sea

by

L. Hartwig

Fisheries and Oceans Canada
Oceans Programs Division
Central & Arctic Region
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

Cat. No. Fs 97-4/2895E ISSN 0706-6473

Correct citation for this publication:

Hartwig, L. 2009. Mapping Traditional Knowledge Related to the Identification of Ecologically and Biologically Significant Areas in the Beaufort Sea. Can. Manuscript Rep. Fish. Aquat. Sci. 2895: iii+25p.

TABLE OF CONTENTS

ABSTRACT	iii
INTRODUCTION	1
BACKGROUND	2
METHODS	3
RESULTS AND DISCUSSION	5
CONCLUSIONS	20
ACKNOWLEDGEMENTS	21
LITERATURE CITED	23
APPENDICES	24

ABSTRACT

Hartwig, L. 2009. Mapping Traditional Knowledge Related to the Identification of Ecologically and Biologically Significant Areas in the Beaufort Sea. Can. Manuscript Rep. Fish. Aquat. Sci. 2895: iii+25p.

Traditional Knowledge (TK) was collected during the process of identifying Ecologically and Biologically Significant Areas (EBSAs) in the western Arctic to complement available science information. TK was collected from the six Inuvialuit Settlement Region communities during three workshops. Information on fish and marine mammals was drawn on paper maps by community participants and then digitized using Geographic Information System (GIS) software. The areas of traditional significance for fish and marine mammals as identified by community members were used to help determine the EBSA locations and proved valuable where scientific data was lacking.

Key Words: Ecologically and Biologically Significant Areas, Marine Protected Area, Traditional Knowledge, Beaufort Sea.

RESUME

Hartwig, L. 2009. Mapping Traditional Knowledge Related to the Identification of Ecologically and Biologically Significant Areas in the Beaufort Sea. Can. Manuscript Rep. Fish. Aquat. Sci. 2895 : iii+25p.

Durant le processus de détermination des zones d'importance écologique et biologique (ZIEB) dans l'Ouest de l'Arctique, nous avons recueilli de l'information sur le savoir traditionnel (ST) afin de compléter les données scientifiques existantes. Cette information a été recueillie dans six communautés de la région désignée des Inuvialuit au cours de trois ateliers. Des participants de la communauté ont partagé leurs connaissances sur les poissons et les mammifères marins en dessinant sur des cartes en papier qui ont ensuite été numérisées à l'aide du logiciel du Système d'information géographique (SIG). Les zones d'importance traditionnelle (où se trouvent les poissons et les mammifères marins) qui ont été définies par les membres de la communauté ont permis l'établissement final des ZIEB et se sont révélées utiles lorsque les données scientifiques étaient manquantes.

Mots-clés : Zones d'importance écologique et biologique, zone marine protégée, savoir traditionnel, mer de Beaufort .

INTRODUCTION

Under the *Oceans Act* (1997) Fisheries and Oceans Canada (DFO) is authorized to identify Ecologically and Biologically Significant Areas (EBSAs) of Canada's oceans and coastal areas (DFO, 2004). The identification of EBSAs is not a strategy for protecting habitats or communities, rather it is a tool for calling attention to areas that have particularly high ecological or biological significance. After being identified, the most important portions of EBSAs can be protected either through the creation of smaller Marine Protected Areas (MPAs) or by the use of risk aversion management practices concerning activities planned for those areas. Although the identification of EBSAs has traditionally taken place within Large Ocean Management Areas (LOMAs) (Figure 1), they have recently been identified in Canada's Arctic Ocean outside of a LOMA.

Figure 1: Beaufort Sea Large Ocean Management Area (LOMA).

In the western Arctic where a land claim was signed with the Inuvialuit in 1984 (DIAND, 1984), Traditional Knowledge (TK) [1] is used to increase our understanding of the environment as well as social, cultural and economic aspects of that area. This information enhances the ability to

[1] The term TK is used throughout the report instead of Traditional Ecological Knowledge (TEK) because it is the preferred term of the Inuvialuit in the western Arctic.

make informed management decisions. It was with this in mind that DFO sought local input and TK to assist science in identifying EBSAs within the Beaufort Sea LOMA. The lack of scientific data for many areas of the Beaufort Sea LOMA increased the opportunity to use traditional and local knowledge to assist in the selection of EBSAs.

BACKGROUND

A workshop to identify EBSAs in the LOMA was held in Winnipeg on September 27, 2006 with DFO and other agency staff (*i.e.,* Environment Canada, Fisheries Joint Management Committee, Parks Canada and Indian and Northern Affairs Canada), where ecological information about the Beaufort Sea was gathered. This workshop focused primarily on results derived from scientific research. Three community workshops were held subsequently to collect TK that would be used in conjunction with the scientific data for the identification of EBSAs. The community workshops included representatives from the Inuvialuit, federal and territorial government departments, and Gwich'in co-management partners.

The first of the three TK workshops (WS1) was held in Inuvik, Northwest Territories (NWT) on November 8-10, 2006. Two representatives from each of the six Inuvialuit communities in the Inuvialuit Settlement Region (ISR) attended. These communities are; Inuvik, Aklavik, Tuktoyaktuk, Sachs Harbour, Ulukhaktok, and Paulatuk (Figure 1). The purpose of this workshop was to use TK to identify areas of ecological and biological significance in the Beaufort Sea LOMA.

Following the first workshop, two additional TK workshops took place; one in February 2007 (WS2), and the other in August 2007 (WS3). The February TK workshop (WS2) consisted of a series of workshops which visited each of the six communities in the ISR. The August TK workshop (WS3) consisted of two workshops one held in Aklavik and the other in Inuvik. Representatives from the Gwich'in Renewable Resources Board, the local Renewable Resource Councils, the Youth Council, the Elders Council, the Gwich'in Social and Cultural Institute and members of the Gwich'in Tribal Council participated in these workshops.[2] Additional information about the workshops can be found in English (2007a; 2007b).

During the mapping portion of all three workshops the community members were briefed on the knowledge gathered during the EBSA workshop in September of 2006, as well as the current state of local and Traditional Knowledge for the ISR. At this time further information was collected from participants on the distribution of marine mammals, fish, terrestrial mammals, and other species. Geographic features and other aspects of the environment identified as important by the community members were also noted. This information was recorded on paper maps with the assistance of a workshop facilitator. The information was later summarized and used to further refine the list of potential EBSAs.

This manuscript summarizes the information collected during the three TK workshops. The general areas identified by the participants during these meetings are of ecological and biological significance and have been documented in Figures 2 - 7. In addition, an overlay or "hot spot" map has been created to highlight the areas repeatedly identified as having high importance.

[2] The names of the participants from workshops WS2 and WS3 are located in the acknowledgements.

METHODS

The Workshops

Spatial information was collected on paper maps at all three workshops (WS1, WS2 and WS3). To prepare participants for the mapping exercise they were presented information on:

- The areas of importance identified by science;
- The criteria to be used for identifying other important species and areas (*e.g.*, DFO, 2004); and,
- A list of species of concern which have been identified officially, such as through the federal *Species at Risk Act* or the NWT Species General Status Ranking Program (Working Group on General Status of NWT Species, 2006).

Working in small groups, workshop participants provided information based on their own experience or knowledge gained from other community residents about important areas, areas of concern, location of important species, species of concern and other general comments. All information was recorded on the paper maps provided, typically by circling areas and providing a few written comments.

