The Status, Management and Ecological Role of Harp and Hooded Seals in Canada

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Fisheries and Oceans Canada Pêches et Océans Canada

Outline

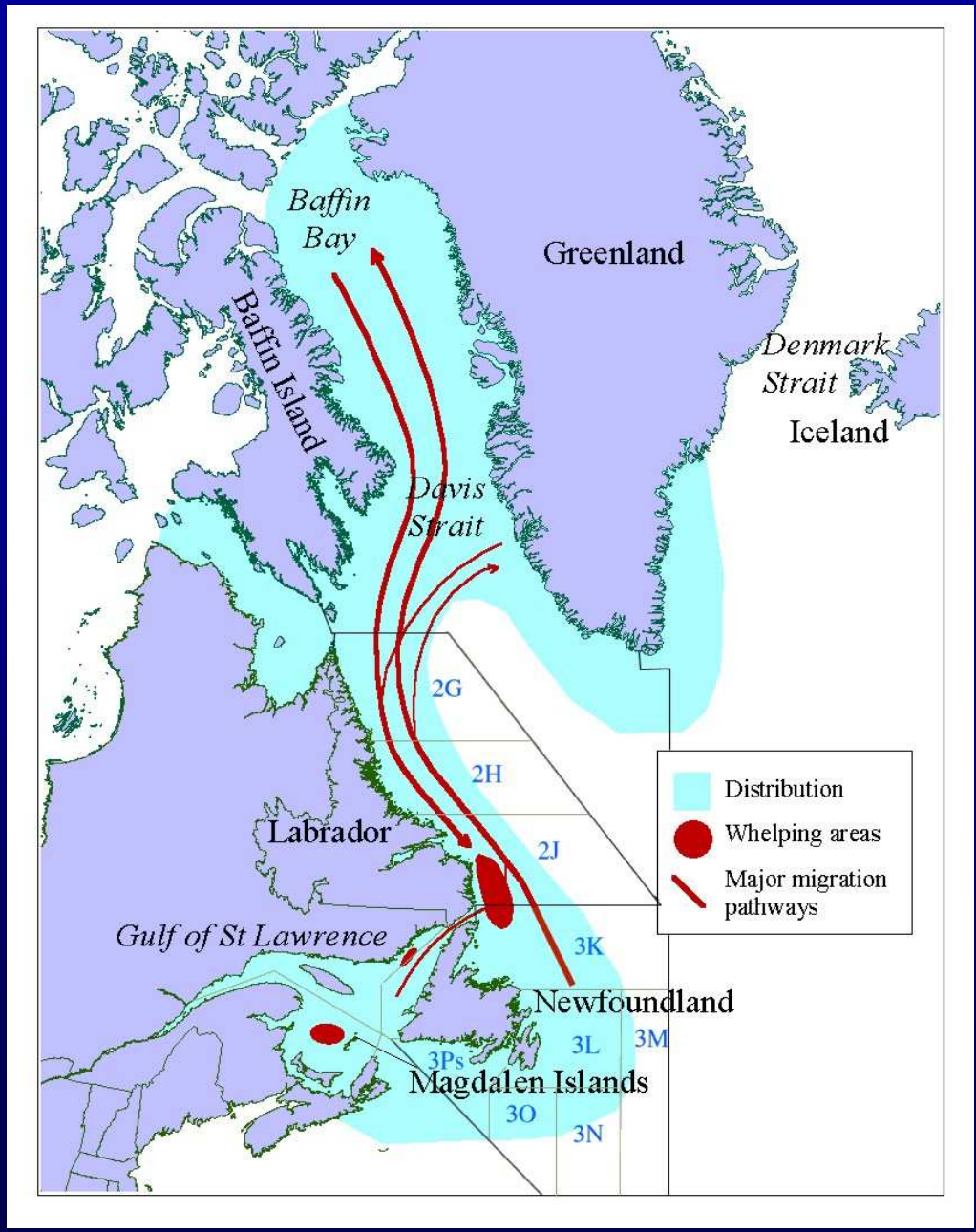
- Catches
- Status
- Management Approach
- Ecology

Northwest Atlantic Harp Seals

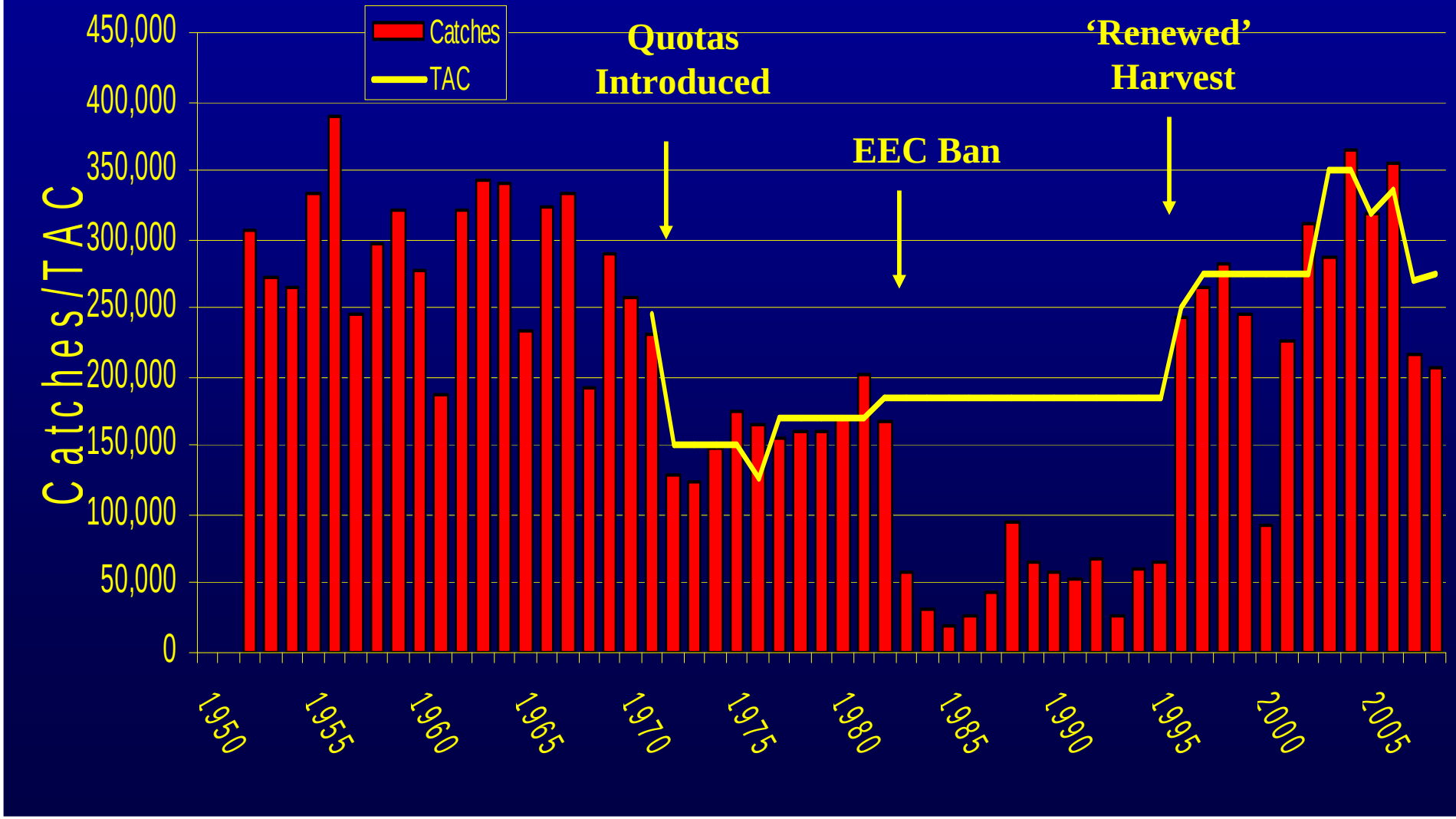
Seasonal migrant

- Summers in Canadian Arctic & W. Greenland
- Winter off Nfld & Gulf of St. Lawrence

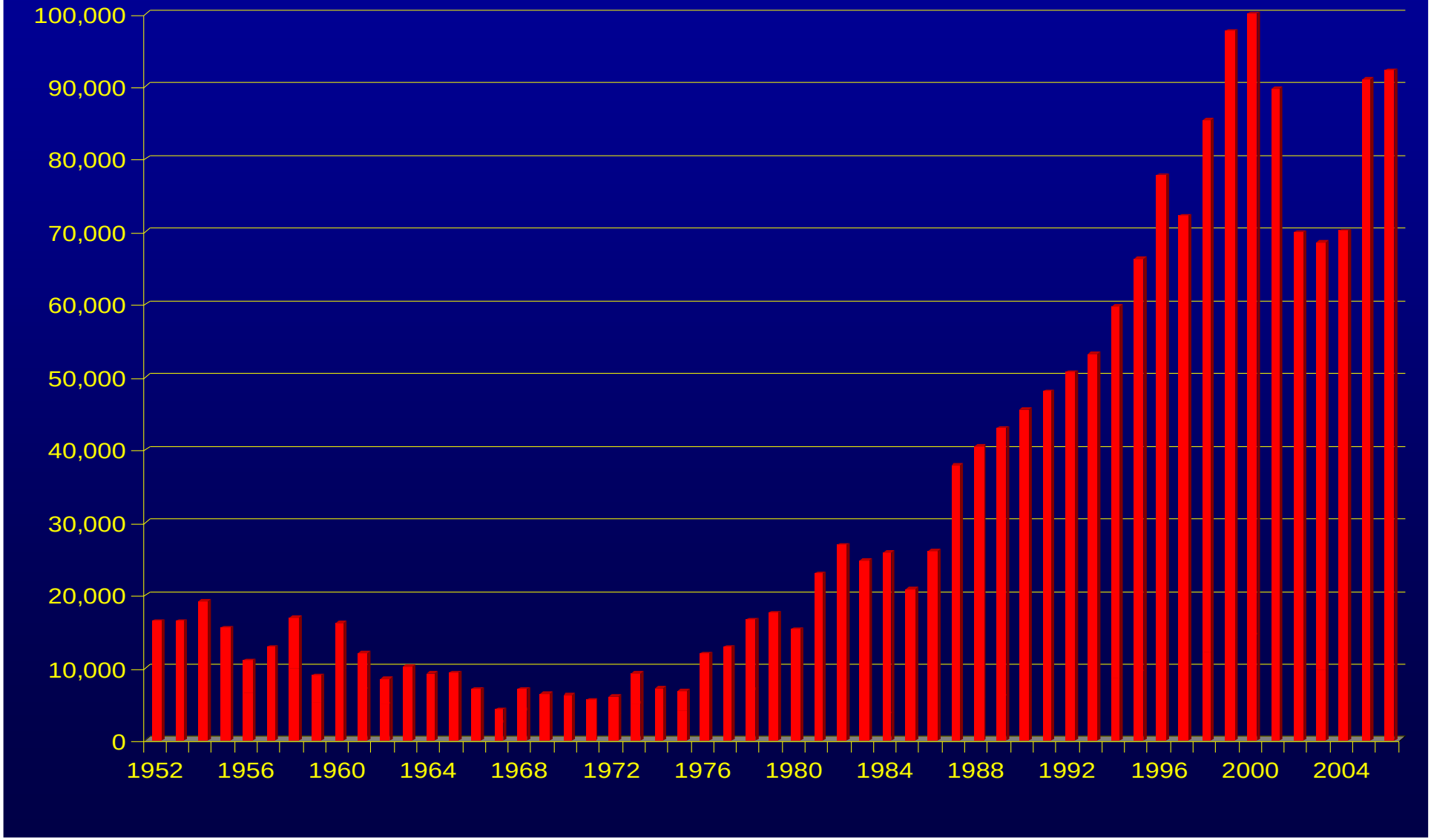
Hunted in southern Canada, Greenland and Canadian Arctic



