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East and Southeast Newfoundland Atlantic Herring 2004 RAP Proceedings

Compte rendu du PCR de 2004 sur le hareng de l'est et du sud-est de Terre-Neuve

November 22-23, 2004
Fisheries and Oceans Canada
Northwest Atlantic Fisheries Centre
St. John's, Newfoundland and Labrador

D. C. Orr (Chair) and D. R. Osborne (Editor)

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CSAS@DFO-MPO.GC.CA

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SUMMARY

During November 2004, Newfoundland and Labrador Region conducted assessments of the White Bay - Notre Dame Bay, Bonavista Bay - Trinity Bay, St. Mary's Bay - Placentia Bay and Fortune Bay Atlantic herring (*Clupea harengus*) stocks. Summaries of working papers and ensuing discussions are provided, as well as progress on 2002 recommendations and recommendations resulting from the current assessment. Also included are a list of participants, a list of working papers and the remit. Additional information on the resources assessed is available in the Stock Status Report (SSR) and Research Document (Wheeler *et al*., 2005).

SOMMAIRE

En novembre 2004, la Région de Terre-Neuve et du Labrador a évalué les stocks de hareng (*Clupea harengus*) des secteurs de la baie Blanche – baie Notre Dame, de la baie de Bonavista – baie de la Trinité, de la baie St. Mary's – baie de Plaisance ainsi que de la baie de Fortune. Le présent compte rendu résume les documents de travail et les discussions qui ont eu lieu et expose les progrès accomplis par rapport aux recommandations de 2002 ainsi que les recommandations découlant de cette dernière évaluation. On y trouve également une liste des participants, une liste des documents de travail et le cadre de référence. Le lecteur peut trouver de l'information supplémentaire sur les ressources évaluées dans le *Rapport sur l'état des stocks* (RÉS) et le *Document de recherche* (Wheeler *et al*., 2005).

INTRODUCTION

The Herring Working Group of the Small Pelagics Advisory Committee met on November 16, 2004 to review scientific input for the 2004 regional assessment of four stocks of Atlantic herring (*Clupea harengus*) off the northeastern and southeastern coasts of Newfoundland. An overview of all information available for the assessment was presented. Sandy Feltham, a St. Mary's Bay – Placentia Bay seine fisher, felt that the information was flawed because his personal experience did not agree with the gill net observations. He felt that conditions were more optimistic than those presented at the meeting.

The following document summarizes the 2004 regional assessment of herring stocks off the east and southeast coasts of Newfoundland.

A meeting of the Newfoundland and Labrador Regional Advisory Process (RAP) on East and Southeast Newfoundland Atlantic Herring was held 22-23 November 2004 in the EPS Boardroom, Northwest Atlantic Fisheries Centre, St. John's, Newfoundland. Full assessments of the White Bay - Notre Dame Bay, Bonavista Bay - Trinity Bay, St. Mary's Bay - Placentia Bay and Fortune Bay Atlantic herring (*Clupea harengus*) stocks were conducted. Participants at the meeting included fisheries scientists and fisheries managers from DFO Newfoundland and Labrador Region, and DFO National Capital Region, with representation from the Provincial Government and industry.

Newfoundland herring stocks are assessed bi-annually to provide input for the 2 year herring management plan. The last assessment occurred during October 2002.

Summaries of working papers and ensuing discussions are provided. Progress on recommendations from the 2002 RAP, as well as recommendations from the current RAP, are outlined. Also included are a list of participants (Appendix I), a list of working papers (Appendix II) and the remit (Appendix III). Additional information on the resources assessed is available in the Stock Status Report (SSR) and research document (Wheeler *et al.,* 2005). Summary points for this assessment are as follows:

- As in the 2002 assessment, performance reports, including evaluation of abundance indices and biological characteristics, were used to assess the current status and prospects of each stock.

- Retrospective performance reports were also prepared for the 1998 and 2000 assessments. All performance reports were standardized to allow for inter-annual comparisons.

- The precautionary approach was implemented by quantifying levels of concern in relation to mean research gill net catch rates.

- Based on performance reports, abundance has increased in the two northern areas, White Bay - Notre Dame Bay and Bonavista Bay - Trinity Bay, since 2002 but is still low. Whereas abundance has decreased in St. Mary's Bay - Placentia Bay and Fortune Bay since 2002.

- Most year classes produced during the 1990's were generally weak, contributing to the low abundance. The 1999 year class is the most recent year class to be recruited to the fishery and therefore is the most recent year class that may be quantified. It is above average in all areas.

- This assessment includes analyses to the spring of 2004, where data are available.

WORKING PAPER SUMMARIES AND RELATED DISCUSSIONS

Working Paper 1: Description of the East and Southeast Newfoundland 2002 and 2003 Commercial Herring Fisheries and Commercial Catches at Age - J. P. Wheeler, B. Squires and P. Williams.

Abstract:

Overall, herring landings in the commercial fishery increased from 3000 t in 2001 to 4800 t in 2002; 4800 t was approximately 51% of the TAC. Landings increased in 2003 to 5800 t; approximately 63% of the TAC.

