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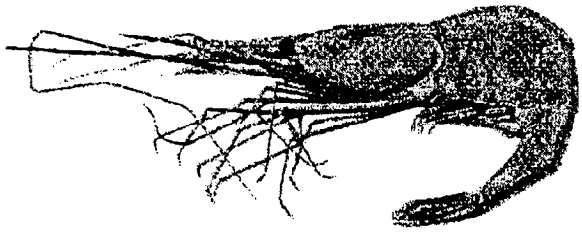
Newfoundland Region

DFO Science
Stock Status Report C2-05 (1999)



Northern shrimp (*Pandalus borealis*) resources from Division 0B to 3K – an interim review

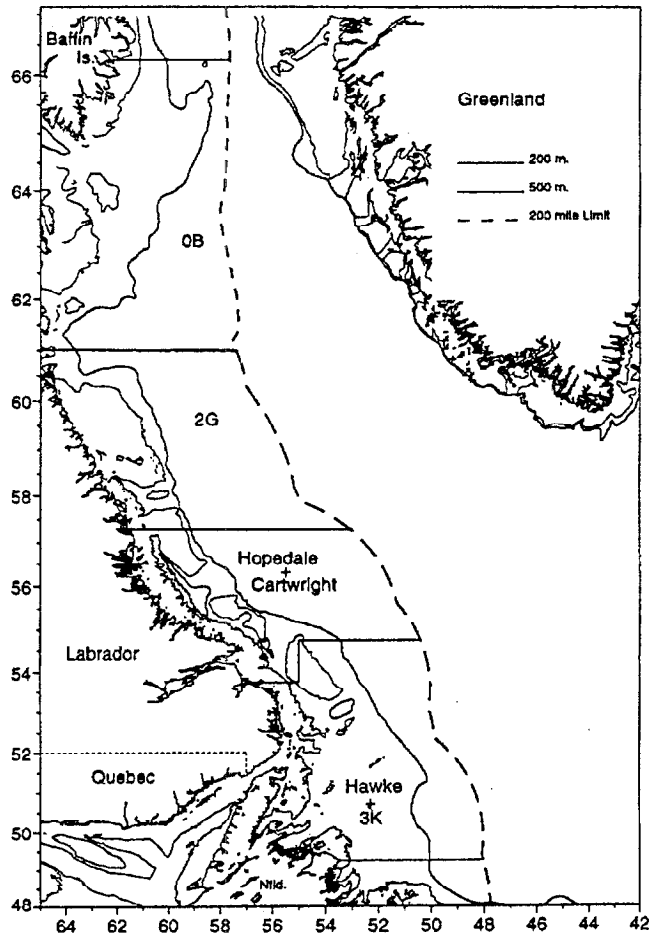
Introduction

The fishery for northern shrimp is managed within a three-year (1997-1999), integrated plan. Stock status was assessed prior to the implementation of the plan (Anon. 1997), providing the basis for the determination of TAC's in each shrimp fishing area (SFA).

TAC's were increased in 1998 in two of four management areas: Div. 2G (SFA 4) from 5,200 to 8,320 tons and Hawke + 3K (SFA 6) from 23,100 to 46,200 tons. The second, interim review (update) of stock status compared the 1998 commercial fishery and research survey data to those of previous years to determine whether changes in TAC's should be considered for 1999, the final year of the multi-year plan.

Background

Assessments are based on comparing catch rates in the commercial fishery, biomass estimates from research surveys and biological sampling data from both sources over many years as indicators of stock conditions and how they are changing.



Uncertainty increases from south to north but is hard to quantify. Shrimp distribution is widespread throughout the Hawke Channel + 3K area and both the catch rate and research biomass indices are believed to be reliable indicators of stock status. The distribution becomes more patchy farther north, increasing the variance associated with the indicators. Div. 0B illustrates the extreme situation where commercial CPUE's are not considered representative of changes in the resource and no research survey data exist. TAC's in this area are purely "experimental" with no biological basis.

Results

General

The TAC's were taken in all areas in 1998. Resource abundance remained high throughout the survey area (Divisions 2HJ3K) with healthy spawning (female) and recruitment (male) components. However, stock size indices in the Hopedale + Cartwright area were less precise than those for Hawke + Div. 3K and, therefore, trend in the former area was uncertain. The fishery for "inshore" vessels, initiated in 1997, was expanded in 1998.

Hawke Channel + Division 3K (SFA 6)

Catch rates increased substantially from 1989 to 1996 and remained relatively stable at a high level in 1997 and 1998. Research survey biomass indices were similar in 1996, 1997 and 1998. These observations indicate that abundance is no longer increasing in this area. Research data further suggest that the 1995 and 1996 year classes are weaker than those of 1993 and 1994.

The resource in this area is currently healthy with high abundance of males and females but prospects for future recruitment are uncertain. Considering the latter, it is uncertain whether the current TAC (46,200 tons) or an increased TAC can be sustained.

Hopedale + Cartwright (SFA 5)

Research surveys from 1996 to 1998 produced indices of biomass/abundance with wide confidence intervals and trend in the stock could not be determined. Research sampling data indicated that the 1995 and 1996 year classes are weaker than those of 1993 and 1994. Catch rates from the fishery increased through the 1990's, stabilizing at a high level in 1997 and 1998.

Current status is uncertain based on the research survey data but appears favourable from the fishery data. A future decline in recruitment is possible. There is no scientific basis for a change in the TAC of 15,300 tons.

Division 2G (SFA 4)

No trawl survey was completed in 1998. Biomass/abundance indices from 1996 and 1997 were imprecise with wide confidence intervals and trend in the stock is uncertain. Commercial catch rates fluctuated at a high level during the 1990's indicating stability in the resource.

Both current status and future prospects are uncertain. There is no scientific basis for a change in the TAC of 8320 tons.

Division 0B (SFA 2)

Knowledge of the biology, distribution and abundance of shrimp off Baffin Island is lacking in the absence of a time series of research trawl surveys. Over the past three years, most of the effort has been directed towards dense concentrations of *P. borealis/montagui* south of 63^0 N. Fishery data alone cannot be interpreted as an indication of trend in the stock.

The TAC for *P. borealis* should be maintained at 5,250 tons in 1999 and applied to the southern area. An experimental fishery could be considered for the area north of 63^0 N which has not been fished since 1996.

For More Information

Research Document: Parsons, D.G., P.J. Veitch and G.T. Evans. 1999. Resource status of northern shrimp (*Pandalus borealis*) off Baffin Island, Labrador and northeastern Newfoundland - second interim review. CSAS Res. Doc. 99/112: 53 p .

Stock Status Report: Anon. 1997. Northern Shrimp off Newfoundland and Labrador. DFO Science Stock Status Report # C2-05: 12p.

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