



2008 GROUND FISH ABUNDANCE AND BIOMASS INDEX TRENDS FROM DFO'S SCOTIAN SHELF SUMMER RESEARCH VESSEL SURVEY

Context

DFO has conducted summer research vessel (RV) surveys in the Maritimes Region, Northwest Atlantic Fisheries Organization (NAFO) subunits 4VWX, using a standardized protocol since 1970 (Chadwick et al. 2007). Results of these surveys provide significant information on trends in abundance for most groundfish species on the Scotian Shelf, and are a critical part of science-based stock assessments. However, not all species are assessed on an annual basis. On 10 March 2009, Fisheries and Aquaculture Management (FAM) requested a review of the DFO RV survey information on the following list of fish stocks, for which stock assessments had not been conducted in 2008, to be used as the basis for establishing the total allowable catch (TAC) for the 2009/2010 fishery:

- 4VWX+5 silver hake
- Unit 3 redfish
- 4VW white hake
- 4X+5 white hake
- 4VW haddock
- 4X+5Y haddock
- 4X+5 flatfish
- 4VW flatfish

FAM also requested that these survey results be presented to the Groundfish Advisory Committee, which was held 23 March 2009.

Given the short time-frame for response, the evaluation of this information was conducted through the Science Special Response process. Results were reviewed by DFO Maritimes Science and FAM only; no external reviewers or industry participants were included in the review.

Analysis and Response

DFO RV survey information may provide an indication of groundfish population trends on the Scotian Shelf (Clark and Emberley 2009) and has been reviewed in the past by FAM to prior to recommending TAC's. However, while the RV survey biomass index provides up to date information on survey trends, it is only one component of the information that is typically evaluated in a stock assessment and may not in itself fully reflect population biomass or abundance. The following analyses are not stock assessments but are simply updates of the survey indices for each species based on the 2008 RV survey results. The location of the 2008 summer RV survey stations, in NAFO Divisions 4VWX and 5Yb, are provided in Figure 1.

Maritimes Region

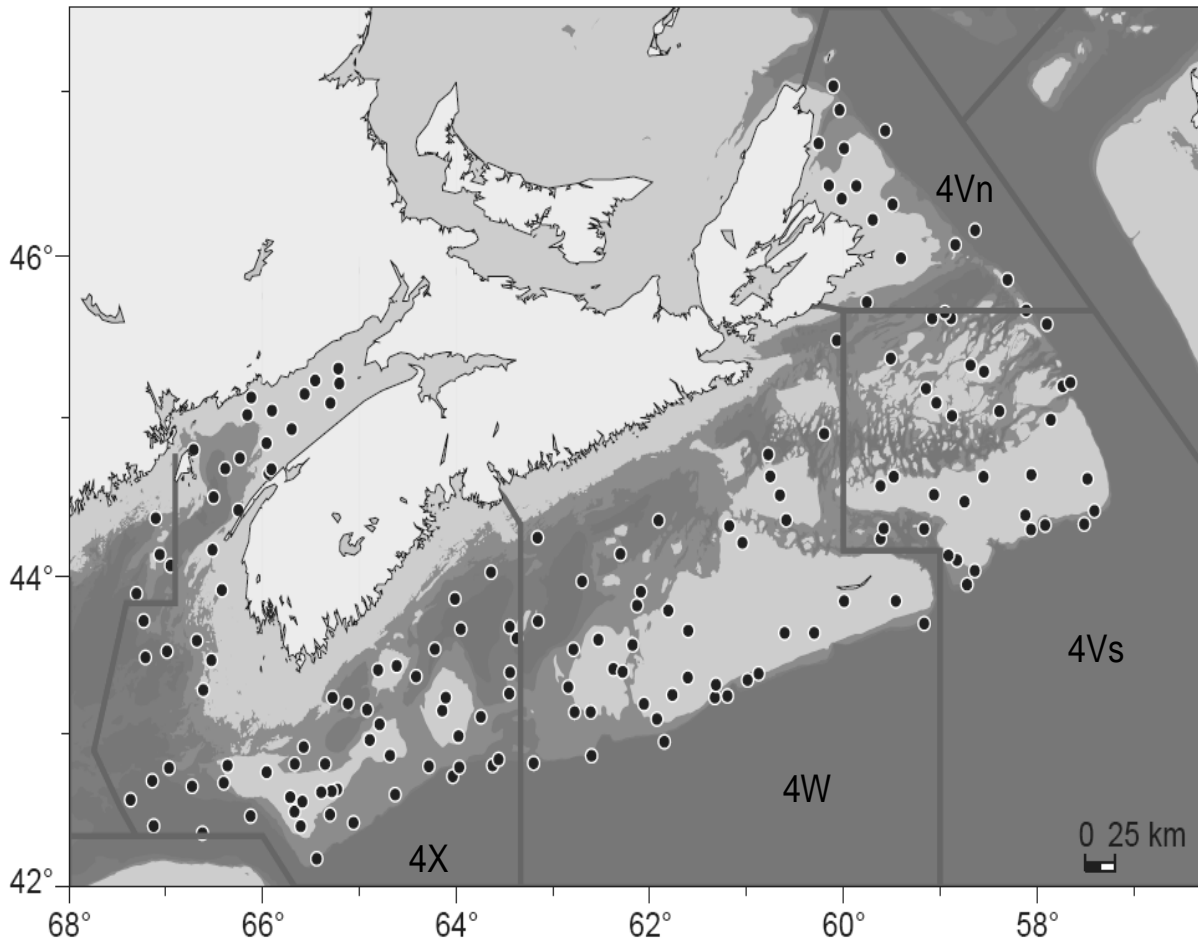


Figure 1. Maritimes Region 2008 summer Research Vessel survey station locations.