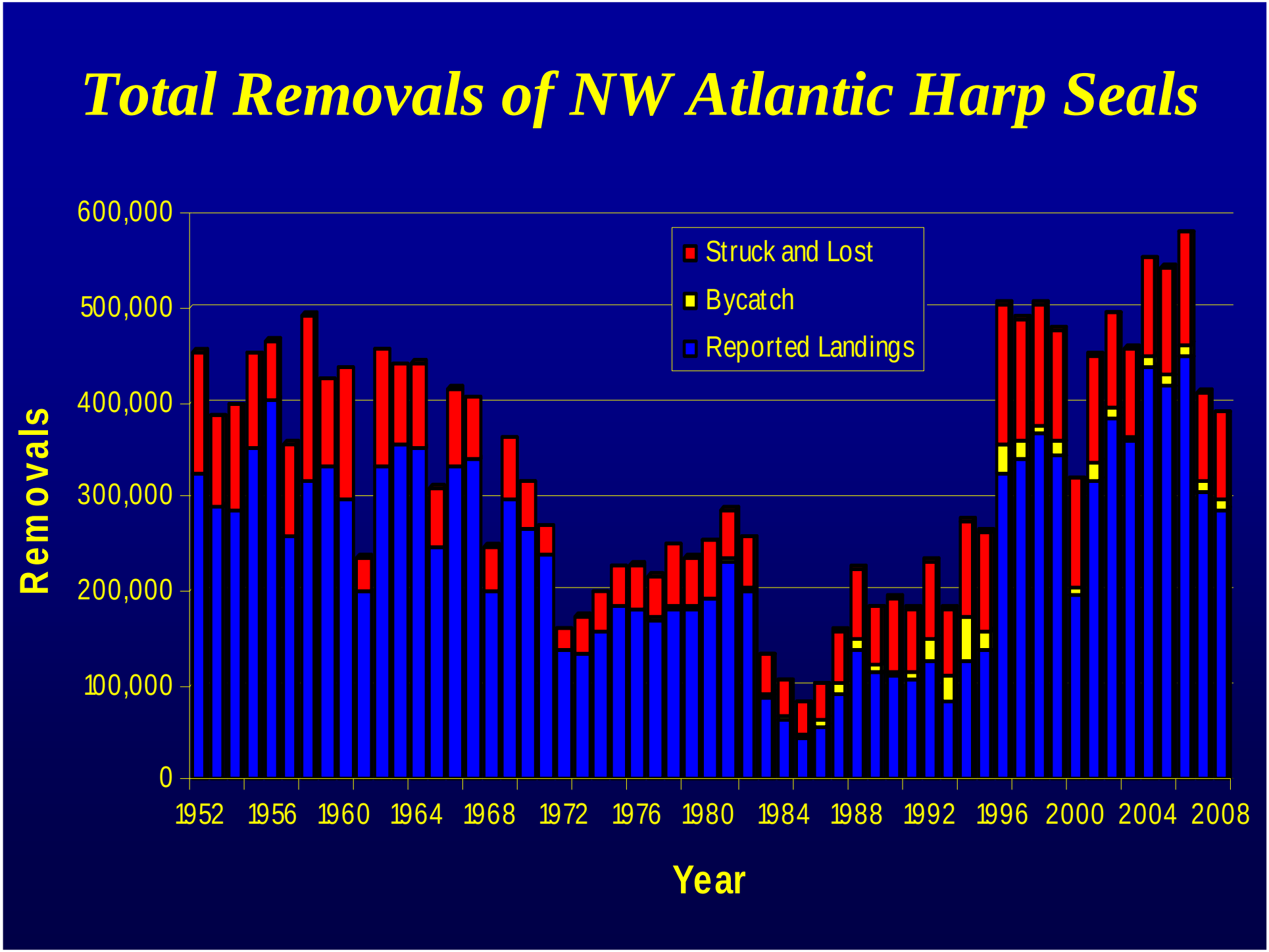
Reported Catches in Southern Canadian Waters (1952 – 2008)



Reported Catches in Greenland (1952-2006)



Total Removals of NW Atlantic Harp Seals



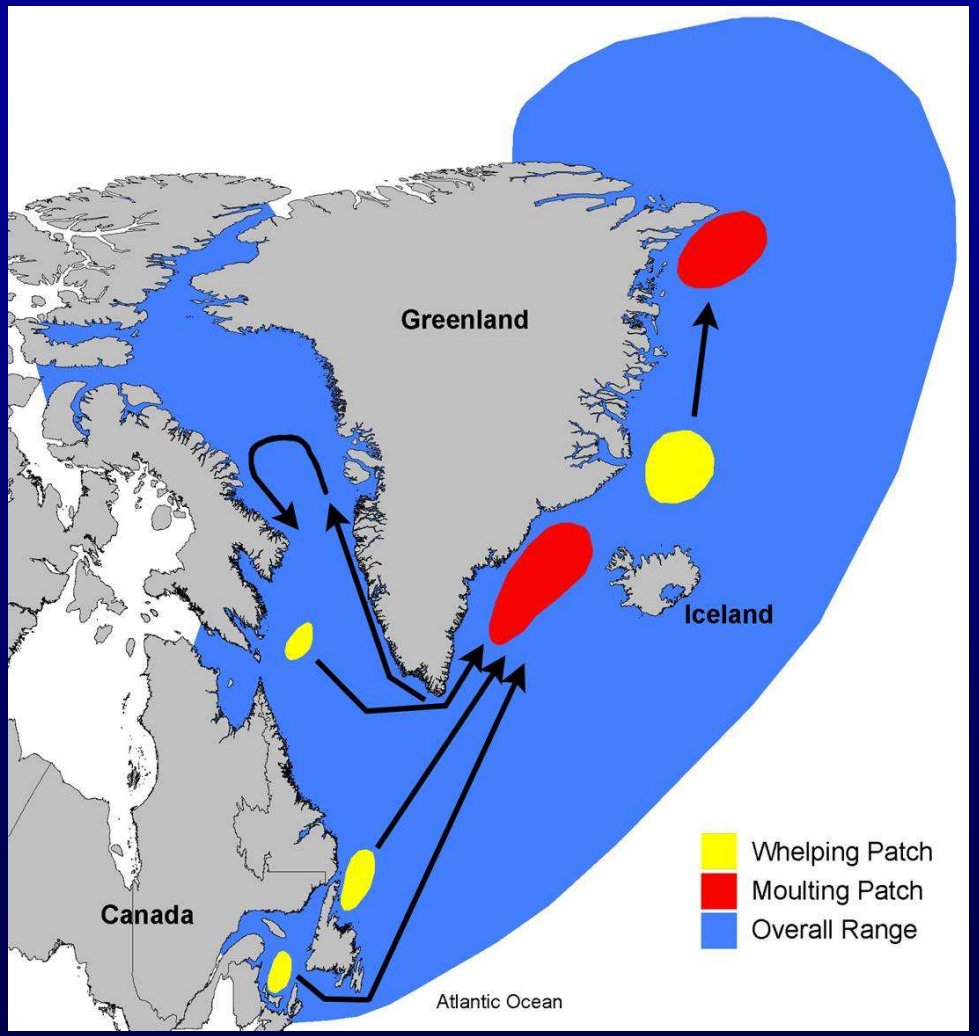
Northwest Atlantic Hooded Seals

Seasonal Migrants:

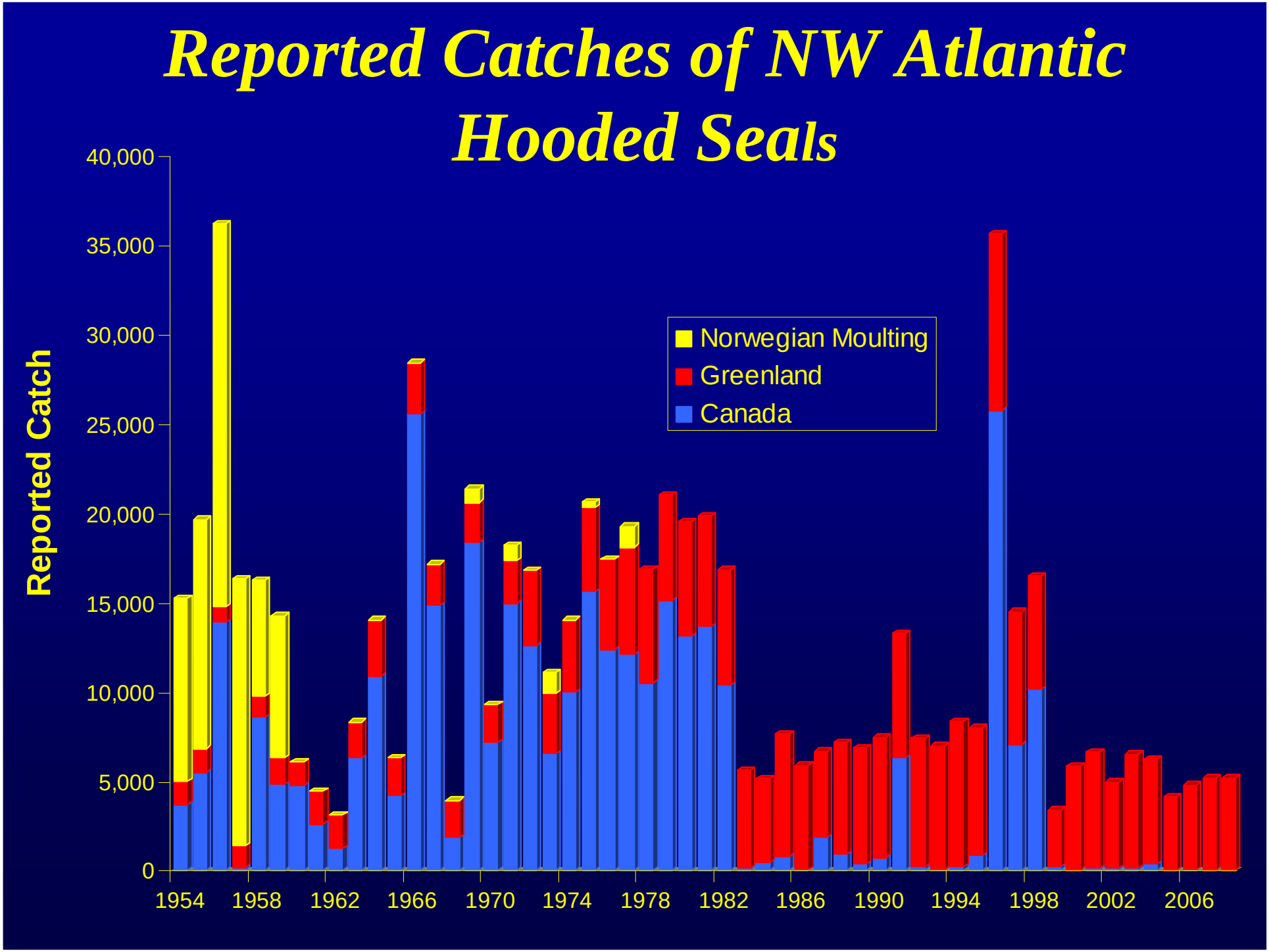
- Pup during March off Canada and in the Davis Strait
- Moult during July off Southeast Greenland

