

Tammaqtainahuarniriit anngutighat atuqhugit Inuit qaujimajatuqangillu ilihmaniillu ilitquhiannin  
Conserving wildlife through the application of Inuit Qaujimajatuqangit and scientific knowledge

March 10<sup>th</sup>, 2014

**Honourable Gail Shea**  
**House of Commons**  
**Minister of Fisheries and Oceans**  
**Parliament Buildings, Wellington Street**  
**Ottawa, Ontario**  
**K1A 0A6**

**Dear Minister Shea:**

**Re: Nunavut Wildlife Management Board's reconsideration and final decision regarding Pangnirtung Hunters and Trappers Organization's proposal to move the Cumberland Sound Turbot Management Area boundary line**

## Background

In May 2013, the Pangnirtung Hunters and Trappers Organization submitted a request for decision to the Nunavut Wildlife Management Board (NWMB or Board) to move the Cumberland Sound Turbot Management Area boundary line from its current location within Cumberland Sound out to the Nunavut Settlement Area boundary at the mouth of Cumberland Sound (Appendix 1). The NWMB considered the request at its June 2013 quarterly meeting, and on July 3<sup>rd</sup>, 2013, the NWMB sent a decision letter to the Minister of Fisheries and Oceans Canada (Minister) approving the request (Appendix 2). In August 2013, the Minister rejected the Board's initial decision on the basis that one year of recent acoustic data for turbot movements in Cumberland Sound was not of sufficient duration to draw firm scientific conclusions on stock delineation (Appendix 3). However, in the Minister's letter, Fisheries and Oceans Canada indicated that if Pangnirtung Hunters and Trappers Organization developed a science plan to collect necessary science information on turbot movements and stock structure in Cumberland Sound, the Minister may consider moving the line on an interim basis and will formally reconsider the proposal on a more permanent basis once enough data is collected.

## NWMB Final Decision

At the NWMB's September Board meeting, the NWMB decided to send a letter to Pangnirtung Hunters and Trappers Organization and all other affected parties<sup>1</sup> sharing NWMB's initial decision letter to the Minister (Appendix 2) and the Minister's rejection letter (Appendix 3). The

<sup>1</sup> Fisheries and Oceans Canada, the Government of Nunavut, Nunavut Tunngavik Incorporated, Qikiqtaaluk Wildlife Board and Cumberland Sound Fisheries Limited-Pangnirtung Fisheries Limited Partnership.

letter invited parties to submit written responses with respect to the Board's reconsideration and final decision. The NWMB received written responses from Pangnirtung Hunters and Trappers Organization (Appendix 4) and the Government of Nunavut Fisheries and Sealing Division (Appendix 5). Both responses supported moving the Cumberland Sound Turbot Management Area boundary line on an interim basis in conjunction with the development of a science plan.

In light of the Minister's response, as well as the reply submissions from Pangnirtung Hunters and Trappers Organization and the Government of Nunavut Fisheries and Sealing Division, the NWMB made the following decision during in-camera meeting IC 001-2014 on January 23<sup>rd</sup>, 2014:

*RESOLVED that the NWMB, pursuant to Section 5.6.48 of the Nunavut Land Claims Agreement, approve moving the Cumberland Sound Turbot Management Area boundary line to the Nunavut Settlement Area boundary line at the mouth of Cumberland Sound on an interim basis subject to the following conditions: i) that Pangnirtung Hunters and Trappers Organization, in consultation with co-management partners, develop and implement a science plan to collect data on turbot movements and stock structure in Cumberland Sound; and ii) Fisheries and Oceans Canada agree to reassess Pangnirtung Hunters and Trappers Organization's proposal to move the boundary line on a more permanent basis once a sufficient amount of data has been collected and peer-reviewed.*

### **Reasons for the NWMB's Final Decision**

During its reconsideration of Pangnirtung Hunters and Trappers Organization's proposal, the NWMB carefully considered the comments in the Minister's August 30<sup>th</sup> 2013 letter to the NWMB and the extra input received from the Pangnirtung Hunters and Trappers Organization and the Government of Nunavut Fisheries and Sealing Division. These parties supported the same decision to develop a science plan to collect additional data on turbot movement and stock delineation in Cumberland Sound.

As outlined in the NWMB's July 3<sup>rd</sup> 2013 letter to the Minister, the NWMB considered the data collected by the Ocean Tracking Network in 2012 during its initial decision. This one year of acoustic tagging data indicated that turbot tagged in the summer near the current boundary line moved inside the boundary line during the winter months. Likewise, turbot tagged inside the boundary line during the winter ice fishing seasons moved outside the boundary line during the summer months. Additional years of data on turbot movements in Cumberland Sound will yield the robust scientific information on stock delineation requested in the Minister's August 30<sup>th</sup> 2013 letter. In the interim, the NWMB is recommending moving the boundary line out to the 12-mile Nunavut Settlement Area boundary since it will not pose a conservation concern and will promote the development of a small boat open water fishery.

In the NWMB's July 3<sup>rd</sup> letter to the Minister, the Board also outlined additional reasons for its initial decision to move the boundary line (Appendix 2). These reasons include: i) Inuit Qaujimaqatugangit and community knowledge that indicates that turbot are present on both sides of the boundary line; ii) Government of Nunavut catch data from 2009 and 2010 that indicates the presence of turbot on both sides of the boundary line; iii) support from Pangnirtung

Hunters and Trappers Organization, Nunavut Tunngavik Incorporated, the Government of Nunavut, and the Nunavut Development Corporation to move the boundary line; iv) simplification of fisheries management in Cumberland Sound by removing the Division 0B area in Cumberland Sound that is within the Nunavut Settlement Area; and v) support for the development of an economical, community-based open water fishery. The NWMB still feels that these are important reasons for moving the boundary line, and they were important considerations in the Board's final decision-making.

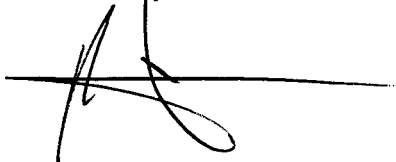
#### **Additional Information on Collaborative Science Plan Development**

As suggested in the Minister's August 30<sup>th</sup> 2013 letter to the NWMB, Pangnirtung Hunters and Trappers Organization has met with staff from NWMB, Fisheries and Oceans Canada, Government of Nunavut Fisheries and Sealing Division and the Ocean Tracking Network to discuss science research options that could be used in the development of a science plan to collect data on turbot movement. During a community consultation meeting in Pangnirtung on February 12<sup>th</sup>, 2014, three tagging options were presented to the community: i) floy tags; ii) satellite tags; and iii) acoustic tags (electronic tags). During the meeting, community members expressed their continued desire to move the boundary line. The Hunters and Trappers Organization and community members agreed to work with Fisheries and Oceans Canada and the Ocean Tracking Network to collect data on turbot movement using acoustic tagging methods. This decision was provided to the NWMB in a formal resolution from the Pangnirtung Hunters and Trappers Organization (Appendix 6). However, members stated that their support of the tagging research was contingent on the Minister's approval of moving the boundary line on an interim basis.

The NWMB is pleased to see co-management partners, community members and stakeholders cooperatively working together to develop this science plan to provide information for sound management decisions in Cumberland Sound. It provides an excellent example of collaborative wildlife management that will benefit the people of Nunavut and adhere to the principles of conservation outlined in the *Nunavut Land Claims Agreement*.

If you have any questions or concerns regarding the contents of this letter, please do not hesitate to contact the NWMB.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben Kovic', written over a horizontal line.

Ben Kovic  
Chairperson of the  
Nunavut Wildlife Management Board

Enclosures (6)

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**Pangnirtung Hunters and Trappers Organization**

**NWMB Submission:  
CSTMA - Inshore Fishing Boundary**

May 2013

**Paul Hiscock**  
Atlantica Solutions Inc.



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## **1. Introduction**

The PHTO would like to extend the inshore fishing boundary (CSTMA) to include all of Cumberland Sound up to the 12-mile territorial limit at the mouth of Cumberland Sound (as outlined in the original Nunavut Settlement Area (NSA)).

## **2. Background**

### **2.1. NWMB Mandate**

This request is within the NWMB's mandate including its mission of "conserving Wildlife through the application of Inuit Qaujimajatuqangit (IQ) and scientific knowledge".

According to Inuit harvester experience, and local IQ, turbot moves outside the current inshore boundary (CSTMA) to open water within Cumberland Sound. Acoustic data from the Government of Nunavut also supports this. Some of the data is presented in Appendix 3.

This request is also in line with the NWMB's vision to make Nunavut "a world class model for the cooperative management of healthy wildlife populations".

As previously established, harvesting within Cumberland Sound is 'hook and line' only and the use of gill nets is not permitted. Vessel size is also limited to <85'. These harvesting restrictions contribute to Cumberland Sound being a world-class model of cooperative management, which contributes to a healthy, sustainable resource.

As per section 1.3.2.1.1, the NWMB has the authority "to establish, modify or remove non-quota limitations (NLCA 5.2.33(k), 5.6.48-5.6.51)", thus the PHTO is requesting that the NWMB 'modify' the existing inshore turbot fishing boundary (CSTMA) to include all of Cumberland Sound (see Section 4 Map)

### **2.2. Why Is this Issue Being Presented:**

This request is being made as the local fishermen in Pangnirtung want to develop a summer fishery, but it is believed that Turbot in Cumberland Sound move outside the

current inshore fishing boundary (for winter fishing through the ice). Therefore, this request is being made to move the fishing boundary (CSTMA) in Cumberland Sound.

### ***2.3. Key Facts and Circumstances Relating to this Issue:***

Inuit Qaujimajatuqangit (IQ) and the initial acoustic data collected by the Government of Nunavut (Appendix 3) indicate that Turbot move beyond the current fishing boundary (CSTMA) to open water in Cumberland Sound. The NSA boundary has also been established which includes all of Cumberland Sound (see map in section 3.).

The Nunavut Tunngavik Inc. (NTI), the Government of Nunavut and the Nunavut Development Corporation (NDC) support this request (see Appendices 1, 2 & 3)

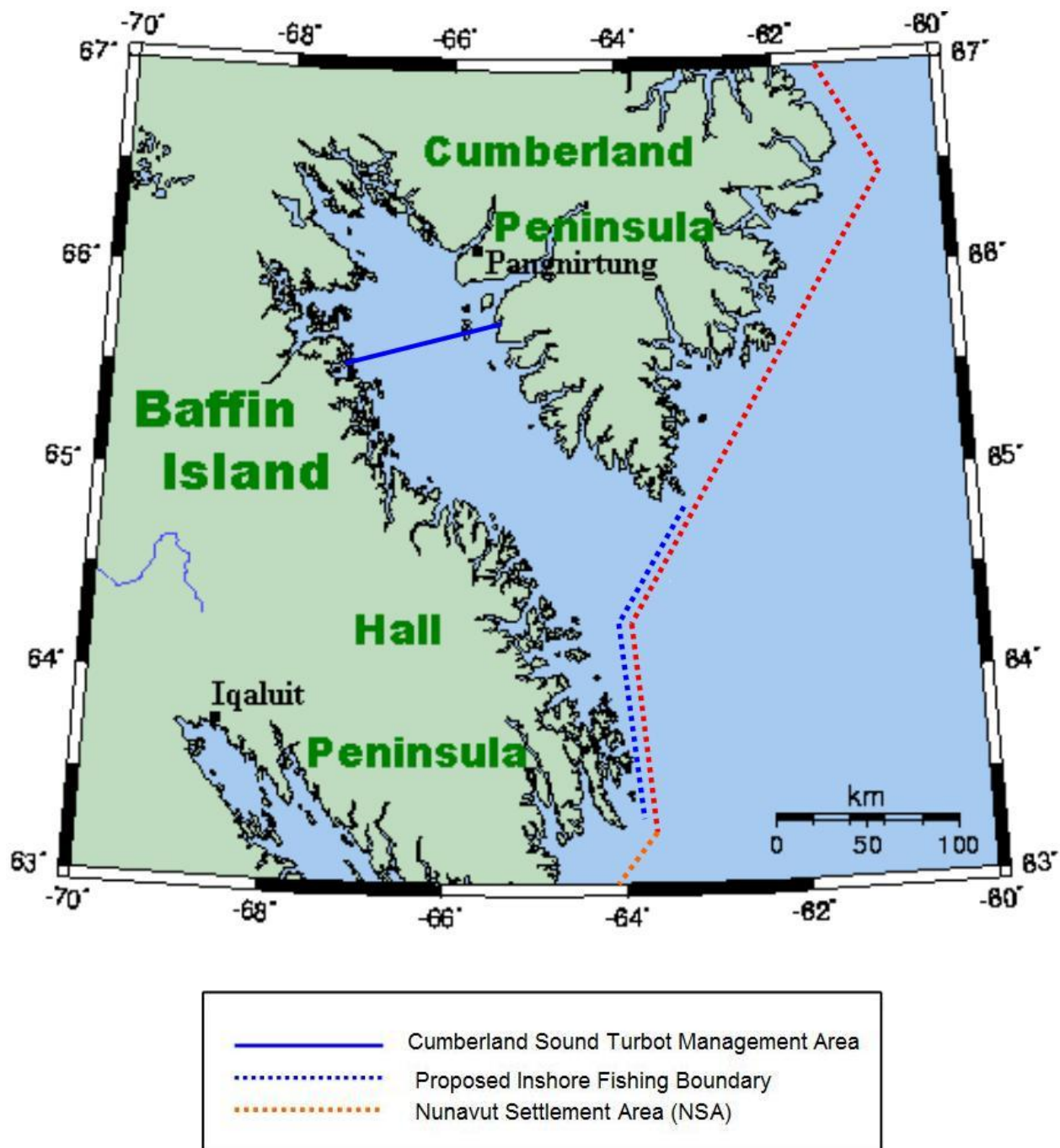
## **3. Consultation**

Consultation was made by telephone and e-mail to the following:

1. Jeffrey Maurice & James Eetoolook, NTI
2. Wayne Lynch, Brian Burke and Devin Imrie, Gov. of Nunavut
3. Kevin Hedges, DFO Winnipeg
4. Charlotte Sharkey, DFO Iqaluit

Overall, both NTI and the Government of Nunavut were supportive of this request (see Appendices 1 & 2). DFO would prefer to see more acoustic data (3 years vs. 1 year).

#### 4. Map Of Cumberland Sound



As outlined on the map, the PHTO is requesting that the inshore fishing boundary (CSTMA) be extended to the mouth of Cumberland Sound to the boundary of the Nunavut Settlement Area (i.e. 12 mile limit). (Note: the map illustration, particularly the fishing boundaries, is shown for illustration purposes and is not drawn to scale.)

## **5. Rational for changing the CSTMA Fishing Boundary:**

- 1) According to Inuit harvester experience, and local IQ, turbot moves outside the current inshore boundary (winter fishing) to open water within Cumberland Sound. Acoustic data from Government of Nunavut also supports this (Aug 2011 to Aug. 2012);
- 2) Also IQ information supports movement of the Inshore fishing boundary. The NWMB's mission is "conserving wildlife through the application of Inuit Qaujimajatuqangit (IQ) and scientific knowledge." The moving of the boundary does not negatively impact on conservation.
- 3) The current fishery is developing & growing. There may be other species, including a summer fishery for Turbot, that can be pursued in the future thus further enhancing the local (Pangnirtung) economy; and
- 4) Similar boundaries have been implemented in other jurisdictions (i.e. Bays in Atlantic Canada). The NSA already has the 12-mile boundary outside Cumberland Sound.

Moving the inshore fishing boundary (CSTMA) also supports the goal of the Nunavut Land Claims Agreement: to encourage self-reliance. Local harvesters will have more opportunity to fish Turbot, and possibly other species thus benefiting the residents of Pangnirtung.

It should be noted that Cumberland Sound harvesting is already a model for others in that NO gillnets are permitted in the Sound. Only hook and line fishing is permitted.

## 6. CONCLUSION

This request is reasonable and within the NWMB's mandate. Extension of the fishing boundary to the already existing NSA 12-mile limit is also reasonable and will enhance the economic opportunities available to the people of Pangnirtung. While enhancing the turbot fishery, the potential to develop new fisheries in Cumberland Sound will also be possible.

Further developing a summer fishery will contribute to the local fish processing operation at Pangnirtung allowing for an extended operating season.

**This request also supports the Goal of Nunavut Land Claims Agreement: To encourage self-reliance.**

## **7. APPENDICES**

## APPENDIX #1: Letter of Support from NTI



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Nunavut Tunngavik Timingut  
Tieqqilvia 638  
Iqaluit  
NU XQA OHO Canada

Nunavut Tunngavik Incorporated  
PO Box 638  
Iqaluit  
NU XQA OHO Canada

☎ (867) 975-4900  
© 1-888-646-0006  
📠 (867) 975-4949

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Coral Harbour

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Rankin Inlet

Sent via Fax  
June 11, 2013

Mr. Noah Mosesie,  
Chairman,  
Pangnirtung Hunters and Trappers Organization  
PO Box 2  
Pangnirtung, Nunavut  
XQA OHO

Dear Mr. Mosesie,

As per your April 23, 2013 request, please consider this as Nunavut Tunngavik Inc's. (NTI) support letter for your submission to the Nunavut Wildlife Management Board (NWMB) to extend the inshore fishing boundary in Cumberland Sound out to the 12-mile territorial sea limit also described as the Nunavut Settlement Area (NSA) boundary in the Nunavut Land Claims Agreement (NLCA).

Your request is in line with the principle set out in section 5.1.2 of the Nunavut Land Claims Agreement, and also the objective set out in section 5.1.3 of the Agreement. NTI has long promoted the self-governance and self-reliance of Hunter & Trapper Organizations under section 5.7.3 and continues to support the HTO in the allocating of the commercial turbot quotas to your members.

NTI understands the community of Pangnirtung's concerns about disturbances from research to the marine mammals in Cumberland Sound, but more research is needed on range and movements of turbot in Cumberland Sound sub-stock as well as on the movement and range of the offshore turbot stocks in NAFO subarea OB, Davis Strait, and beyond to better manage the fishery. NTI encourages you to work with all co-management partners in determining a solution that would allow the collection of scientific information on the movements of turbot in Cumberland Sound that will support and corroborate the Inuit Qaujimaqatugangit on turbot.

