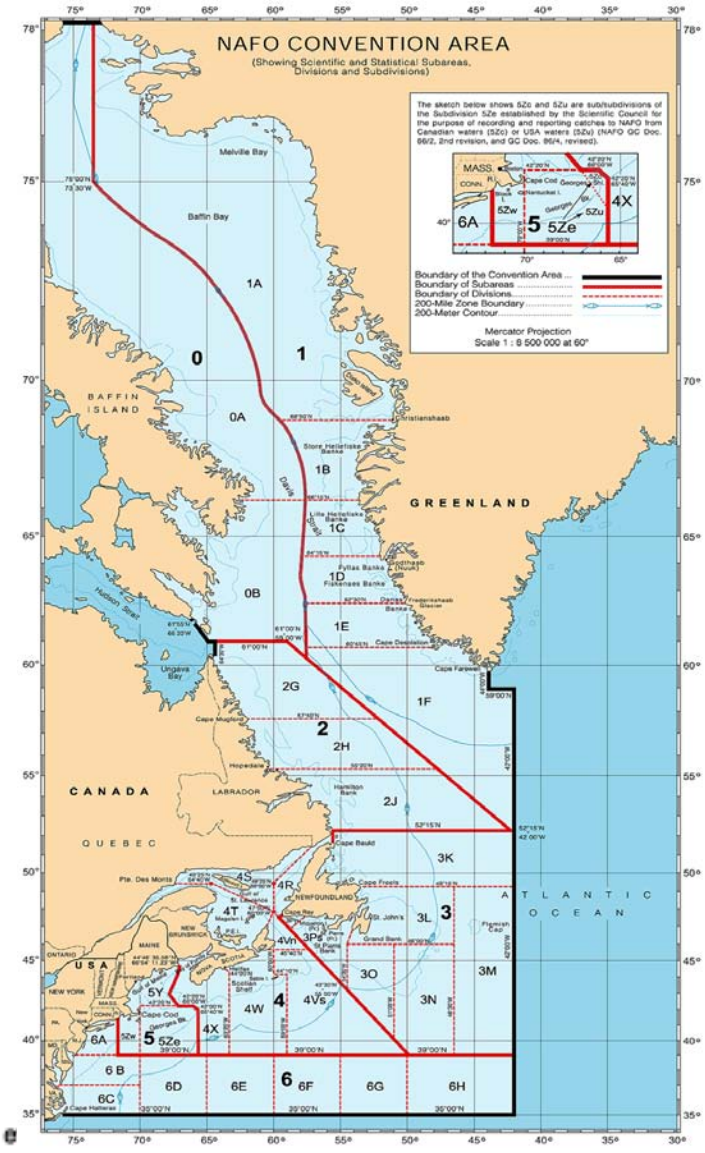
Map Showing NAFO Management Units



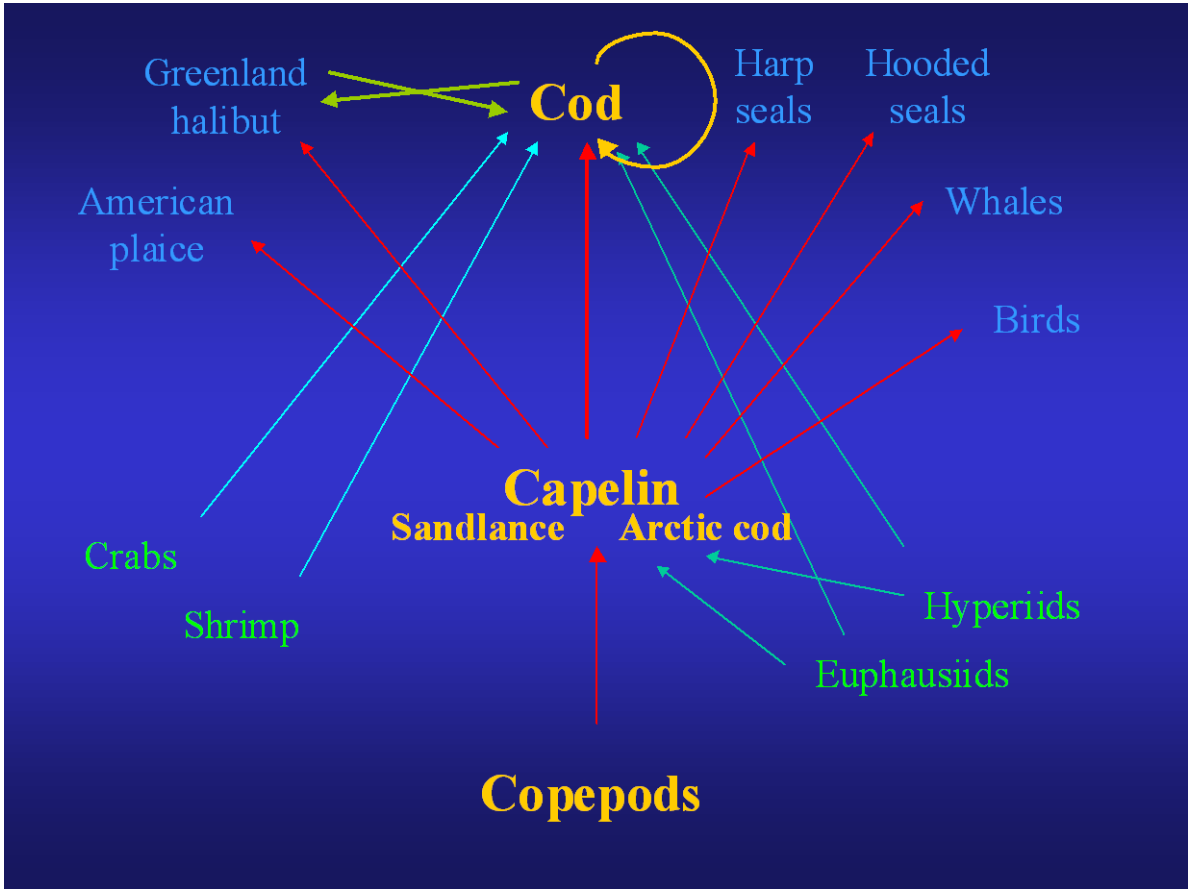
Fisheries and Oceans Canada

Pêches et Canada

Canada

Capelin in Canadian and NAFO Waters

Key Forage Species



Capelin in Canadian and NAFO Waters

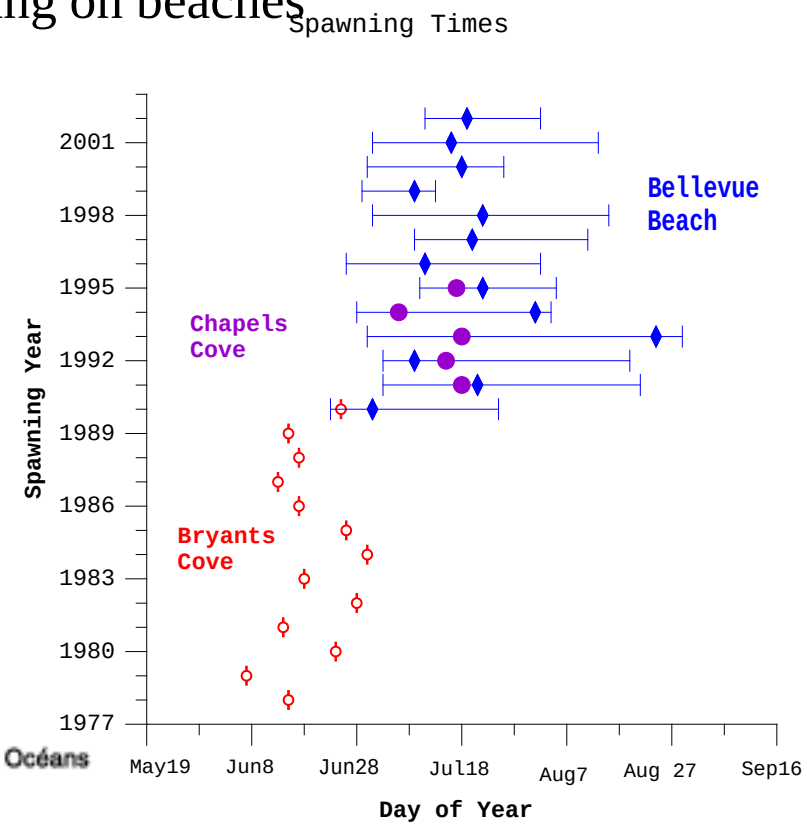
Stocks

- Are considered to be 4 stocks
  - NAFO Div 4RST – Gulf of St Lawrence – will not be addressed
  - 3Ps – small stock and fishery – will not be addressed
  - 2J3KL – most heavily fished and widely studied
    - Centre of distribution
    - Spend most of life offshore but move inshore to spawn on or just off beaches
  - 3NO – with 2J3KL most heavily fished and widely studied
    - Spawns offshore in about 60m on SE Shoal
    - Spawns same time as inshore stocks (June/July)
- 2J3KL and 3NO stocks mix somewhat during time offshore
- 2J3KL and 3NO stocks do move outside 200 miles but most spawning of 3NO stock is inside Canadian waters