Hunted off Greenland and Newfoundland

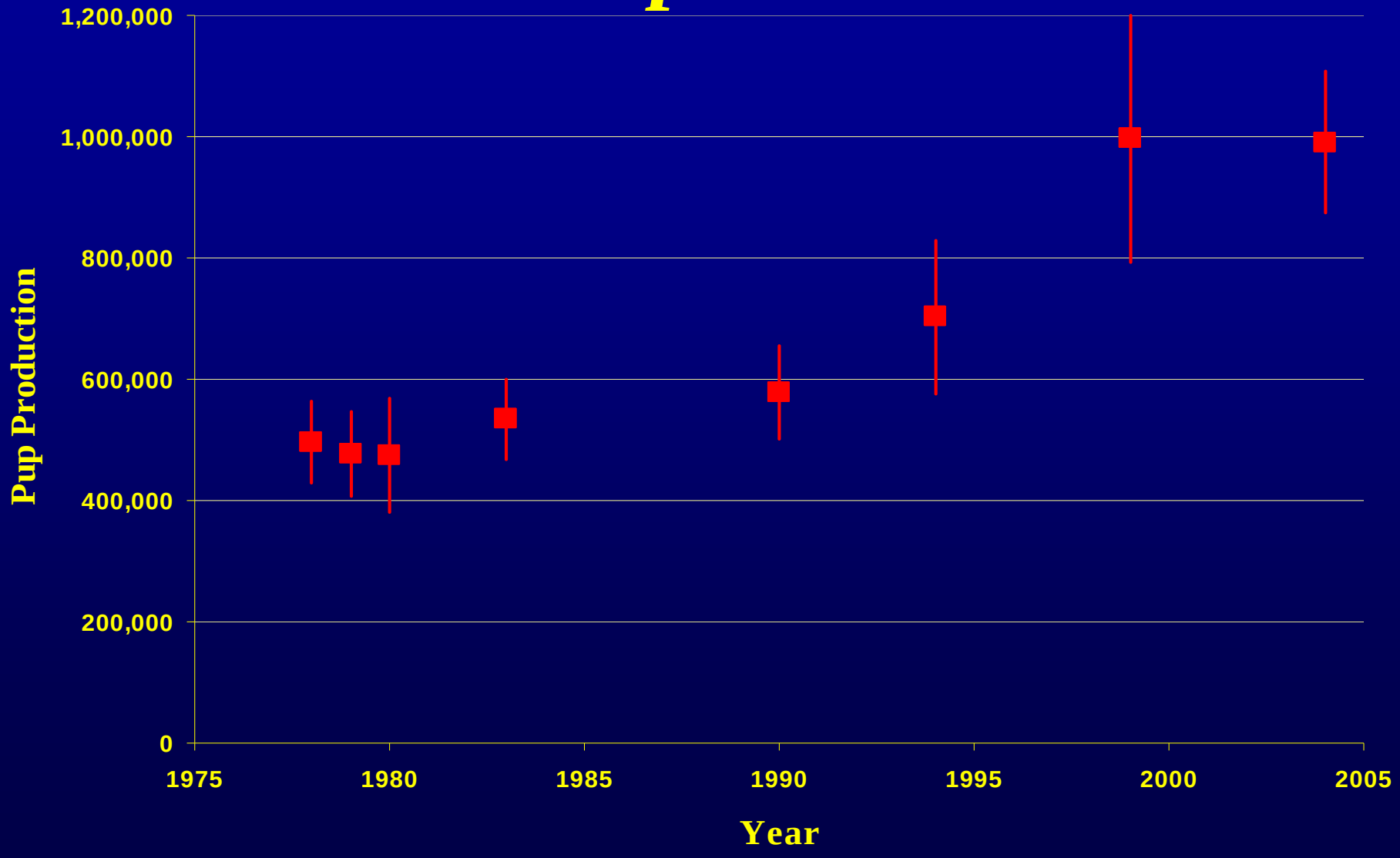
No hunting allowed in the Gulf of St. Lawrence
Canada does not allow the taking of Bluebacks



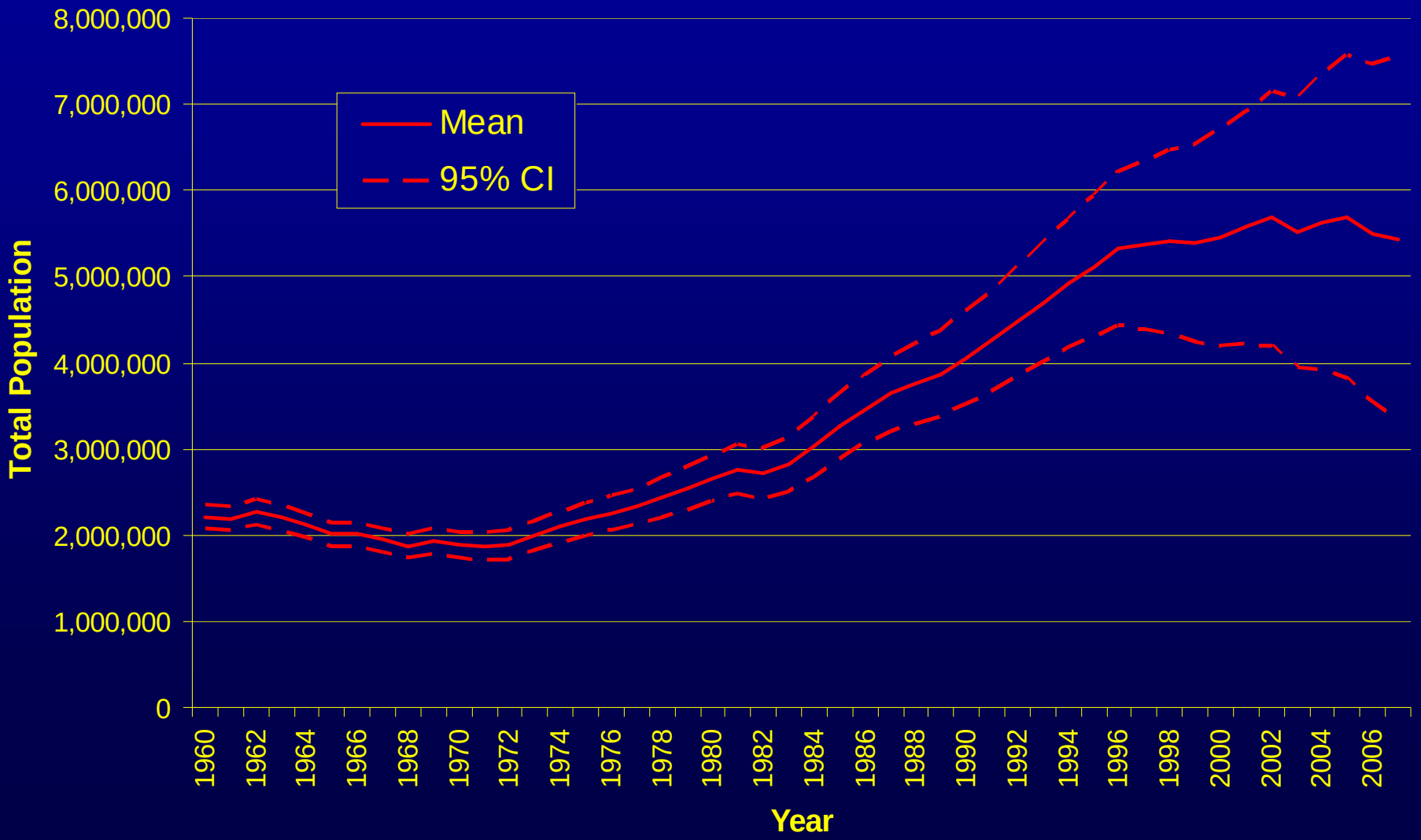
Reported Catches of NW Atlantic Hooded Seals



Pup Production of NW Atlantic Harp Seals



Population Trajectories of NW Atlantic Harp Seals



2008 Harp Seal Survey

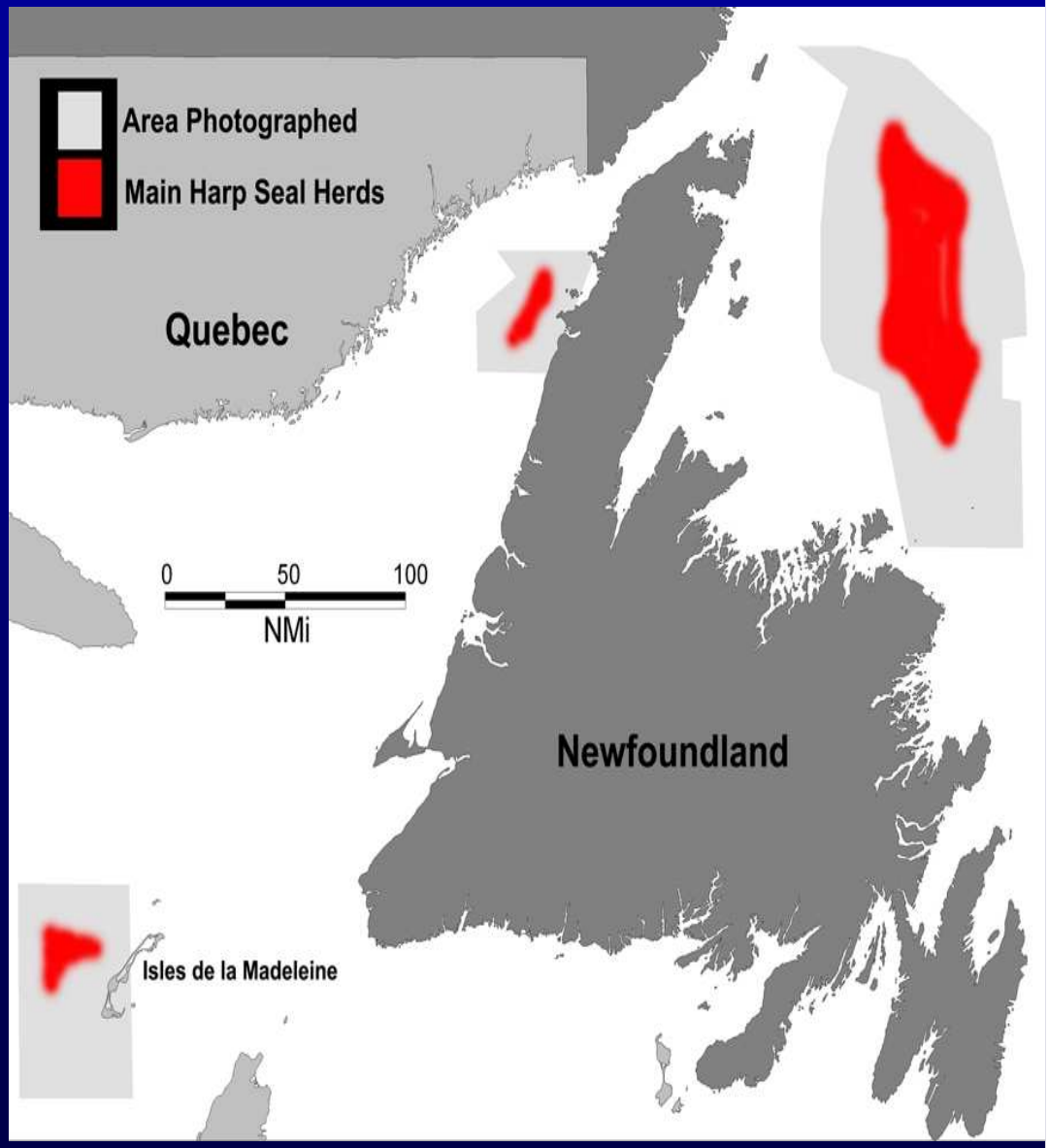
Survey was carried out between late February and end of March 2008