Please do not hesitate to contact me should you have any questions or concerns about this letter. NTI welcomes the opportunity to work with you on this and related matters.

Sincerely,

A handwritten signature in black ink, appearing to be 'James Eetoolook', with a stylized, flowing script.

James Eetoolook,  
Vice-President

Cc: Manasie Audlakiak, A/Chair Nunavut Wildlife Management Board  
Hon. James Arreak, Minister of Environment Government of Nunav

## APPENDIX #2: Letter of Support from the Government of Nunavut



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Minista Avatiliitjutiut  
Minister of Environment  
Ministre de l'Environnement

May 14, 2013

Manasie Audlakiak  
A/Chairperson, Nunavut Wildlife Management Board  
PO Box 1379  
Iqaluit, NU X0A 0H0

**Re: Support for the Pangnirtung HTA's Request to Relocate the Cumberland Sound Turbot Management Area Boundary Line**

Dear Mr. Audlakiak,

This letter is in regards to the request made to the NWMB by the Pangnirtung Hunters and Trappers Association to relocate the Cumberland Sound Turbot Management Area (CSTMA) boundary line.

Since its establishment in the 1990s, the Cumberland Sound winter Turbot fishery has been a pillar of the economy in Pangnirtung, and is currently the only established inshore Turbot fishery in Nunavut. In subsequent years, the department has put significant resources into supporting the development of an open water fishery in Cumberland Sound, including scientific research, fisheries training, and multiple test fisheries. With this being said, the location of the CSTMA is of great interest to my department; as the location of the line will influence the conservation of the stock as well as the development of an open water fishery in Cumberland Sound.

Upon its creation in 2005, the location of the CSTMA boundary line was delineated by an area that best described the location of the winter Turbot fishery and was based on the best available scientific data available at the time. However, using the data collected through the abovementioned test fisheries and recent acoustic research, it has become obvious that that the CSTMA does not describe the entire home range of the Cumberland Sound Turbot stock, as Turbot appear to migrate past the CSTMA boundary line and travel further into Cumberland Sound making seasonal migrations between shallow and deep water.

With this being said, my department is concerned that the present location of the CSTMA boundary line presents two distinct conservation concerns. The first concern lies in the potential for the stock to be exploited by offshore fishing vessels. Since the remaining waters in Cumberland Sound outside of the CSTMA are considered OB fishing grounds, a large fishing vessel (82' or less in length) could enter Cumberland

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Sound and legally utilize OB offshore quota to fish any area that is not designated within the CSTMA. This could result in overfishing of the Cumberland Sound Turbot population since the above-mentioned research strongly suggests that this stock's home range lies only partially within the CSTMA. The second concern is that as the summer fishery continues to develop, the few known summer fishing areas within the CSTMA could quickly become overfished. Moving the CSTMA boundary line further down Cumberland Sound to better represent the home range of the stock would alleviate both of these management concerns as this would prevent offshore vessels from exploiting the stock and would open up additional fishing grounds for the open water fishery, reducing the risk of areas becoming overfished.

The department is committed to continuing to support the development of an open water fishery in Cumberland Sound while ensuring the protection of this economically important fish stock. Although disappointed that the community of Pangnirtung chose to halt all acoustic research activities in Cumberland Sound which may have strengthened the case to move the CSTMA boundary line from a scientific standpoint, the Nunavut Department of Environment supports the request of the Pangnirtung Hunters and Trappers Association to move the CSTMA boundary line and will continue to support this initiative.

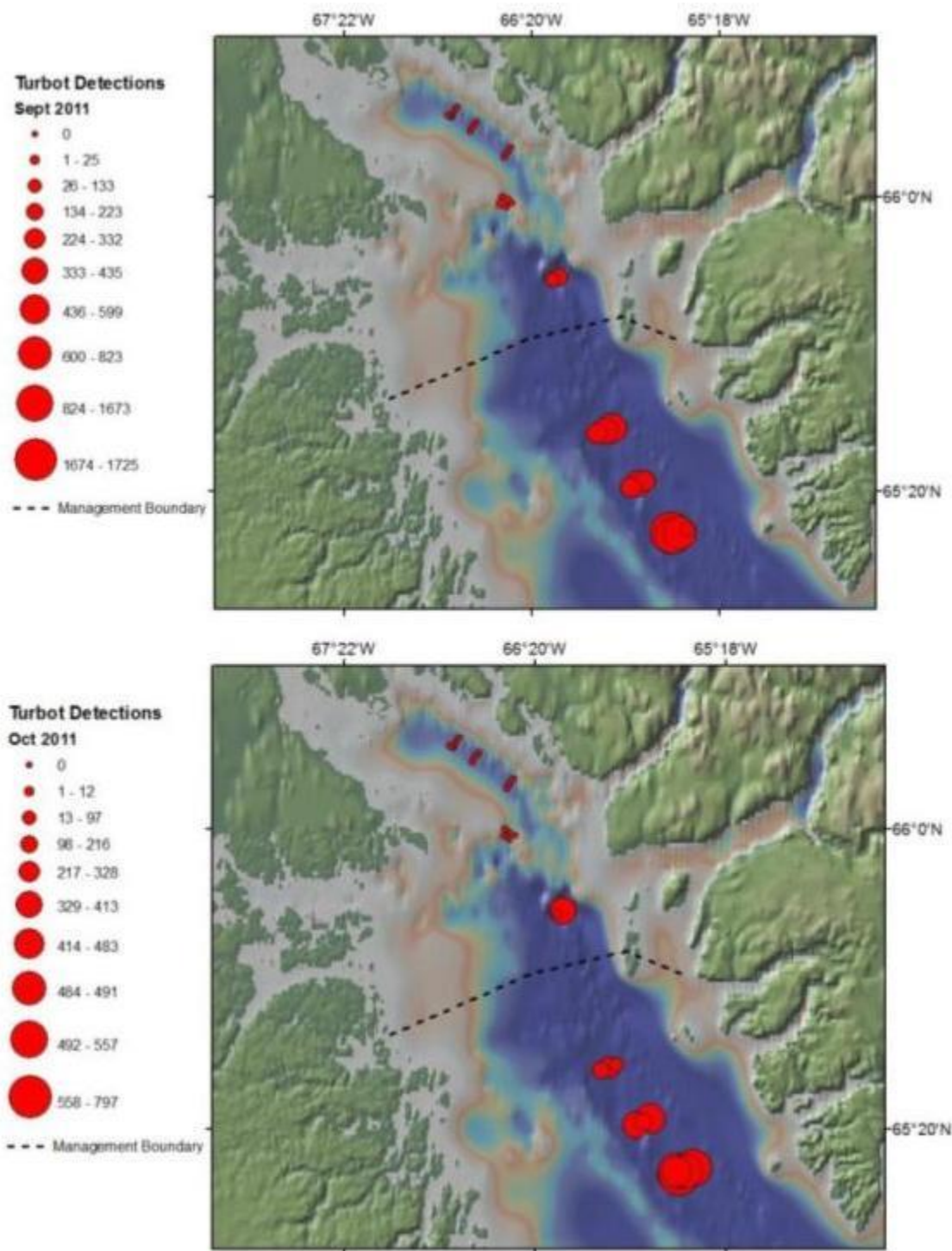
Yours Sincerely,



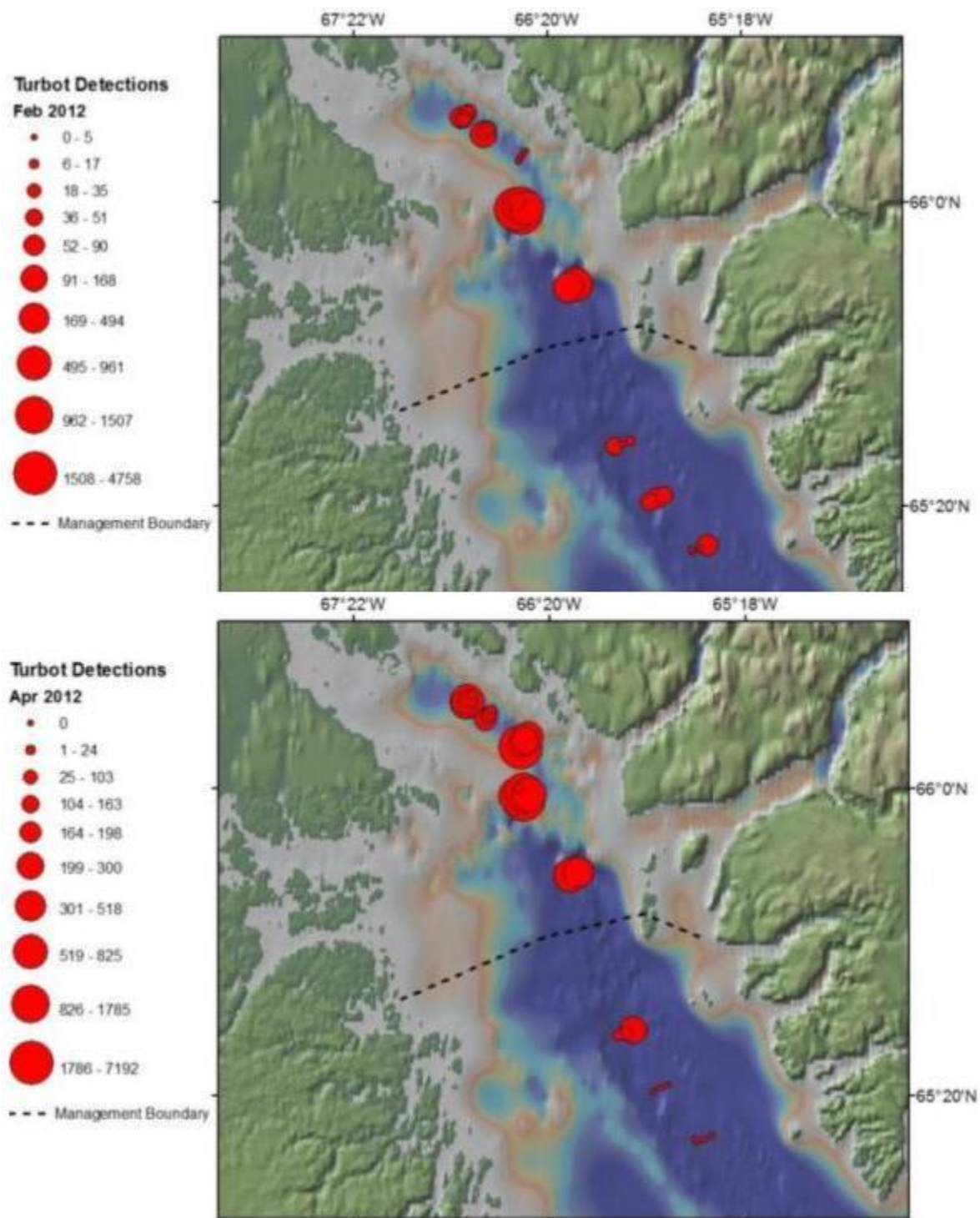
Hon. James Arreak  
Minister

**APPENDIX #3: Letter of Support from Nunavut Development Corporation (NDC)**

## **APPENDIX #4: Government of Nunavut Acoustic Data**



### Acoustic Data showing Turbot outside CSTMA



**Acoustic Data showing Turbot inside CSTMA**



- (i) New acoustic tagging information on turbot movements within Cumberland Sound indicates that the current Cumberland Sound Turbot Management Area does not represent the distribution of an isolated inshore stock of turbot as was previously thought. The current boundary line for the Cumberland Sound Turbot Management Area was established in 2005 following a December 2004 NWMB decision and was based on limited turbot tagging data from studies in 1994 and 1997-2000. These studies supported the notion that a separate stock of turbot exists in the inner part of Cumberland Sound. However, new acoustic tagging results, although also limited, provide strong evidence of a pattern of turbot movement across the Cumberland Sound Turbot Management Area boundary line on a seasonal basis. The new acoustic tagging data indicates that turbot appear to concentrate in waters within the current Cumberland Sound Turbot Management Area in the winter, and then move increasingly into waters outside the Cumberland Sound Turbot Management Area in the summer months. Although only one year of data is available from the acoustic tracking work, it has been indicated that the 2011/2012 data collected in Cumberland Sound is likely representative of current turbot movement patterns in the sound.
- (ii) Inuit Qaujimajatuqangit and community knowledge from elders, community members and fishermen in Pangnirtung also indicates that turbot are present, and have been fished, on both sides of the Cumberland Sound Turbot Management Area boundary line.
- (iii) Before the establishment of the current Cumberland Sound Turbot Management Area and the total allowable harvest of 500 tonnes in 2005, an inshore allocation was awarded within Cumberland Sound that could be fished throughout the sound.
- (iv) Catch data provided by the Government of Nunavut (2009 and 2010) indicates the presence of turbot in Cumberland Sound on either side of the Cumberland Sound Turbot Management Area boundary.
- (v) Pangnirtung HTO, as well as Nunavut Tunngavik Inc., the Government of Nunavut, and the Nunavut Development Corp. all support the movement of the boundary line.
- (vi) Moving the Cumberland Sound Turbot Management Area boundary line out to the Nunavut Settlement Area boundary would simplify fisheries management in Cumberland Sound. It would remove the Division 0B area in Cumberland Sound that is within the Nunavut Settlement Area, but not within the Cumberland Sound Turbot Management Area. Parties must currently have 0B turbot quota and licences to fish within this 0B area in Cumberland Sound, and they must obtain specific permission from the NWMB to fish within the Nunavut Settlement Area.

- (vii) Moving the Cumberland Sound Turbot Management Area boundary to the Nunavut Settlement Area boundary would aid in community fisheries development in the community of Pangnirtung. Currently the 500 tonne total allowable harvest for the Cumberland Sound Turbot Management Area is limited to that area and is allocated to Pangnirtung HTO. The HTO has expressed a desire to fish part of the 500 tonnes outside the Cumberland Sound Turbot Management Area, but still within Cumberland Sound and within the Nunavut Settlement Area. Local fishermen have reported that turbot may be more plentiful in the open water season in deeper areas that are just outside the Cumberland Sound Turbot Management Area boundary. Community members have also indicated that the ice is becoming less consistent and dangerous, making the winter fishery more challenging. The Government of Nunavut and Pangnirtung fishermen have already initiated training and pilot projects to support the development of a small boat open-water fishery. The extension of the Cumberland Sound Turbot Management Area to the Nunavut Settlement Area boundary at the mouth of Cumberland Sound would aid in the development of the community-based small boat open-water fishery, provide the community with more opportunities to fully prosecute the 500 tonne total allowable harvest close to Pangnirtung, and aid in local economic development.

### **3. Additional information**

DFO officials have indicated to NWMB staff that ongoing research in Cumberland Sound using floy tags could provide some additional information on turbot movements within Cumberland Sound, but not to the same degree of detail as the acoustic tagging work. The NWMB would be interested in reviewing the results of this floy tag work when they are available.

### **4. Enclosed documents**

The following supporting documents are enclosed with this letter:

- (i) The Pangnirtung HTO proposal to move the Cumberland Sound Turbot Management Area boundary line, including the Nunavut Tunngavik Inc., the Government of Nunavut, and the Nunavut Development Corp. letters of support;
- (ii) A brief summary compiled by the Government of Nunavut on Inuit Qaujimagatuqangit, community knowledge, and Government of Nunavut research; and

(iii) Excerpts from a presentation by the Ocean Tracking Network on turbot movements within Cumberland Sound from the acoustic tagging research conducted in 2011/2012.

If you or your officials require further information, or have any questions or concerns regarding this letter, please do not hesitate to contact the NWMB.

Yours sincerely,



Manasie Audlakiak  
Acting Chairperson of the  
Nunavut Wildlife Management Board

Enclosures (3)

David Burden, A/Regional Director General, Central and Arctic Region, Fisheries and  
Oceans Canada  
Larry Dow, Director of Northern Operations, Fisheries and Oceans Canada

## **Turbot IQ - NCRI**

### **Introduction**

Traditional knowledge (Inuit Qaujimajatuqangit in Inuktitut, or IQ) embodies knowledge, skills and practices that are embedded in Inuit culture. IQ encompasses both historical and contemporary information pertaining to coastal and land-based activities, which play a significant role in Inuit culture, quality of life, and the provision of income and food. Conserving this knowledge has importance in its own right and for the preservation of the above associated benefits. To ensure we retain this traditional understanding, coastal resource inventories have been undertaken in communities across Nunavut to record and conserve this valuable traditional, biological, and ecological information. Knowledgeable individuals, usually community elders, are interviewed using a defined survey that addresses the presence, distribution and characteristics of various coastal resources.

Resource inventories have been conducted elsewhere in Canada, notably on our Atlantic and Pacific coasts, where the information gained from this approach provided: the foundation for integrated coastal management plans; essential insights to protect important coastal areas; and information facilitating environmental impact assessments, sensitivity mapping, and community planning. Coastal resource inventories have also provided different levels of government with the tools to engage in strategic assessments, informed development, and enlightened stewardship.

The Fisheries and Sealing Division of the Nunavut Department of Environment initiated the development and implementation of the Nunavut Coastal Resource Inventory (NCRI). This project is to serve as an information compendium on coastal resources and activities, gained principally from interviews with elders in each community. Coastal resources are defined as the animals and plants that live near the coast, on the beaches, on and around islands, above and below the surface of the ocean, above and below sea ice, and on the sea floor. Project deliverables include the:

- provision of a final report;
- provision of the coastal resource inventory in a GIS database;
- provision of a series of resource-inventory maps for each community;
- provision of all documents used in the interviews, along with the methodology employed throughout the coastal inventory process; and
- thorough evaluation of the methodology and supporting materials used to carry out the entire inventory process.

From February to March 2013, a Nunavut Coastal Resource Inventory was conducted in the community of Pangnirtung with 10 knowledgeable hunters and fishermen. This report is a

presentation of IQ gathered through this project pertaining to turbot in Cumberland Sound. Turbot is a valuable resource for the community of Pangnirtung, both traditionally and now commercially through the Inuit-owned Cumberland Sound Fisheries Ltd. This coastal resource provides income and food to the local community and is part of Inuit culture.