Most often participants would simply identify the occurrence of a species or marine feature in a particular area. However, on occasion they had supplementary information for the species or marine feature that they were identifying. Typically the information provided would be in regards to the role of an area for a portion of the life cycle of a specific species (*e.g.*, spawning or feeding).

The following maps summarize the TK as it was gathered at the workshops. Figures 2-7 summarize the TK on various fish and marine mammal species. Figures 8 and 9 provide a summary overlay analysis of all areas identified in the previous figures.

Map Digitization

The paper maps were digitized by the author and a facilitator from the workshops who had first-hand knowledge of the information collected. The digitization process included re-drawing the areas identified on the paper maps in ArcGIS 9.2. Supplementary information was also recorded at this time and compiled in a file geodatabase.

Summary Maps

Although information was collected on the various components of the marine and terrestrial ecosystems used by community members, only information on marine mammals and fish was used to create the summary maps for this manuscript. The geographic extent of these maps includes all six Inuvialuit communities and stretches from the most western point of the Yukon North Slope at the Alaskan border to the eastern most portion of the Nunavut border on Victoria Island. A large scale map (1: 4618098) was used for this manuscript to correspond with the accuracy of the method used to collect the information.

Information is presented as it was collected except on the few occasions when it was determined that species identified were incorrect. One example is the case of Arctic Char (*Salvelinus alpinus*) which was identified as one of the species harvested along the Yukon North Slope. However, scientists have confirmed that the species present in that area is actually Dolly Varden (*S. malma*) (Reist *et al.*, 1997).

Two species identified by community members were not identified in the Inuvialuit Harvest Study (Joint Secretariat, 2003), which collected monthly harvest information from Inuvialuit subsistence harvesters. The species' names were changed according to what fisheries biologists believed they were in reference to (pers. comm. S. Stephenson, DFO, 2009). Broadback was assumed to be Broad Whitefish (*Coregonus nasus*) and Flat Fin Fish was changed to Flat Fish (although the species of Floundersw remains unknown). In many cases however, a single name such as cod or herring was used to identify a species and it was not possible to determine exactly what species the respondent was referring to. Similar issues were noted in the Inuvilauit Harvest Study (Joint Secretariat, 2003) and by Stephenson (2004). Although there may be some discrepancy in the species' names, this information is still useful for identifying ecologically and biologically important areas. Participants used local names in many instances so that Northern Pike (*Esox lucius*) were simply referred to as Jackfish, Burbot (*Lota lota*) as loche and Pacific Herring (*Clupea Pallasii*) as Blue Herring or sometimes just herring. It is possible that "herring" may have also referred to some species of Coregonid such as the Arctic Cisco (*Coregonus autumnalis*). Appendices 1-3 provide common and scientific names of species identified during the workshops.

Summary maps were created by displaying the data according to species and ecological function. The ecological function of the area refers to the role that it plays in the life cycle of the species. When the specific ecological function of an area to a portion of a species life history in a particular area was unknown, the area was categorized as "general occurrence". This category should not be interpreted as unimportant until studies can be carried out to determine the exact use of the area by that species.

Each of the areas identified on the following maps has a reference number associated with it which is located next to the polygon and coloured to match. Using the reference number, additional information about the area can be found in the table following the map. Such additional information includes the community and workshop that identified the area, as well as any additional comments. Some of the maps have several areas identified with different numbers and yet they use the same colour. These are instances where different community members identified multiple areas of similar use or occurrence by a species.

Overlay Maps

An overlay map was created as a way of showing areas of significance for all species identified. This was done by consolidating all of the information in the individual maps (Figure 8). Areas that were identified twice, either by two different groups or for two species, were given a value of two rather than one. The result is a map in which overlapping areas appear darker. This suggests that these areas have greater importance to more species. The second overlay map (Figure 9) includes the final EBSAs and shows how the TK gathered during the workshops contributed to the final decisions regarding location of the EBSAs.

RESULTS AND DISCUSSION

The quality of the information collected depended on the expertise of the person providing it. Typically, the information collected was land or near-shore based, and little information was offered that described habitats, conditions or species far from shore (*e.g.*, Figures 2-3). Knowledge of marine mammals like seals (Figure 5) included relatively distant offshore areas probably due to the ability to hunt further offshore during winter. Similarly, the ability to observe or hunt whales in offshore areas is likely responsible for further offshore information on these animals (Figures 6-7).

Because of the near-shore nature of TK it is not surprising that the offshore EBSAs (*e.g.*, Figure 9) were not identified through the three workshops (WS1, WS2 and WS3) as important for fish or marine mammals. However, the TK complements scientific data which in the Beaufort Sea often describes off-shore more so than near-shore areas. The areas identified as important for multiple species or by multiple groups were most often found around the Tuktoyaktuk Peninsula and Husky Lakes area. These areas were also identified by science as being ecologically rich and biologically significant.