Capelin in Canadian and NAFO Waters

Biology

- There have been several changes in the biology of capelin that became evident in the early 1990s and have persisted
  - Late spawning on beaches



Capelin in Canadian and NAFO Waters

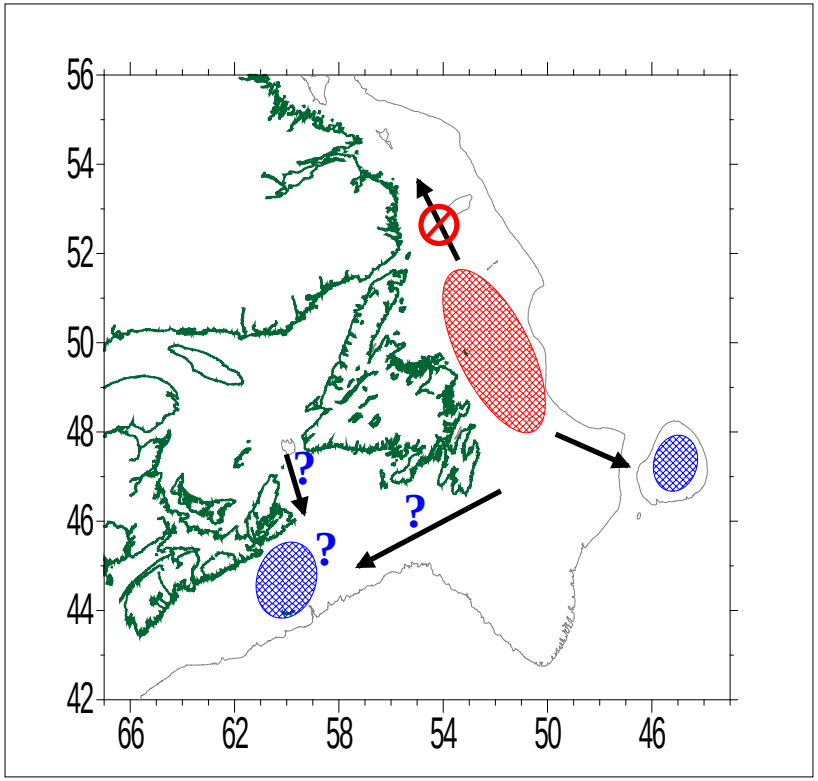
Biology

- Increased off-beach spawning

Capelin in Canadian and NAFO Waters

Biology

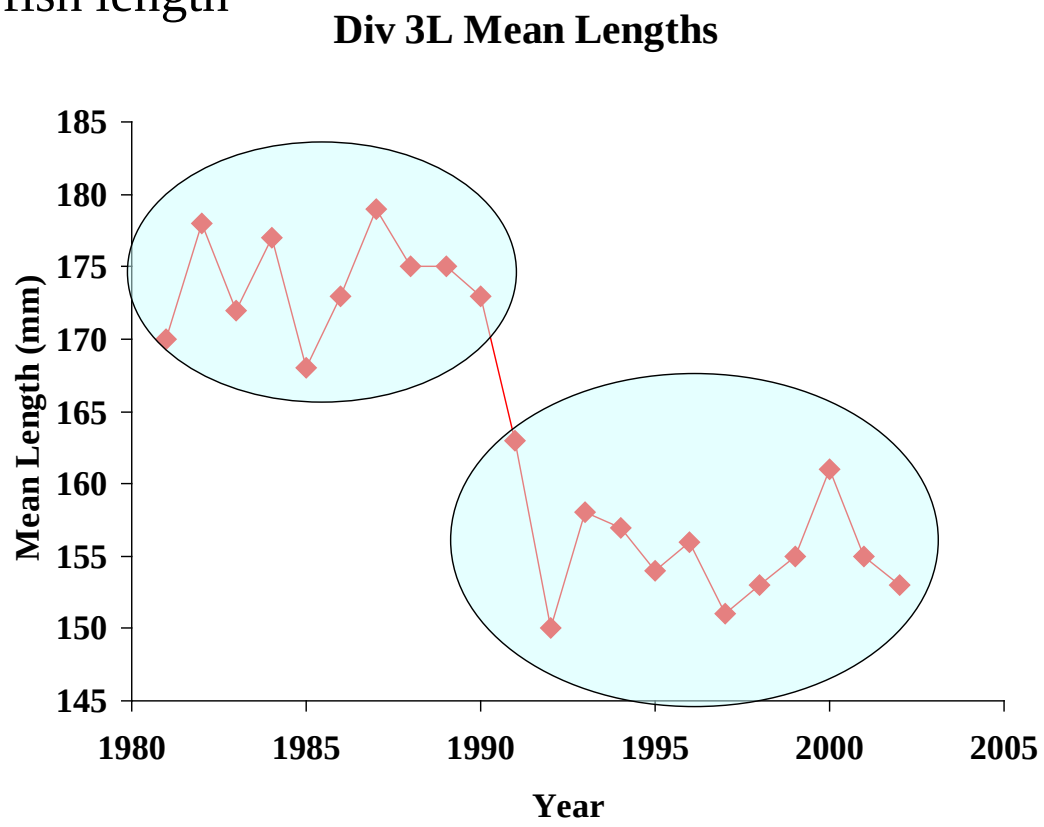
- Large scale changes in distribution within the normal distribution area and to areas in which capelin would not normally occur (Flemish Cap and Eastern Scotian Shelf)