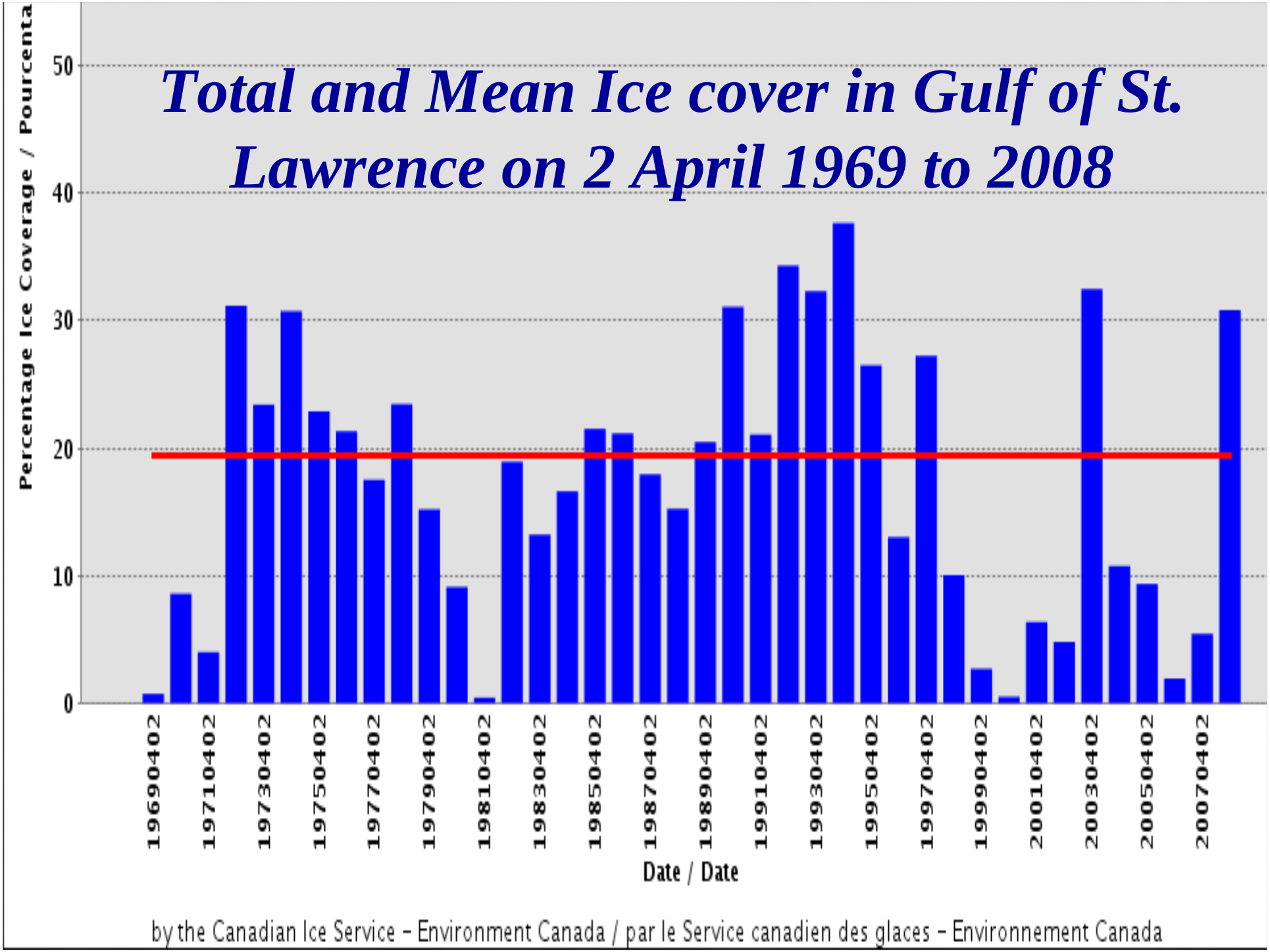
2 large and 3 small whelping patches located

Pupping ice appeared to be stable

~23,000 photographs taken

Results will be presented for scientific review in May or June 2009




Total and Mean Ice cover in Gulf of St. Lawrence on 2 April 1969 to 2008
Percentage Ice Coverage / Pourcenta
50
40
30
20
10
0
19690402
19710402
19730402
19750402
19770402
19790402
19810402
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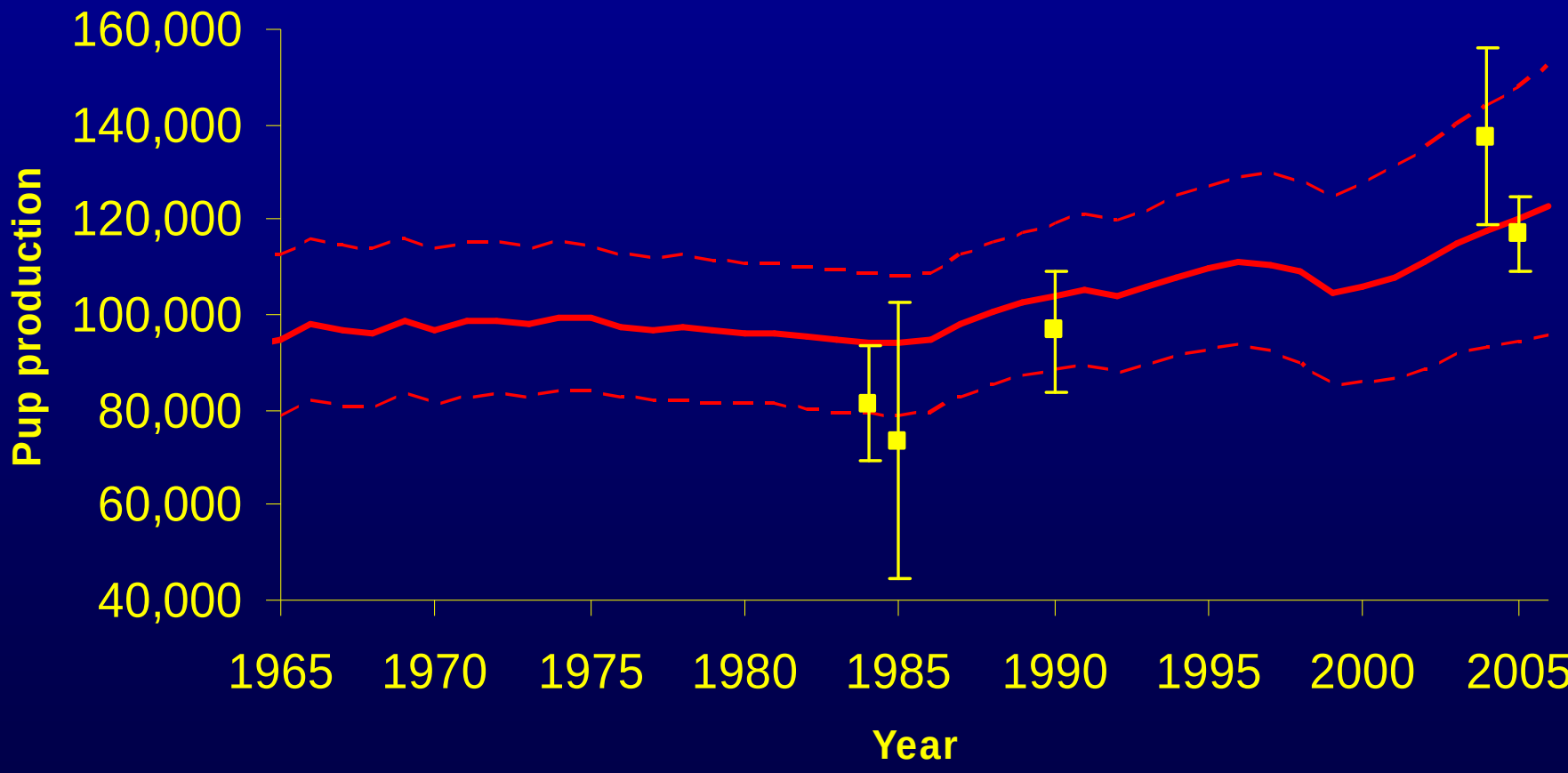
19870402
19890402
19910402
19930402
19950402
19970402
19990402
20010402
20030402
20050402
20070402
Date / Date
by the Canadian Ice Service – Environment Canada / par le Service canadien des glaces – Environnement Canada

Harp Seal Quota

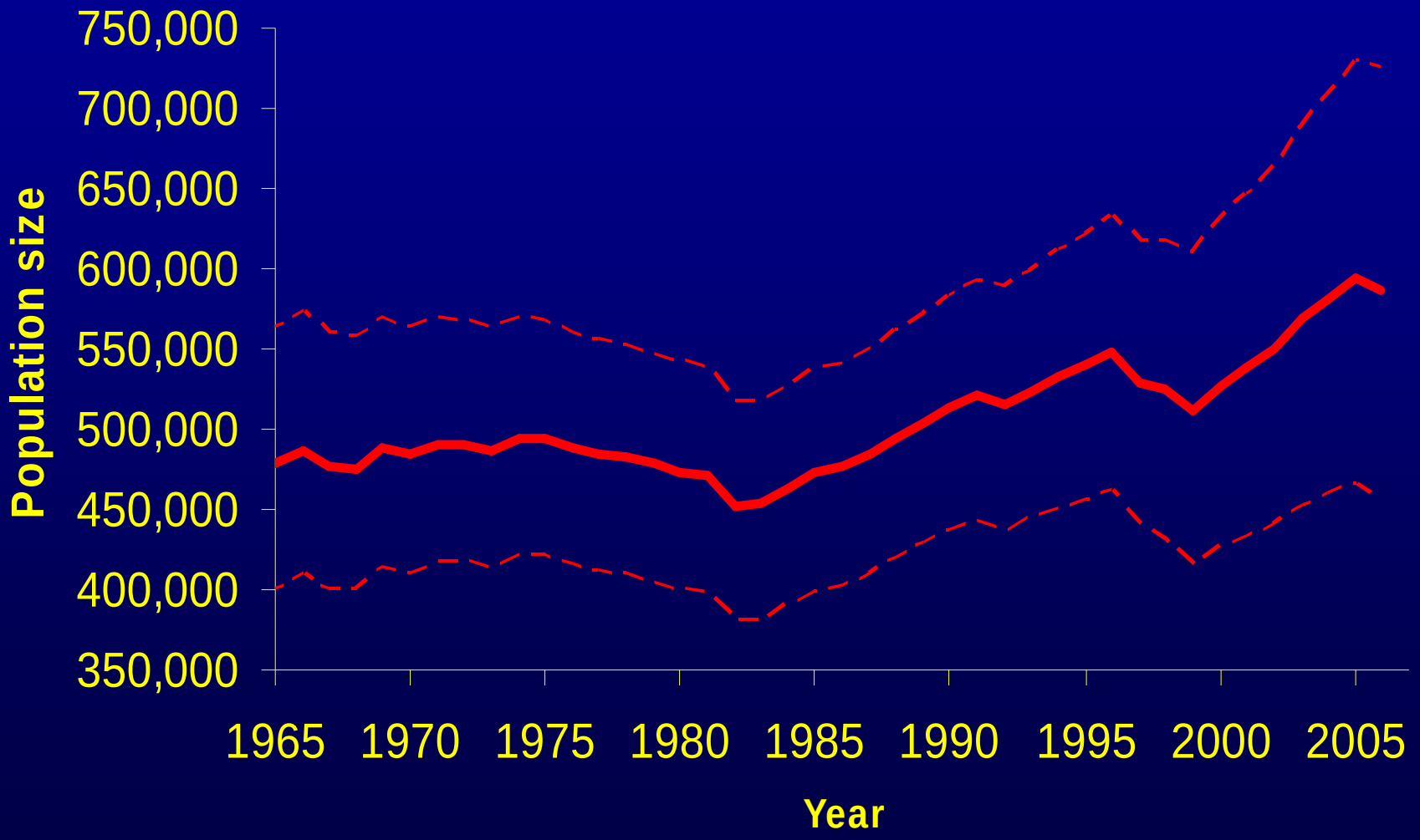
Quotas have been reduced in recent years to ensure the population remains above a Precautionary Reference level and due to poor ice conditions in many years.

