

የዋናው ጉዳይ ምክር ቤቱ የሥራ ስልጣን ለማሳደግና ለማረጋገጥ ማድረግ ይገባል።

Research Scientist



**Pêches et Océans
Canada**

The term “stock” generally refers to a resource unit: a group of animals that are subject to hunting.

[illegible]

The biological definition of a population is a reproductively-isolated group of animals.

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 ጥረትና ጥረት ይፈጸማል።
 ማረጋገጥ ይቻላል።

Stocks defined here may or may not be populations in that sense but they are geographically segregated groups subject to hunting.

[illegible]

It is important to choose the definition of stock to suit the management goal. In this case, avoiding local depletion is one such goal, particularly for hunting communities that rely on a predictable seasonal occurrence of animals for their subsistence.

This goal also promotes the conservation of genetic diversity which may result from adaptation to local conditions.

An example of the depletion of a local beluga stock is the Ungava Bay stock, which has been severely depleted, perhaps eradicated, by commercial whaling.

[illegible]

Methods

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- 1) Studies of the seasonal range of the species in Nunavut and adjacent waters by documenting local and written reports of their occurrence;
- 2) Appearance and behavioural differences of animals from different areas of Nunavut and adjacent waters.
- 3) Studies of genetic and contaminant differences of animals from different parts of Nunavut and adjacent waters.
- 4) Tracking animals, using satellite-linked transmitters, to estimate their seasonal range and delimit areas of aggregations.

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Narwhal Stocks

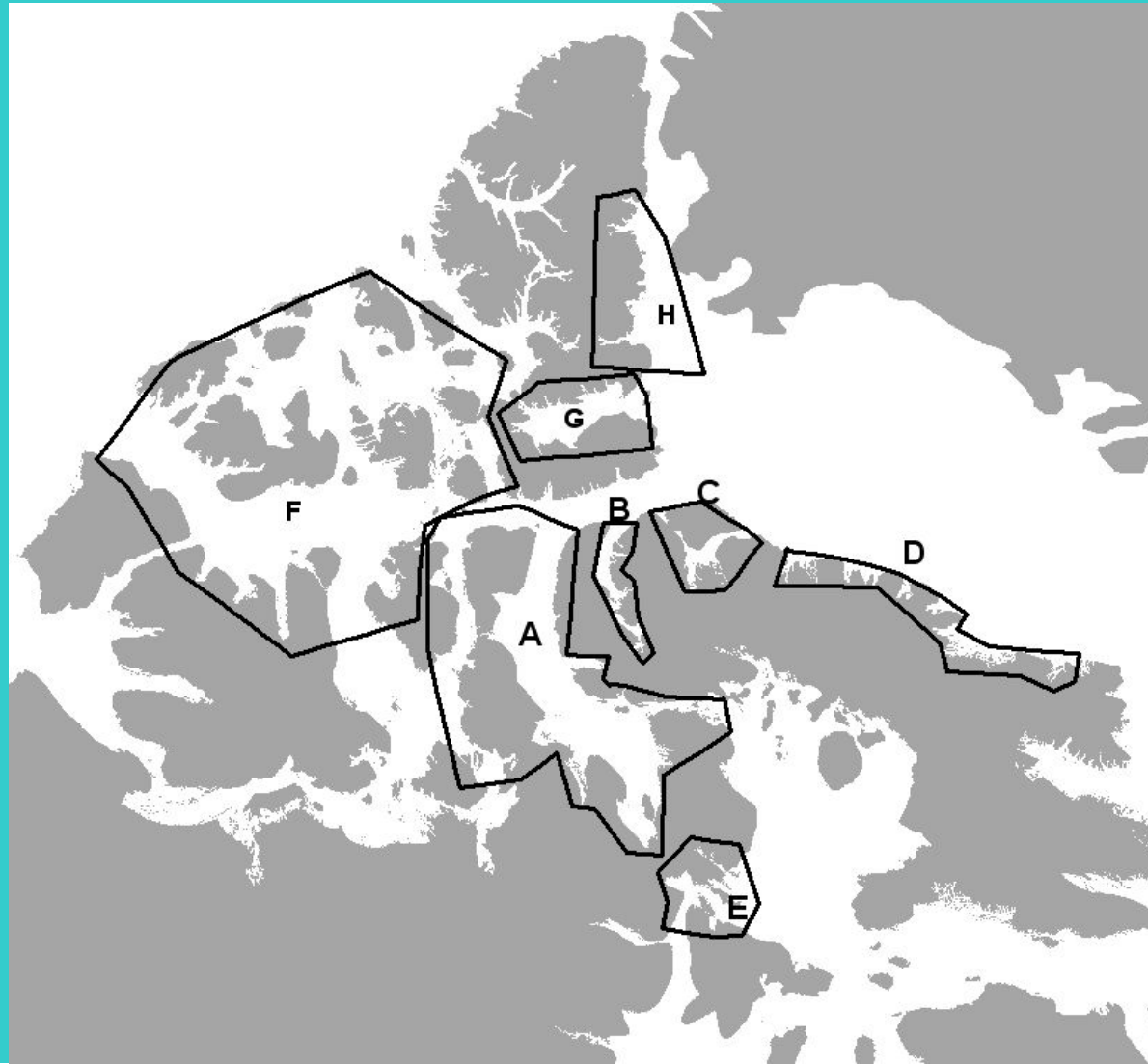
Stock definition in Nunavut narwhals is not as clear as it is for belugas. Tracking results offer the best indication of geographic segregation in summer and, in the case of the Northern Hudson Bay stock, year-round. There is also some evidence from genetics and contaminants of stock partitioning in High Arctic narwhals. On that basis, five Nunavut narwhal stocks are identified (A: Somerset Island; B: Admiralty Inlet; C: Eclipse Sound; D: East Baffin Island; E: Northern Hudson Bay) and three more (F: Parry Channel; G: Jones Sound; H: Smith Sound) are hypothesized to exist based on the fact that narwhals have been sighted or hunted in these areas in summer and also because other stocks are sedentary during the same season.

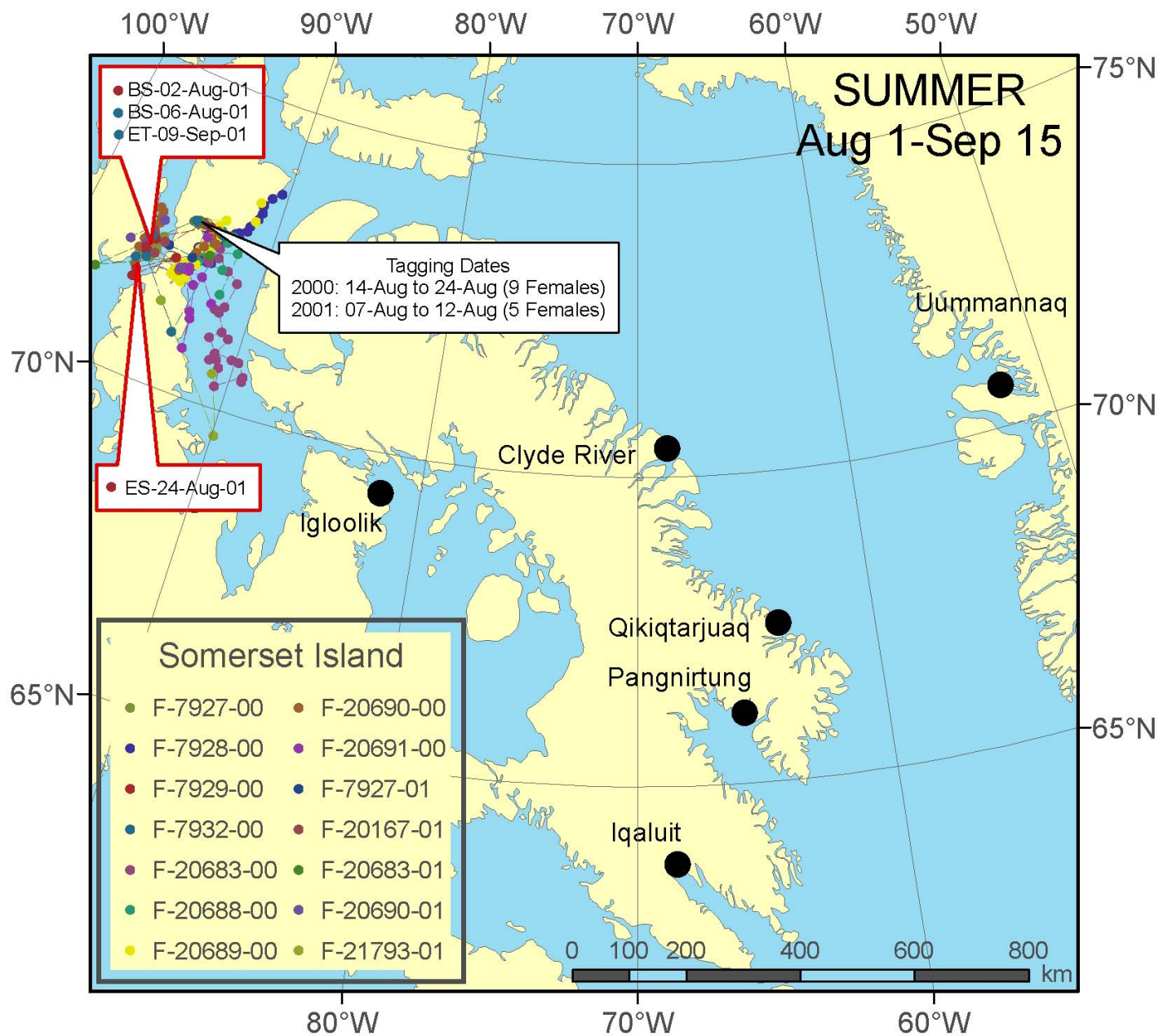
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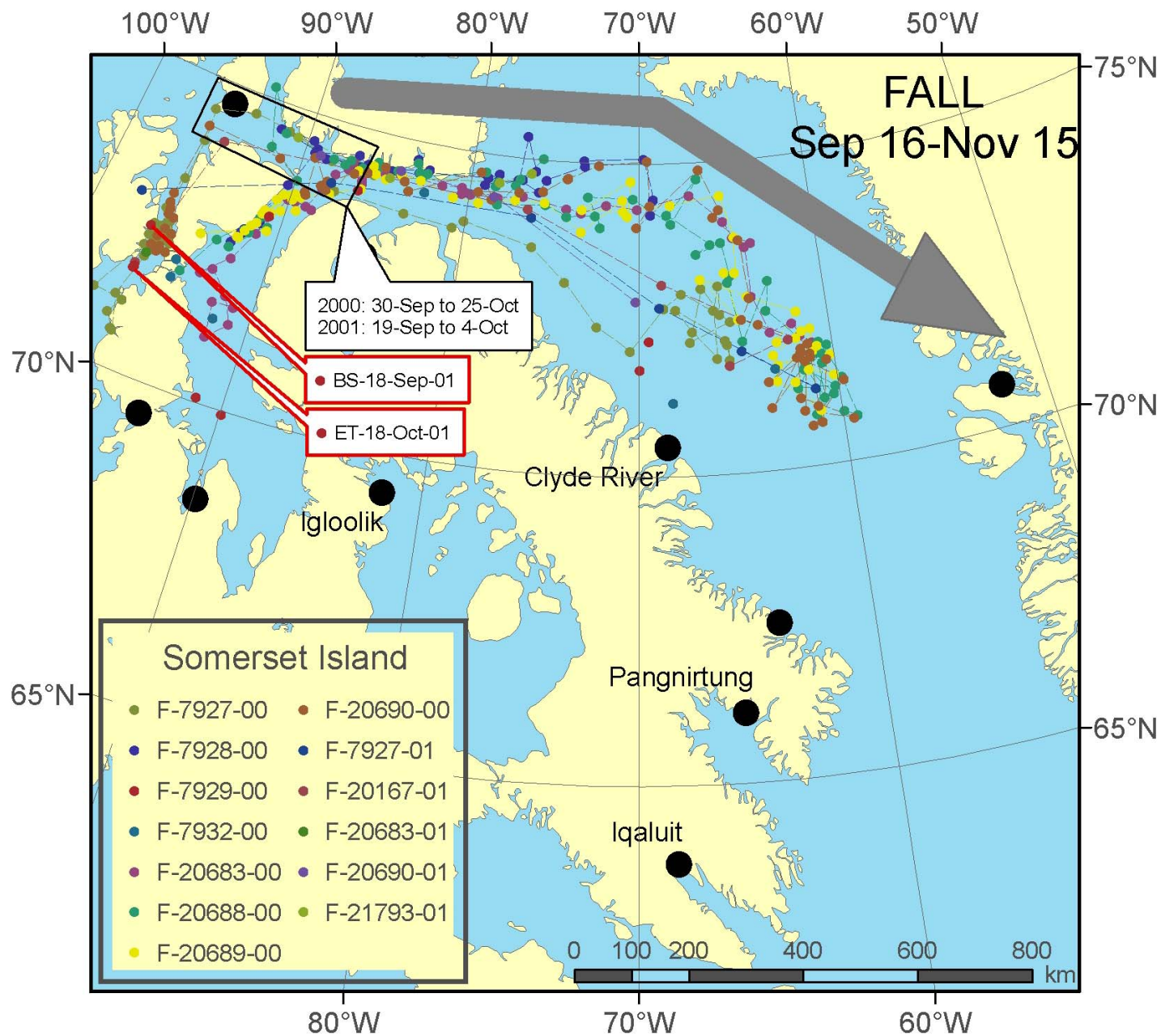
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Narwhal stocks: A- Somerset, B- Admiralty, C- Eclipse, D- East Baffin, E- Northern Hudson Bay, F – Parry Island, G- Jones Sound, H – Smith Sound.