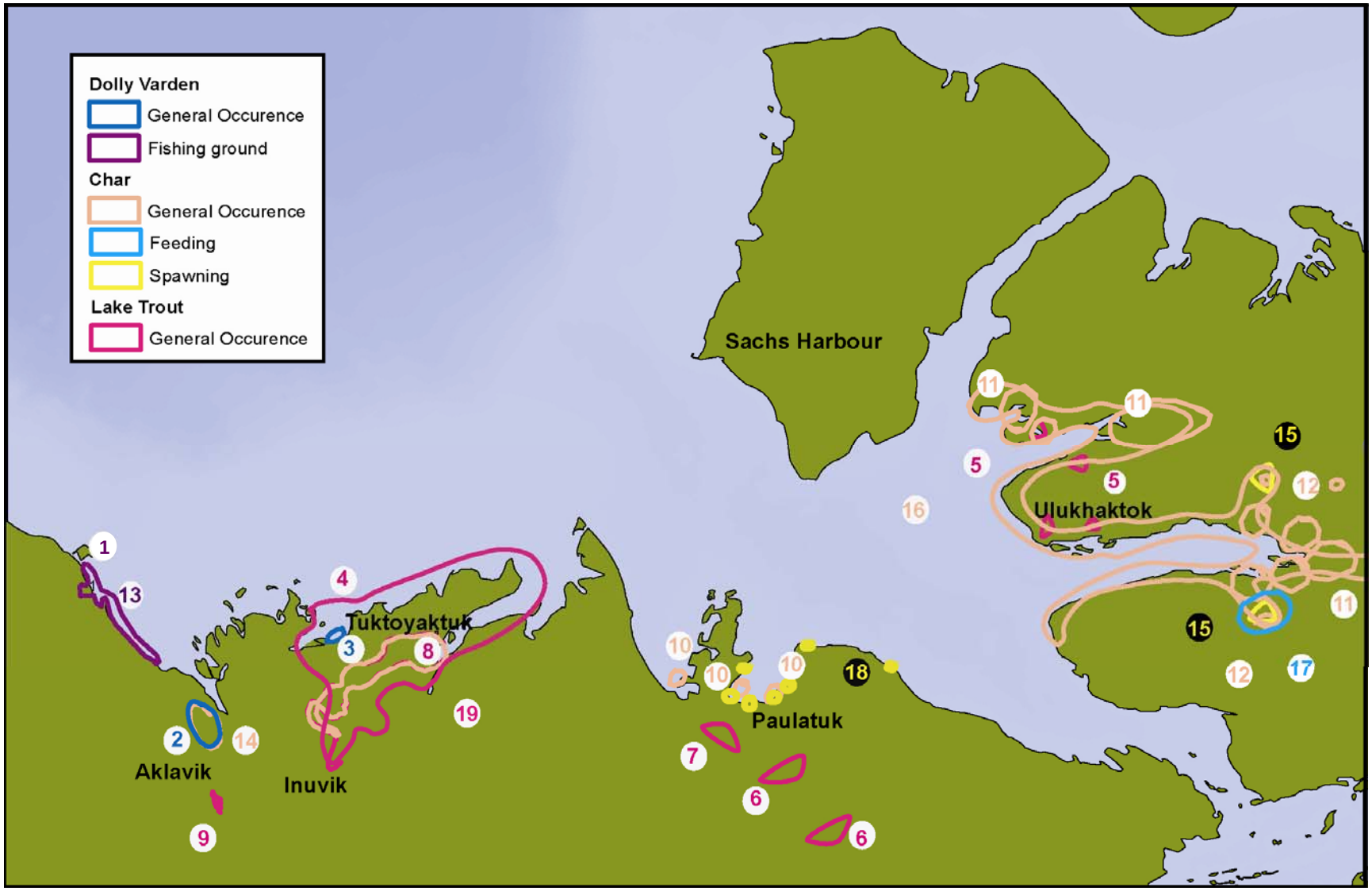

Figure 2: Traditional Knowledge of ***Dolly Varden, Char*** and ***Lake Trout*** in the Beaufort Sea.

Table 1: Key for ***Dolly Varden, Char*** and ***Lake Trout*** (Figure 2).

	Reference Number	Community	Workshop	Ecological Function of Area	Comments
Dolly Varden					
	1	Aklavik	WS2	Fishing ground	
	2	Inuvik	WS2		
	3	Tuktoyaktuk	WS2		Rare
Lake Trout					
	4	Tuktoyaktuk	WS2		
	5	Ulukhaktok	WS2		
	6	Paulatuk	WS2		
	7	Paulatuk	WS2		
	8	Paulatuk	WS3		
	9	Aklavik	WS3		
Char (Arctic Char)					
	10	Paulatuk	WS1		
	11	Ulukhaktok	WS1	Feeding, migration	
	12	Ulukhaktok	WS2	Spawning	
	13	Aklavik	WS2	Fishing ground	
	14	Inuvik	WS2		
	15	Ulukhaktok	WS2	Spawning	
	16	Ulukhaktok	WS2		
	17	Ulukhaktok	WS2	Feeding ground	
	18	Paulatuk	WS2	Spawning	
	19	Inuvik	WS3		

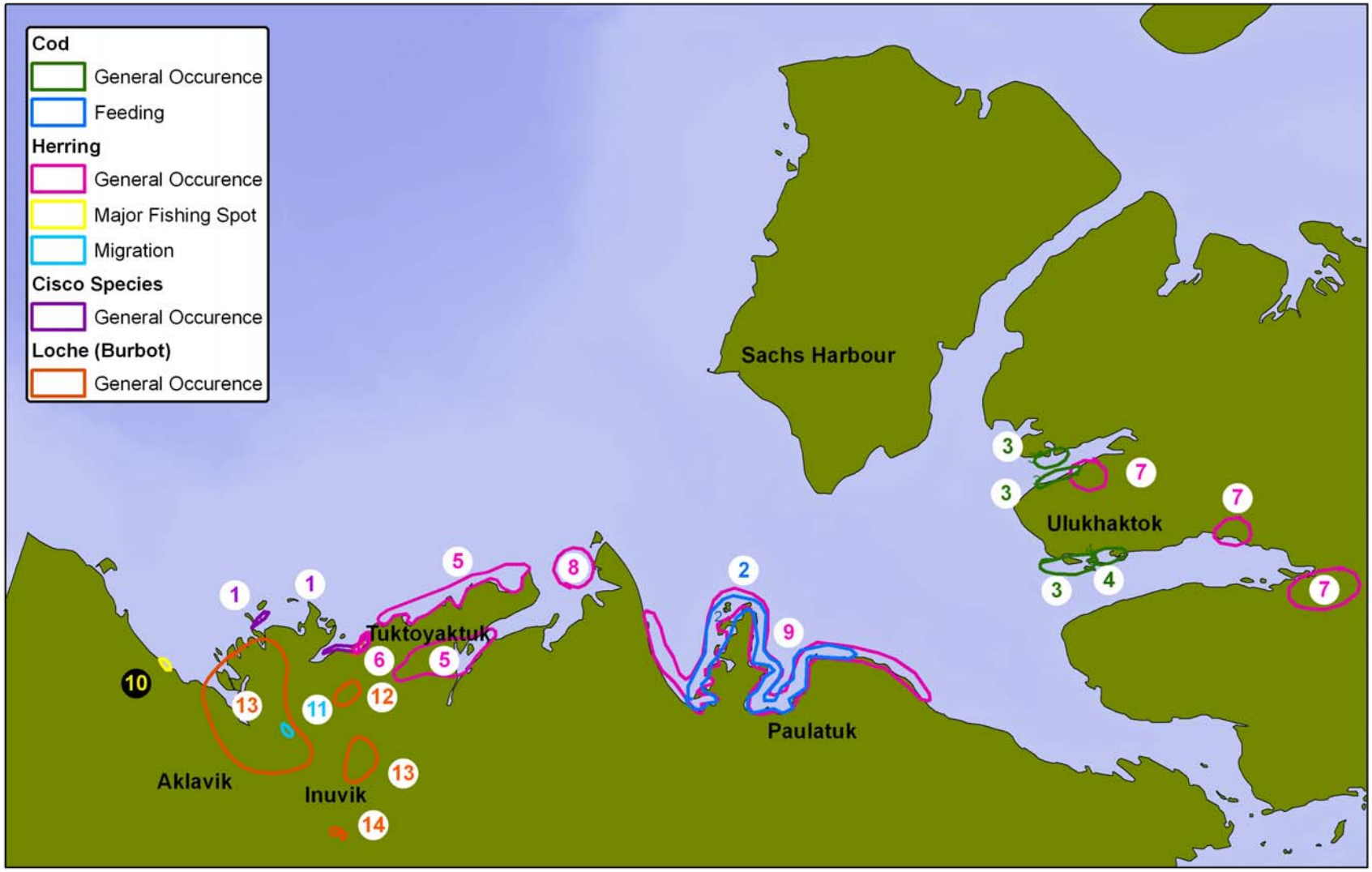

Figure 3: Traditional Knowledge of ***Cisco Species, Cod, Herring*** *and* ***Loche*** in the Beaufort Sea.

Table 2: Key for ***Cisco Species, Cod, Herring*** *and* ***Loche*** (Figure 3).