Since 2007, a total of twelve communities in Nunavut have been visited to conduct coastal resource inventories, namely Igloolik, Kugluktuk, Chesterfield Inlet, Arctic Bay, Kimmirut, Qikiqtarjuaq, Sanikiluaq, Gjoa Haven, Iqaluit, Repulse Bay, Grise Fiord, and Pangnirtung. As the NCRI grows to include more communities, so does its knowledge base of information on coastal resources. Such a database contributes valuable baseline data on areas of species occurrence, migration routes, and observed changes in these. This resource lends itself to provide vital information to communities, decision makers, and wildlife managers.

### **Turbot IQ from NCRI**

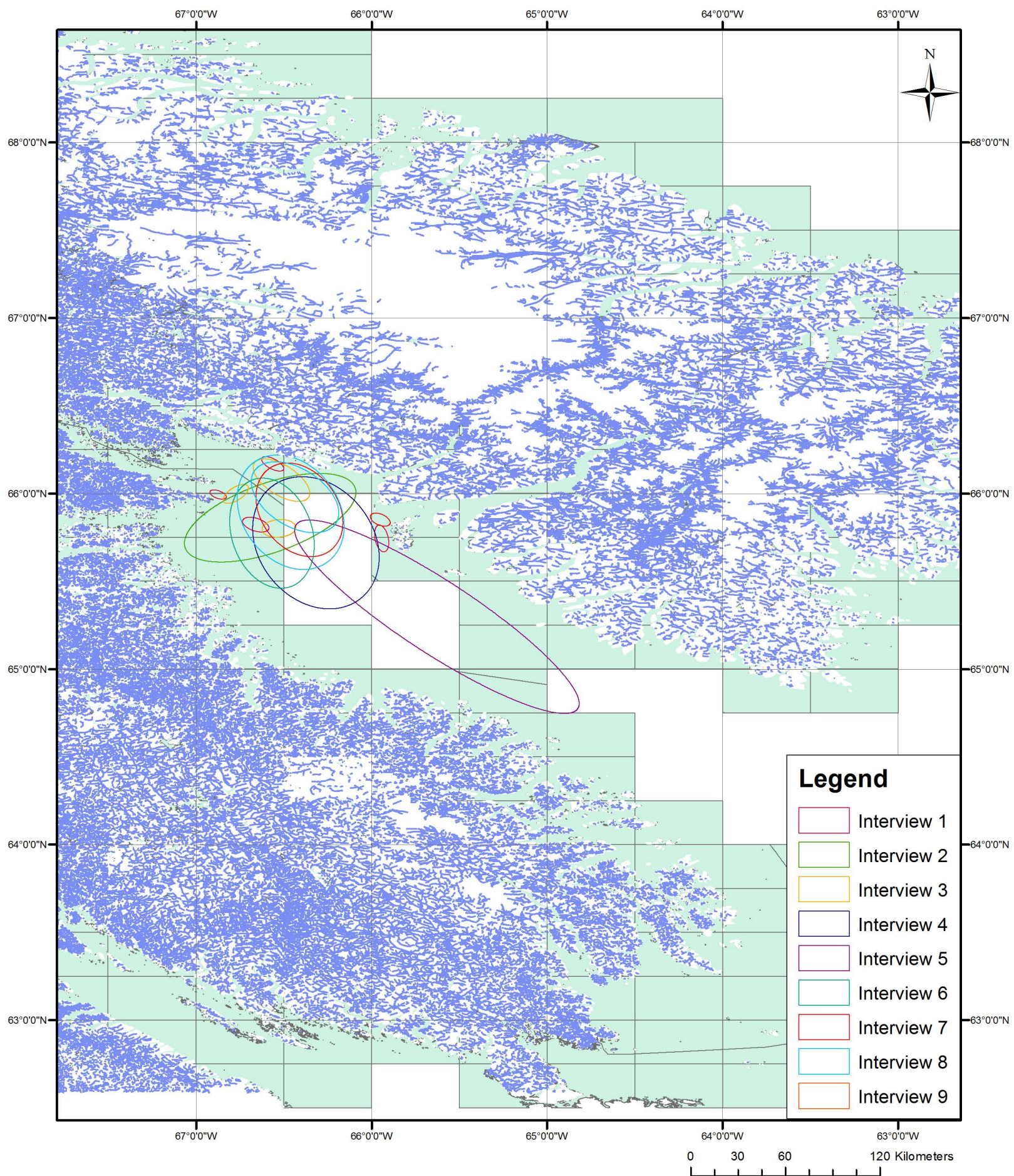
Individuals interviewed through the Pangnirtung Nunavut Coastal Resource Inventory identified turbot locations throughout Cumberland Sound (Figure 1). Areas of occurrence were noted in the inner parts of Cumberland Sound and extending nearly to the mouth. Turbot were observed in these areas from January to April and represent present occurrences. It was noted that in the 1990s, there were less turbot and more sharks in the early winter.

### *Commercial Turbot Fishery*

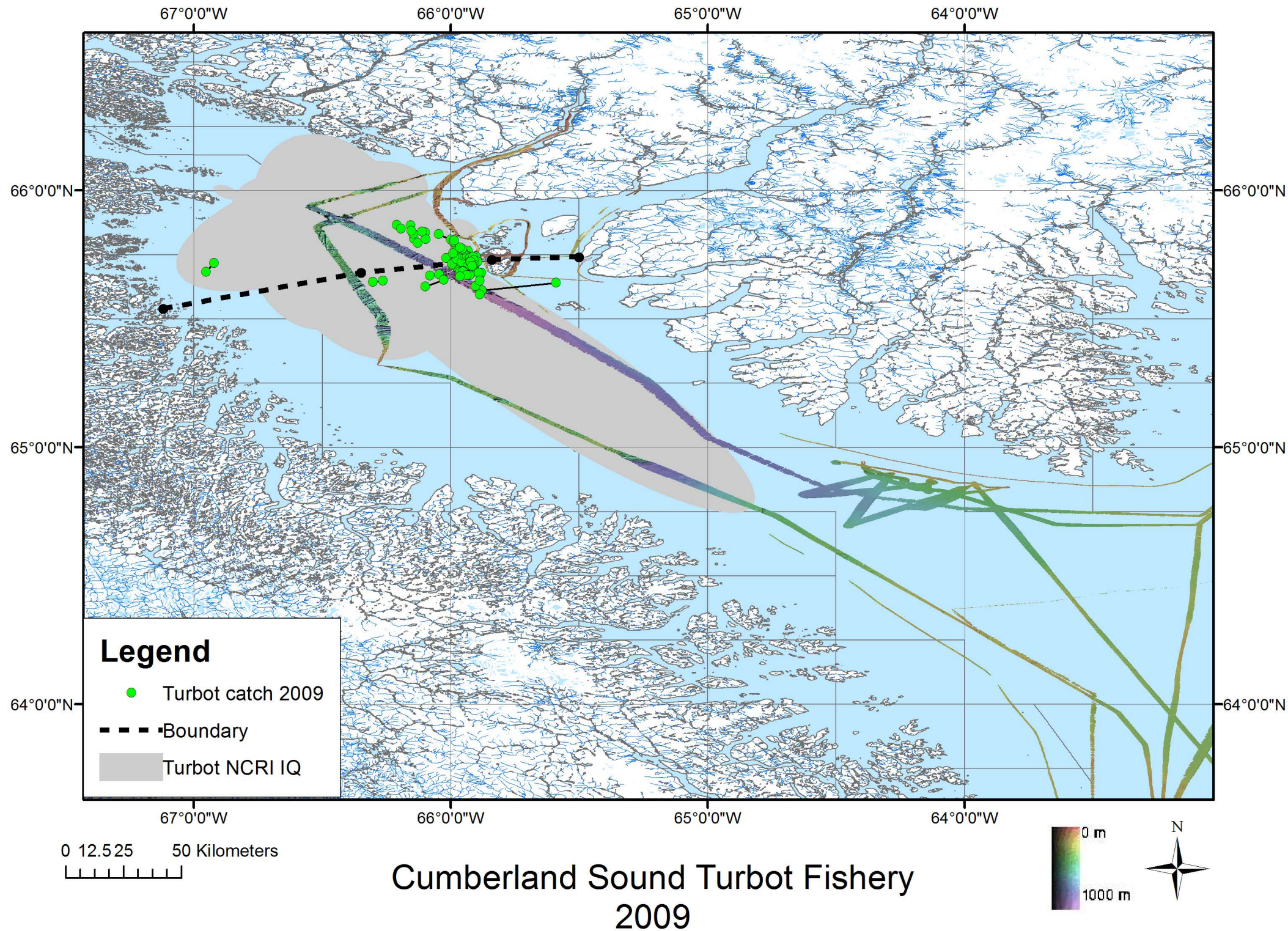
Support was expressed for the local commercial turbot fishery in Cumberland Sound and the employment opportunities it provides for the community. Interest was also shown to extend the Cumberland Sound Turbot Fishery boundary line in order to develop a summer turbot fishery.

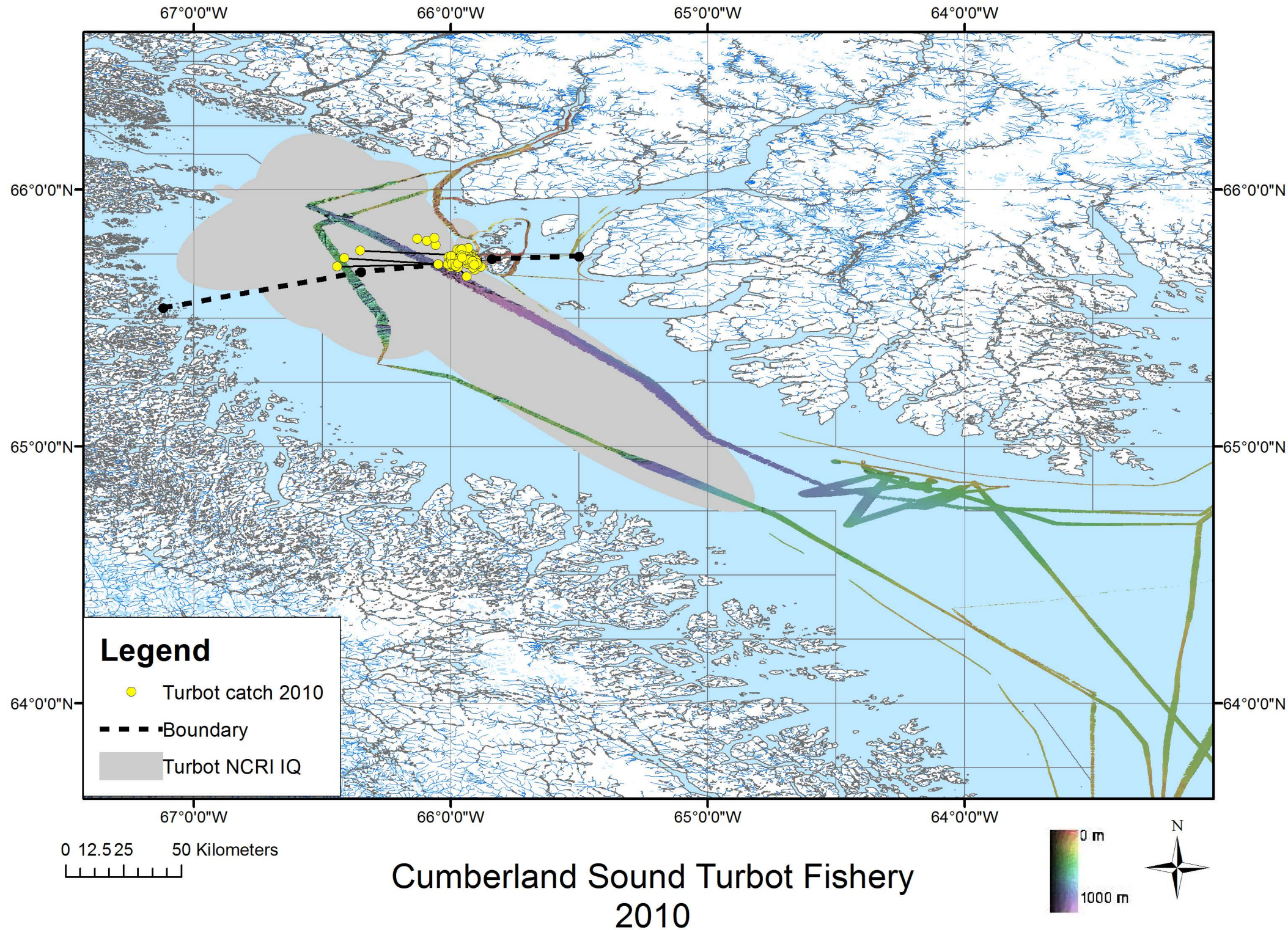
### *Environmental Change*

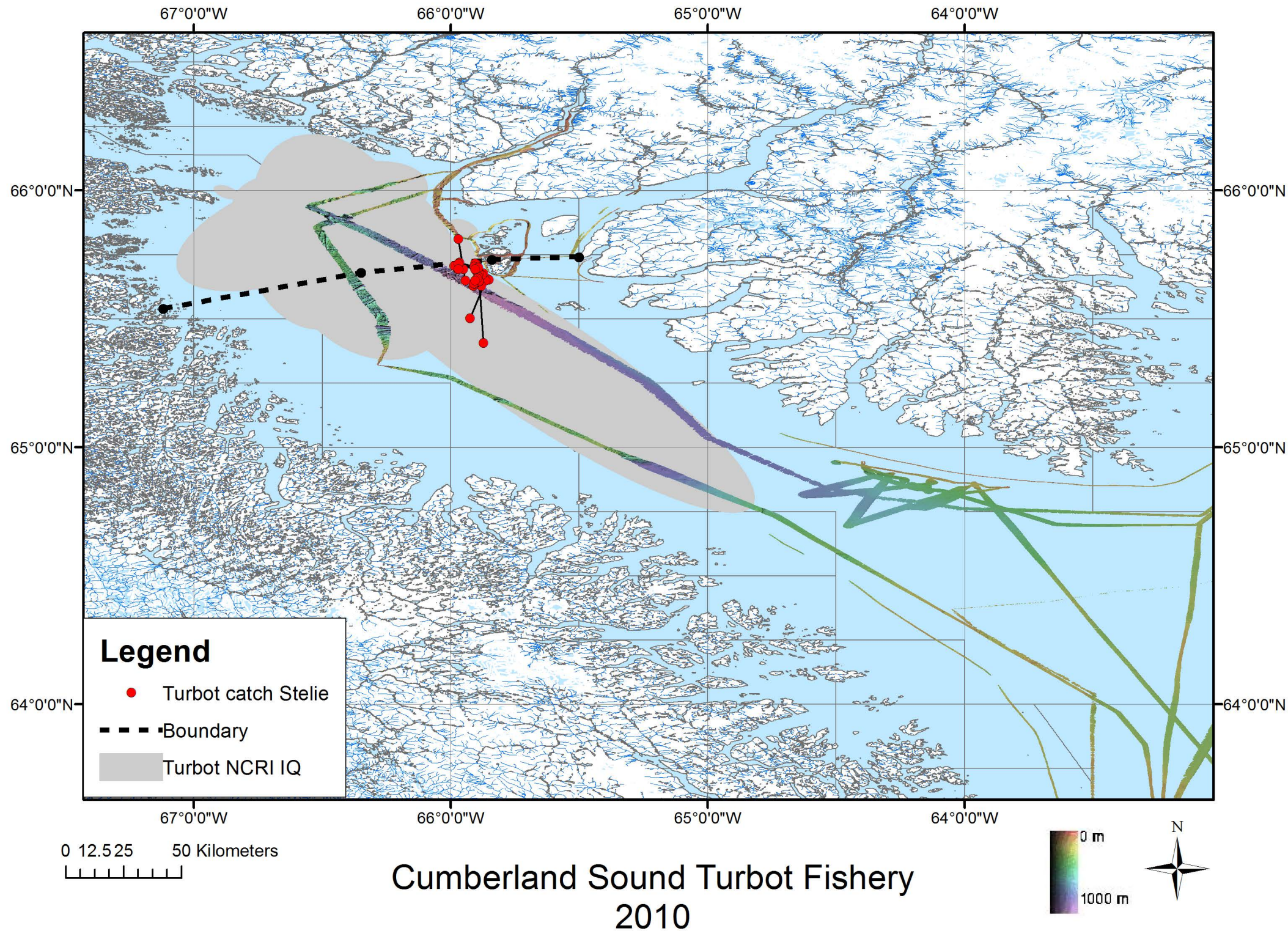
Concerns were voiced that changes in sea ice patterns are impacting the winter fishing season. The ice is more inconsistent and dangerous, with ice break up happening earlier. It was suggested that a road be built around the mouth of the fiord to allow fishermen to get around the unsafe ice.