From 2002 to 2003, landings decreased in White Bay - Notre Dame Bay and St. Mary's Bay - Placentia Bay but increased in Bonavista Bay - Trinity Bay and Fortune Bay. However, commercial landing statistics since the mid 1990's are biased downwards as they do not include landings used for bait purposes.

In 2002, 950 herring from the commercial fishery were sampled and aged to calculate numbers at age within the landings. The sample size decreased in 2003 to 850 herring even though the landings increased to 5800 t.

Samples taken in the 2003 White Bay - Notre Dame Bay fishery indicated that the 1999 and 1998 year classes each accounted for 49% and 30% of the commercial landings. It is important to note that the age distribution of the landings was truncated and landings consisted of fish younger than nine years of age. Since the mid 1990's the percentage of spring spawners has been decreasing and now accounts for 58% of landings.

The 1999 year class accounted for 46% of the commercial landings in Trinity Bay – Bonavista Bay. The 1998 and 2000 year classes each accounted for 16% to 17% of these landings. There were very few fish older than eight years of age in the landings; with fish aged 11+ accounting for 5% of the landings. Spring spawners accounted for 66% of the landings, up slightly from the previous two years but down since the mid 1990's.

The 1996 year class accounted for 40% of the commercial landings in St. Mary's Bay – Placentia Bay during 2003. The age distribution of landings was extensive, as the 1999, 1998 and 1995 year classes and fish aged 11+ each accounted for 10% to 11% of the landings. Spring spawners accounted for 54% of landings, a continuance of a declining trend since 2000.

In Fortune Bay, the 1996 year class accounted for 51% of the commercial landings. The age distribution of the landings was truncated; however, fish aged 11+ still accounted for 25% of landings. Spring spawners accounted for 82% of landings, down slightly from recent years.

Discussion: (Rapporteur - D. Orr)

- Since 1996, landings have been limited by markets and abundance.
- These stocks are at the northern limit of the resource.
- There have been very few strong year classes since 1996.
- Landings in Fortune Bay are for only one area (i.e. spring fishery by bar seines and traps in Long Harbour), rather than throughout the entire bay.
- In White Bay - Notre Dame Bay, there is speculation that herring have changed from spring spawning to autumn spawning due to environment and changes in growth and maturity.
- TAC not taken in each area because of markets and the way that the quota is divided between different gears.
- In northern areas, the 1999 year class dominated. On the south coast, the 1996 year class dominated.

Working Paper 2: Results of the East and Southeast Newfoundland Herring Research Gill Net Program for 2002-2004 - J. P. Wheeler and P. Williams.

Abstract:

The research gill net program provides an age disaggregated abundance index that is independent of the commercial fishery for four East and Southeast Newfoundland herring stock areas. This index extends over 17 years in White Bay - Notre Dame Bay and Bonavista Bay - Trinity Bay, and 22 years in St. Mary's Bay -Placentia Bay and Fortune Bay.

In 2004, 27 commercial fishers provided catch rate data and biological samples under the program. This represented a decrease of two fishers since 2003. Age distributions from research gill net catches (numbers) are available up to and including 2003.

In White Bay - Notre Dame Bay in 2003, the 1999 year class accounted for 61% of the catch. The age distribution was extensive as five year classes each accounted for greater than 5% of the catch. However, there were very few fish older than eight years of age and minimal evidence of recruitment of year classes since 1999. In terms of abundance, spring spawners accounted for 82% of the catch. While this represents an improvement over the past few years there has still been a decrease since the mid 1990's.

In Bonavista Bay - Trinity Bay in 2003, the 1999 and 1998 year classes each accounted for 67% and 24% of the catch. The age distribution was extensive as six year classes each accounted for greater than 5% of the catch. Fish aged 11+ accounted for 10% of the catch. There was minimal evidence of recruited year classes since 1999. Over the past few years, the number of spring spawners has decreased, accounting for 67% of the 2003 catch.

The 1999 year class accounted for 62% of the St. Mary's Bay and Placenta Bay catches in 2003. The age distribution was extensive as five year classes each accounted for greater than 5% of the catch with fish aged 11+ accounting for 7% of the catch. Once again, there was minimal evidence of recruitment of year classes since 1999. The number of spring spawners increased over the past few years, now accounting for 77% of the catch.

During 2003, the 1996 year class accounted for 49% of the catch in Fortune Bay. This was the only stock complex in which the 1999 year class was not dominant. The age distribution was truncated as only three year classes each accounted for greater than 5% of the catch. Fish older that 11 years of age accounted for 36% of the catch. There was minimal evidence of recruitment of year classes since 1999. Spring spawners accounted for 86% of the catch, similar to recent years.

The stock in White Bay - Notre Dame Bay appears stable at a low level with catch

rates increasing over the period 2002 to 2004, and recruitment of the 1999 year class. However, the 2004 catch rate is only 27% of the long-term mean (1988 to 2004).