Quotas in the coming years will be driven by the high catches that took place over the past decade.

NW Atlantic Hood Seal Pup Production



NW Atlantic Hood Seal Population



Hooded Seal Quota

- Gulf population remains small and therefore should remain closed to hunting
- The current PBR for NW Atlantic hooded seals was estimated to be 32,000.
- Adjusting for the different populations, struck and lost and the Greenland harvest, this results in a Canadian Front landed TAC of 8,200.

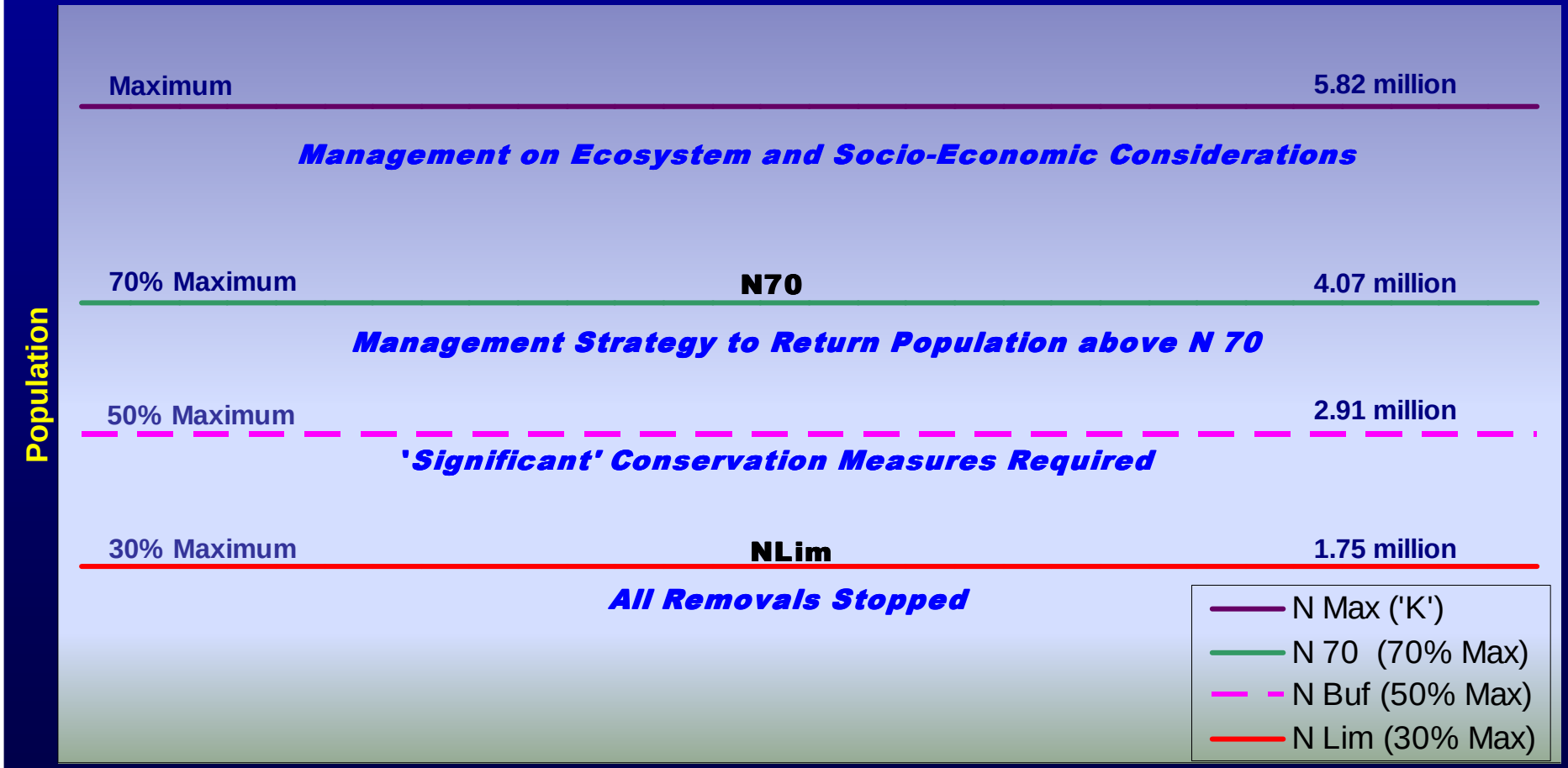
Management: OBFM

The **Canadian Oceans Act** (1997) requires that fisheries be managed under the Precautionary Principle (1992 Rio Declaration on Environment and Development).

Objective Based Fisheries Management (OBFM)

Arose from recommendations by the eminent panel on seal management. They recommended that target, precautionary and reference limits be identified.

Objective Based Fisheries Management Conservation Reference Points



Objective Based Fisheries Management (OBFM)

Uncertainty

OBFM requires that there be a 80% likelihood that the population remains above the Precautionary Reference Level (N70)

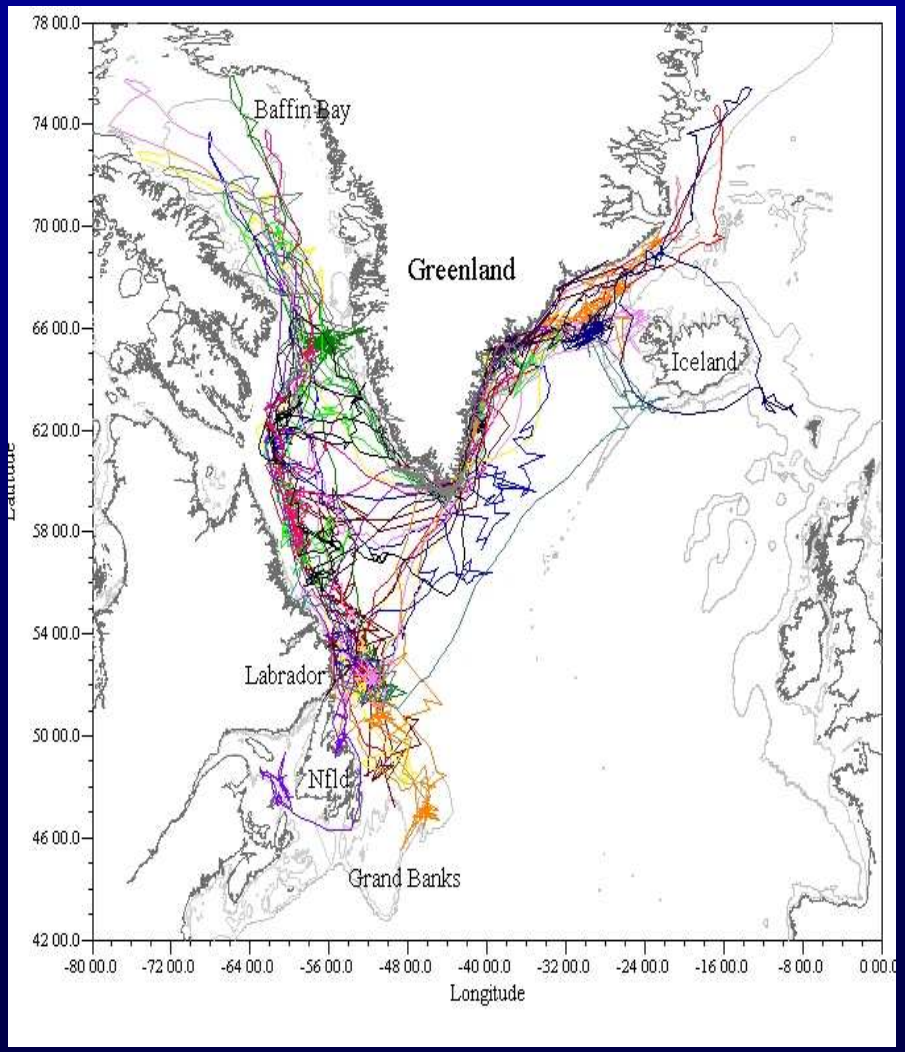
This requirement acknowledges that uncertainty increases without current data

Management Challenges: Why so cautious/risk adverse?