## Cumberland Sound Turbot Fishery Nunavut Coastal Resource Inventory Data









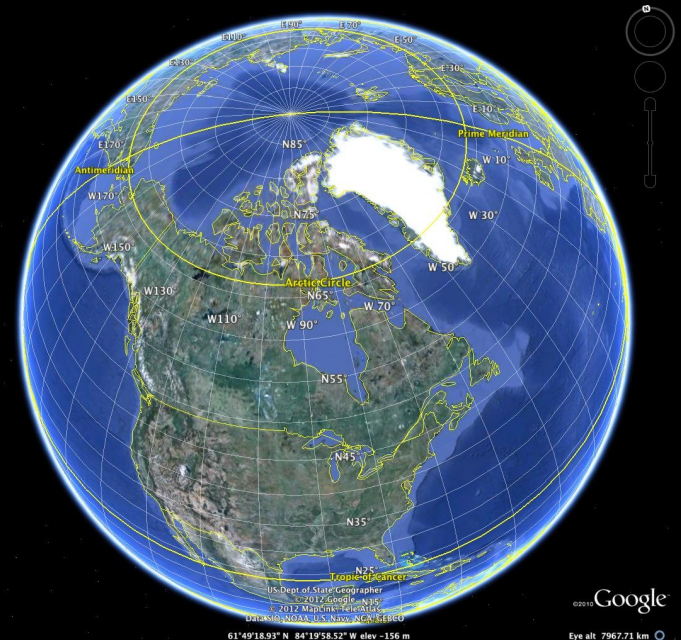
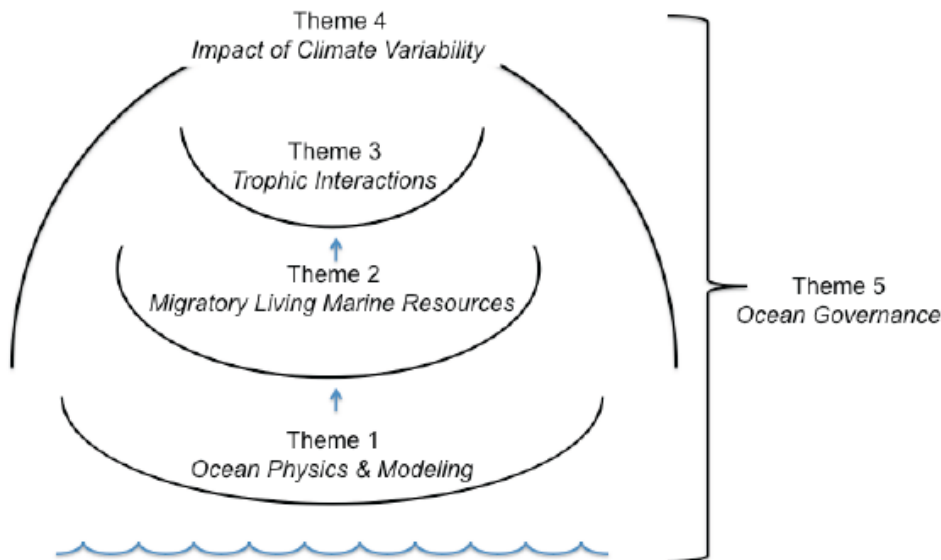
# The Arctic Ocean Tracking Network: Movement and behaviour of an important commercial fish species, Greenland halibut and by- catch species, Greenland shark and Arctic skate in Cumberland Sound.

Nigel E. Hussey, Iva Peklova, Kevin J. Hedges,  
Svein Vagle, Jeannette Bedard, Margaret Treble and  
Aaron T. Fisk



## Overall Arctic OTN objective:

A long term integrative research program which makes use of the latest acoustic and satellite tracking technologies to understand multi-species movements in both a developing and changing ecosystem.





## Cumberland Sound Fisheries

Traditional **WINTER** fishery



Developing **SUMMER** fishery

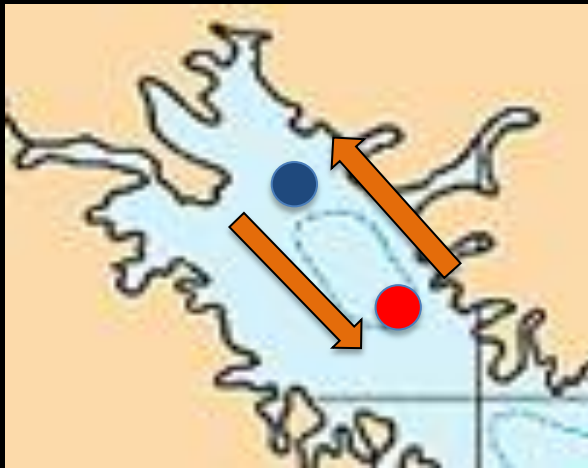




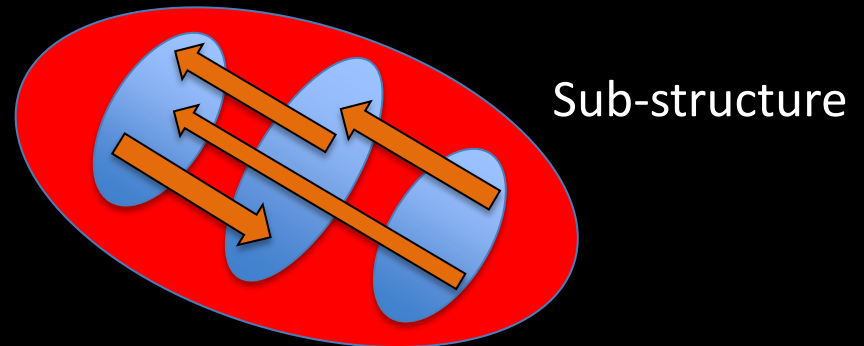
## Questions for effective fisheries management:

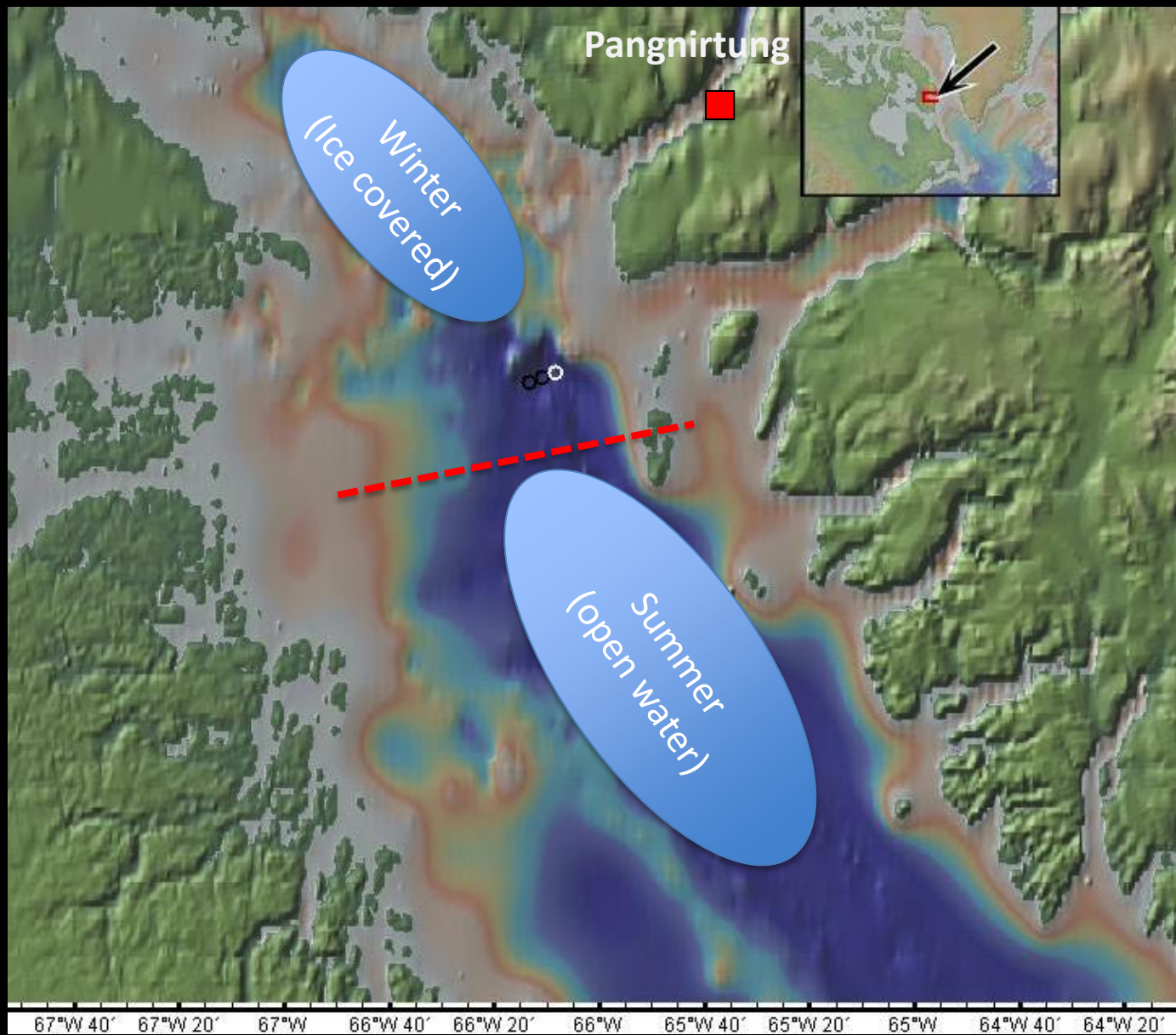
### Stock assessment – sustainable quotas

- (i) Population size
  - (ii) Stock structure (sex /size composition/breeding population)
  - (iii) Movement (between fishing grounds)
- } Depth stratified survey



### (iv) Movement within summer fishing grounds

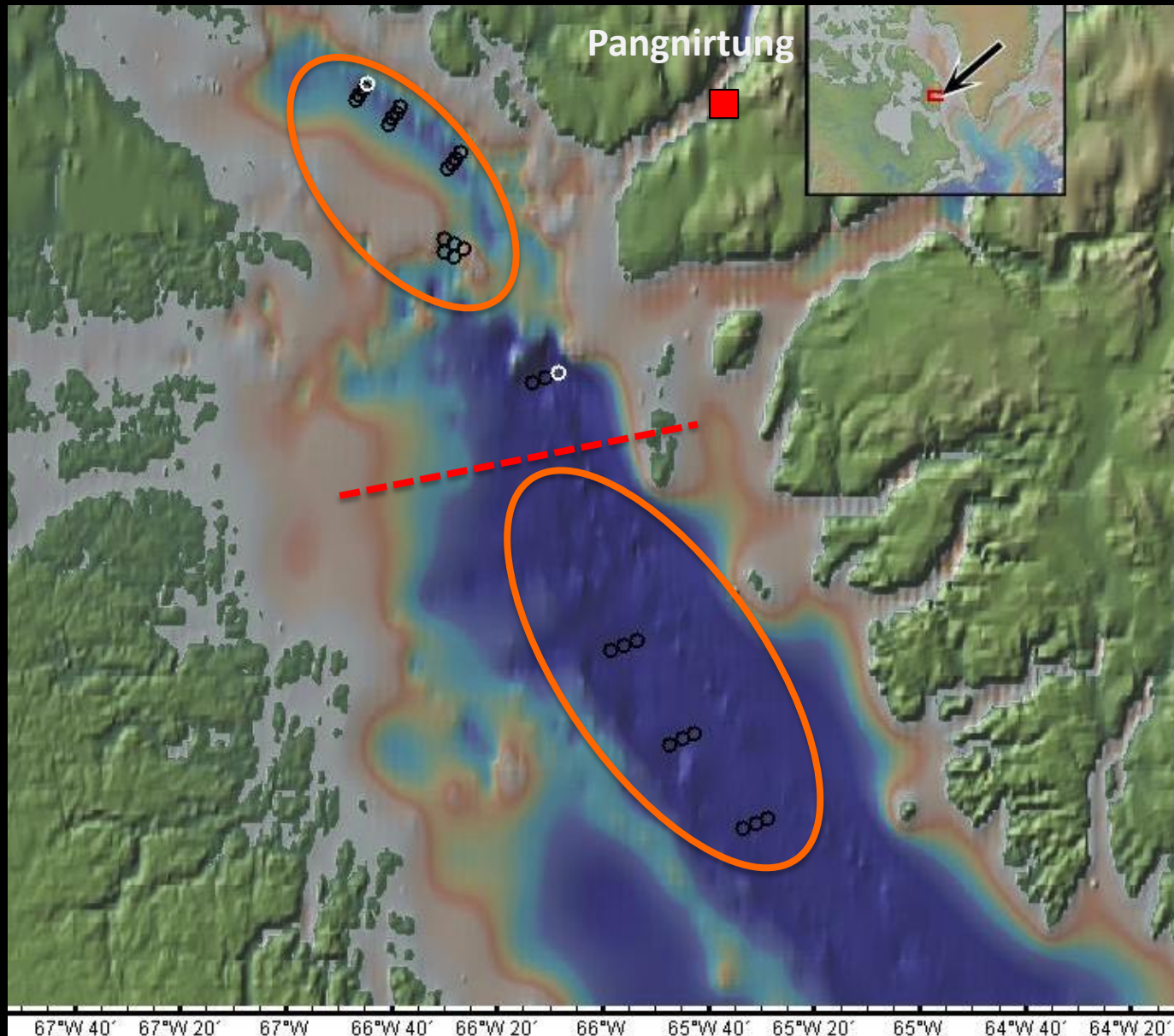






## Deploying the ACOUSTIC ARRAY





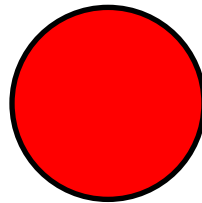


## ACOUSTIC TAGGING Greenland halibut



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ᐃᐅᐅᐅᐅ 2010/2011

**TURBOT tagged in summer – open water**  
**SUMMER fishing grounds**  
**August 2010/2011**



Total turbot tagged: 182  
Total turbot detected: 134

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ᐃᐃᐃᐃ 2011

**TURBOT – SUMMER TAGGED**

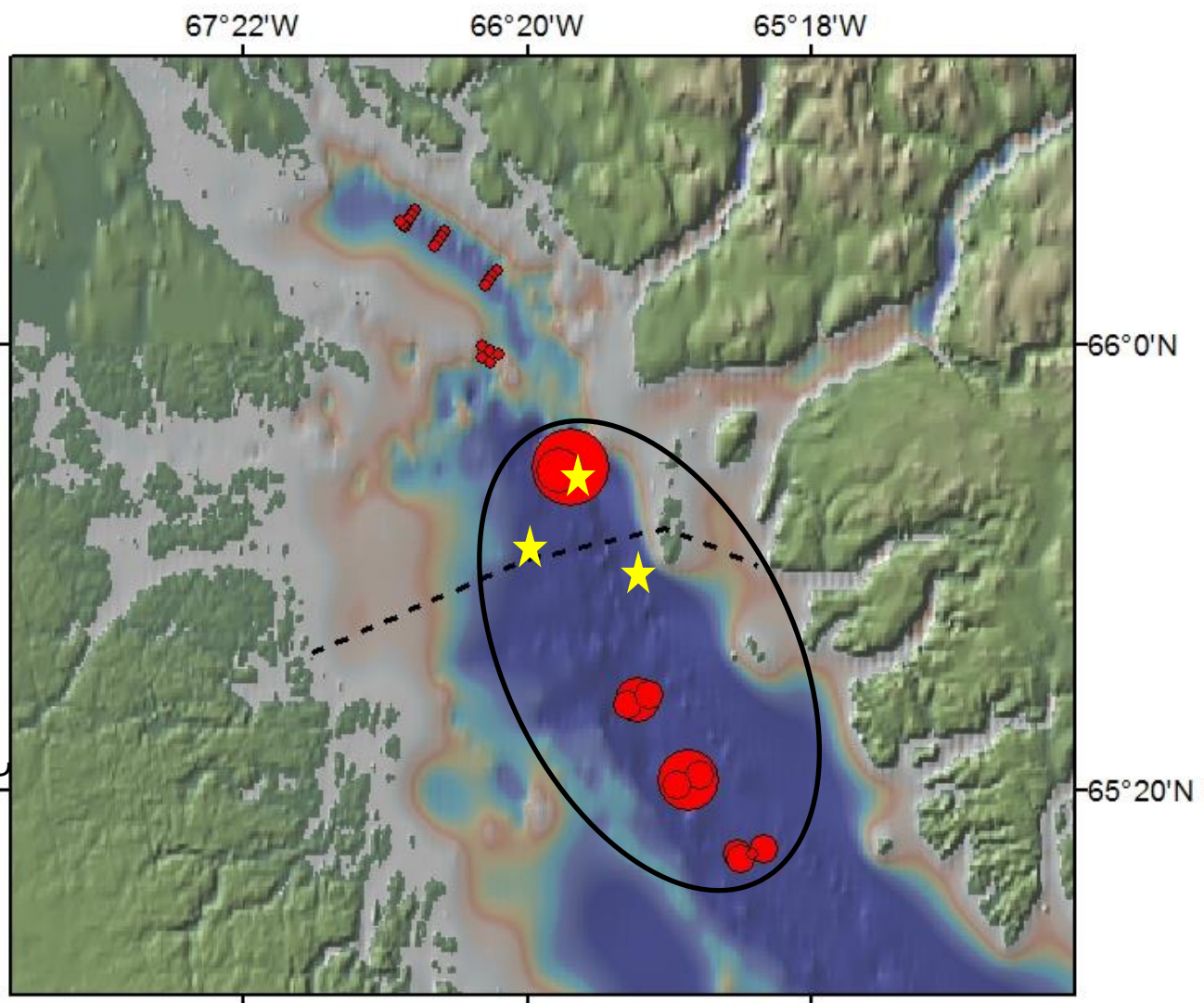
**August 2011**

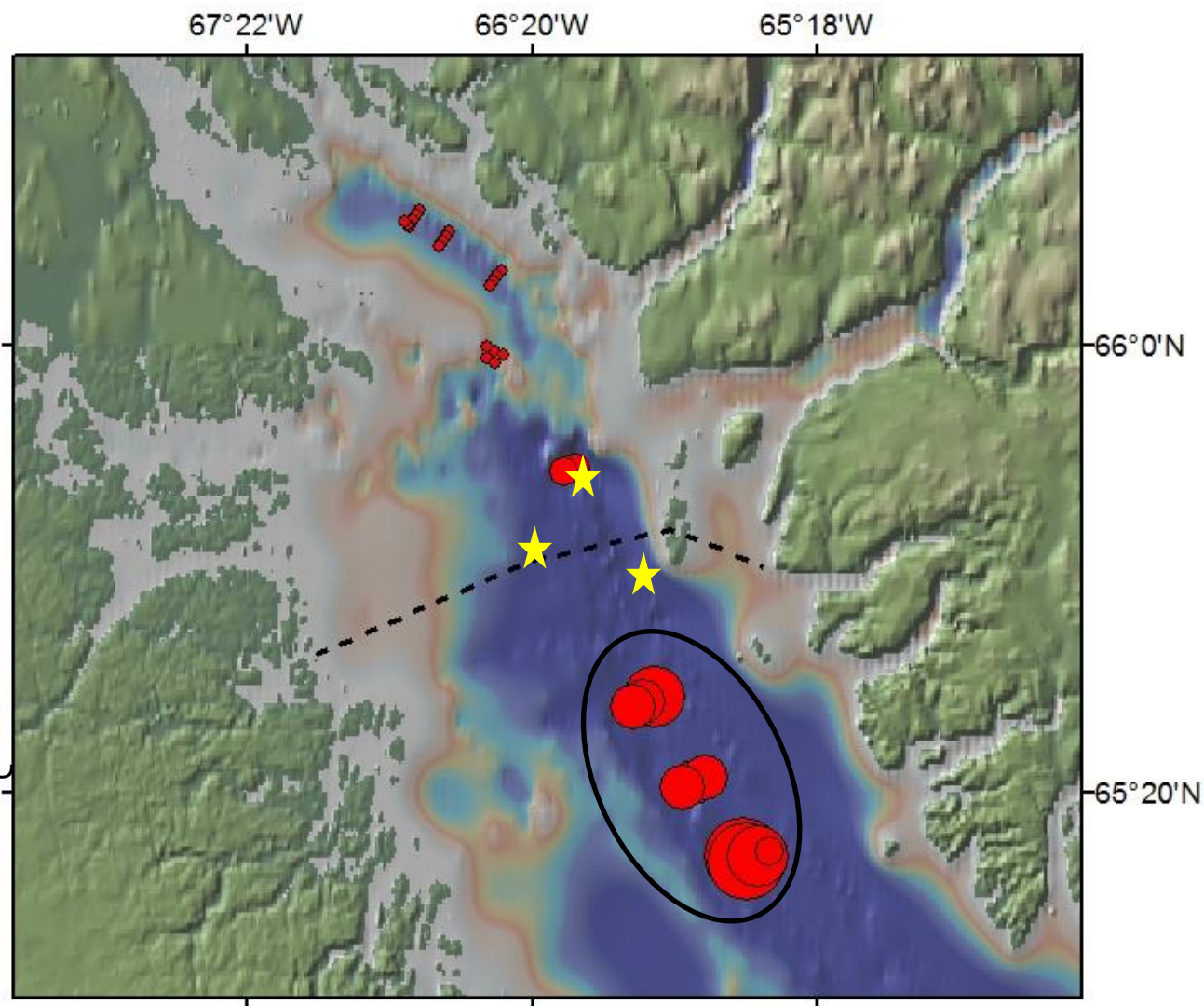
- 0 - 20
- 21 - 74
- 75 - 168
- 169 - 459
- 460 - 973