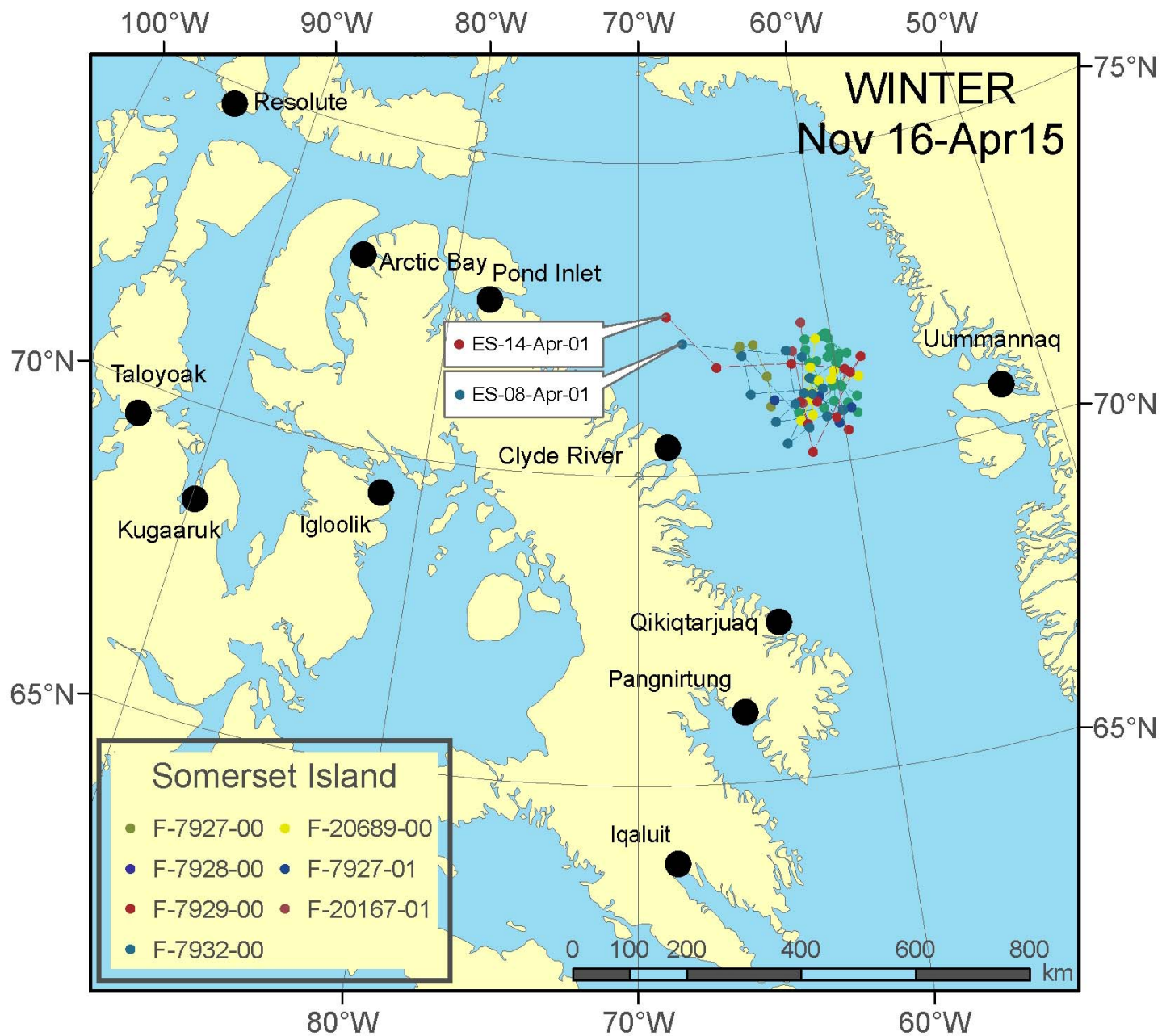
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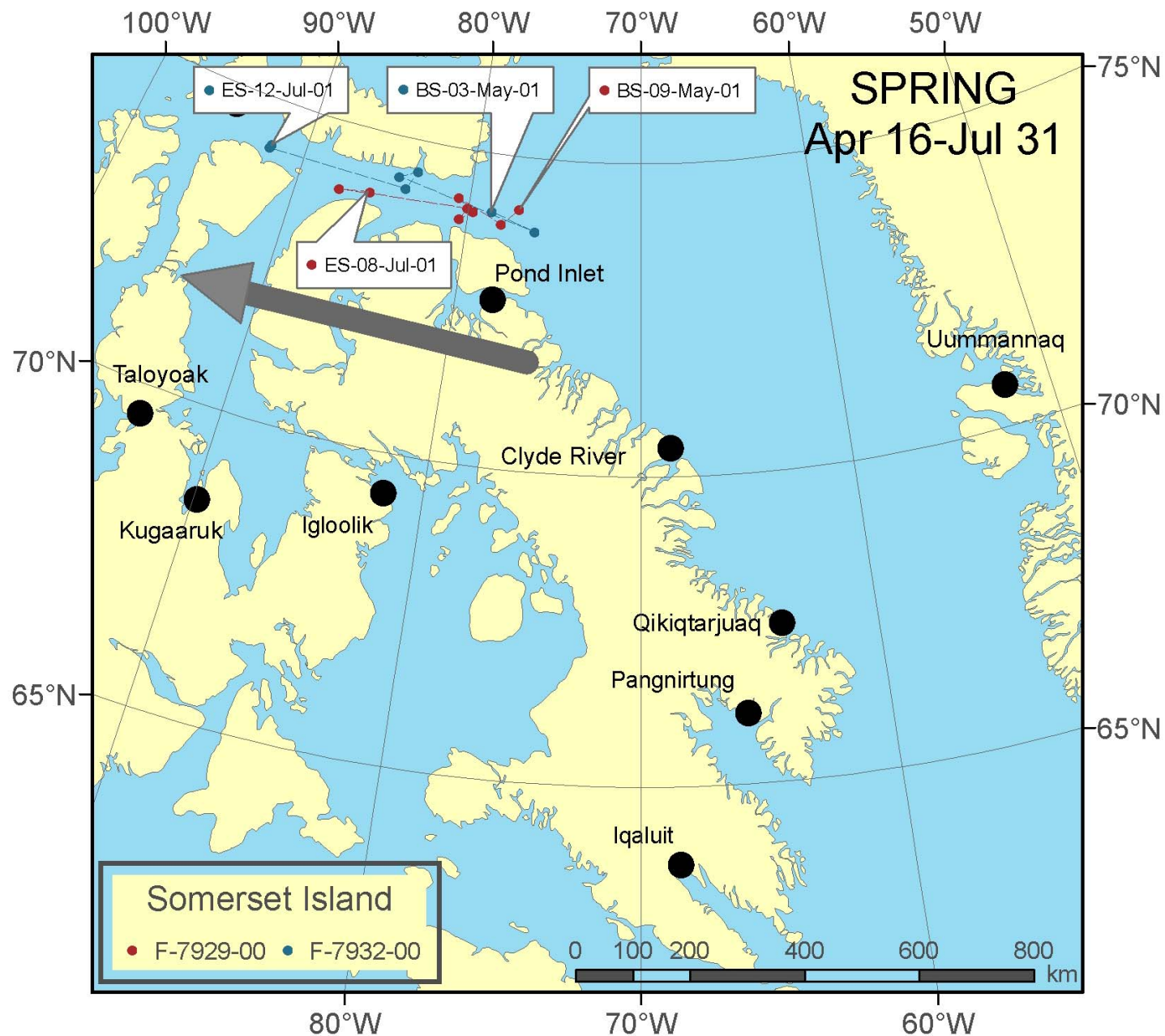
Somerset Island stock