	Reference Number	Community	Workshop	Ecological Function of Area	Comments
Cisco Species					
	1	Inuvik	WS3		
Cod					
	2	Paulatuk	WS2	Feeding	
	3	Ulukhaktok	WS2		
	4	Ulukhaktok	WS2		Seen for 80-90 days
Herring*					
	5	Tuktoyaktuk	WS2		
	6	Tuktoyaktuk	WS2		
	7	Ulukhaktok	WS2		
	8	Tuktoyaktuk	WS1		Believed to be spawning grounds
	9	Paulatuk	WS2		
	10	Aklavik	WS2		Major fishing spot
	11	Inuvik	WS2	Migration	Seen in August
Loche					
	12	Tuktoyaktuk	WS2		
	13	Inuvik	WS2		
	14	Inuvik	WS3		

* This includes Pacific Herring

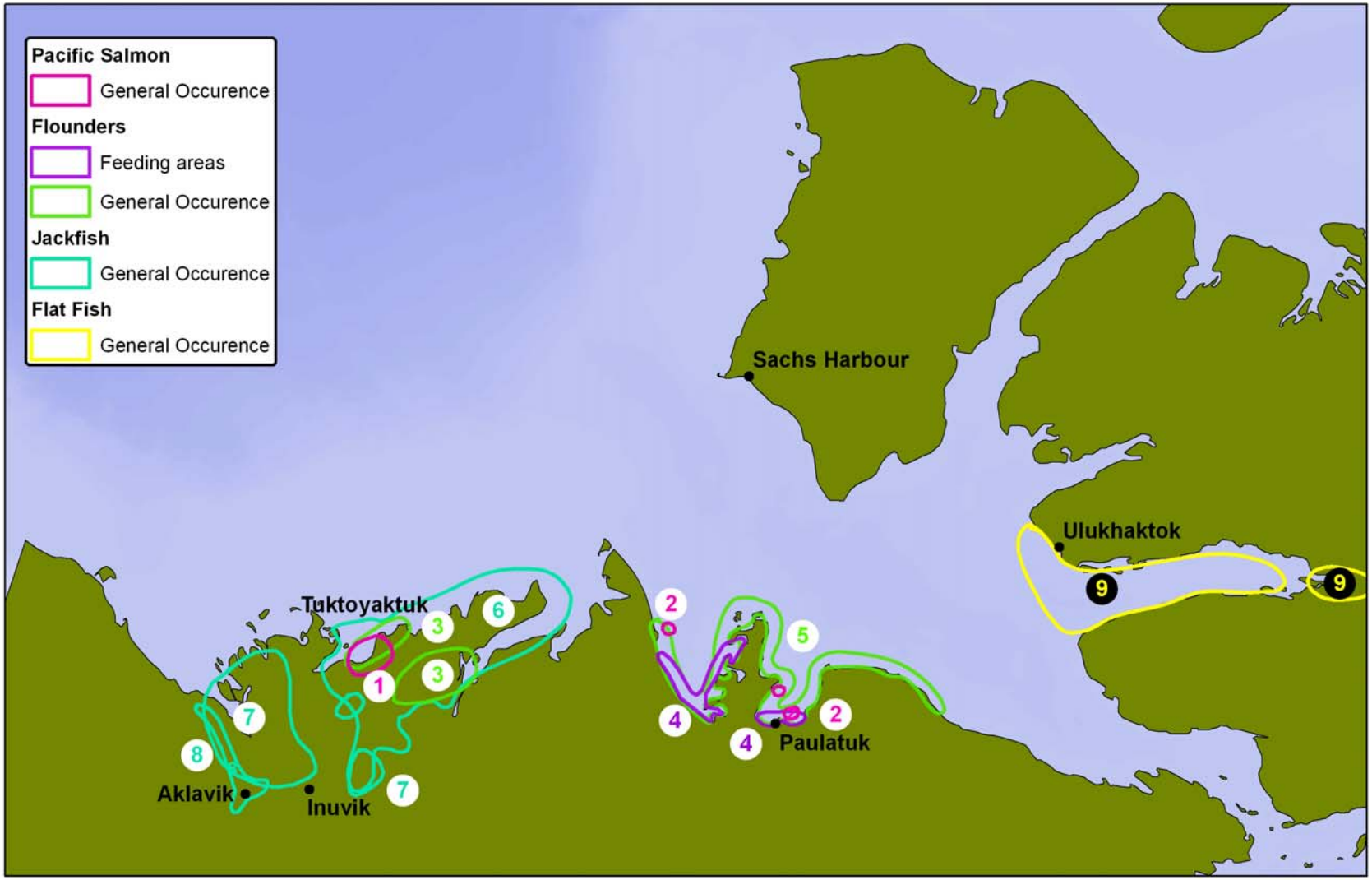

Figure 4: Traditional Knowledge of ***Pacific salmon, Flounders, Jackfish*** *and* ***Flat Fish*** for the Beaufort Sea.

Table 3: Key for ***Pacific salmon, Flounders, Jackfish*** *and* ***Flat Fish*** (Figure 4).

	Reference Number	Community	Workshop	Ecological Function of Area	Comments
Pacific salmon					
	1	Tuktoyaktuk	WS2		Increasing
	2	Paulatuk	WS2		
Flounders					
	3	Tuktoyaktuk	WS2		Declining
	4	Paulatuk	WS2	Feeding	Fishing ground
	5	Paulatuk	WS2		
Jackfish (Northern Pike)					
	6	Tuktoyaktuk	WS2		
	7	Inuvik	WS2		
	8	Aklavik	WS3		
Flat Fish					
	9	Ulukhaktok	WS2		