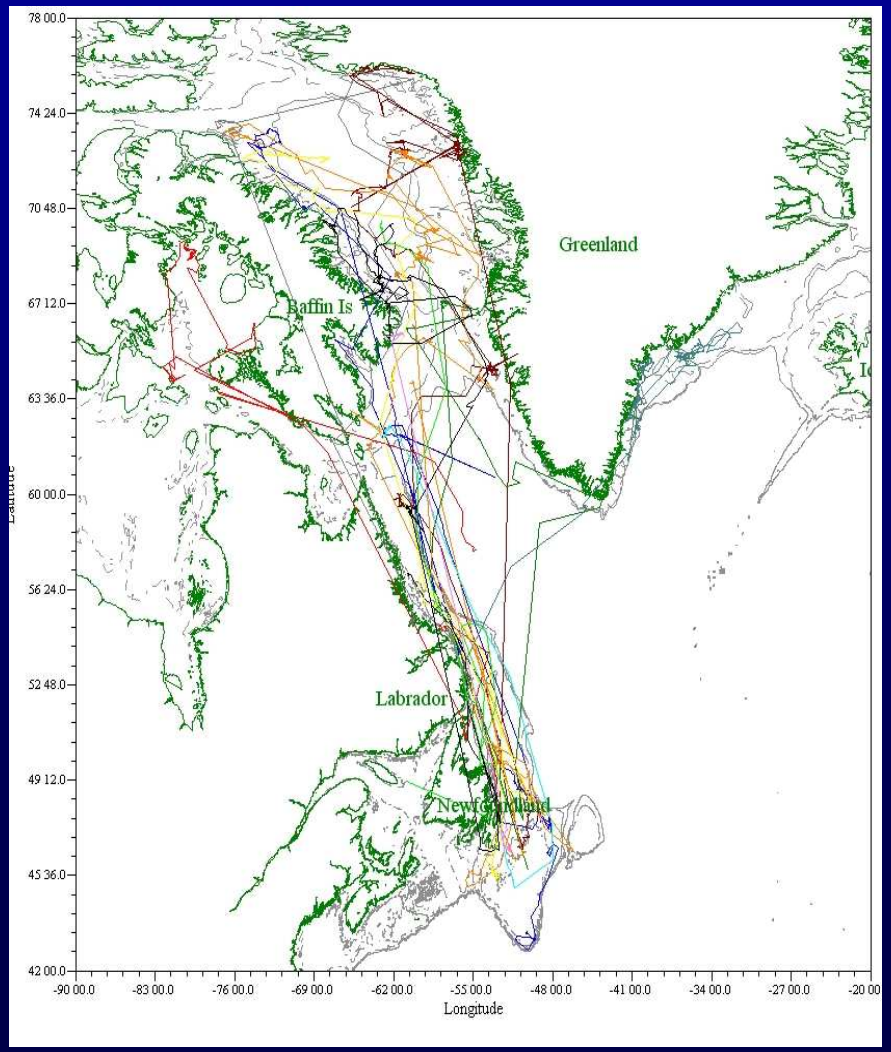
- Forecasting is uncertain.
  - Surveys every 4-5 years.
  - Survey pups, harvest beaters,
  - Impact of harvests cannot be evaluated until surviving animals have themselves reproduced 5 years later!
- Recent environmental conditions have been poor and will likely continue to worsen, on average.
- A large stock size is needed to maintain a viable fishery
- Marine mammal populations are slow growing but can decline quickly (e.g. St. Lawrence beluga, Blue whales)
- Failure to consider uncertainty can result in severe harm (e.g. Atlantic cod, Salmon, Abalone)

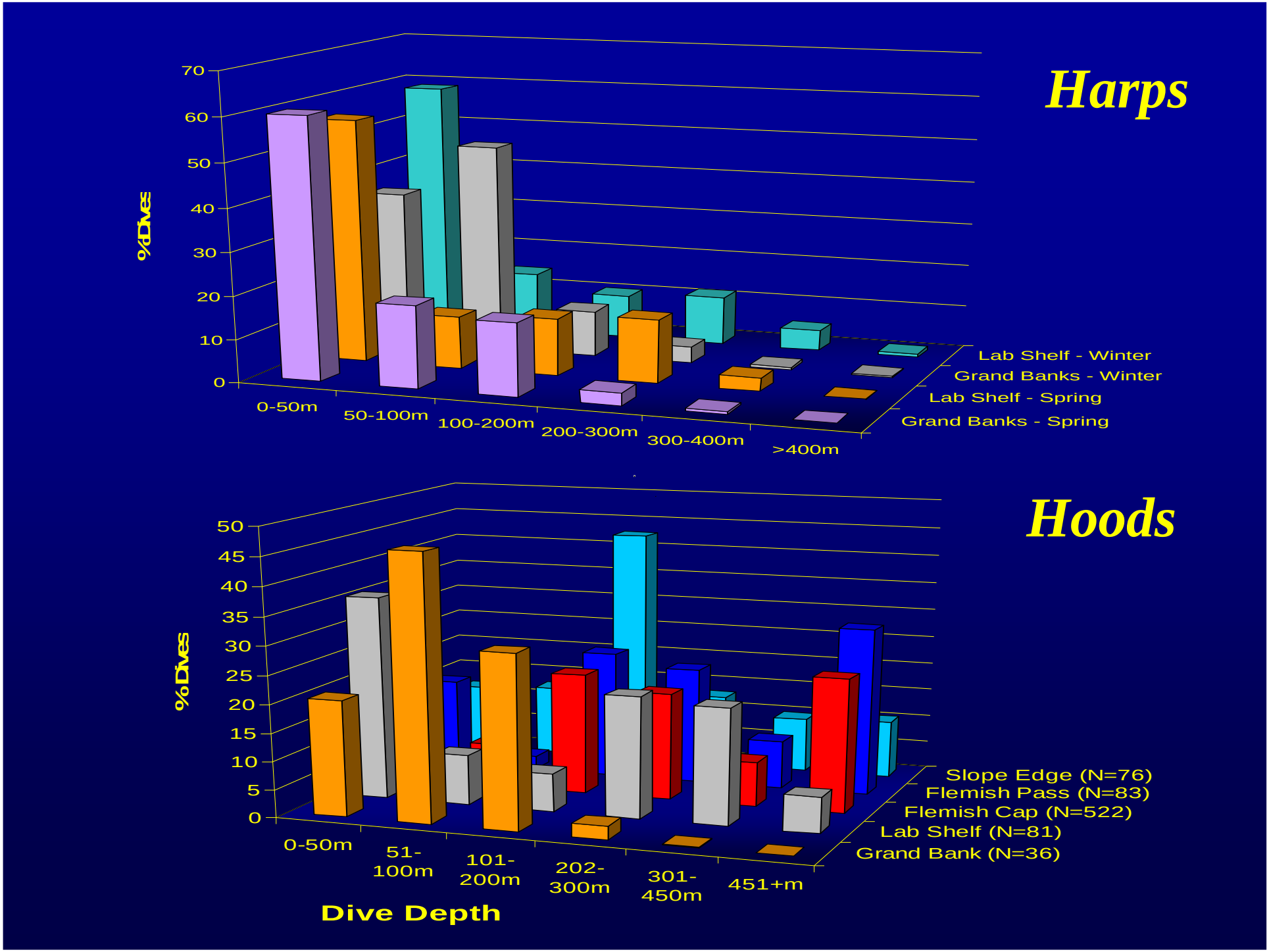
Movements of Harp and Hooded Seals in the Northwest Atlantic 2004-2006