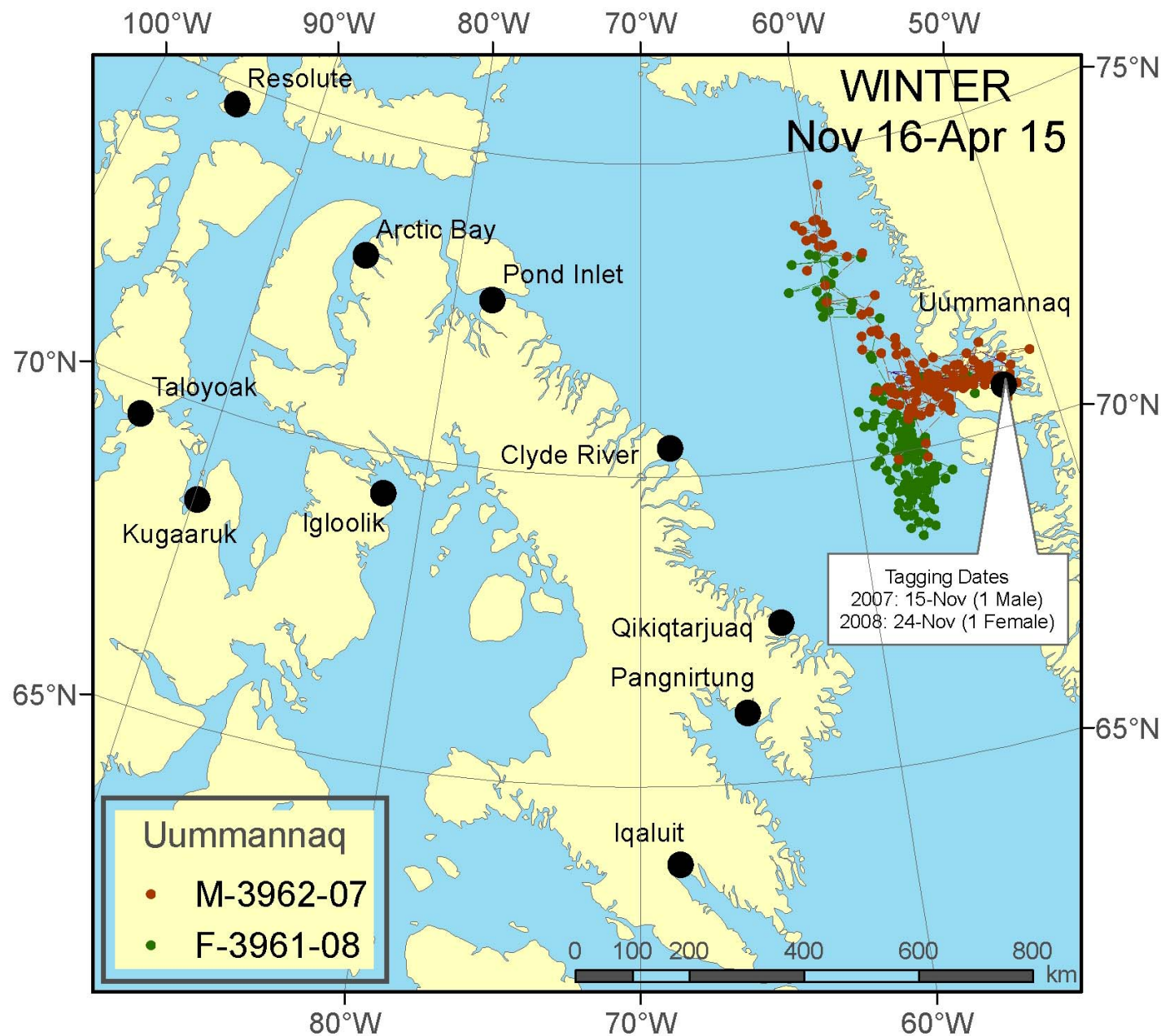
Somerset Island stock



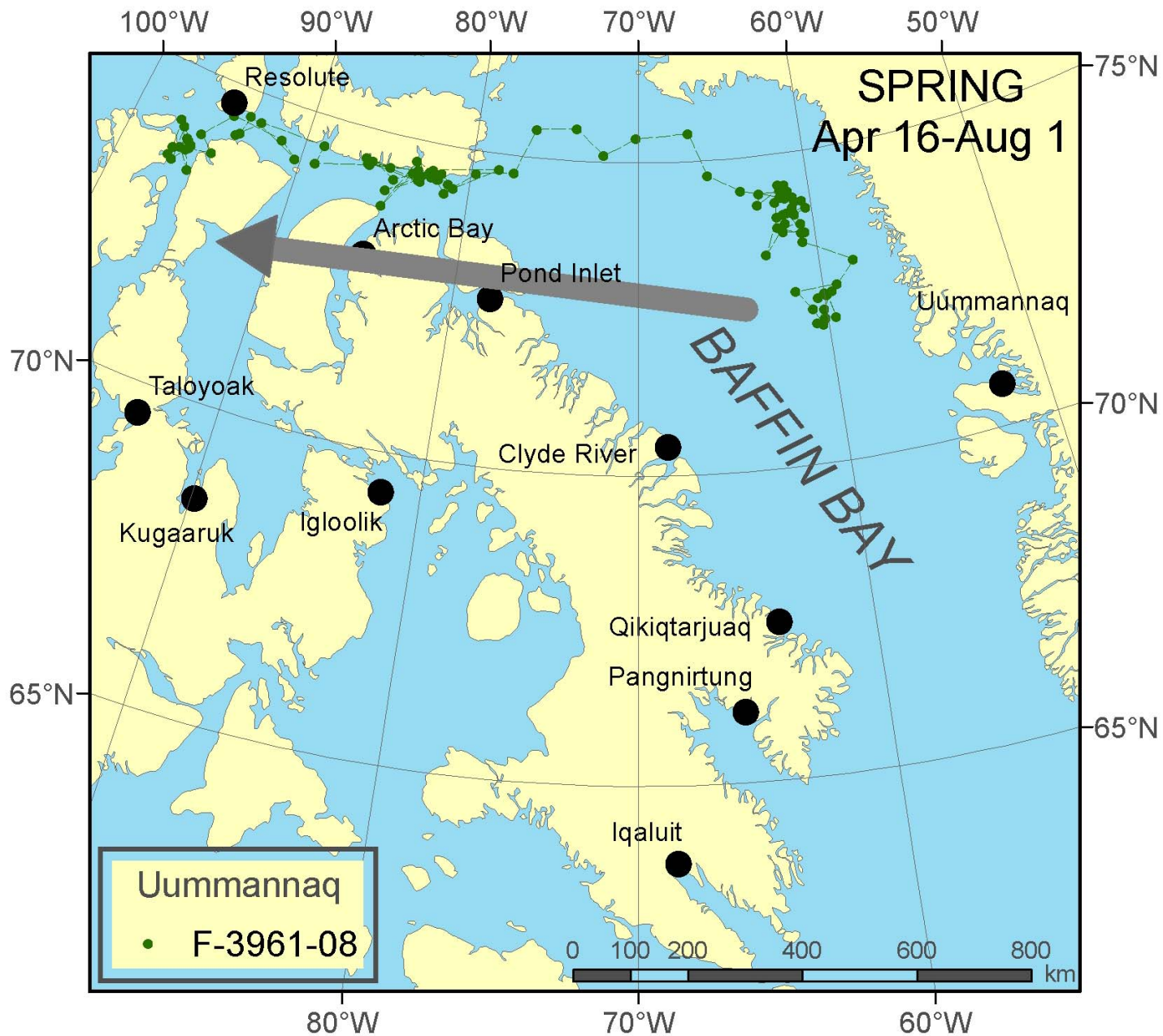
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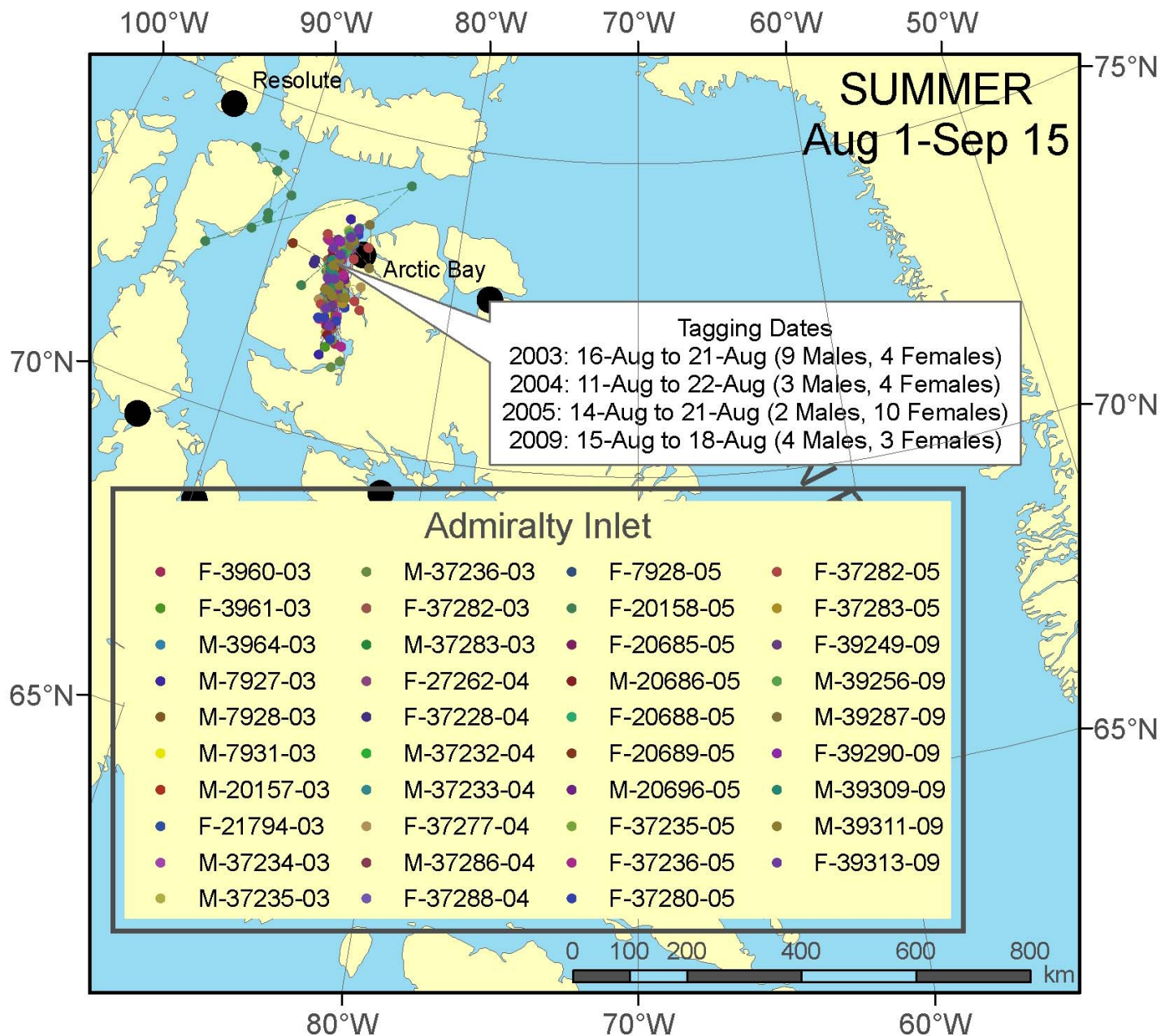
Somerset Island stock