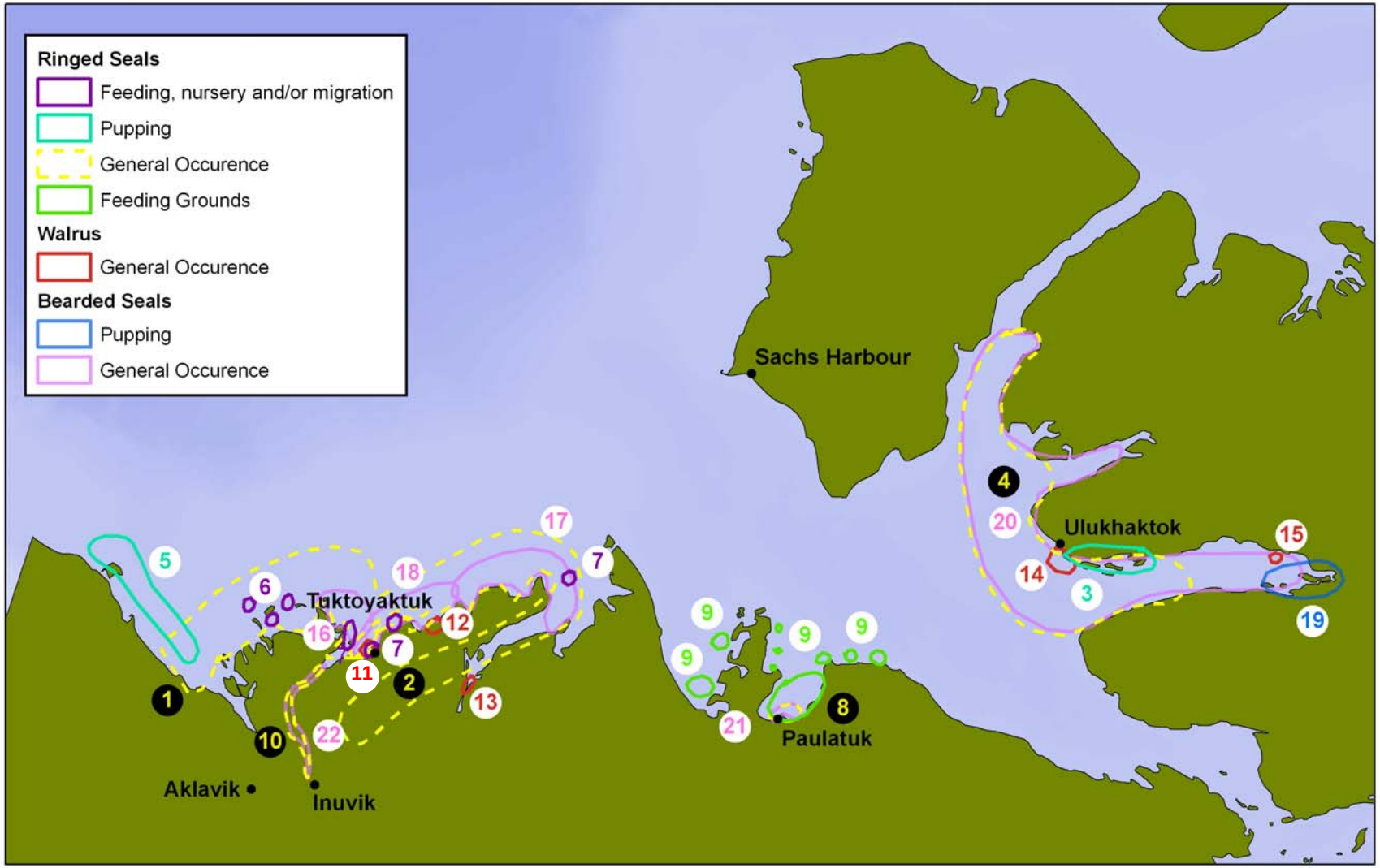

Figure 5: Traditional Knowledge of ***Ringed Seals, Walrus*** *and* ***Bearded Seals*** in the Beaufort Sea.

Table 4: Key for ***Ringed Seals, Walrus*** *and* ***Bearded Seals*** (Figure 5).

Reference Number	Community	Workshop	Ecological Function of Area	Comments
Ringed Seals				
1	Tuktoyaktuk	WS2		
2	Tuktoyaktuk	WS2		
3	Ulukhaktok	WS2	Pupping	
4	Ulukhaktok	WS2		
5	Aklavik	WS1	Pupping	
6	Inuvik	WS1	Feeding, nursery and/or migration	
7	Tuktoyaktuk	WS1	Feeding, nursery and/or migration	Seen in August or September
8	Paulatuk	WS2		
9	Paulatuk	WS2	Feeding	
10	Inuvik	WS3		
Walrus				
11	Tuktoyaktuk	WS2		
12	Tuktoyaktuk	WS2		
13	Tuktoyaktuk	WS2		
14	Ulukhaktok	WS2		
15	Ulukhaktok	WS2		
Bearded Seals				
16	Tuktoyaktuk	WS2		
17	Tuktoyaktuk	WS2		Seen year round
18	Tuktoyaktuk	WS2		
19	Ulukhaktok	WS2	Pupping	
20	Ulukhaktok	WS2		
21	Paulatuk	WS2		Seen late August to early September
22	Inuvik	WS3		

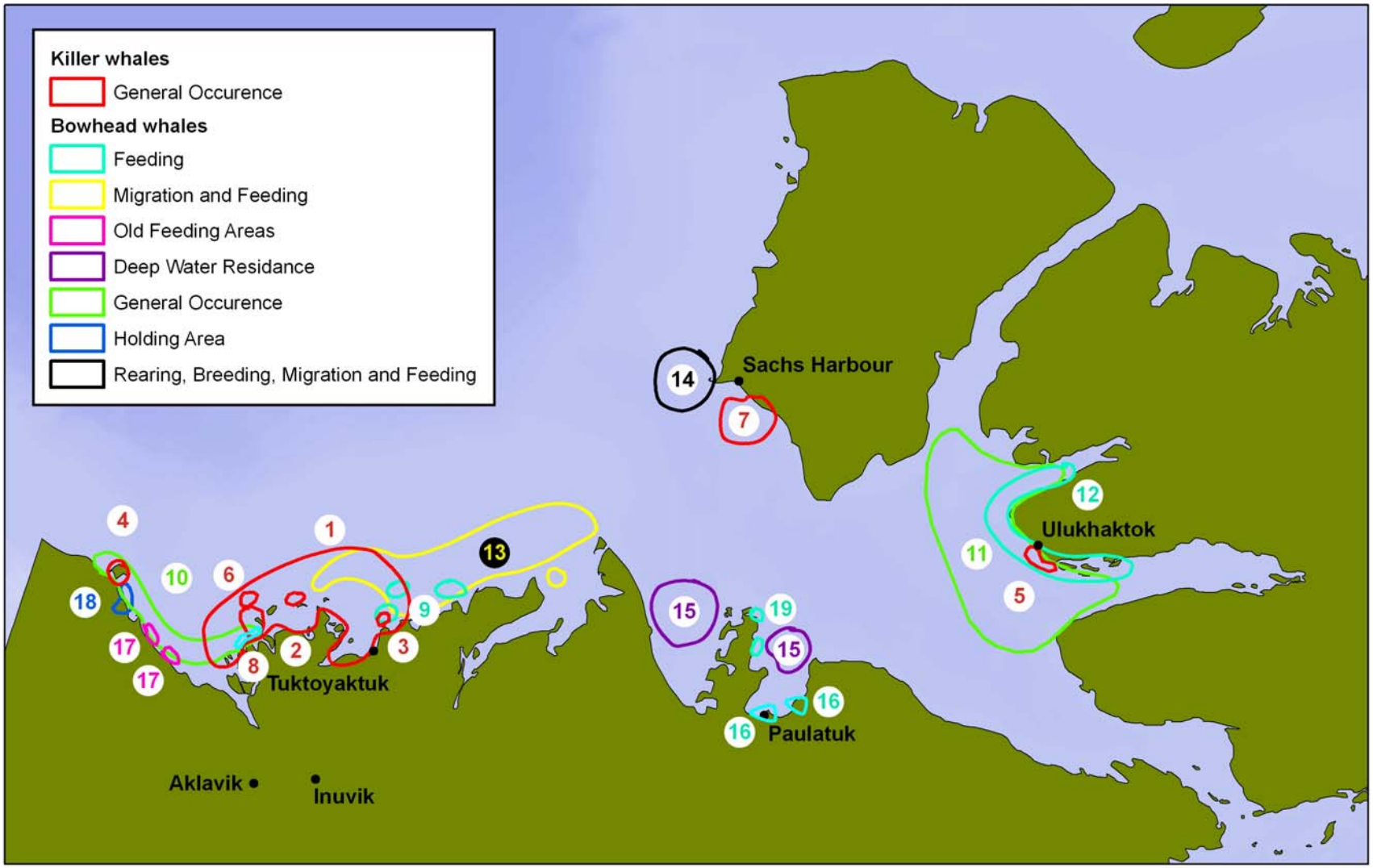

Figure 6: Traditional Knowledge of ***Bowhead whales*** *and* ***Killer whales*** for the Beaufort Sea.

Table 5: Key for ***Bowhead whales*** *and* ***Killer whales*** (Figure 6).