--- Management Boundary

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★ ★ Tagging location

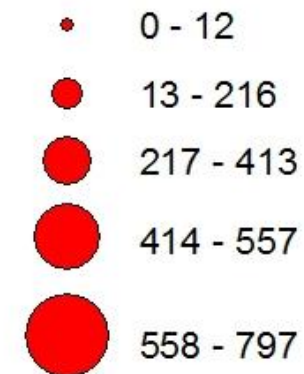




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ᐃᐃᐃᐃᐃ 2011

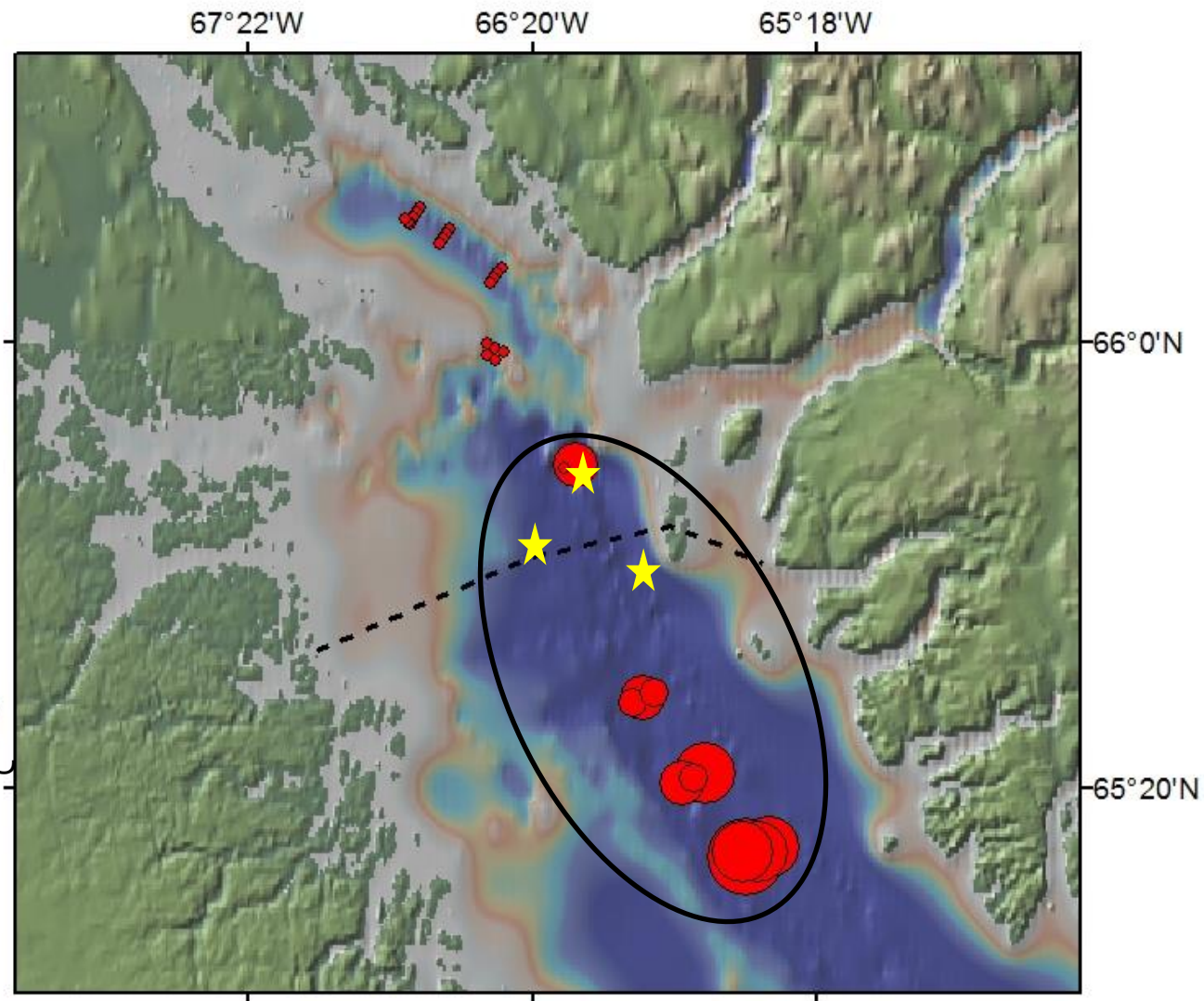
## TURBOT – SUMMER TAGGED

October 2011



--- Management Boundary






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★ ★ Tagging location



◁▷↳ℓσ ◁<sup>c</sup>⊂▷Γ<<  
 ⋈ΔΛ∩ 2011

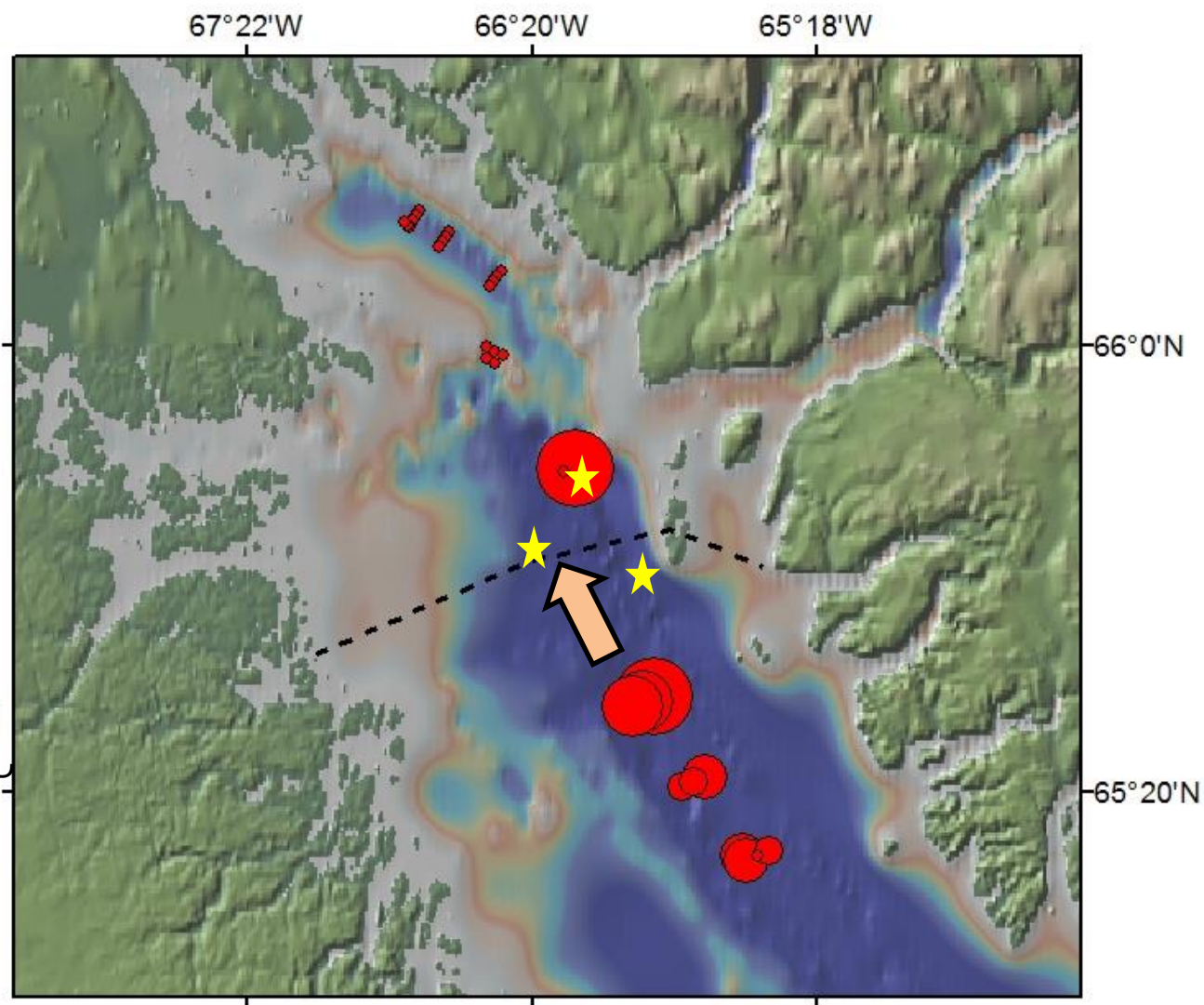
## TURBOT – SUMMER TAGGED

November 2011

-  0 - 25  
 26 - 233  
 234 - 558  
 559 - 903  
 904 - 2988

--- Management Boundary

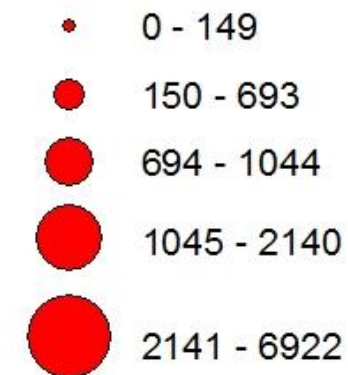
★ ★ Tagging location



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ᐅᓯᐱᐅ 2011

## TURBOT – SUMMER TAGGED

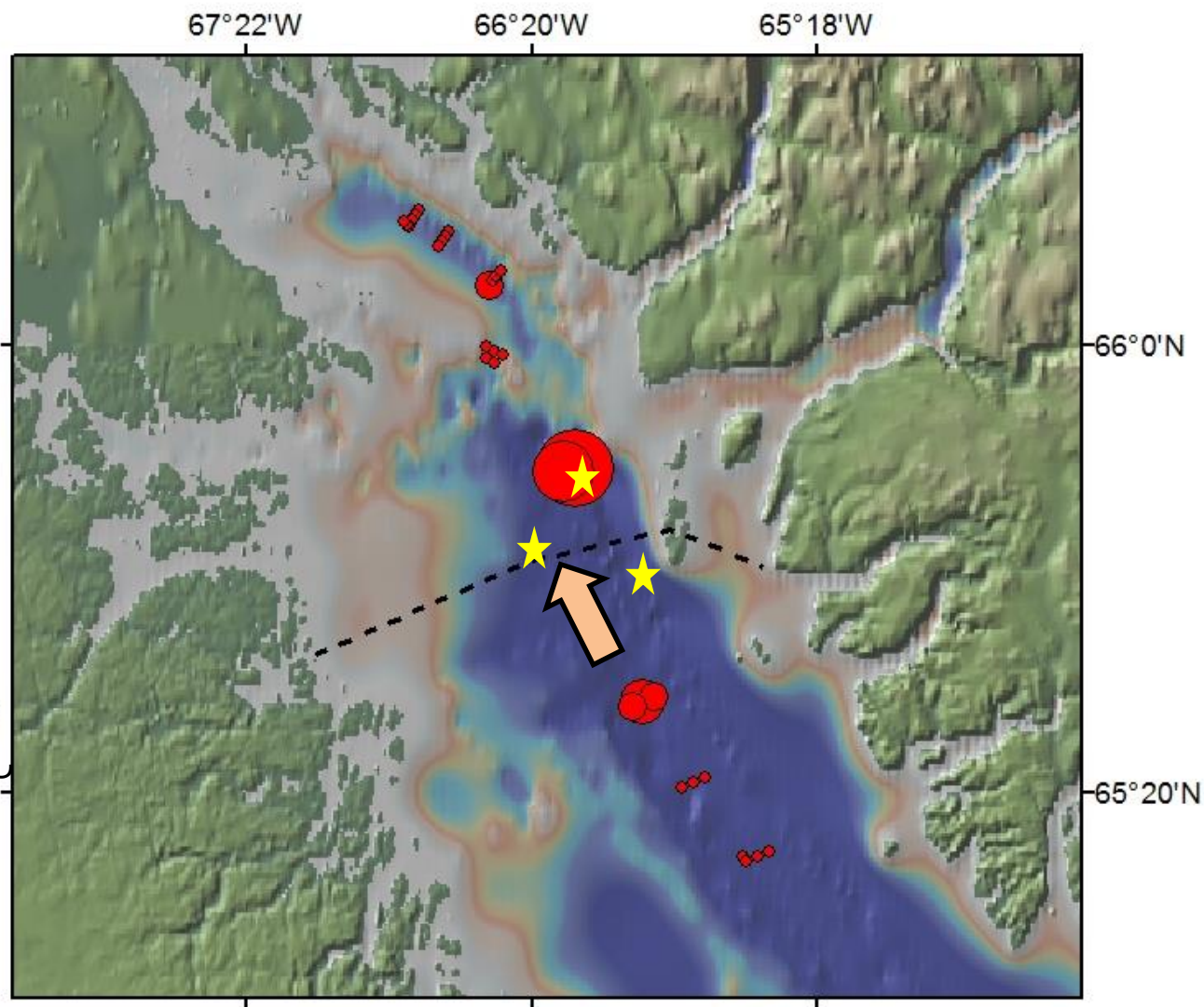
December 2011



--- Management Boundary

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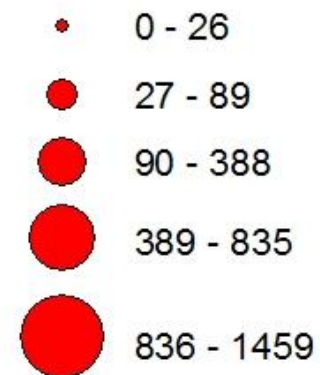
★ ★ Tagging location



4D7<sup>a</sup>6σ 4<sup>c</sup>6D7<sup>c</sup><<  
 7<sup>a</sup>6D7<sup>c</sup> 2012