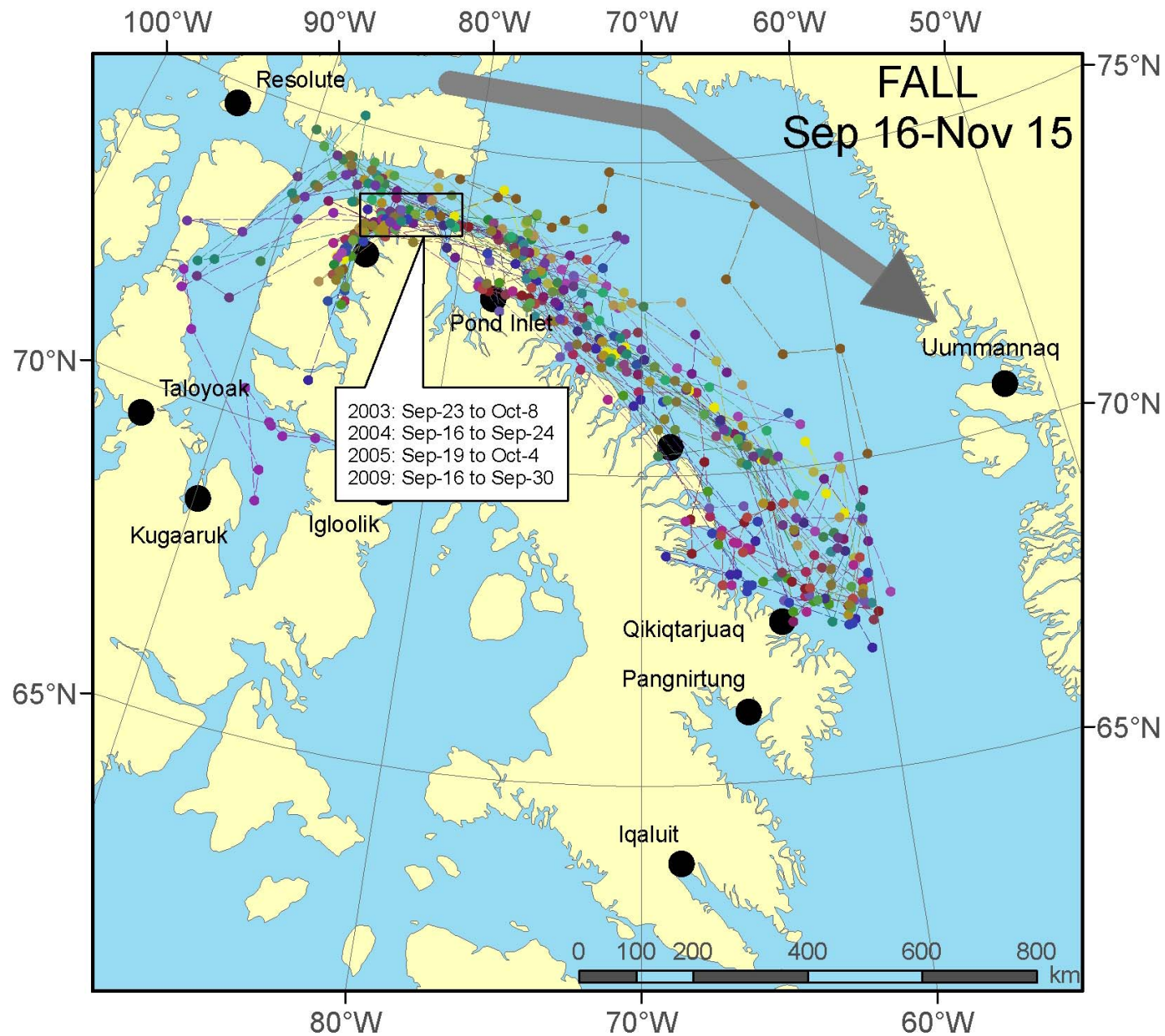
Somerset Island stock (Uummannaq tags)



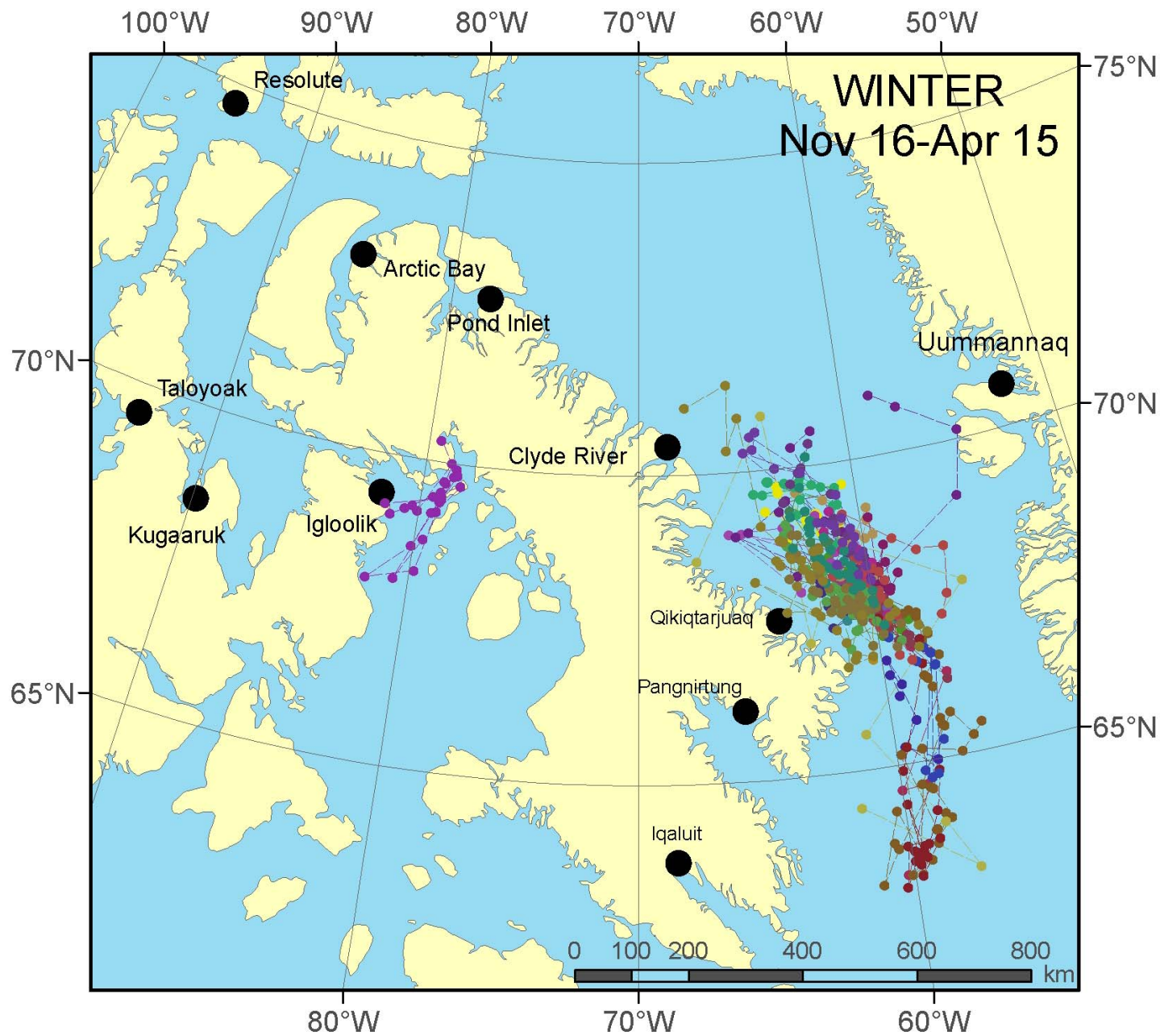
Somerset Island stock (Uummannaq tags)