	Reference Number	Community	Workshop	Ecological Function of Area	Comments
Killer whales					
	1	Tuktoyaktuk	WS2		Seen in the 1970's
	2	Tuktoyaktuk	WS2		
	3	Tuktoyaktuk	WS2		Seen in the 1970's
	4	Tuktoyaktuk	WS2		
	5	Ulukhaktok	WS2		Seen in the 1960's
	6	Aklavik	WS1		
	7	Sachs Harbour	WS1		
	8	Inuvik	WS2		Seen Occasionally
Bowhead whales					
	9	Tuktoyaktuk	WS2	Feeding	
	10	Tuktoyaktuk	WS2		
	11	Ulukhaktok	WS2		
	12	Ulukhaktok	WS2	Feeding	
	13	Tuktoyaktuk	WS1	Migration and feeding	
	14	Sachs Harbour	WS1	Rearing, breeding, migration and feeding	
	15	Paulatuk	WS2	Deep water residence	
	16	Paulatuk	WS2	Feeding	
	17	Aklavik	WS2	Old feeding area in the fall	
	18	Aklavik	WS2	Holding area	
	19	Paulatuk	WS2	Feeding	

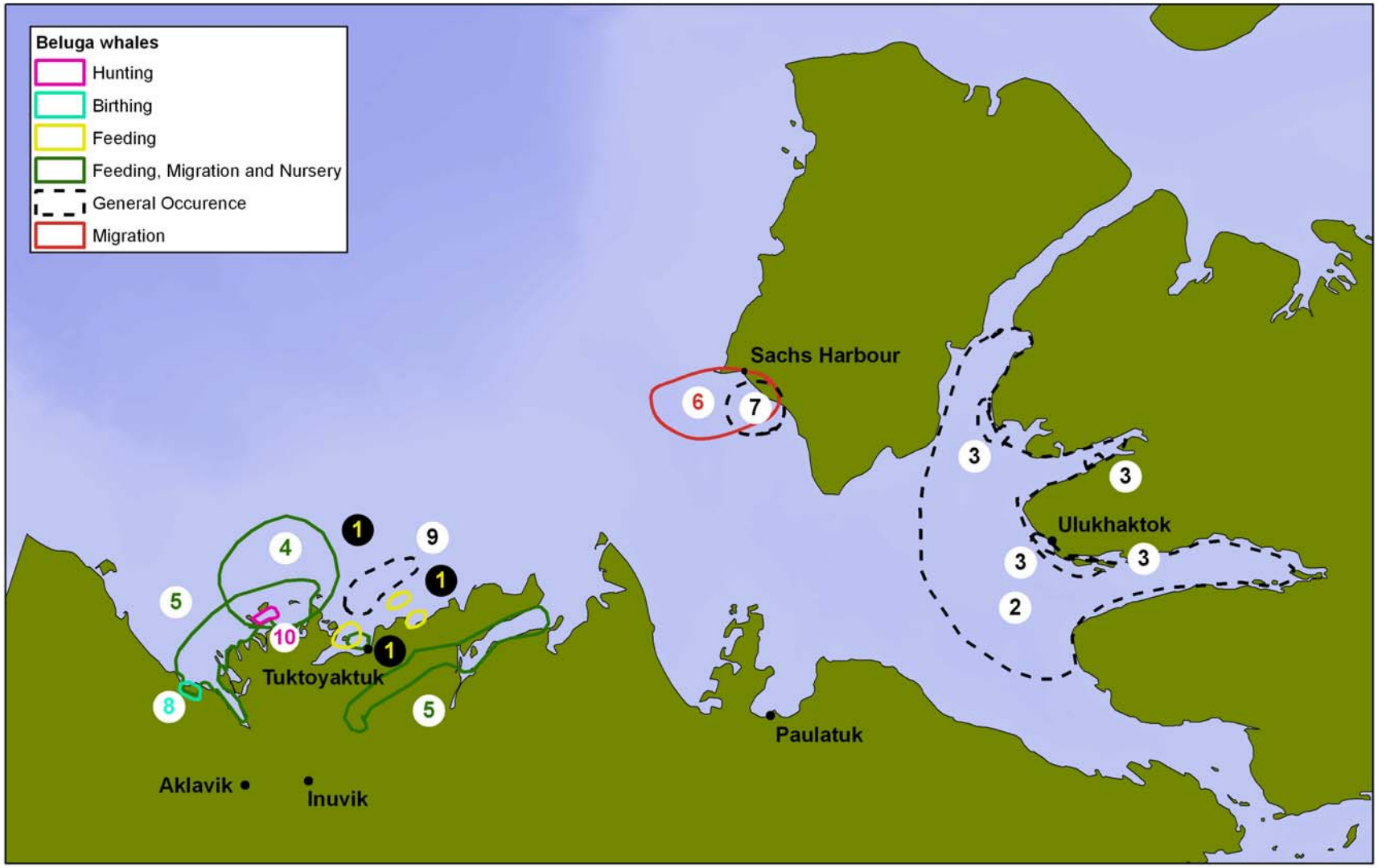

Figure 7: Traditional Knowledge of ***Beluga whales*** in the Beaufort Sea.

Table 6: Key for ***Beluga whales*** (Figure 7).

Beluga whales	Reference Number	Community	Workshop	Ecological Function of Area	Comments
	1	Tuktoyaktuk	WS2	Feeding	
	2	Ulukhaktok	WS2		
	3	Ulukhaktok	WS2		Hunting area
	4	Inuvik	WS1	Feeding, migration, and nursery	
	5	Tuktoyaktuk	WS1	Feeding, migration, and nursery	
	6	Sachs Harbour	WS1	Migration	
	7	Sachs Harbour	WS1		
	8	Aklavik	WS2	Birthing	Seen at the end of June to early July
	9	Aklavik	WS2		Seen when Shallow Bay is still frozen
	10	Inuvik	WS2	Hunting	