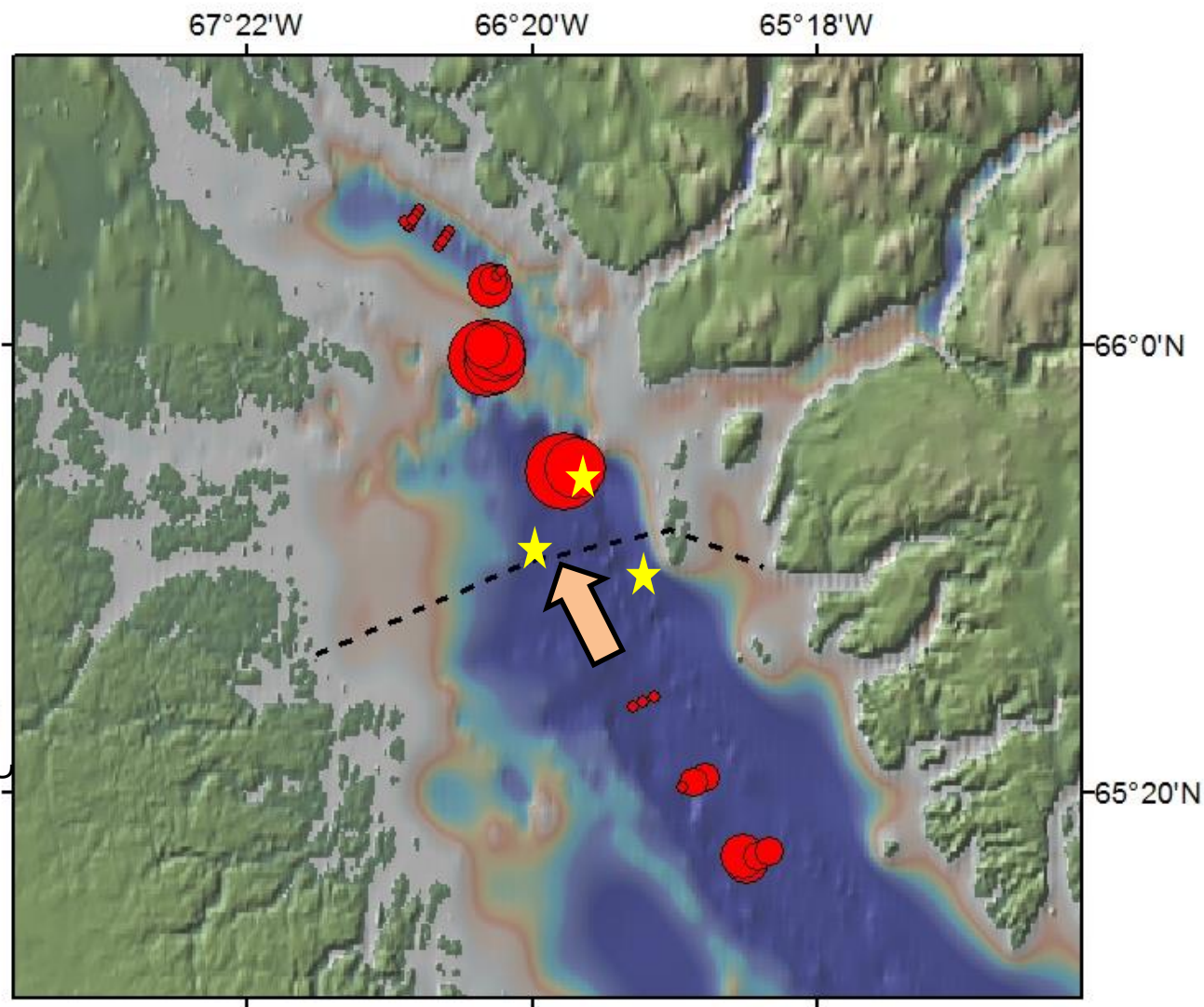
## TURBOT – SUMMER TAGGED

## January 2012



--- Management Boundary

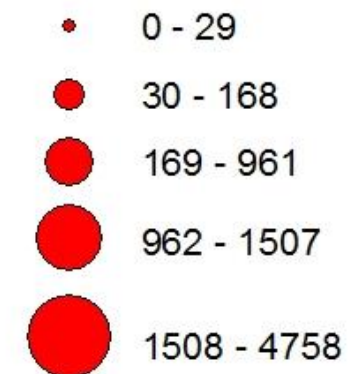
Tagging location



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ᐃᓐᓂᐃᓴ 2012

## TURBOT – SUMMER TAGGED

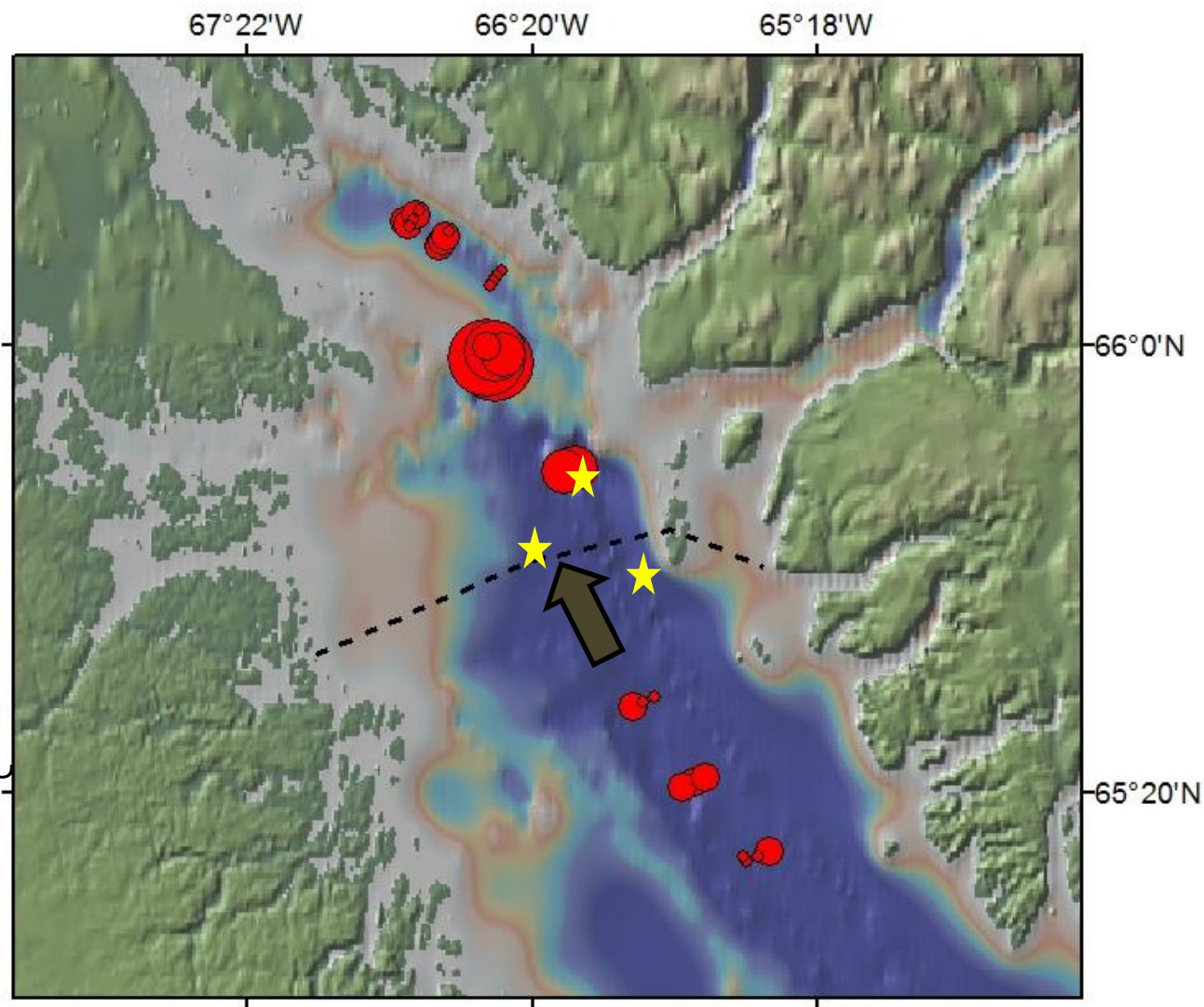
February 2012



--- Management Boundary

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★ ★ Tagging location



4D7<sup>a</sup>Lσ 4<sup>c</sup>cDΓ<◊  
 L<sup>c</sup> 2012

## TURBOT – SUMMER TAGGED

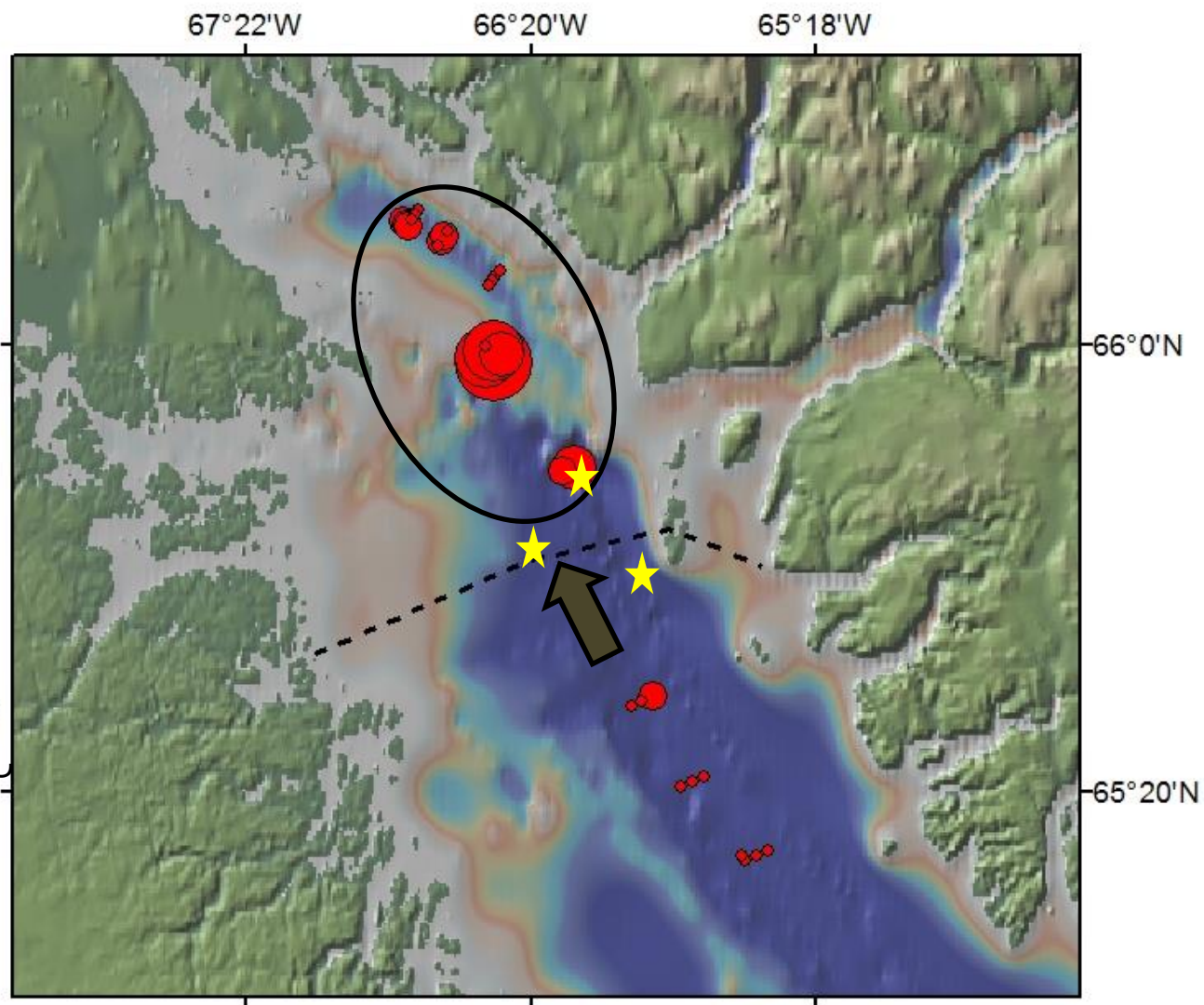
**March 2012**

-  0 - 94  
 95 - 366  
 367 - 667  
 668 - 2051  
 2052 - 5437

- - - - Management Boundary

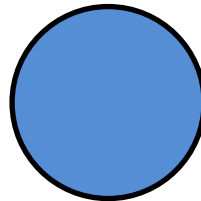
[illegible]

## ★ ★ Tagging location



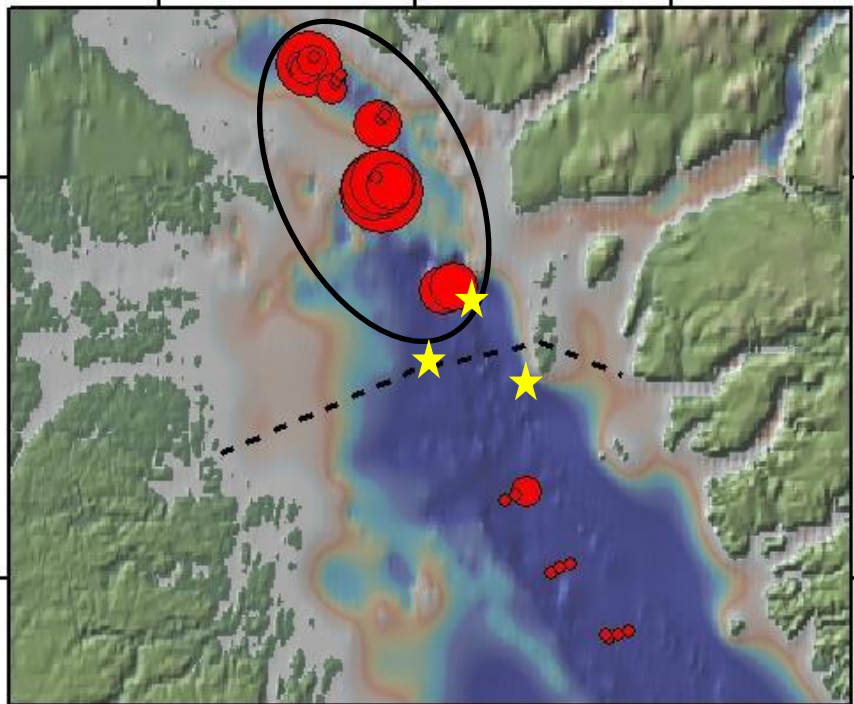
▷▷▷ J<sup>c</sup> Δ<sup>c</sup> b<sup>c</sup> C Δ<sup>b</sup>  
L<sup>c</sup> 2012

**TURBOT tagged in winter through ice**  
**WINTER fishing grounds**  
**March 2012**



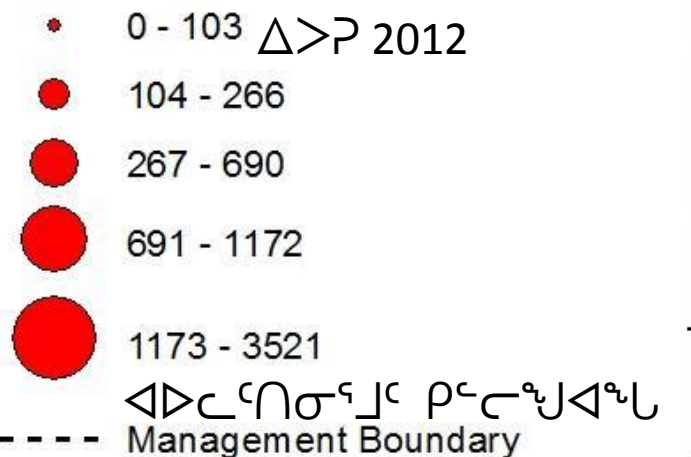
Total turbot tagged: 43  
Total turbot detected: 33

67°22'W 66°20'W 65°18'W

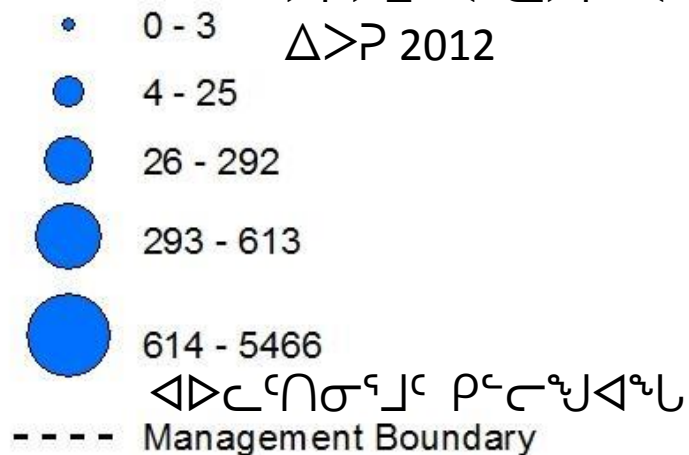


★ ★ Tagging location

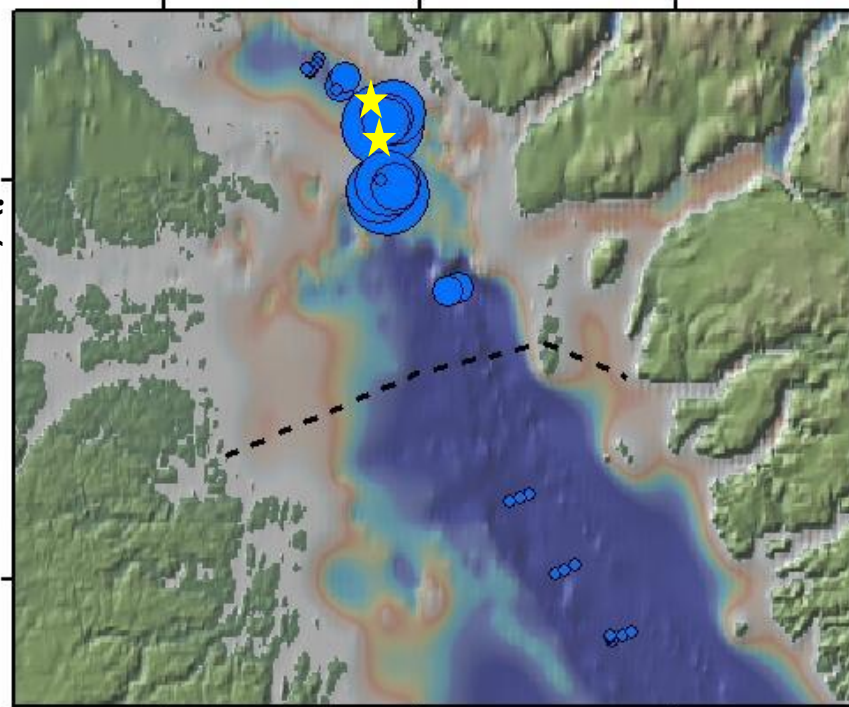
# **TURBOT – SUMMER TAGGED** **April 2012**