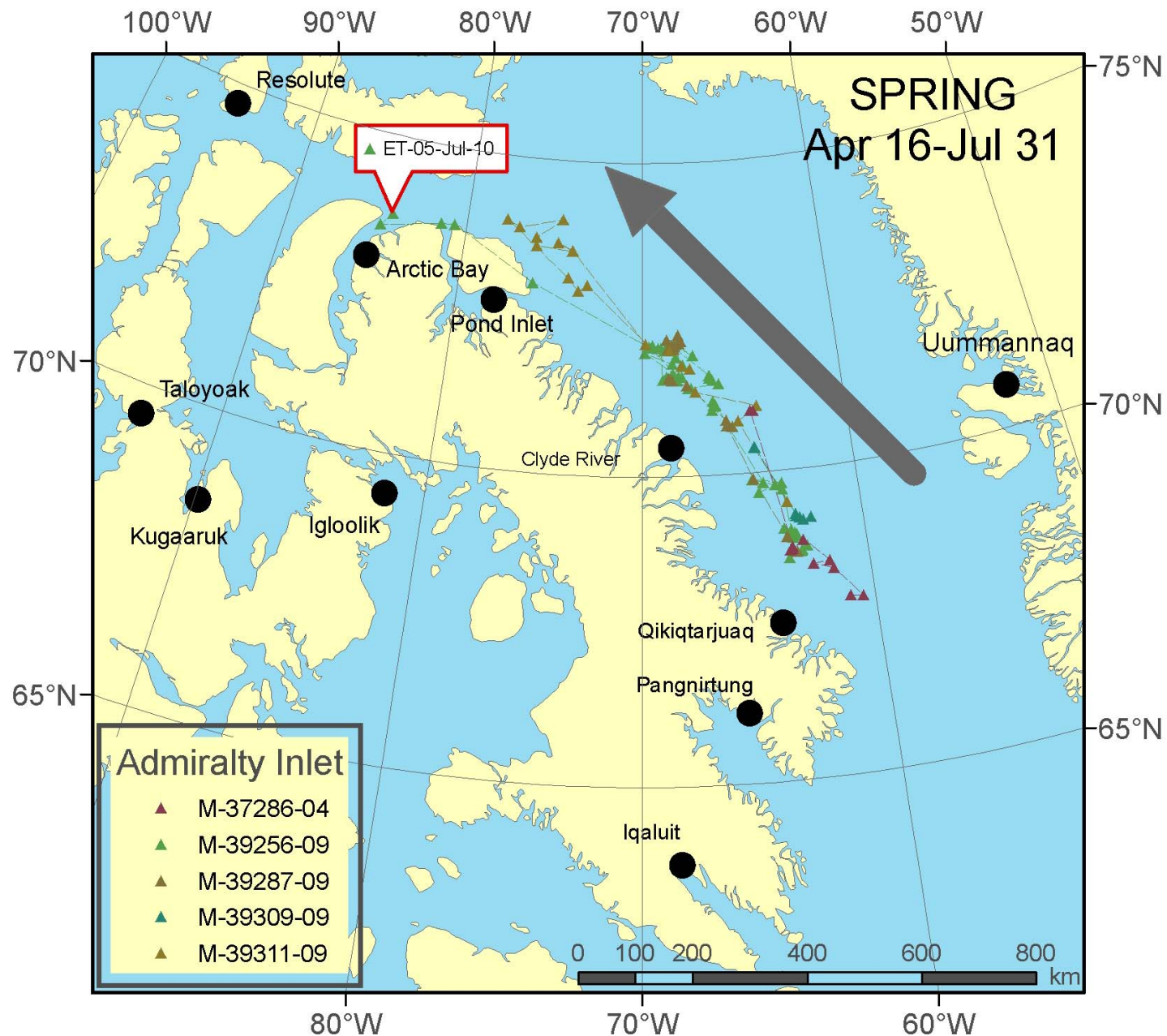
Admiralty Inlet stock



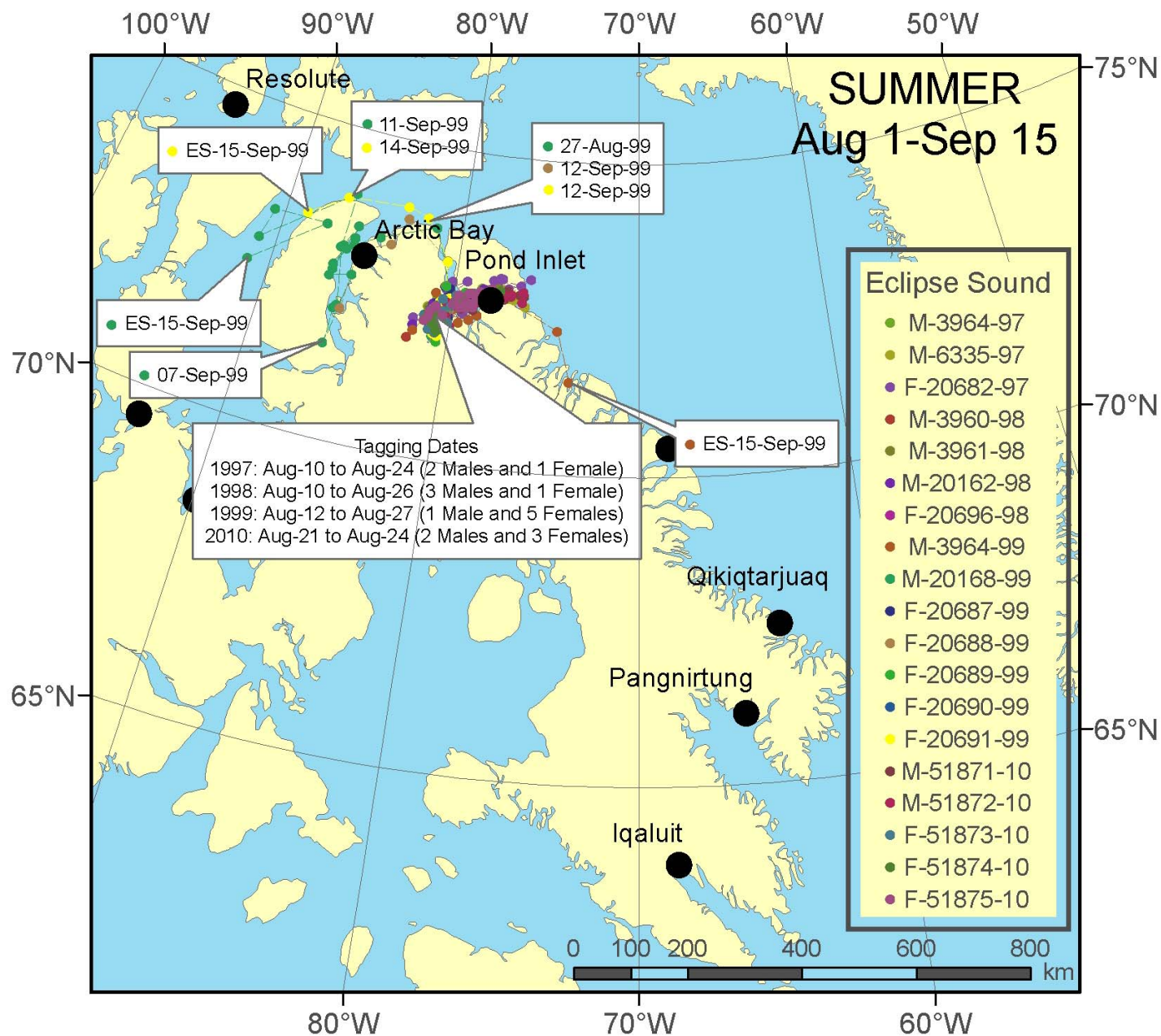
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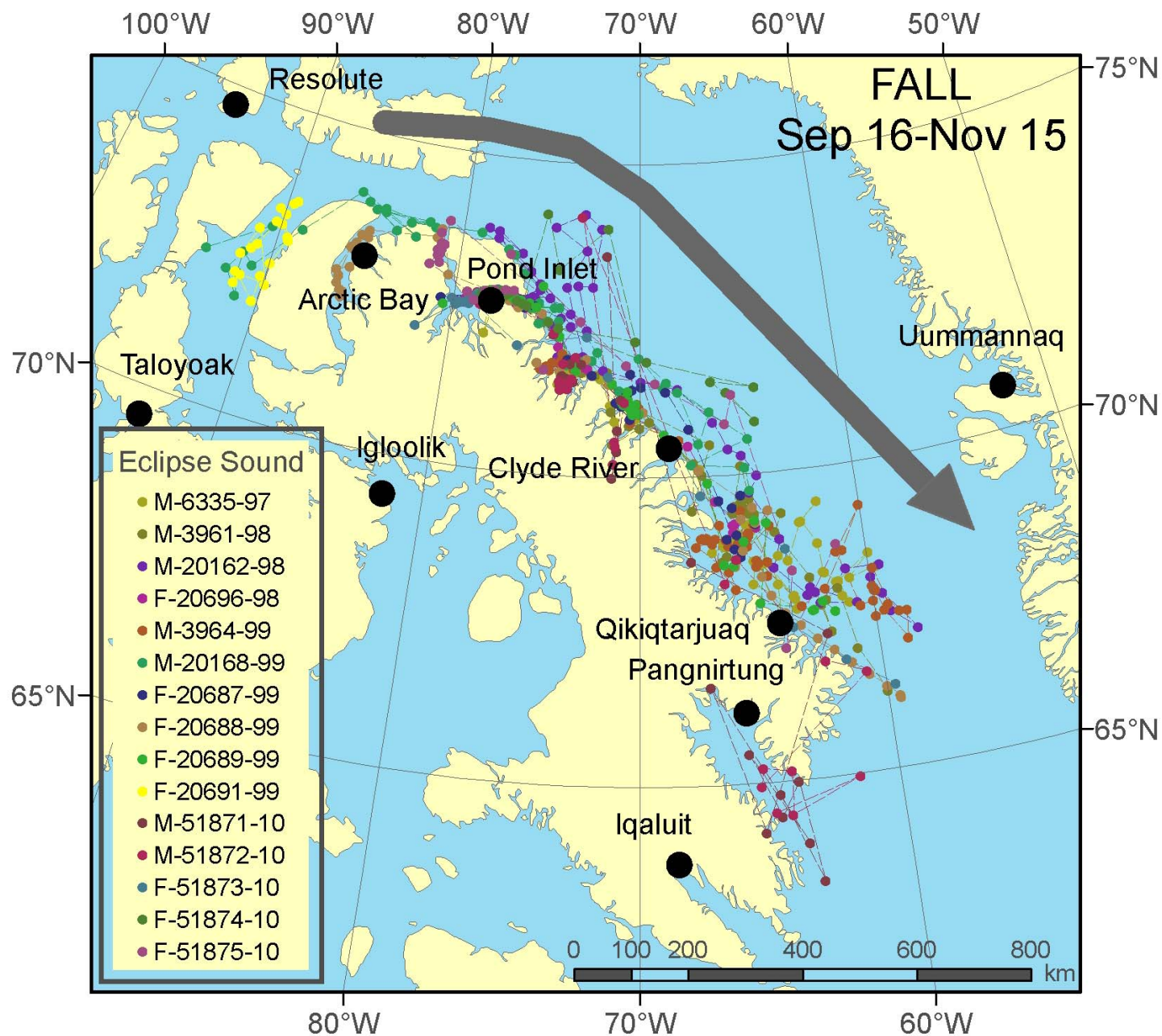
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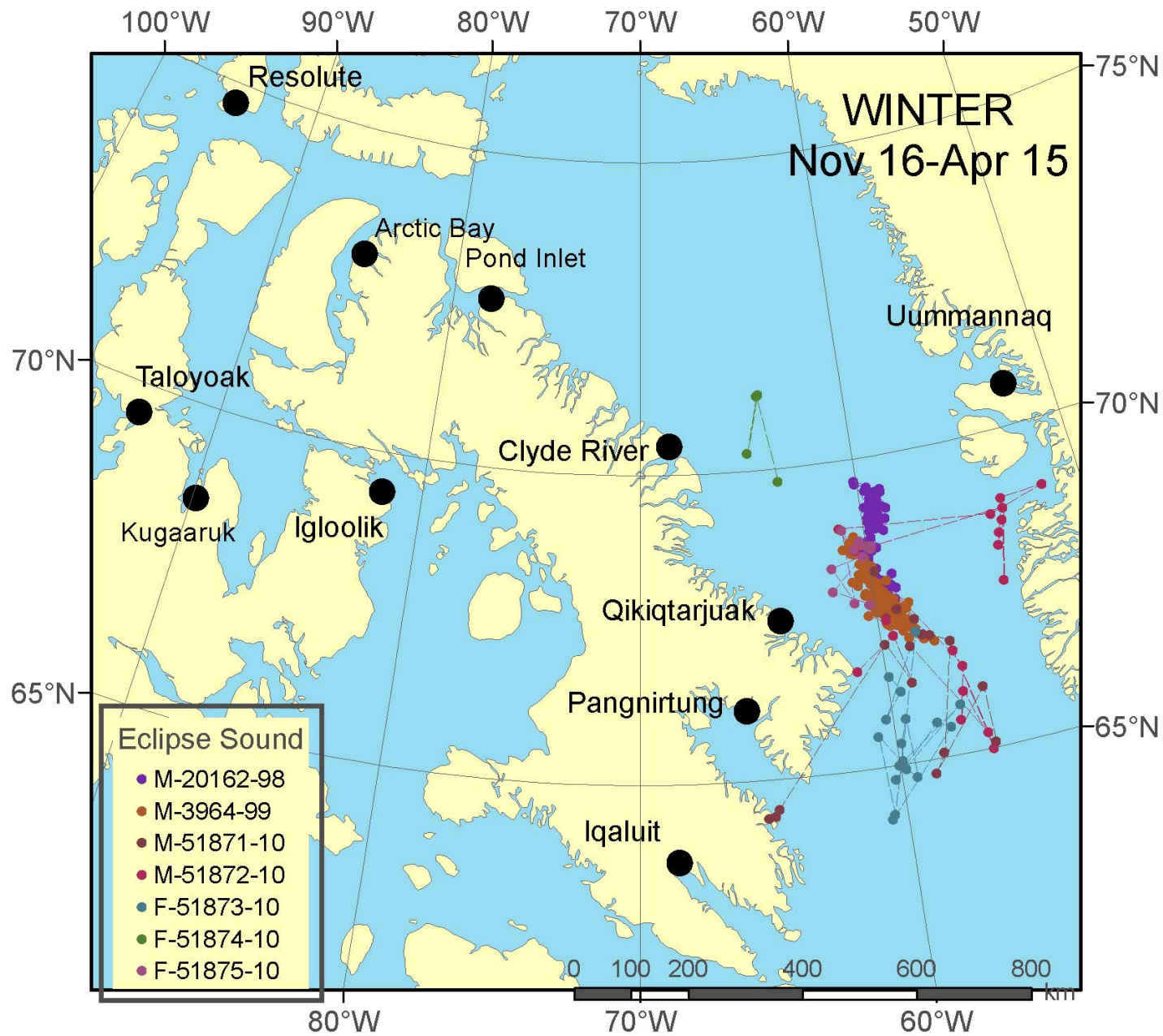
Admiralty Inlet stock