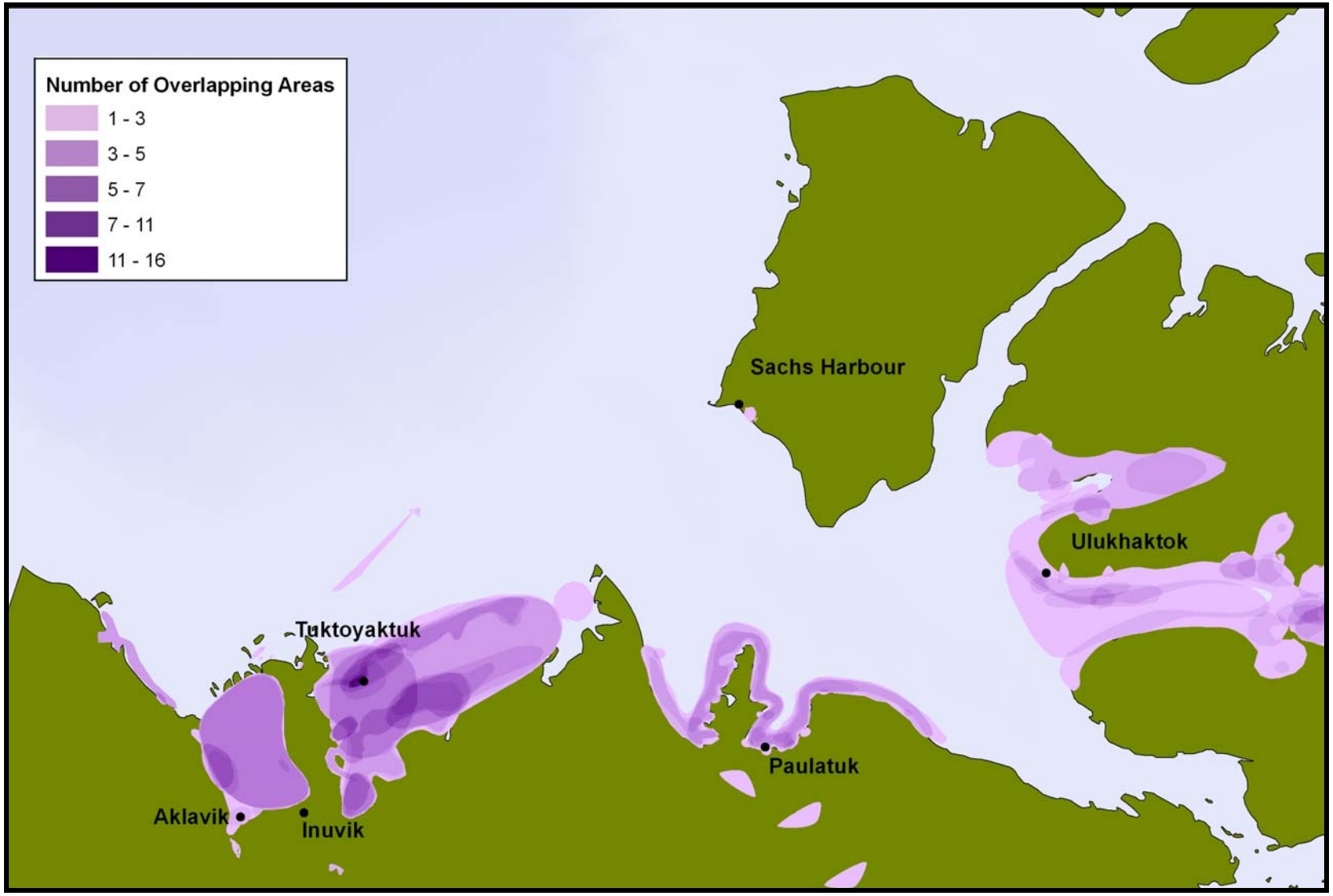

Figure 8: Overlay map of important fish and marine mammal areas as identified during the TK workshops.

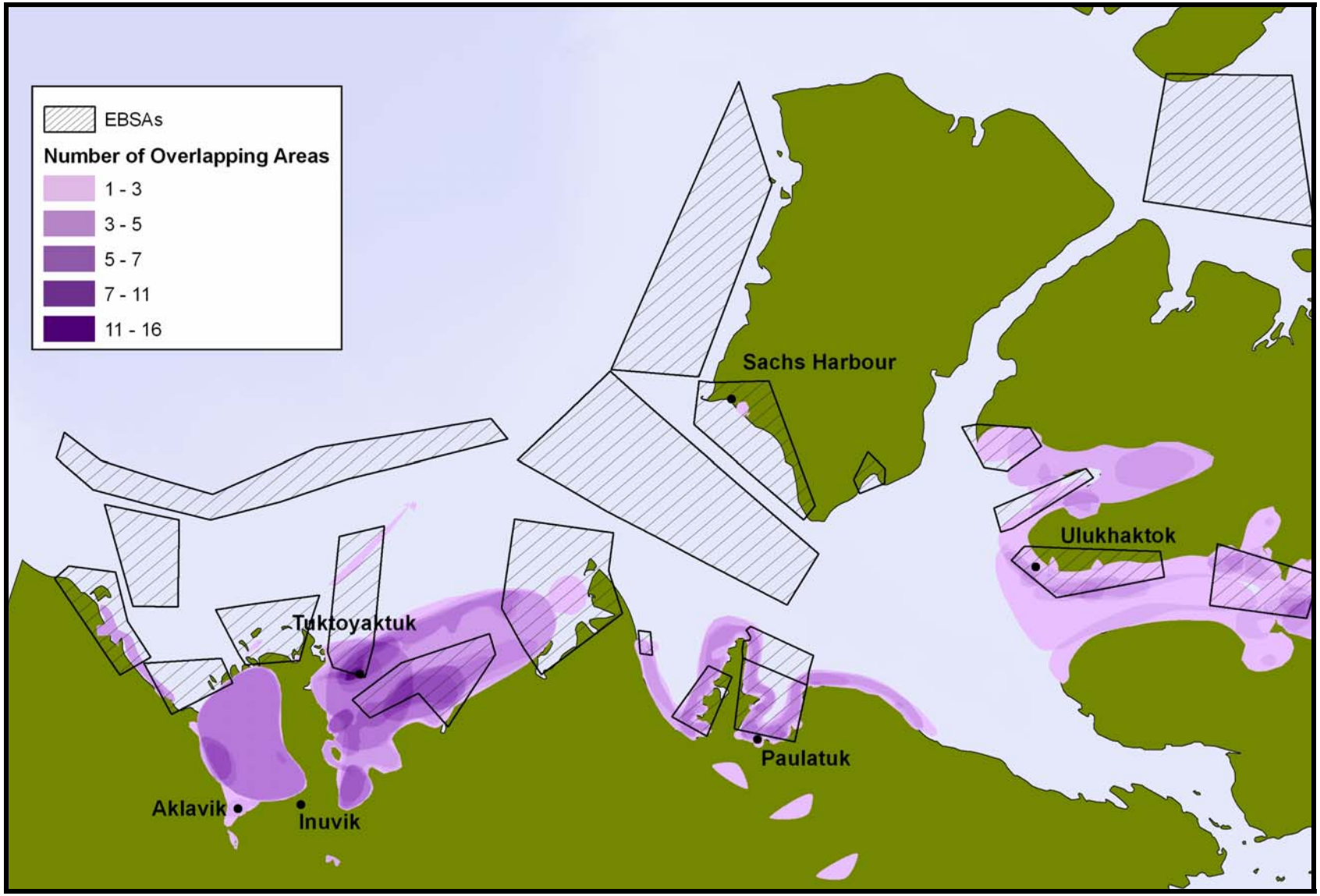

Figure 9: Overlay map of important fish and marine mammal areas identified during TK workshops and the location of accepted EBSAs in the Beaufort Sea.

CONCLUSIONS

Traditional Knowledge gathered during the three workshops helped confirm and refine the areas identified as ecologically and biologically significant by science. It also added to our knowledge of changes in the environment, areas of concern for community members and areas local resource users wish to have protected. TK will likely continue to play a crucial role in the selection or refinement of EBSAs and MPAs in areas of the Beaufort Sea as well as other Arctic areas with a dearth of scientific data. With that said, it is also important to understand the biases and limitations of using TK data. The geographic and temporal scope of the information is usually limited to the use and occupancy of the participant. Information from harvesters may be focused on specific species which are of greatest interest to them. While TK may have limitations, it can be used to complement or enhance our current understanding of an area which in turn leads to better decisions than those based exclusively on scientific data.

With the often limited amount of scientific data available for some areas of the Beaufort Sea, the use of TK in refining EBSA boundaries is imperative. By using TK to confirm the ecologically important areas of the region, we were able to successfully combine science and TK. The general congruence between science and TK in the identification of near-shore EBSAs may pave the way for more use of TK in the future. This exercise of integrating TK with scientific knowledge in order to identify important ecological and biological areas shows the real benefit that each can provide.

ACKNOWLEDGEMENTS

This manuscript would not have been possible without the generous donation of knowledge gained from many years of making observations while out on the land made by the many residents of the ISR that contributed in the workshops. Their contribution has greatly assisted in the protection of the Beaufort Sea for future generations.