Hoods

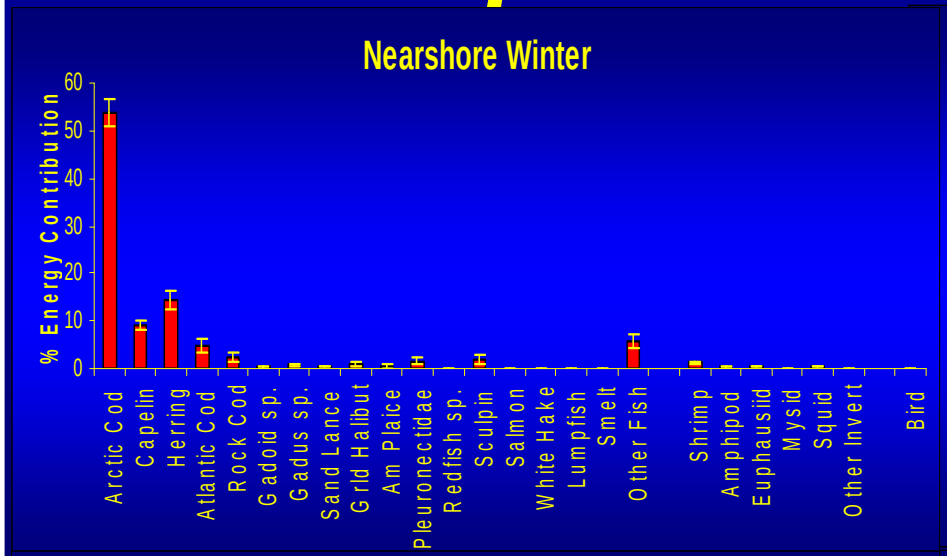


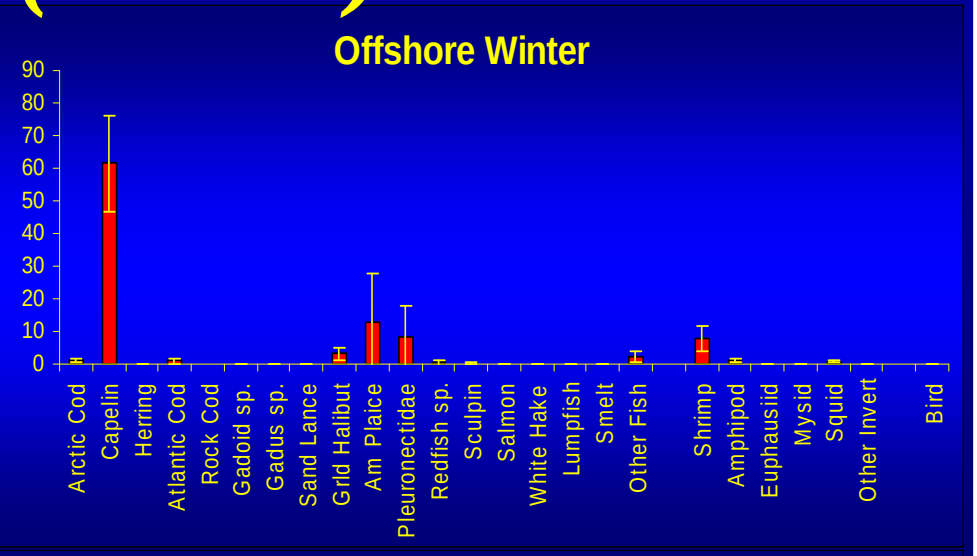
Harps

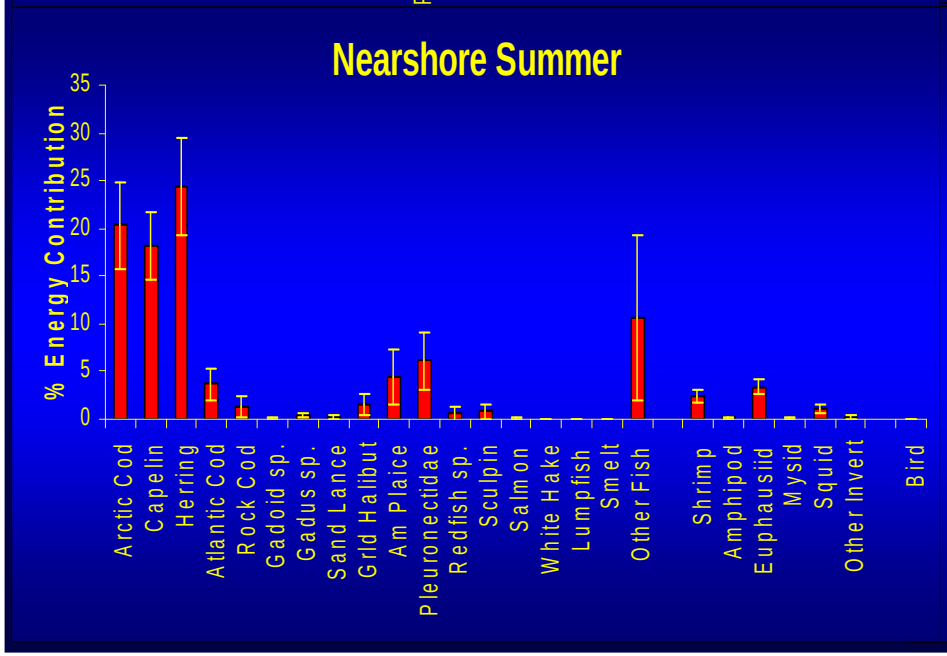


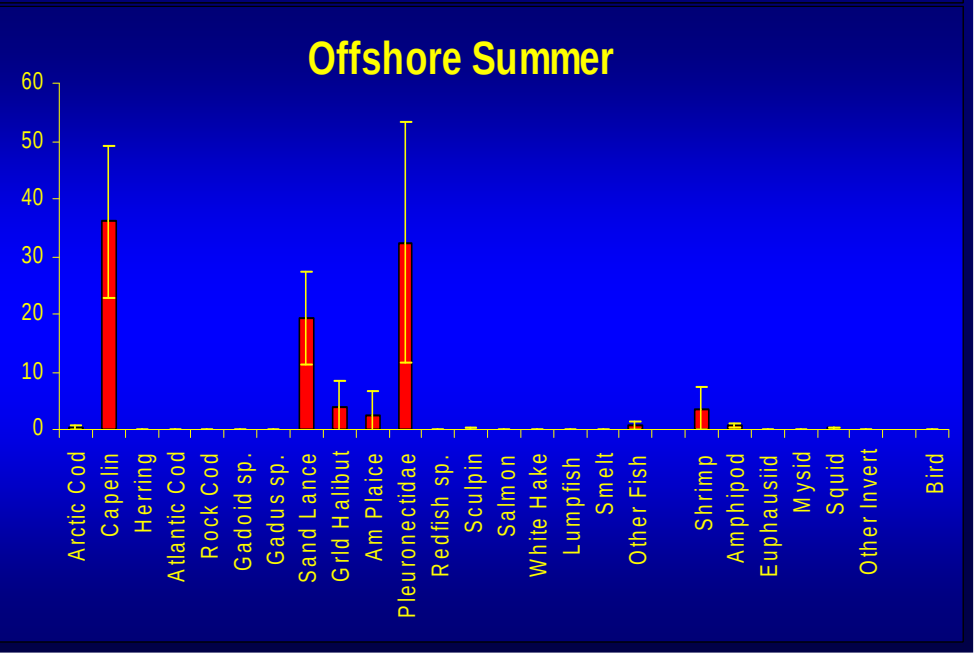

Harps
%Dives
70
60
50
40
30
20
10
0
0-50m
50-100m
100-200m
200-300m
300-400m
>400m
Lab Shelf - Winter
Grand Banks - Winter
Lab Shelf - Spring
Grand Banks - Spring
Hoods
%Dives
50
45
40
35
30
25
20
15
10
5
0
0-50m
51-100m
101-200m
202-300m
301-450m
451+m
Dive Depth
Slope Edge (N=76)
Flemish Pass (N=83)
Flemish Cap (N=522)
Lab Shelf (N=81)
Grand Bank (N=36)