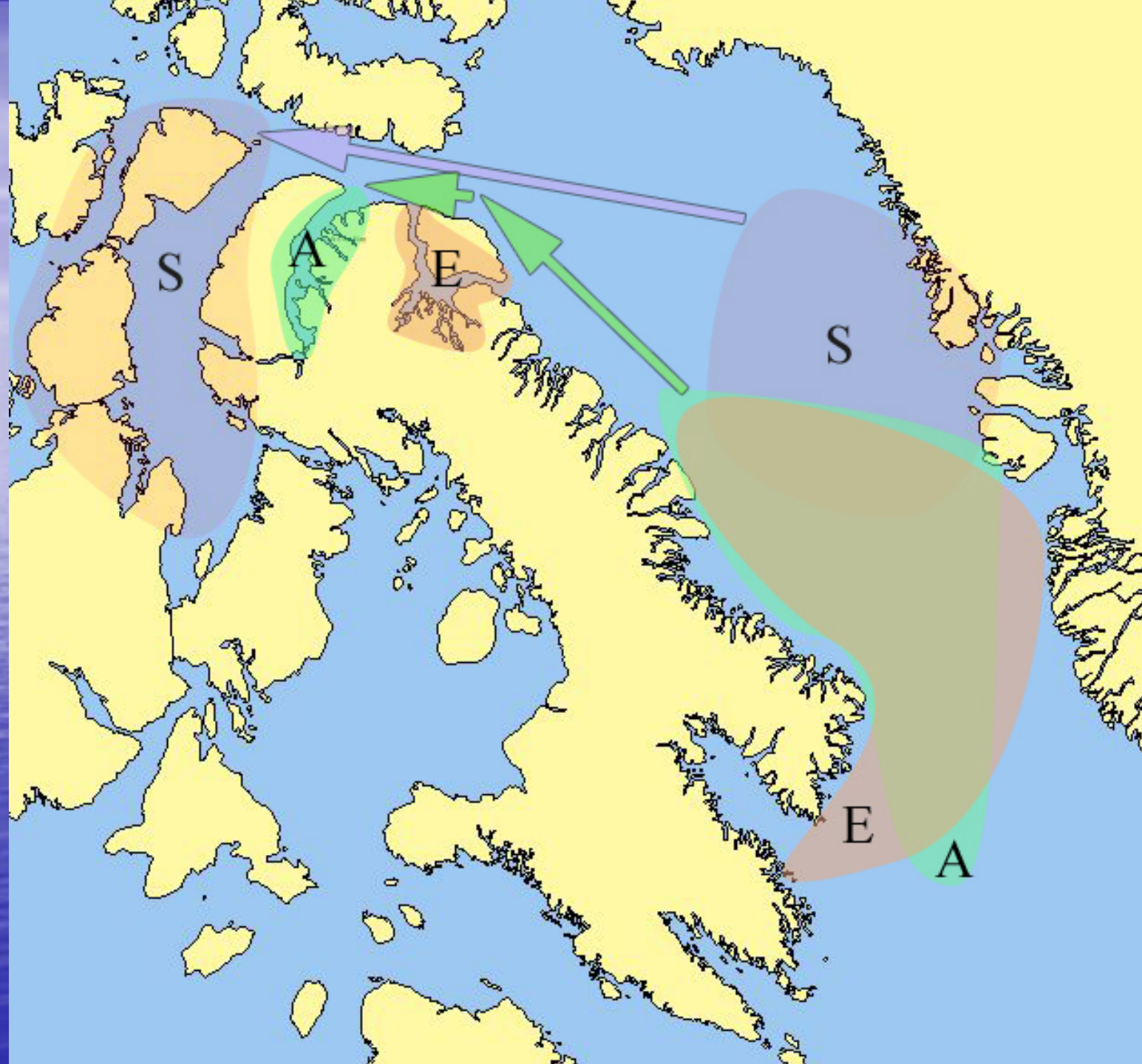
Eclipse Sound stock

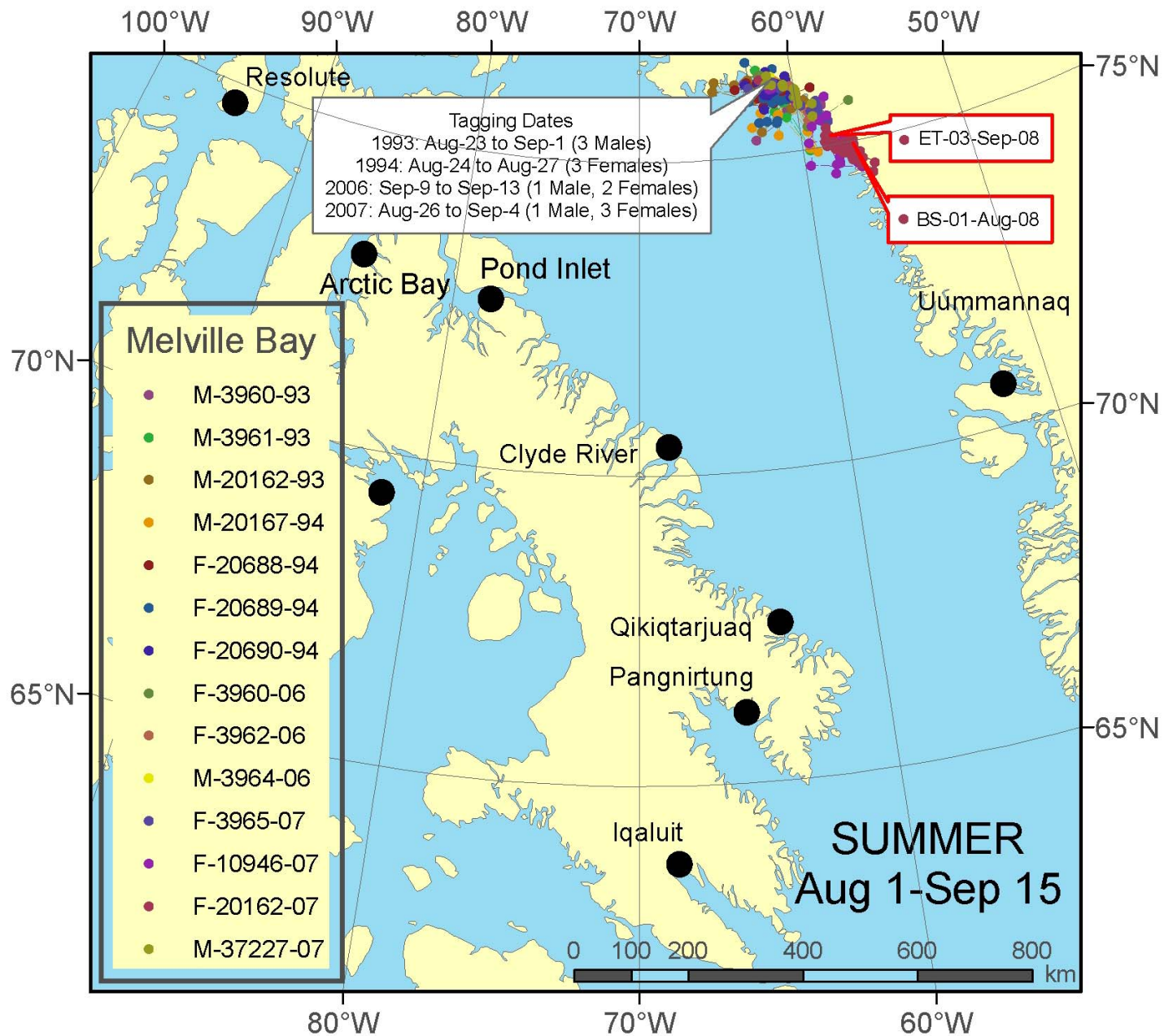


Eclipse Sound stock

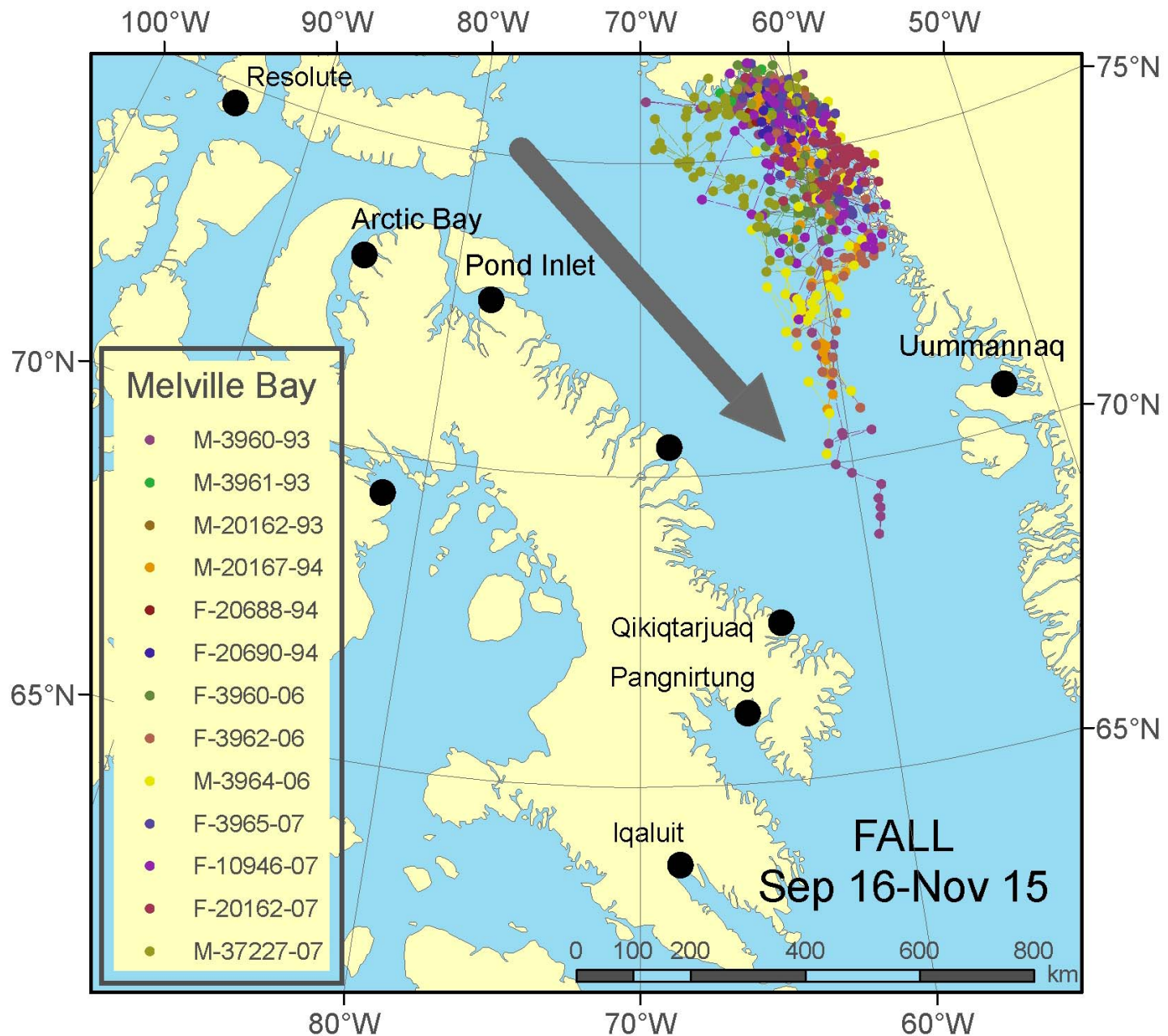