4VWX Silver Hake

The summer RV survey biomass index for silver hake (*Merluccius bilinearis*) in 4VWX remained near the lowest level observed in the survey since 1982. Abundance indices were well below average for silver hake above 25 cm, and near average at lengths below 25cm.

Unit III Redfish

The summer RV survey biomass index for redfish (*Sebastes spp.*) is quite variable but has increased recently to the highest level in the series in 2008. Abundance indices were high in 2008 for all lengths above 16 cm.

4VW White Hake

The summer RV survey biomass index for white hake (*Urophycis tenuis*) in 4VW shows no trend over the last decade and remained below average in 2008. Numbers are below average at all lengths in 4VW with very few large fish.

Maritimes Region

4X White Hake

The summer RV survey biomass index for white hake in 4X has declined since the mid-1980s and remains low. Abundance of large hake (>60 cm) is below average.

4VW Haddock

The summer RV survey biomass index for 4VW haddock (*Melanogrammus aeglefinus*) was below average in 2008. Numbers were well below average at most lengths, with very few haddock < 26 cm in 2008.

4X Haddock

The summer RV survey biomass index for 4X haddock has declined since 2001, but still remains relatively high compared to that observed from 1987 to 1994. Abundance was above average from 30-46 cm in 2008, but there were few large haddock caught in 4X. Numbers were low below 30 cm suggesting poor recruitment for the 2007 and 2008 year classes.

4X Flatfish

Winter flounder (*Pseudopleuronectes americanus*) accounts for over 60% of the summer RV survey flatfish catch in 4X. The summer RV survey biomass index for winter flounder has been increasing gradually in 4X since the late 1990s, and survey catches were above average for most lengths in 2007 and 2008.

The summer RV survey biomass index for witch flounder (*Glyptocephalus cynoglossus*) has declined in 4X in the last decade and in 2008 was among the lowest in the time series. Larger witch flounder (> 43 cm) have been a major part of the population in 4X but were completely absent from the survey catches in 2007 and 2008.

4VW Flatfish

American plaice (*Hippoglossoides platessoides*) accounts for over 60% of the summer RV survey flatfish catch in 4VW. The summer RV survey biomass index for American plaice has shown no pronounced trend since 1995, but it remains low compared to the 1970s and 1980s.

Numbers were above average for witch flounder at most lengths below 40 cm in 4VW, but they were very low above 40 cm.

Conclusions

This document provides a brief description of the summer RV survey trends in biomass and abundance of selected groundfish stocks in 4VWX for which no stock assessment was conducted in 2008. The summer RV survey biomass and abundance indices continue to decline or remain at low levels in 2008 for many of the stocks evaluated, including silver hake in 4VWX, white hake in 4VW and 4X, haddock in 4VW and 4X, witch flounder in 4X, and American plaice in 4VW, indicating that the consequences of removals from these stocks should be carefully considered. If assessments of these stocks were requested by FAM, other sources of information, in addition to the summer RV survey indices, would be evaluated.

Sources of Information

Chadwick, E. M. P., W. Brodie, E. Colbourne, D. Clark, D. Gascon, and T. Hurlbut, 2007. History of annual multi-species trawl surveys on the Atlantic coast of Canada. AZMP Bulletin PMZA 6: 25 – 42.

Clark, D.S., and J. Emberley. 2009. Update of the 2008 Summer Scotian Shelf and Bay of Fundy Research Vessel Survey. DFO Can. Sci. Advis. Sec. Res. Doc. 2009/017.

Contributors

<i>Name</i>	<i>Affiliation</i>
D. Clark	DFO Maritimes Science (primary author)
H. Stone	DFO Maritimes Science
P. Hurley	DFO Maritimes Science
P. Comeau	DFO Maritimes Science
J. Simon	DFO Maritimes Science
P. Hurley	DFO Maritimes Science
M. Showell	DFO Maritimes Science
V. Docherty	DFO Maritimes Fisheries and Aquaculture Management

Approved by

Michael Sinclair
Regional Director, Science
Dartmouth, NS
(902) 426-3490

Date: 29 April 2009

This Report is Available from the:

Center for Science Advice (CSA)
Maritimes Region
Fisheries and Oceans Canada
PO Box 1006, Station B203
Dartmouth, Nova Scotia
Canada B2Y 4A2

Telephone: 902-426-7070
Fax: 902-426-5435
E-Mail: XMARMRAP@mar.dfo-mpo.gc.ca
Internet address: www.dfo-mpo.gc.ca/csas

ISSN 1919-3750 (Print)
ISSN 1919-3769 (Online)
© Her Majesty the Queen in Right of Canada, 2009

La version française est disponible à l'adresse ci-dessus.



Correct Citation for this Publication:

DFO. 2009. 2008 Groundfish Abundance and Biomass Index Trends from DFO's Scotian Shelf Summer Research Vessel Survey. DFO Can. Sci. Advis. Sec. Sci. Resp. 2009/010.