# **TURBOT – WINTER TAGGED** **April 2012**



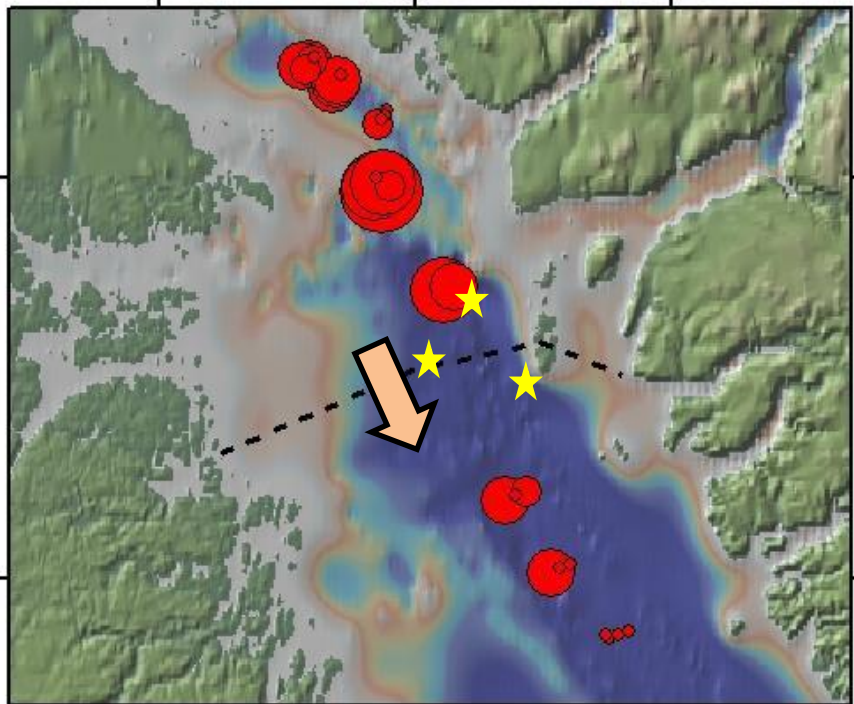
67°22'W 66°20'W 65°18'W



66°0'N

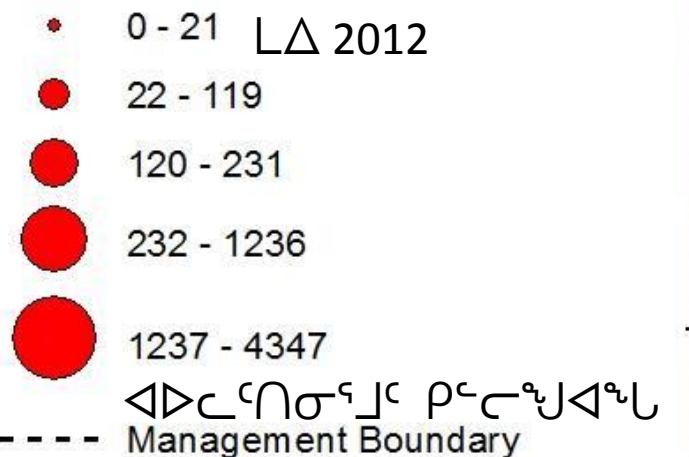
65°20'N

67°22'W 66°20'W 65°18'W



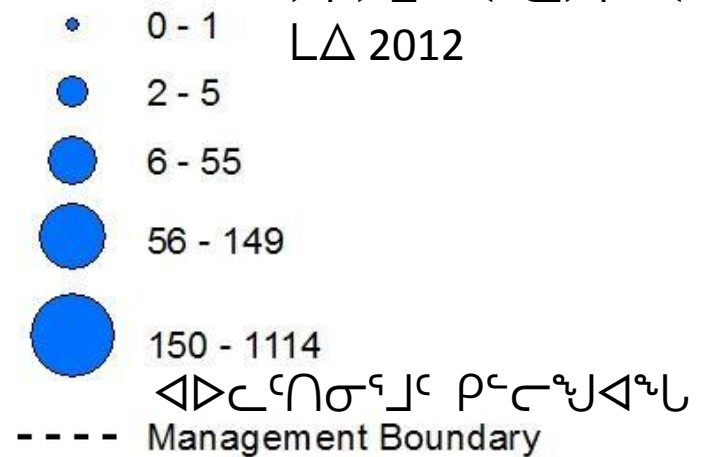
★ ★ Tagging location

### TURBOT – SUMMER TAGGED May 2012

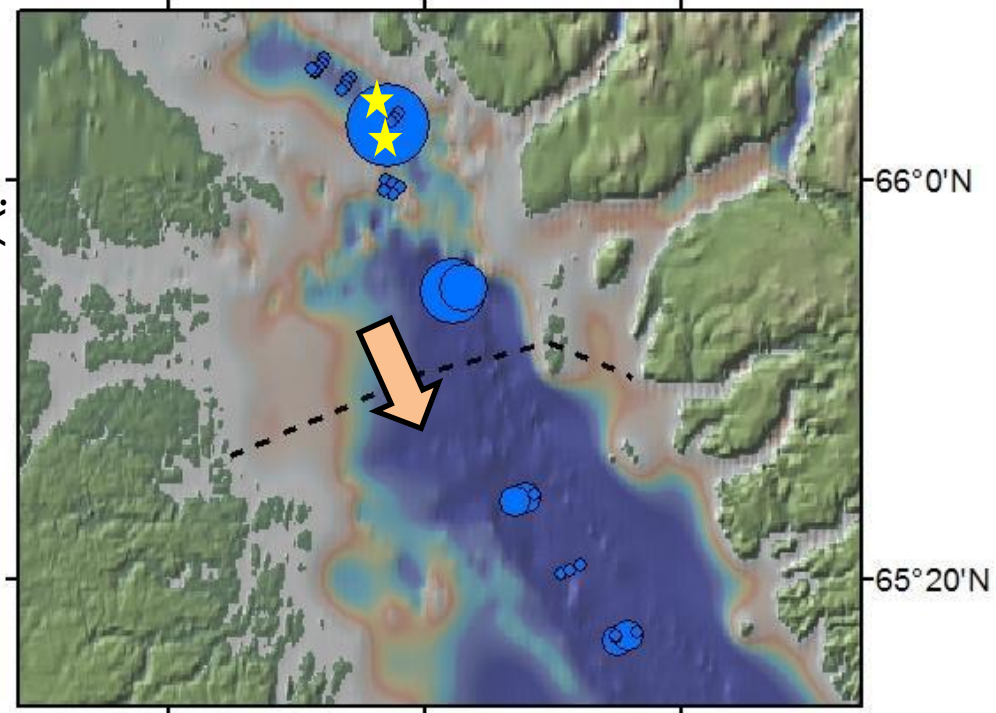


### TURBOT – WINTER TAGGED

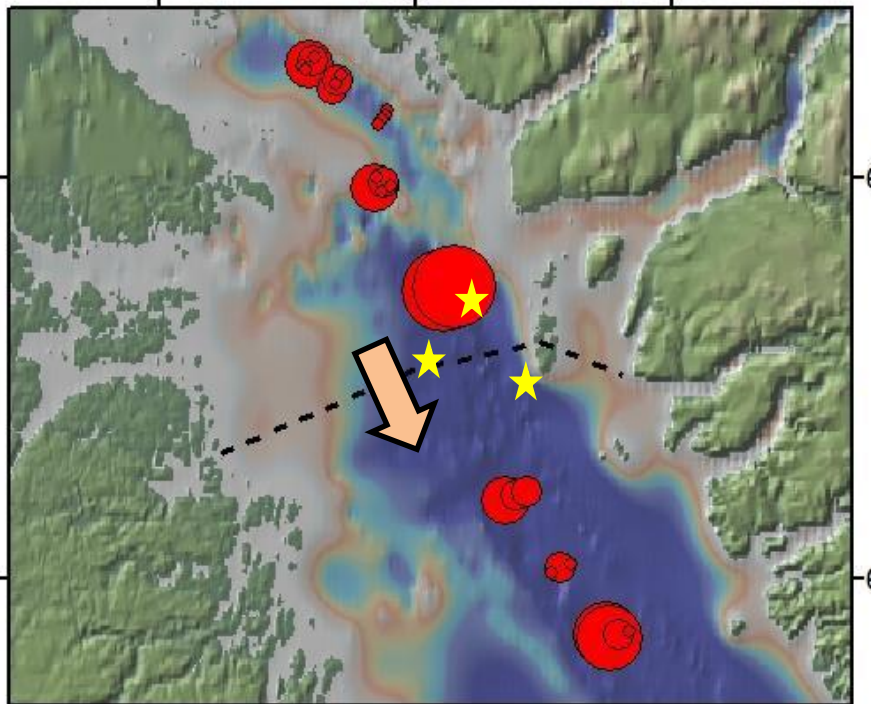
May 2012



67°22'W 66°20'W 65°18'W

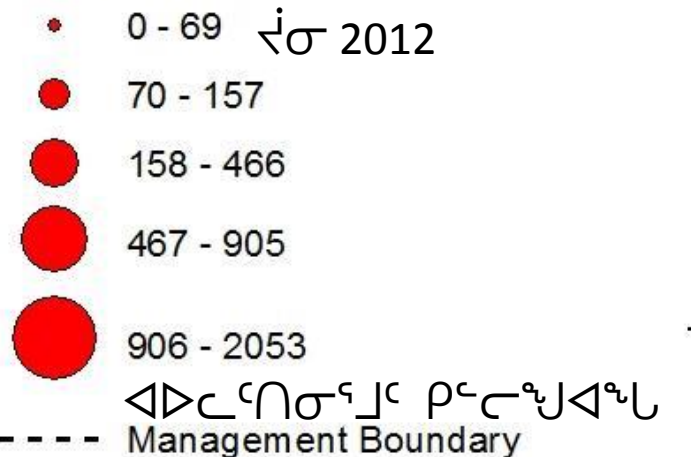


67°22'W 66°20'W 65°18'W



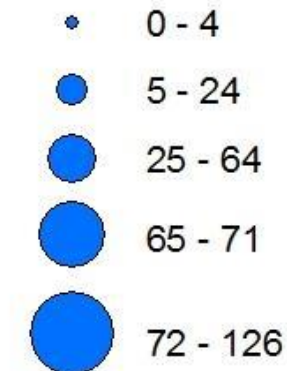
★ ★ Tagging location

### TURBOT – SUMMER TAGGED June 2012



### TURBOT – WINTER TAGGED

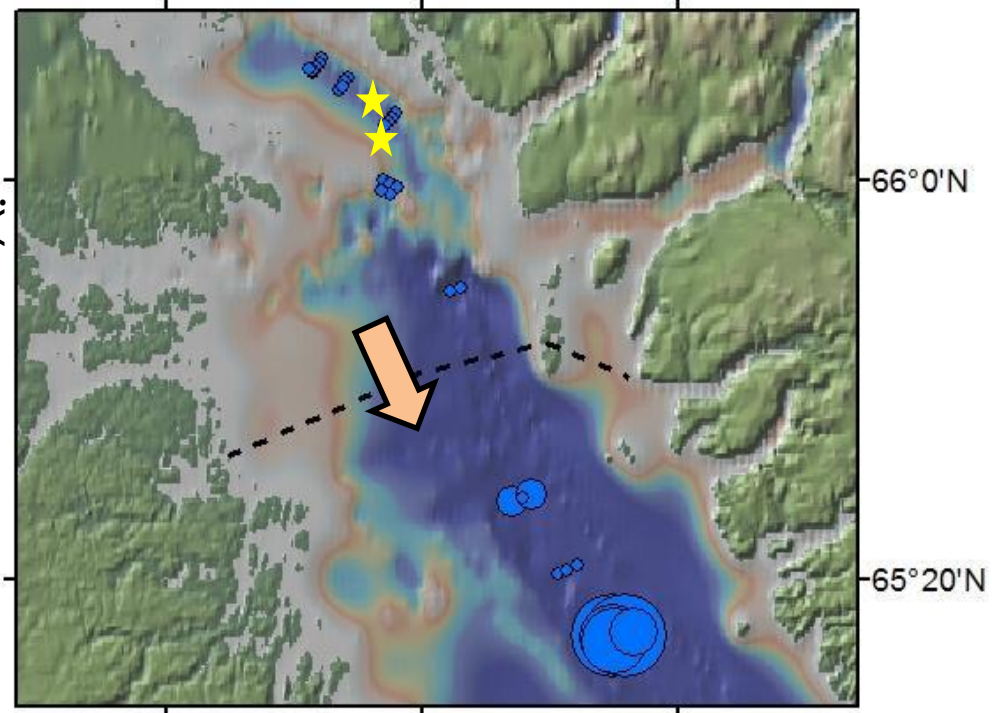
June 2012



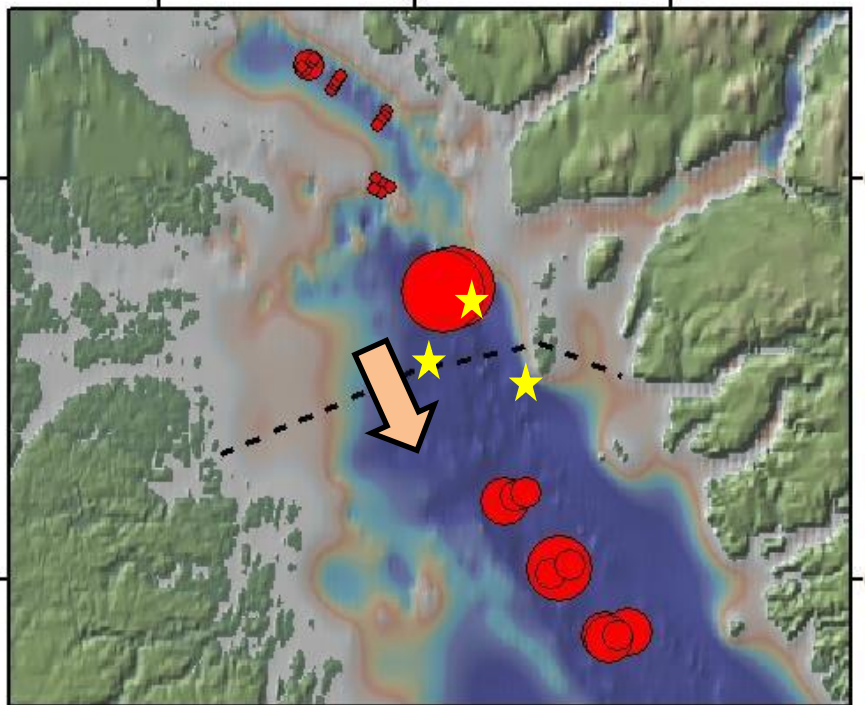
2012  
 2012

--- Management Boundary

67°22'W 66°20'W 65°18'W



67°22'W 66°20'W 65°18'W



★ ★ Tagging location

### TURBOT – SUMMER TAGGED July 2012

- 0 - 21
- 22 - 106
- 107 - 181
- 182 - 350
- 351 - 1561

--- Management Boundary

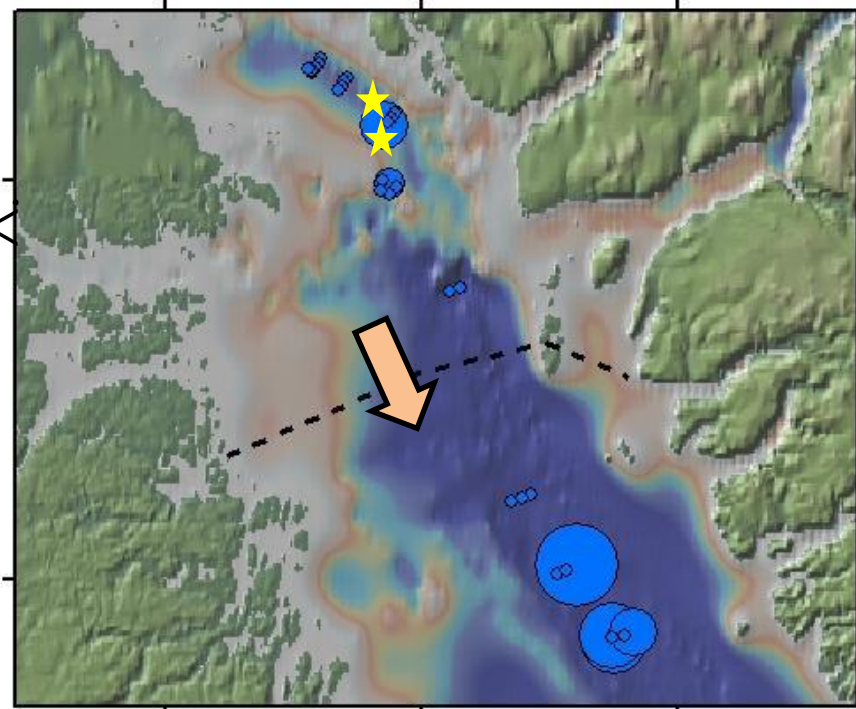
### TURBOT – WINTER TAGGED

July 2012

- 0 - 1
- 2 - 3
- 4 - 6
- 7 - 34
- 35 - 53

--- Management Boundary

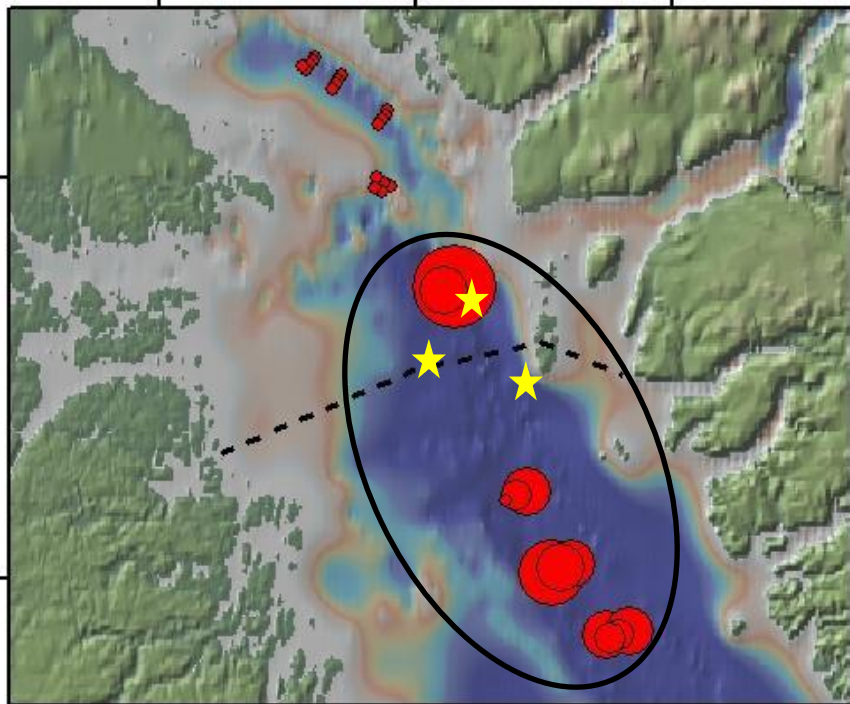
67°22'W 66°20'W 65°18'W



66°0'N

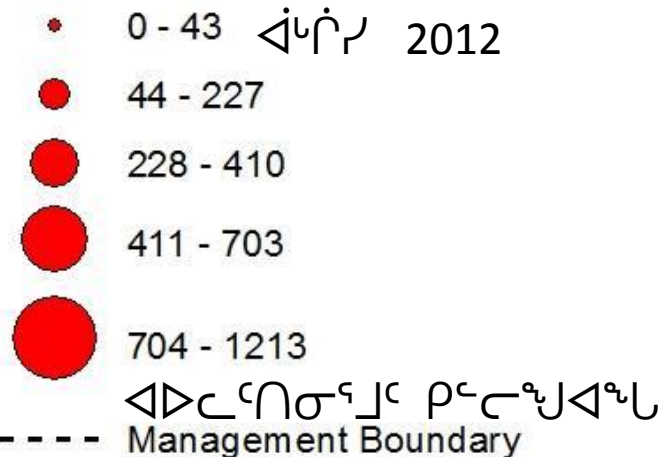
65°20'N

67°22'W 66°20'W 65°18'W

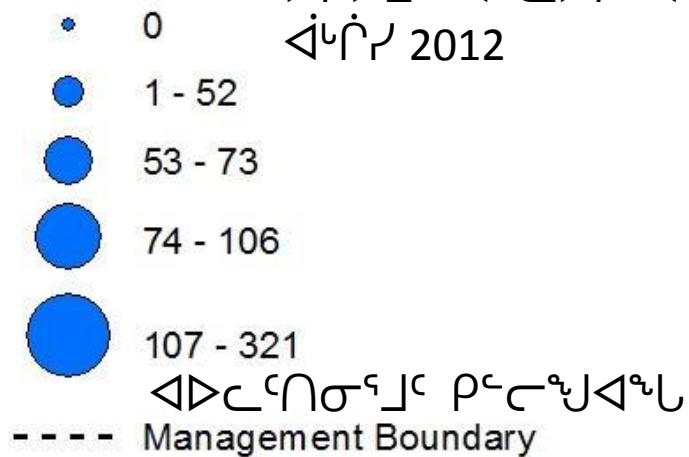


★ ★ ★ Tagging location

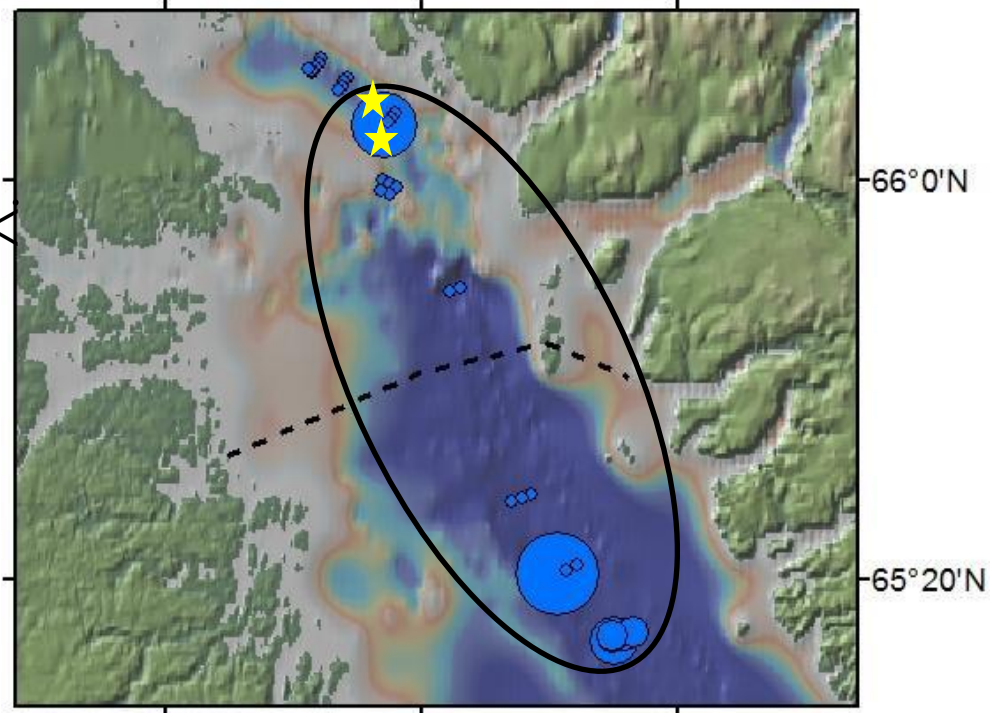
## TURBOT – SUMMER TAGGED August 2012



## TURBOT – WINTER TAGGED August 2012



67°22'W 66°20'W 65°18'W

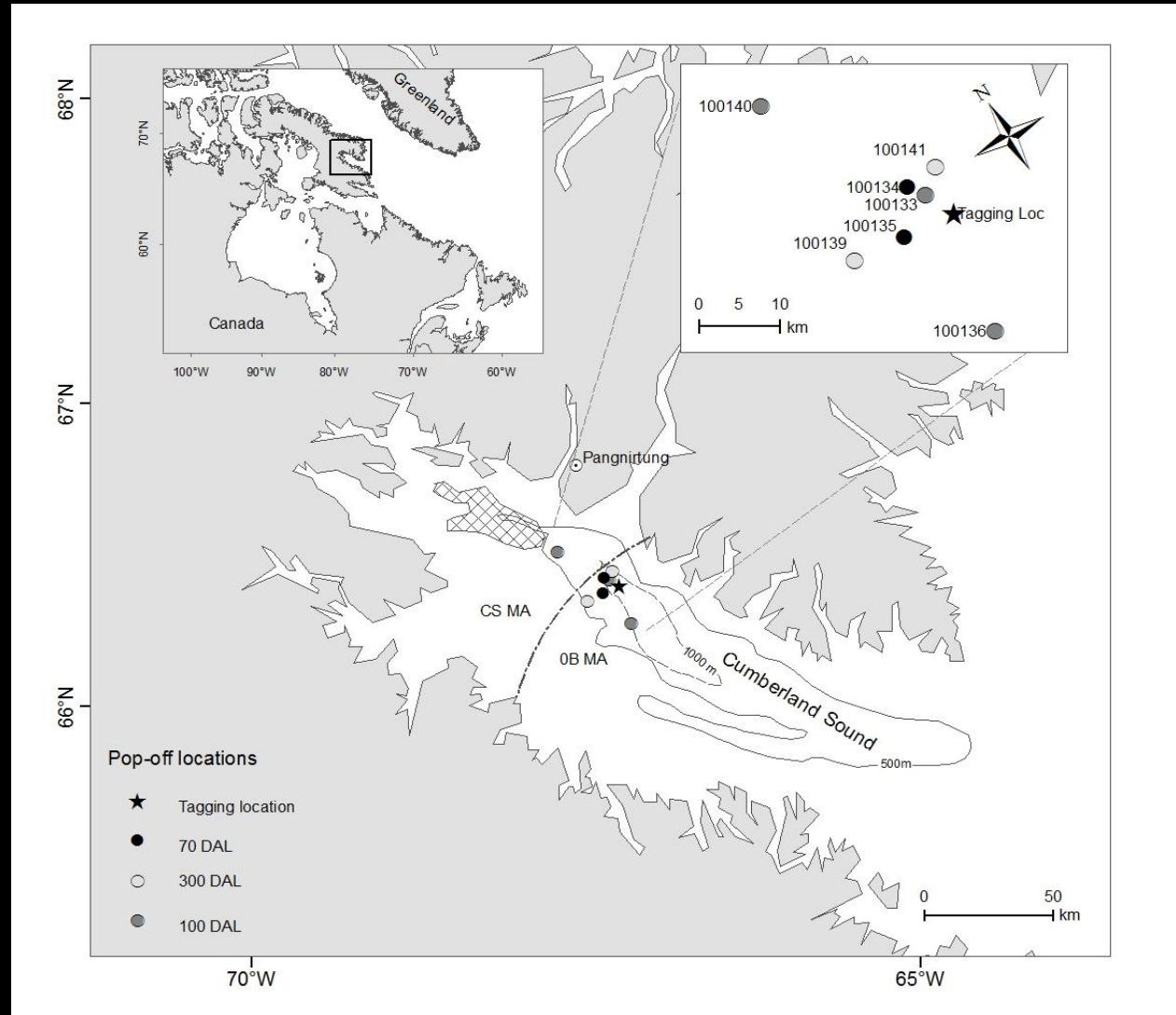




## SATELLITE TAGGING: Greenland halibut

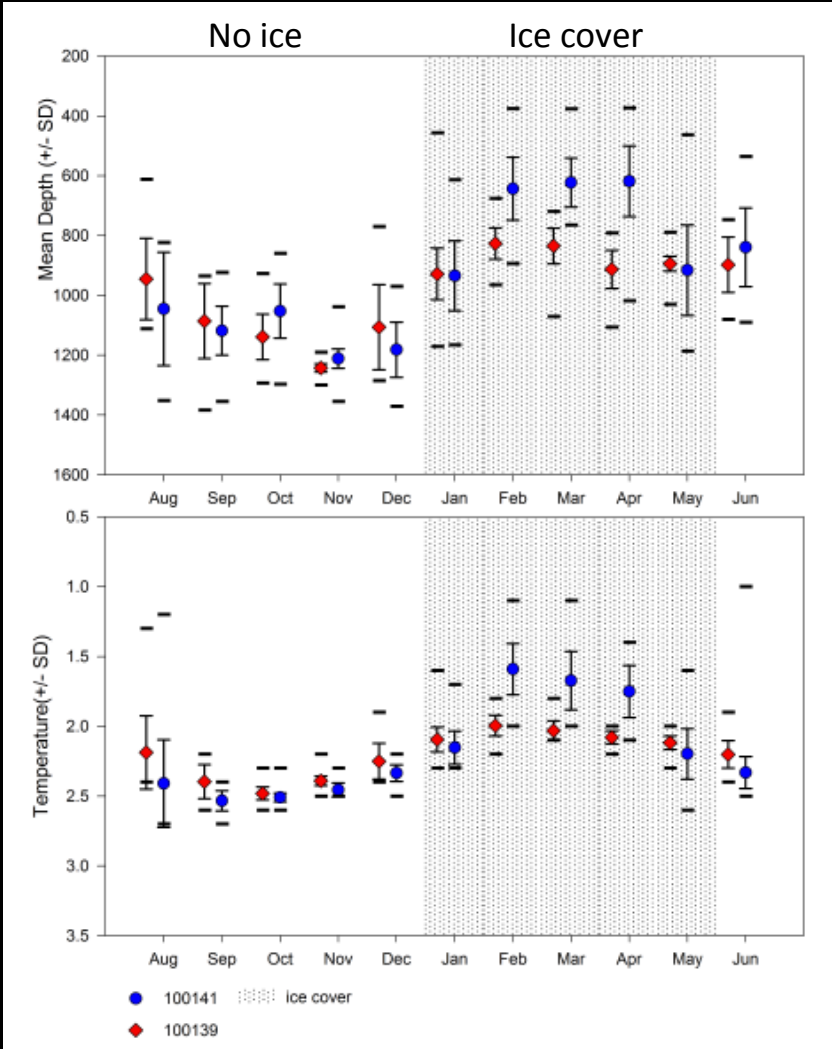
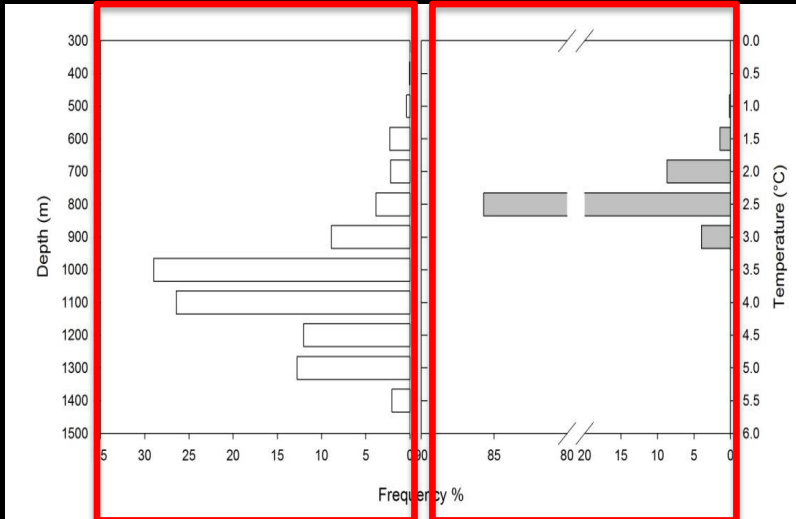


- 12 tags deployed  
9 transmitted
- 40, 70, 100 and 300 days





# SATELLITE TAGGING: Greenland halibut





AUG 30 2013

Mr. Manasie Audlakiak  
Acting Chairperson  
Nunavut Wildlife Management Board  
Box 1379  
Iqaluit, Nunavut  
X0A 0H0

Dear Mr. Audlakiak:

Thank you for your correspondence of July 3, 2013, regarding the approval of the Pangnirtung Hunters and Trappers Organization proposal to move the Cumberland Sound Turbot Management Area boundary line to the Nunavut Settlement area boundary at the mouth of the Sound. The detailed rationale the Board provided in reaching its decision is helpful.

I appreciate the economic importance of the Cumberland Sound commercial Turbot fishery to the community of Pangnirtung and the ongoing efforts to develop an open water small vessel fishery in the Sound. However, in addition to socio-economic and Traditional Knowledge considerations, the basis for determining separate stock management area boundaries needs to be founded on robust scientific information on stock delineation for conservation purposes.

I note that there has been no new peer reviewed scientific assessment of Turbot movements in Cumberland Sound since the initial 2004 assessment by the NAFO Scientific Council to inform my decision on changes to the existing Cumberland Sound Turbot Management Area. The new acoustic data is limited and firm scientific conclusions cannot be drawn from a single year of information. Therefore, I am rejecting the Board's decision to approve the Pangnirtung Hunters and Trappers Organization proposal to move the Cumberland Sound Turbot Management Area boundary line to the Nunavut Settlement area boundary at the mouth of the Sound.

That being said, I would be prepared to consider allowing the boundary line to be moved to the mouth of the Sound on an interim basis, provided that a science plan is put in place to collect, in a timely manner, the necessary science information on Turbot movements and stock structure in Cumberland Sound.

.../2