Eclipse Sound stock

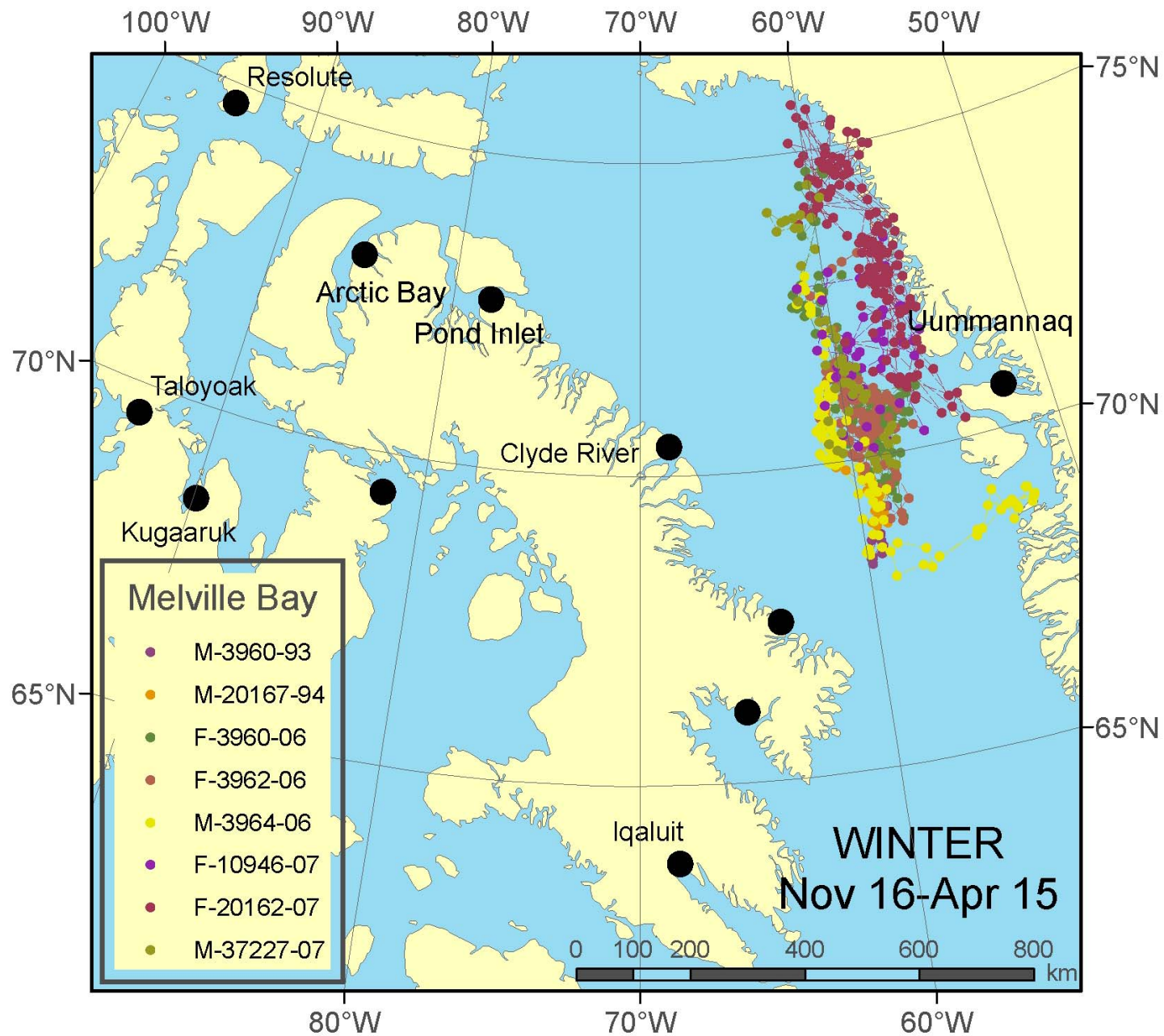




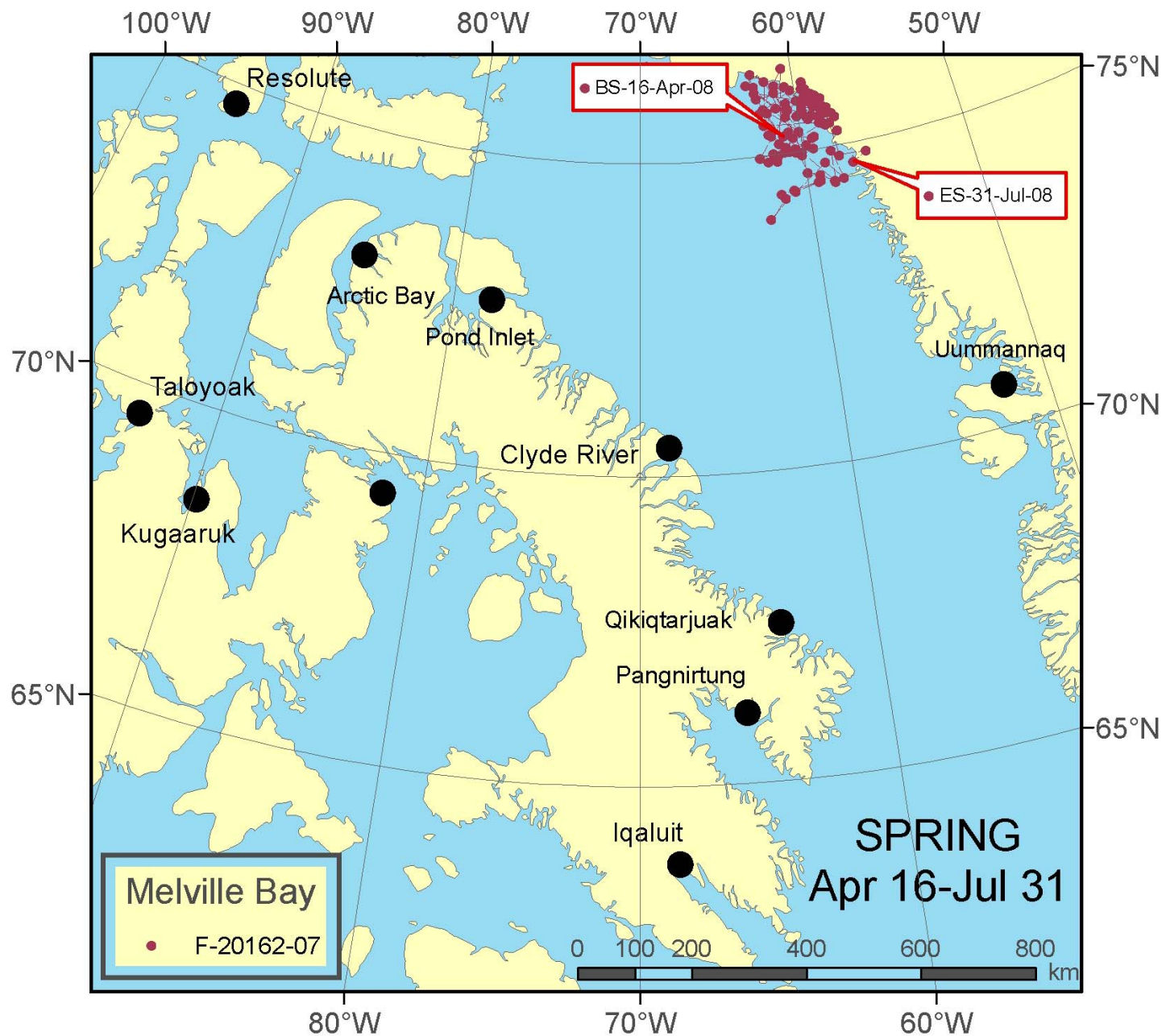
Melville Bay stock (Greenland)