Beth Hiltz, formerly of the Oceans Program Division, was instrumental in organizing the workshops which helped gather the Traditional Knowledge presented above. I thank Sam Stephenson for his comments that greatly improved this manuscript.

February – March Community Workshop (WS2)

Aklavik Community Participants:
Jerome Gordon
Robert Buckle
Rita Arey
Richard Tardiff Jr. Youth
Clayton Gordon
Richard Papik
Annie B. Gordon
Andrew Gordon
Eugene Pascal
Louisa Kalinek
Danny C. Gordon
Rhoda Kayotuk
Donald Avigana
Colin Gordon

Ulukhaktok Community Participants:
Peter Malgokak
Victoria Akhiatak
Colin Okhenna
David Kuptana
Sadie Joss
Joseph Haluksit
Nathan Okheena
Patrick Akhiatak
Robert Kuptana
Fred Kataovak
Jean Ekpakhoh
Tristan Pearce
Joanne Ogina

Inuvik Community Participants:
Marlene Bailey
Colin Allen
John Banksland
Leonard Harry
Elijah Allen
Edward Elanik
Emma Dyck
Paul Waters
Bill Gowans
Maureen Elias-Rogers
Merick Allen
Gerrard Rogers
Alec Kaglik
Victor Allen
Willie Steffanson
Dennis Allen

Sachs Harbour Community Participants:
Earl Esau
Jeff Kuptana
Lawrence Amos
Warren Esau
Betty Haogak
Manny Kudlak
Terrence Lenny
Priscilla Haogak
David Haogak
Donna Keogak
Ted Elias
Bob Elderidge
Charlton Haogak

Paulatuk Community Participants:
Fred Bennett
Gilbert Thrasher
Fred Thrasher
Andrew Thrasher
Anne Thrasher
Lawrence Ruben
Mille Thrasher
Ray Ruben
Jonah Nakimayak
Merle Thrasher
Lily Thrasher
Ruben Ruben
Bobby Ruben
Andrew Paul
Craig Ruben
Marlene Wolki
Delia Bourrouard
Mary Green
Marcus Ruben Sr.
Charlie Thrasher
Mary Ivik Ruben
Angus Green Ruben
Frank Green Jr.
Cory Ruben
Markus ?
Albert Ruben

Tuktoyaktuk Community Participants:
Lucy Cockney
Fred Wolki
John Stuart Jr.
Merven Gruben
Billy Emaghok
Georgina Jacobson-Masuzumi
Jean Gruben
Julia Cockney
Roy Kimiksana Sr.
Elvis Raddi
David Nasagaloak
Christopher Felix
Tommy Thrasher
Frank Umoak
Joseph Felix Jr.
Roy Kimiksana Sr.
Peter Voudrach
Craig Gruben
Anne Marie Villebrun

August Community Workshop (WS3)

Aklavik Community Participants:
Gladys Edwards
James Edwards
Mildred Edwards
Jerome Gordon
Eliza Greenland
Knute Hansen
Bonnie Koe
Louanne Koe
Ryan McLeod
Annie Semple
Chris Semple
Charlie Stewart
Renie Stewart
Thomas Stewart
Wally Tyrell

Inuvik Community Participants:
Leona Arey
Rebecca Baxter
Ricky Firth
William Francis
Bobbie Jo Greenland
Liz Hansen
Peter J. Kaye
Bridget Larocque
Mardy Semmler
Sharon Snowshoe
Abe Wilson
Ruth Wright
Tom Wright

I apologize for any names I may have unintentionally omitted.

LITERATURE CITED

DFO. 2004. Identification of ecologically and biologically significant areas. DFO Can. Sci. Advis. Sec. Ecosystem Status Rep. 2004/006.

DIAND (Department of Indian Affairs and Northern Development). 1984. The Western Arctic claim : The Inuvialuit Final Agreement. Department of Indian Affairs and Northern Development. Available online: http://www.eco.gov.yk.ca/pdf/wesar_e.pdf

English, S. 2007a. Summary report of the Beaufort Sea Integrated Management Planning Initiative (BSIMPI) community objectives setting workshops: February 27, 2007 – March 22, 2007. BSIMPI report 2007-02

English, S. 2007b. Summary report of the Beaufort Sea Integrated Management Planning Initiative (BSIMPI) community objectives setting workshops. BSIMPI report 2007-03

Joint Secretariat. 2003. Inuvialuit Harvest Study, Data and Methods Report 1988 – 1997. Inuvik, NT. Available online: http://www.fjmc.ca/publications/IHS.htm

Reist, J.D., Johnson, J.D., and T.J. Carmichael. 1997. Variation and specific identity of char from northwestern Arctic Canada and Alaska. Am. Fish. Soc. Symp. 19: 250-261.

Stephenson, S.A. 2004. Harvest studies in the Inuvialuit Settlement Region, Northwest Territories, Canada: 1999 and 2001-2003. Can. Manuscr. Rep. Fish. Aquat. Sci. 2700: vi + 34 p. Available online: http://www.dfo-mpo.gc.ca/Library/284031.pdf

Working Group on General Status of NWT Species. 2006. NWT Species 2006-2010 – General status ranks of wild species in the Northwest Territories. Departments of Environmental and Natural Resources, Government of the Northwest Territories, Yellowknife, NT. 111 p.

APPENDICES

Appendix 1: Scientific and common names of anadromous and freshwater fish in the Beaufort Sea reported on in this manuscript.

Common Name	Scientific Name
Pike - Esocidae	
Northern Pike (jackfish)	*Esox lucius*
Salmon and whitefish - Salmonidae	
Cisco	*Coregonus artedi*
Arctic Cisco	*Coregonus autumnalis*
Lake Whitefish (Humpback Whitefish)	*Coregonus clupeaformis*
Broad Whitefish	*Coregonus nasus*
Least Cisco	*Coregonus sardinella*
Pacific salmon (salmon)	*Oncorhynchus spp*.
Arctic Char (char)	*Salvelinus alpinus*
Dolly Varden	*Salvelinus malma*
Lake Trout (trout)	*Salvelinus namaycush*
Cod/Burbot - Gadidae	
Burbot (loche)	*Lota lota*

Appendix 2: Scientific and common names of marine fish in the Beaufort Sea reported on in this manuscript.

Common Name	Scientific Name
Herring - Clupeidae	
Pacific Herring (Blue Herring)	*Clupea pallasii*
Cod - Gadidae	
Polar Cod	*Arctogadus borisovi*
Arctic Cod	*Boreogadus saida*
Right-eyed Flounders - Pleuronectidae	
Bering Flounder	*Hippoglossoides robustus*
Starry Flounder	*Platichthys stellatus*
Arctic Flounder	*Pleuronectes glacialis*
Greenland Halibut	*Reinhardtius hippoglossoides*

Appendix 3: Scientific and common names of selected marine mammals in the Beaufort Sea reported on in this manuscript.

Common Name	**Scientific Name**
Pinnipeds	
Earless seals - Phocidae	
Bearded seal	*Erignathus barbatus*
Ringed seal	*Phoca hispida*
Walrus - Odobenidae	
Walrus	*Odobenus rosmarus*
Cetaceans	
Toothed whales - Delphinidae	
Beluga whale	*Delphinapterus leucas*
Killer whale	*Orcinus orca*
Baleen Whales - Balaenidae	
Bowhead whale	*Balaena mysticetus*