I encourage the Hunters and Trappers Organizations to discuss with my officials the science research options available for Cumberland Sound Turbot and development of an amenable science plan in order to move forward in assessing their proposal. Once the necessary scientific data are collected and peer reviewed, the Cumberland Sound Turbot Management Area boundary line could be formally re-considered.

I note that my officials have also discussed the option of obtaining quota from Nunavut's offshore 0B Turbot allocations with the Hunters and Trappers Organization. This quota could be used towards their development of the small boat open water fishery in the outer portion of Cumberland Sound (outside the Cumberland Sound Turbot Management Area) to facilitate increased fishing opportunities for Pangnirtung harvesters throughout the entire Sound.

I look forward to hearing the Board's final decision on the Pangnirtung Hunters and Trappers Organization's proposal to move the Cumberland Sound Turbot Management Area boundary line.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Gail Shea". The signature is fluid and cursive, with the first name "Gail" and last name "Shea" clearly distinguishable.

Gail Shea, P.C., M.P.

**From:** Johnny Mike

**To:** Karla Letto; Charlotte Sharkey; Anna Magera

**Cc:** Noah Mosesie; Noah Mosesee; Andrew Nakashuk; Jacopie Maniapik; Michael Neumann

**Subject:** Re: CSTMA boundary line

**Date:** October-16-13 9:59:54 AM

Good day, PHTO met yesterday and here is the PHTO board approved resolution as follows:  
whereas PHTO supports CSFL-PFL Partnership quota of 50mt OB turbot to put aside only for this year for local fishermen to harvest outside of the inshore boundary line in OB area within Cumberland Sound,

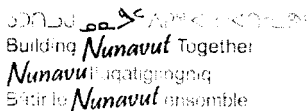
and whereas PHTO has deadline to meet by November 1, 2013,

and whereas PHTO board continued their support for the development of turbot fishery exploratory and science plan in consultation with DFO science,

and therefore be it resolved that PHTO and its membership will work with NWMB and DFO on tagging of turbot in the Cumberland Sound waters.

Hope this will help to move the issue forward and should there any problem and or question please contact PHTO.

thx from Johnny Mike PHTO Sec/treasurer.



Ministère de l'Environnement

RECEIVED  
NOV 06 2013

[www.gov.nu.ca](http://www.gov.nu.ca)



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Building *Nunavut* Together  
*Nunavut* ᐅᐅᐅᐅᐅᐅᐅᐅᐅᐅ  
Bâtir le *Nunavut* ensemble

ᐅᐅᐅᐅᐅᐅᐅᐅᐅᐅ  
Department of Environment  
Avatiliyikkut  
Ministère de l'Environnement

- 2 -

Given DFO's unwillingness to relocate the CSTMA boundary permanently until more data is gathered on the Cumberland Sound turbot stock, we support their proposal to move the boundary line on an interim basis, in conjunction with development of a science plan to address outstanding questions surrounding this important turbot stock. We will continue to work with DFO and the Pangnirtung HTO to support turbot research activities in Cumberland Sound and to implement the proposed science plan through the use of the Government of Nunavut research vessel, R.V. Nuliajuk for the benefit of the local inshore fishery and to ensure the protection of this important turbot stock.

Sincerely,

Wayne Lynch  
Director of Fisheries and Sealing  
Department of Environment

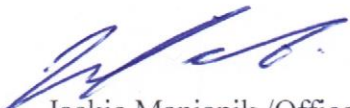
.../2

Pangnirtung Hunters and Trappers Organization  
P.O. Box 2  
Pangnirtung, Nunavut  
X0A 0R0  
March 6, 2015

RE: electronic Acoustic tags

The Board of Directors of Pangnirtung Hunters and Trappers Organization (the Pangnirtung HTO),

Pangnirtung HTO Board of Directors support two years of turbot tracking research in Cumberland Sound using electronic tags, as they did in the past.



Jackie Maniapik /Office Manager



Noah Mosesee /Chairman