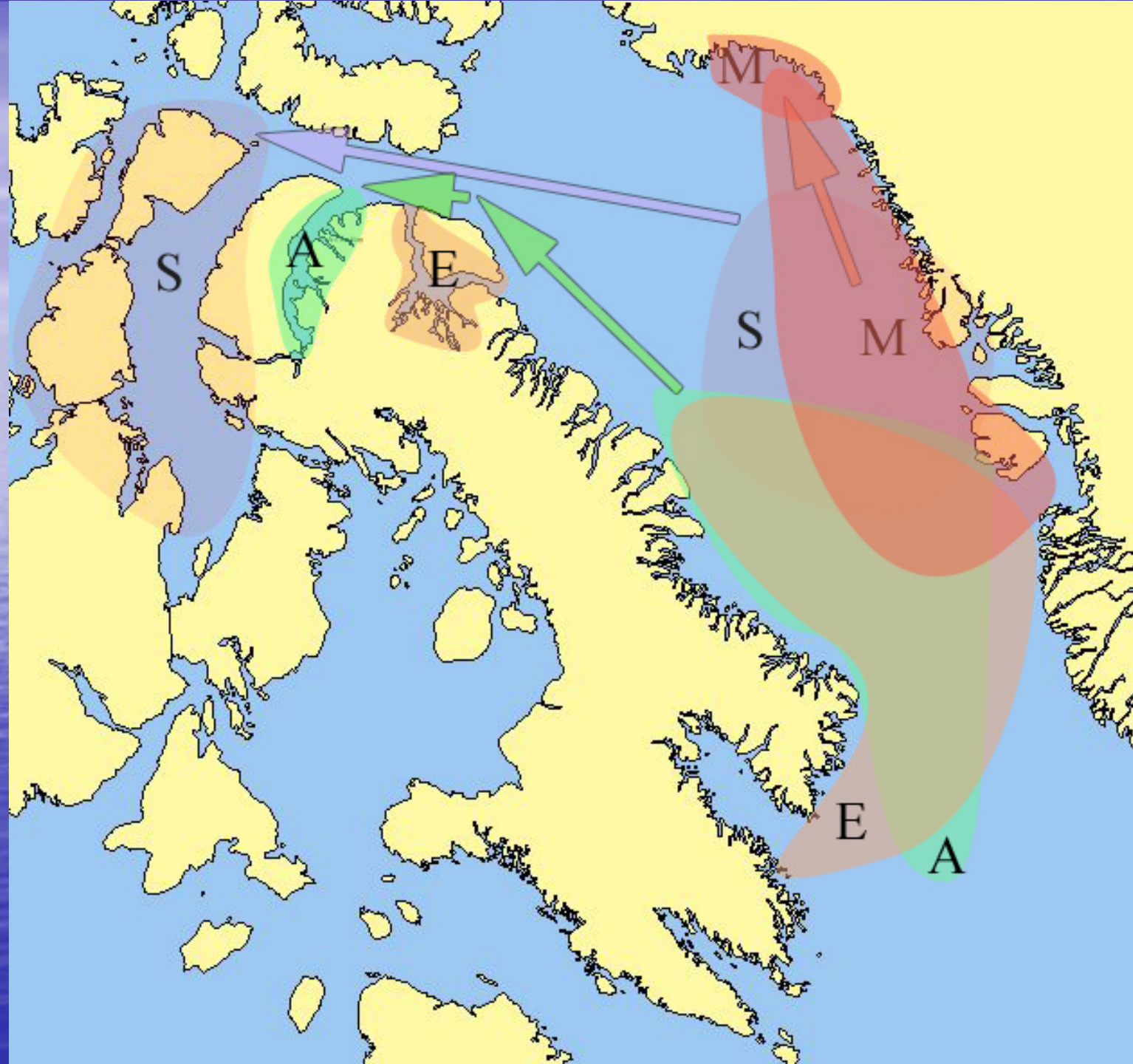
Melville Bay stock (Greenland)



Melville Bay stock (Greenland)

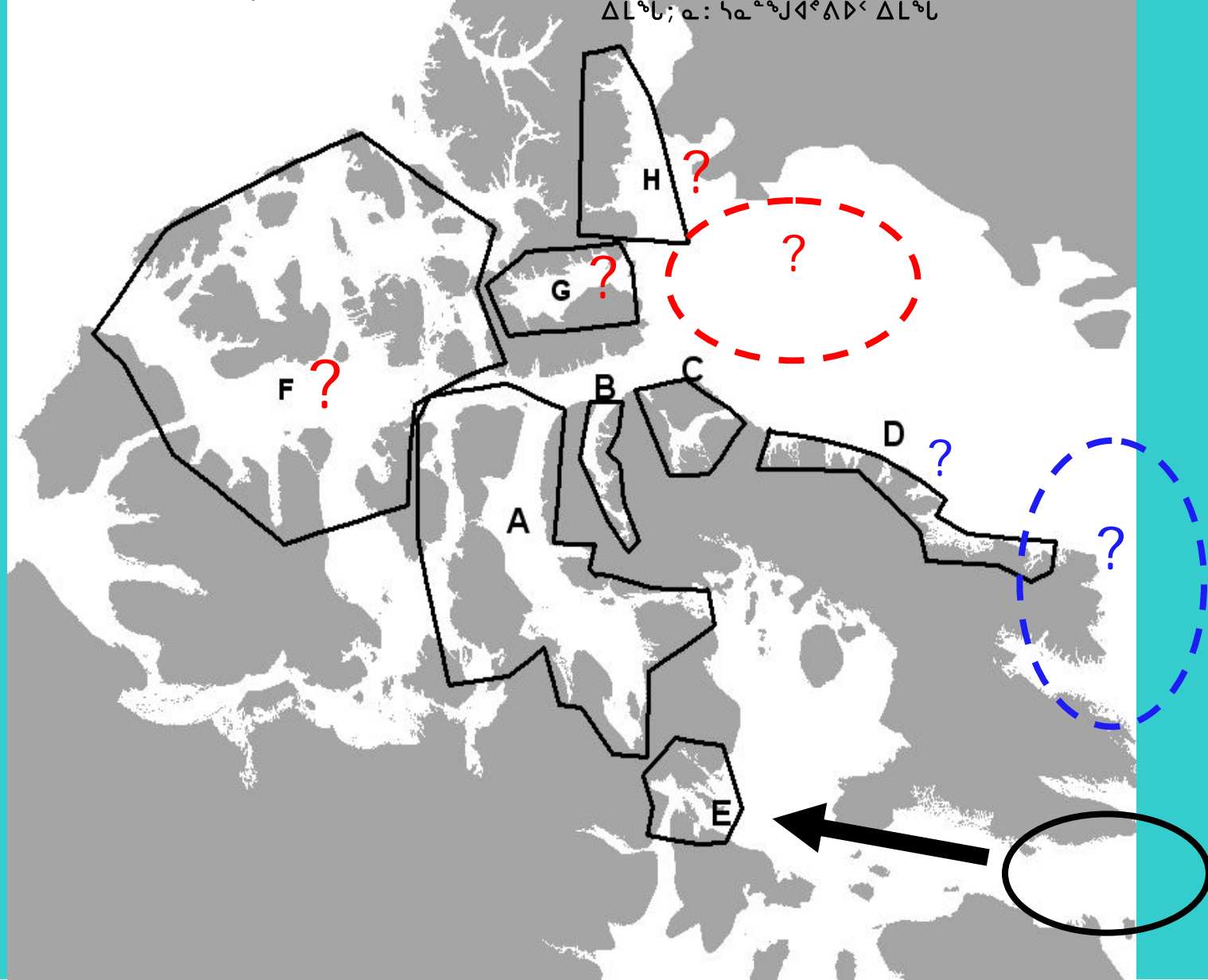


Melville Bay stock (Greenland)



Narwhal stocks: A- Somerset, B- Admiralty, C- Eclipse, D- East Baffin, E- Northern Hudson Bay, F – Parry Island, G- Jones Sound, H – Smith Sound.

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Sources of Uncertainty

The stock definitions are provisional since they are based on an incomplete state of knowledge, particularly for narwhal stocks, for which information is equivocal in some cases and all but absent in others.

$\alpha \rightarrow \beta$

$\dot{C}^b d \triangleleft b n^{\alpha \omega} s j^c$
 $\triangleright p r \triangleleft p n^{\omega} r^c$
 $e^c e^{\gamma b} r l^c e n^{\alpha \omega} r e^c$
 $j^{\gamma b} \Delta^L L \Delta \triangleright \Delta^c \dot{j}^{\omega} r^c \triangleright \Gamma^b$
 $^{\gamma b} \triangleright \triangleright L^{\gamma} \triangleleft n \Gamma^b$
 $\triangleright^{\alpha \omega} s \wedge^{\gamma b} \gamma \Gamma^b, \wedge \triangleright \triangleleft^{\gamma b} \gamma r^c$
 $\triangleright \dot{s} e^c \gamma p e \triangleright s \Delta^c$
 $b n^{\alpha \omega} s \gamma^{\omega} r^{\omega} \omega^c, \dot{C}^b d \triangleleft$
 $\triangleright p r \triangleleft p n^c$
 $\Delta \triangleright \Delta^c \dot{j}^c \triangleright n^b \Delta e^{\omega} r^{\omega} \omega^c$
 $\triangleleft r^{\omega} r^{\omega} \omega^c \wedge C^{\gamma b} \alpha^{\omega} r^c \triangleright^c.$

Conclusions

The use of summering stocks as management units as we have done here is considered precautionary. As mentioned above, it is possible to have localized depletions or extinctions if this consideration is not taken into account when harvesting occurs. Even with information that is preliminary and based on small samples, by adopting as many stock units as are suggested by this information, co-managers reduce the risk of over-exploitation. For example, overexploitation could occur if smaller stocks are assumed to be part of a larger- and wider-ranging stock, when in fact they are segregated for all or part of the year and have some annual site fidelity to specific areas.

ΔῖΛαδὲ Πόλις Δ᾽ ἔστι Πάριος Νῦν

[illegible]



Nacomi!

Thank you!