Capelin in Canadian and NAFO Waters

Biology

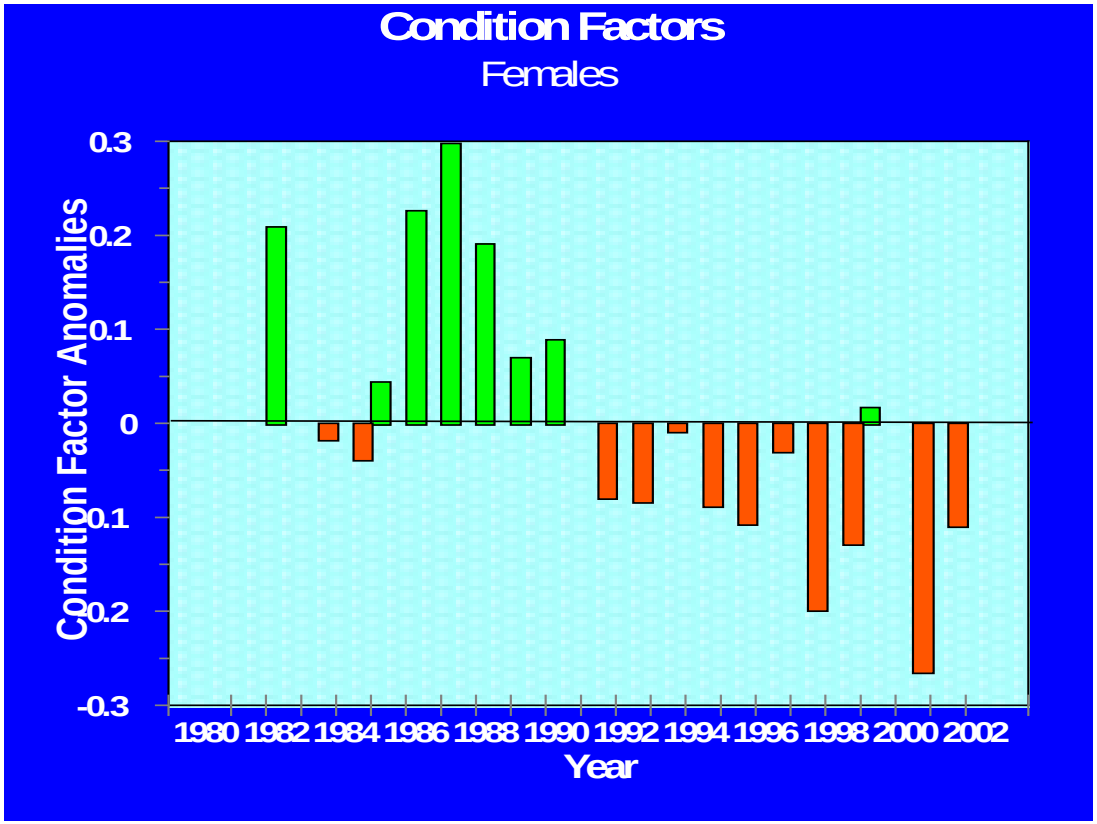
- Smaller fish length



Capelin in Canadian and NAFO Waters

Biology

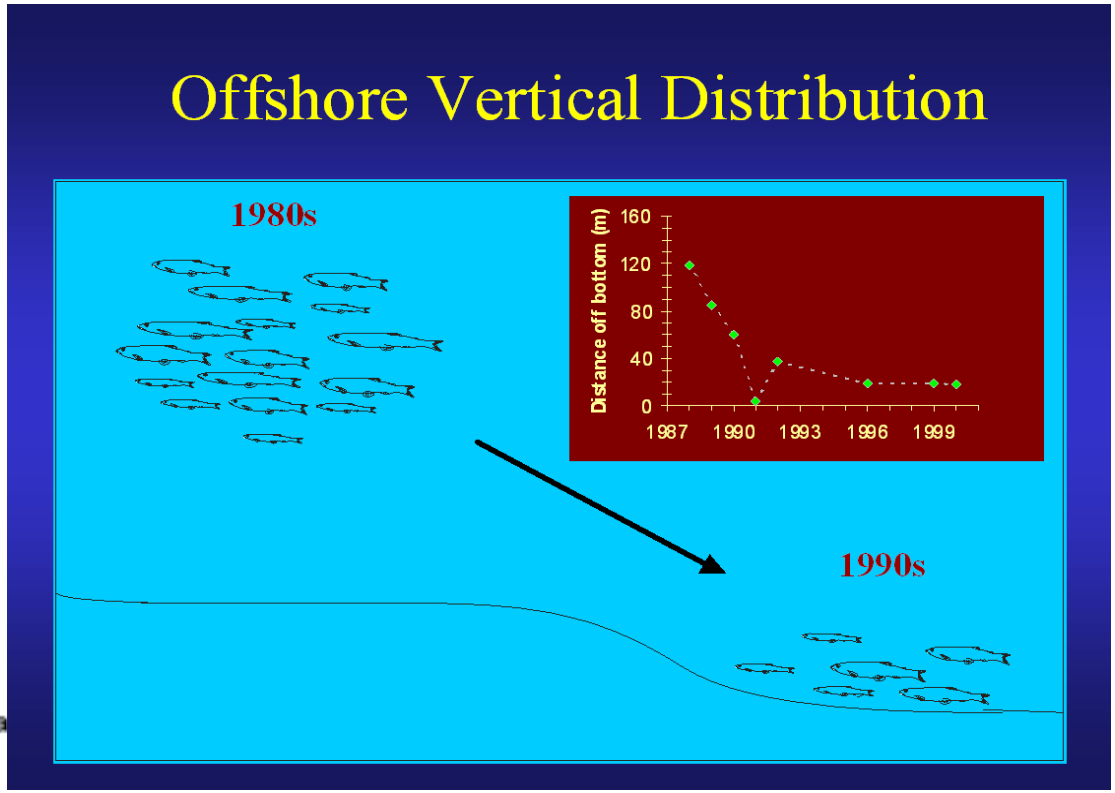
- Lower condition factors



Capelin in Canadian and NAFO Waters

Biology

- Occur deeper in the water column offshore i.e. reduced diurnal activity
- Occur in deeper water offshore



Capelin in Canadian and NAFO Waters

Biology

- Changes in biological characters originally thought to have occurred because of very cold water temperatures during the first half of the 1990s
- However, the changes in biology have persisted even though the water temperatures have warmed

Capelin in Canadian and NAFO Waters

Assessment

- The last scientific assessment was made in 2000; stocks are no longer formally assessed
- Although are no formal assessments, population abundance appears to have declined in recent years
  - Density estimates offshore have been low during the 1990s and have declined further in the last few years
  - Trap fishermen have consistently expressed the opinion that abundance has been lower from the mid-1990s to the present (opinion survey started in 1994)
- Increased demersal off-beach spawning appears to result in poor survival and this may be contributing to population decline
- The affects of changes in other biological characters on population health have not been quantified but they are viewed as negative and are not considered to be signs of a healthy population

