Arctic Nearshore Fishes: Establishing a Baseline in a Dynamic Environment

Objectives

In nearshore waters of the Chukchi Sea:

- Identify distribution and relative abundance of fish
- Establish a baseline for long-term monitoring
- Collect and archive fish for energetic, genetic, and voucher specimens

Sample design

In August 2007 & 2008:

- At 6 locations
  - 1 beach seine haul & 2 bottom trawl tows

Methods

- Beach seine hauls
- Bottom trawl tows

Environmental conditions in study area

- Barrow shoreline free of ice earlier in 2007 than 2008
- Later ice breakup resulted in colder temperatures

Sea ice

2007: July 3, July 7

2008: July 3, August 3, August 8

Sea surface temperature

2007: Aug 3, Aug 8

2008: Aug 3, Aug 8

Results

- Total catch
  - Longjawed capelin: 18 other spp. - 19%
  - Pacific sand lance: 18 other spp. - 19%
  - Arctic cod: 19%
  - Capelin: 62%
- Seine haul catch greatest in 2007
- Trawl tow catch greatest in 2008
- Capelin most abundant in 2007
- Arctic cod most abundant in 2008

Annual catch

- Mean catch per haul/tow

- 2007: Capelin
- 2008: Arctic cod

Catch by gear

- Beach seine
  - Capelin

- Bottom trawl
  - 8 other spp.
  - Arctic cod

Conclusions

- Changing environmental conditions likely affect the distribution and abundance of fish
- Capelin and Arctic cod are abundant in nearshore waters of the Chukchi Sea
- Establishing a baseline in the dynamic Arctic will require several years of sampling

Data Available: www.alaskafisheries.noaa.gov/habitat/fishatlas