Harp Seal Diet in Newfoundland (2J3KL) Waters

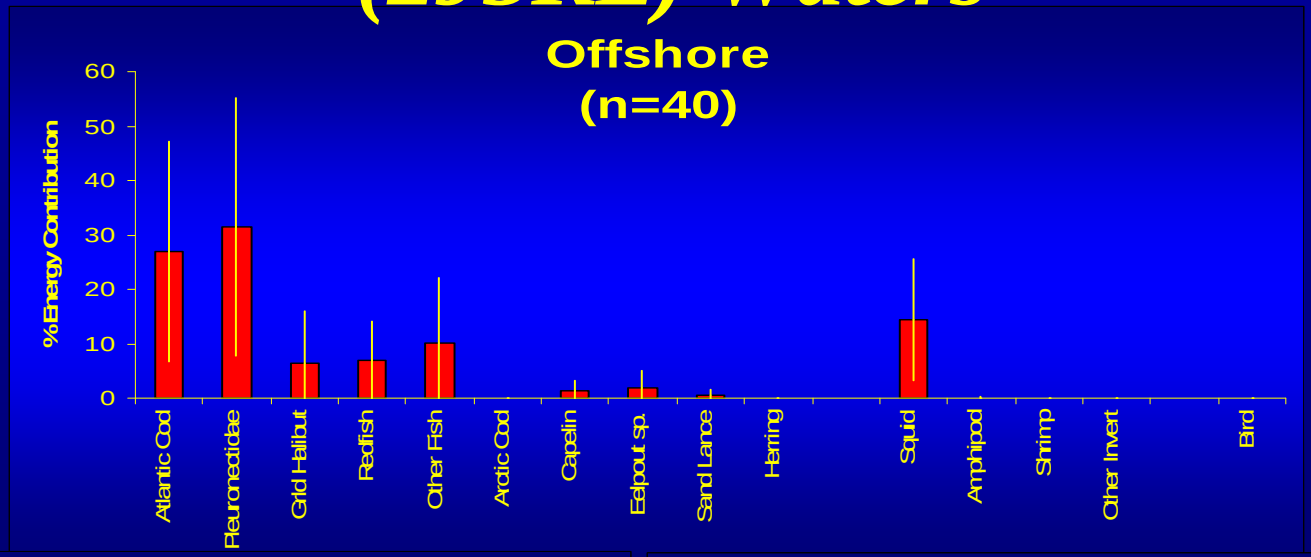


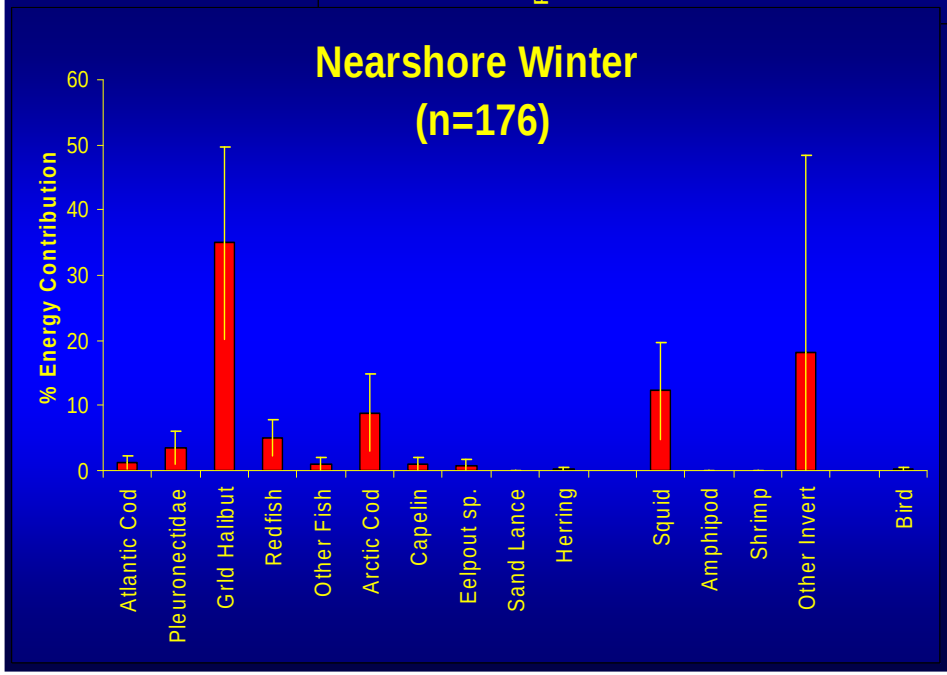


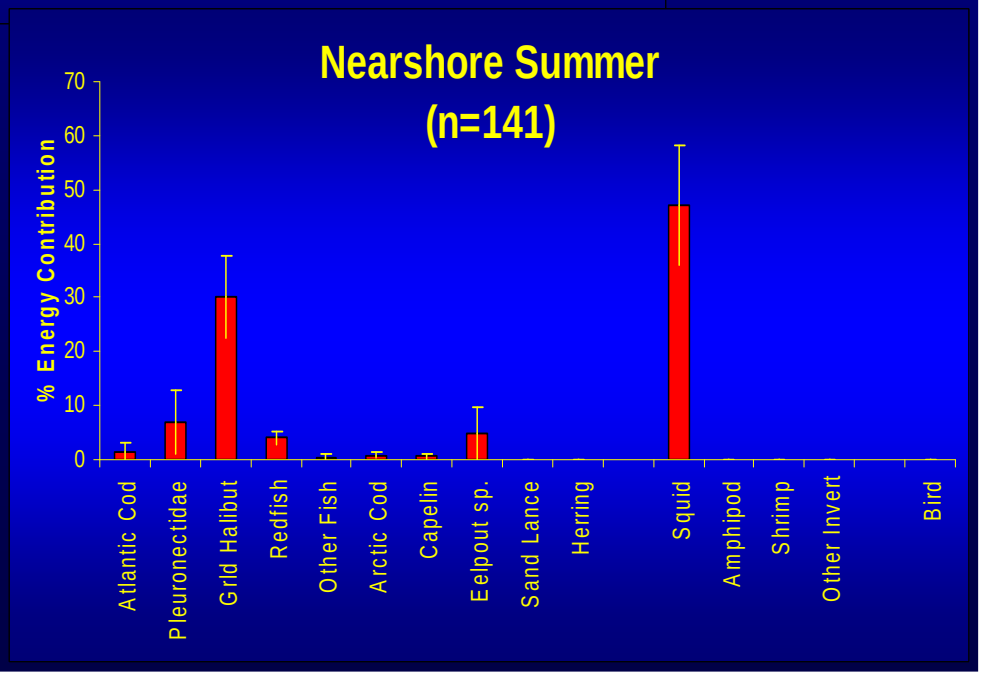




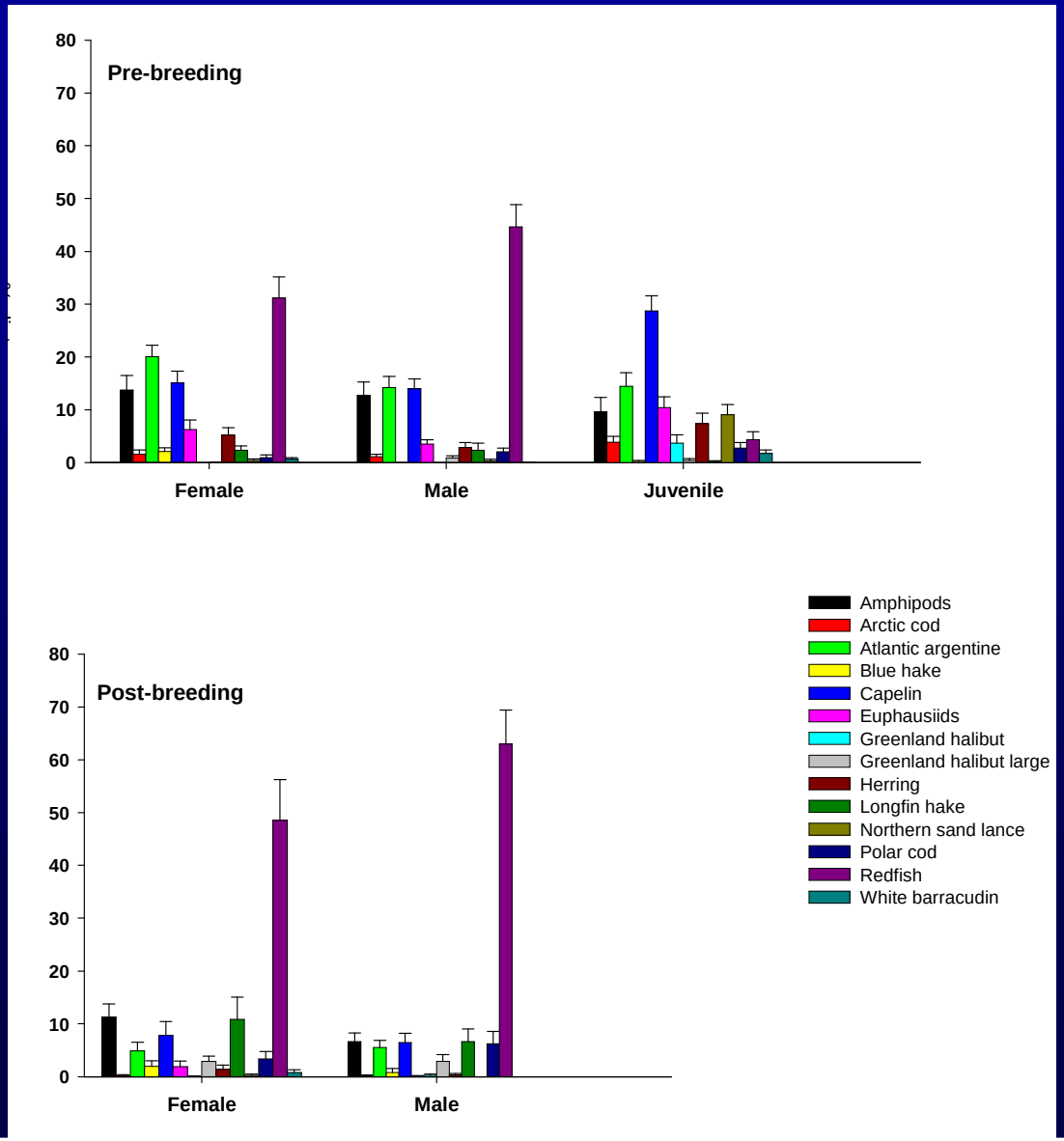
Hooded Seal Diet in Newfoundland (2J3KL) Waters







Hooded Seal Diet in the Northwest Atlantic (based on Fatty Acid Signatures)



Tucker et al 2008

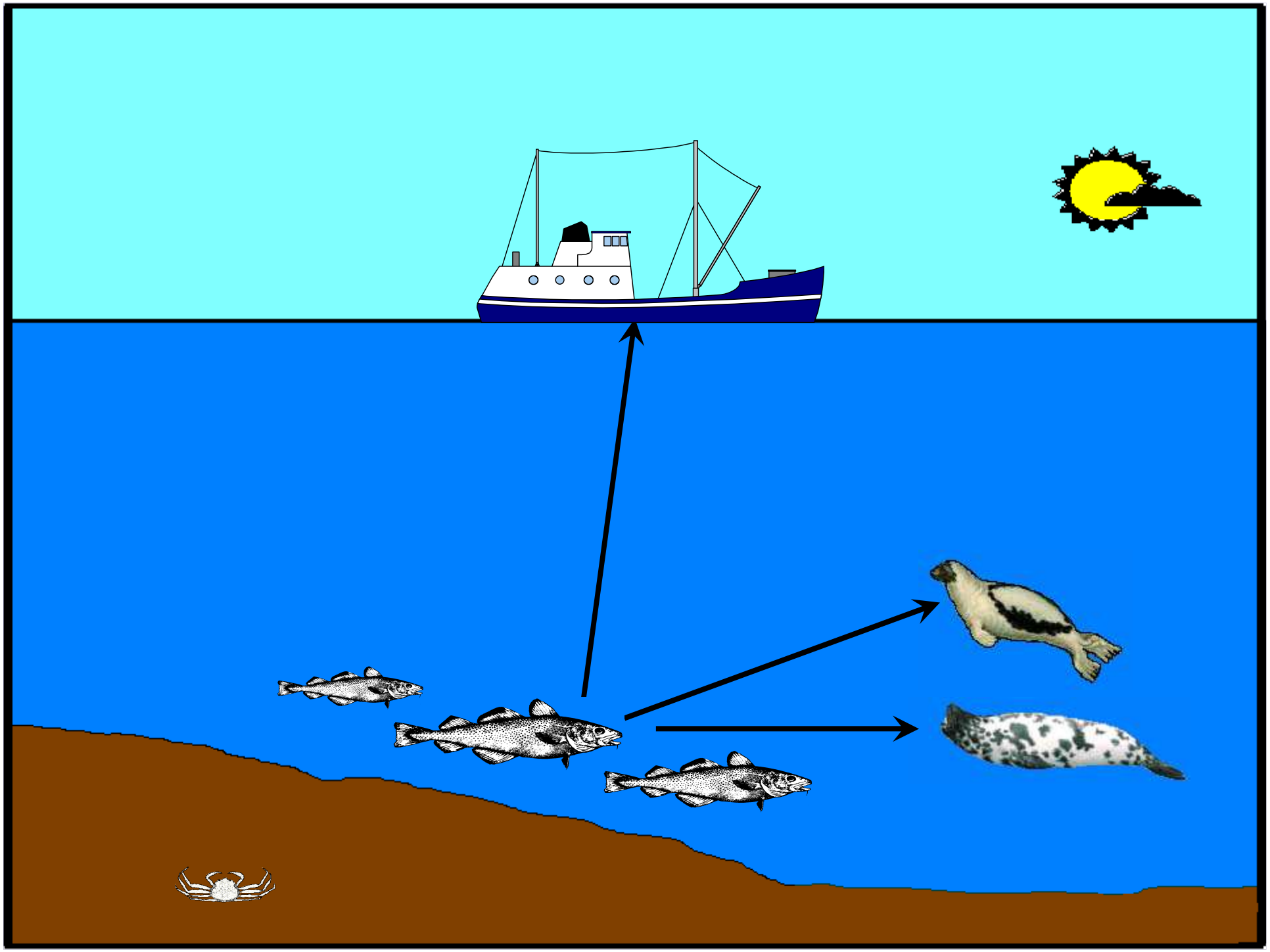
Conclusions from Diet Studies:

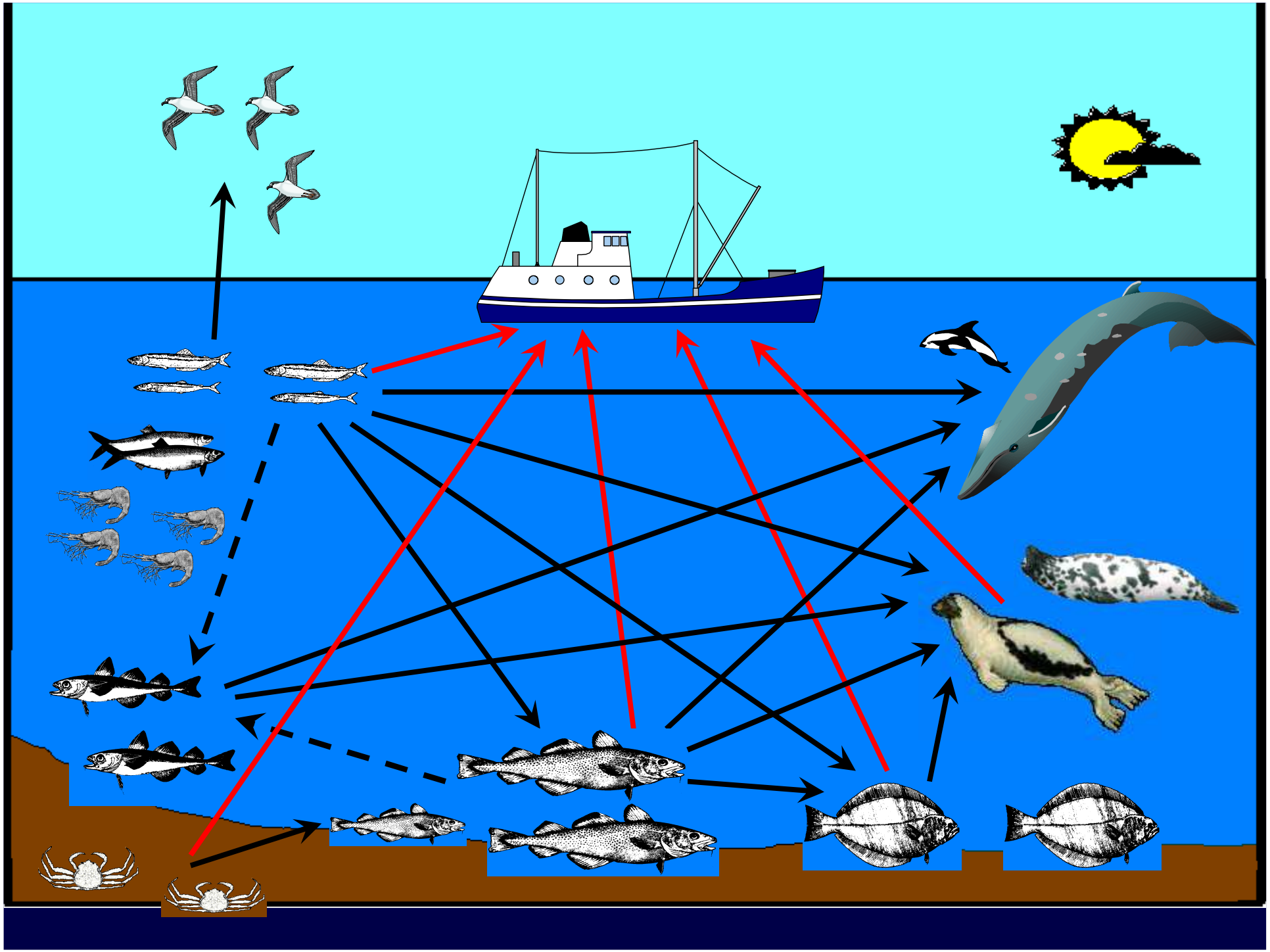
Seals may consume substantial amounts of commercial fish and therefore are assumed to contribute to the high total mortality observed in recent years

But:

‘Consumption’ is not the same as ‘impact’

Estimating impact requires information on factors affecting population dynamics of the prey population and how both predators and prey interact with other components of their ecosystem.





Modelling Conclusions

- Seals are important predators in NW Atlantic ecosystems.

- Seals are biologically significant species that have a stabilizing role in their ecosystems.

BUT

- There are inconsistencies between the data and the models

The Role of Marine Mammals in the Ecosystem in the 21st Century

29 September – 1 October 2008
Dartmouth, Nova Scotia, Canada

In 1995, NAFO and ICES sponsored a successful symposium on the ecological role of marine mammals. This follow-up symposium will present new findings on the syntheses of information over ecosystem components, on biological and physical aspects of the environment, and on new research approaches to understanding the role of marine mammals.

Four sessions are planned:

- ***Biological and environmental factors affecting life history traits***
- ***Foraging strategies and energetic requirements***
- ***Theoretical considerations on apex predators and multispecies models***
- ***Marine mammal - fisheries interactions***

Contributed oral and poster presentations are welcome. Abstracts should be submitted by **1 May 2008**. Final papers should be submitted by **30 November 2008** and will follow a peer-review process for publication in the Journal of Northwest Atlantic Fishery Science. Participants who are not giving presentations must register by **1 September 2008**.

Co-conveners

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