Capelin in Canadian and NAFO Waters

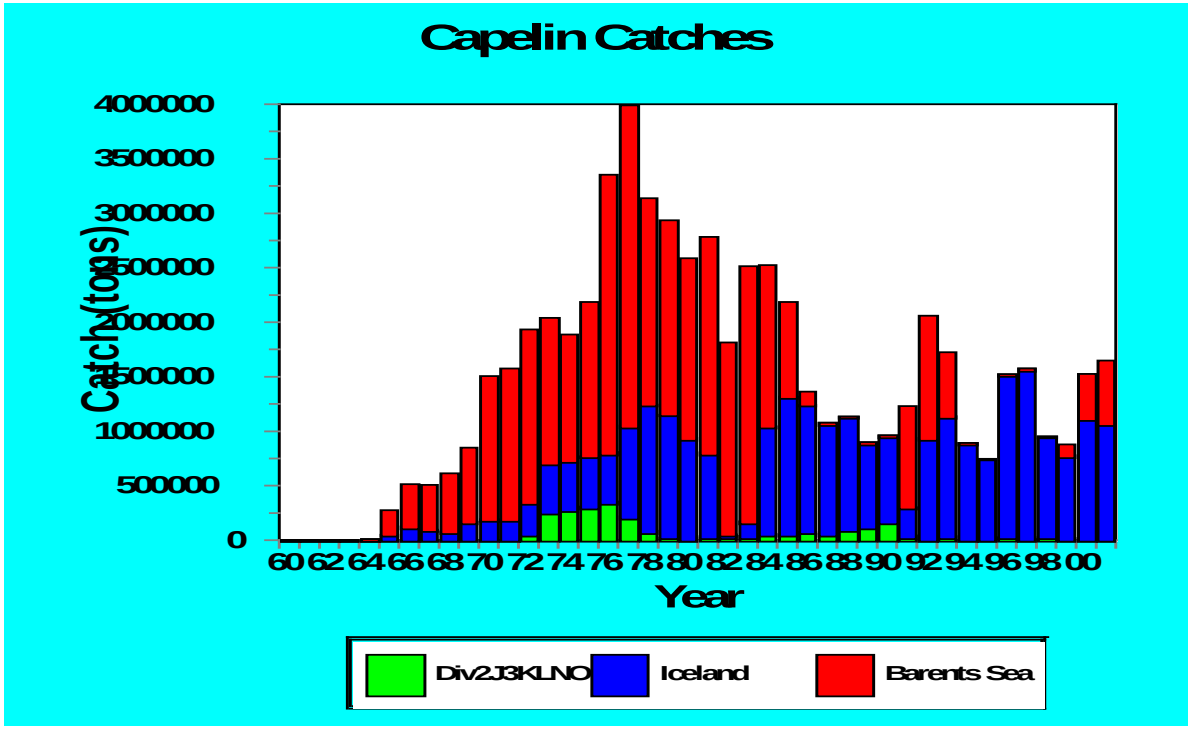
Fishery

- Historical catches, all inshore near spawning beaches, estimated to have been 20 000-25 000 t annually - used for human consumption, food for dog teams, bait and fertilizer
- Early 1970s a non-Canadian offshore fishery started, mainly in Div2J3KLNO
  - Peaked at around 360 000 t; declined rapidly during late 1970s
  - Offshore non-Canadian catches continued at a low level until they were eliminated starting in 1992
- Canadian inshore fishery developed during late 1970s to catch ripe females for Japanese market
  - Catches generally lower than offshore catches
  - Inshore catches lower during the 1990s compared to 1980s
  - Inshore gear types mainly trap nets and purse seines, with less effort from cast nets and beach seines

Capelin in Canadian and NAFO Waters

Fishery

- Annual catches in the Canadian area have been much lower than in Iceland and the Barents Sea



Capelin in Canadian and NAFO Waters

Management

- Managed by annual quotas
- Management approach based on advise from ICNAF (now NAFO) from 1979, which stated that no more than 10% of the projected mature biomass should be removed by a fishery (considered a conservative approach)
- Estimates of projected mature biomass have not been available since the early 1990s
- General approach since biomass estimates have not been available has been to roll over previous years quota with some adjustments made annually based on expected market demands
- Historically, there is no scientific evidence to indicate that the fishery has had an impact on the stocks