Bonavista Bay - Trinity Bay, catch rates have increased since 2002 with the recruitment of the 1999 year class. The 2004 catch rate was 107% of the long-term mean.

In St. Mary's Bay - Placentia Bay, the catch rates have decreased since 2002; because, even though the 1999 year class has recruited to the catch, the peak catch rate of the 1996 year class has passed. The 2004 catch rate is below average; 68% of the long-term mean.

The Fortune Bay catch rate has decreased since 2002, because the peak catch rate of the 1996 year class has passed and the 1999 year class has not recruited. The 2004 catch rate is only 43% of the long-term mean.

Discussion: (Rapporteur - D. Orr)

- This is detailed and standardized data. It is the single most important source of data because of its quality and the length of the time series.

- In 2004, there were eight research gill net locations in White Bay - Notre Dame Bay, nine in Bonavista Bay - Trinity Bay, six in St. Mary's Bay - Placentia Bay and four in Fortune Bay. As such, the fishery is spread out over the entire stock area.

- In White Bay - Notre Dame Bay in 2003, there were very few fish older than 8 years of age and minimal evidence of recruitment.

- The age structure appears truncated in Fortune Bay, with little contribution of the 1999 year class in contrast to other areas.

- Is there a change in maturity schedule between young and old fish? This change may be an artifact due to the different methodologies used in identifying maturity. Gonads are used in identifying maturities of younger fish, while otoliths are used in older fish. The difference in assignment methodology could result in the changes in percentage of spring spawners or autumn spawners.

- The research gill net project is usually conducted in May during spring spawning. In general, the winter fish are both spring and autumn spawners; hence there could be a separation of animals.

Working Paper 3: Results from the East and Southeast Newfoundland Herring Commercial Fixed Gear Logbooks for 2002-2004 – J. P. Wheeler and B. Squires.

Abstract:

The commercial gill net logbook program provides catch rates and detailed information on the number of fishers, total nets fished, mean mesh size and panel areas of nets fished, by stock area over the period 1996 to 2004. It also quantifies fisher perceptions of herring abundance and the incidence of herring spawning. Logbooks are sent by mail, at the beginning of each year, to all fixed gear herring fishers who possess either commercial licenses or bait permits. Fishers are asked to voluntarily complete and return the logbooks.

The number of fishers who completed and returned logbooks decreased from 2002 to 2004 in all areas. Overall, the total number of completed logbooks decreased from 29 in 2002 to 16 in 2004. Similarly, the level of effort, as measured by the number of nights fished, decreased over this time period, in all stock areas. During 2004, six fishers fished 206 nights in White Bay – Notre Dame Bay, three fishers fished 140 nights in Bonavista Bay - Trinity Bay, two fishers fished 180 nights in St. Mary's Bay – Placentia Bay, while five fishers fished 331 nights in Fortune Bay. The level of effort from the commercial gill net data is highly variable in relation to the effort from the research gill net program. The amount of effort expended in the 2004 research gill net program was as follows: in White Bay - Notre Dame Bay eight fishers fished 256 nights; in Bonavista Bay - Trinity Bay nine fishers fished 300 nights; in St. Mary's Bay - Placentia Bay six fishers fished 202 nights; in Fortune Bay four fishers fished 138 nights.

In 2004, the White Bay - Notre Dame Bay fishery occurred from late April until late June and logbooks were returned mostly from eastern Notre Dame Bay; no logbooks were returned from White Bay. In Bonavista Bay-Trinity Bay, the fishery occurred from mid April to late June and logbooks were from throughout Bonavista Bay and Trinity Bay. In St. Mary's Bay-Placentia Bay, the fishery occurred from early April through to mid June, and all of the logbooks (two) were returned from Placentia Bay. While in Fortune Bay, the fishery occurred from late March until mid June and logbooks were returned from throughout the stock area.

In White Bay - Notre Dame Bay, catch rates increased since 2002 and are currently stable at 109% of the long-term mean (1996 – 2004). This agreed with fisher perceptions that abundance had increased since 2002. However, logbooks indicated that fishers felt abundance is still below average and stable or decreasing marginally.

In Bonavista Bay - Trinity Bay, catch rates increased from 2002 to 2003 but then decreased during 2004. The 2004 catch rate is 35% of the long-term mean. Fishers also perceived abundance to have increased from 2002 to 2003 followed by a decrease until 2004. Abundance in 2004 is perceived to be below average and decreasing.

In St. Mary's Bay - Placentia Bay, catch rates decreased from 2002 to 2004. The 2004 catch rate is 26% of the long-term mean. Fishers also perceived abundance to have decreased since 2002. Abundance in 2004 is perceived to be below average and decreasing marginally.

In Fortune Bay, catch rates have decreased since 2002. The 2004 catch rate is 55% of the long-term mean. This is in agreement with fisher perception that abundance has decreased over the period 2002 to 2004. Abundance in 2004 is perceived to be below average and decreasing. Standardized catch rates in Fortune Bay are no longer the highest in any of the stock areas.

In Fortune Bay and St. Mary's Bay - Placentia Bay (to a lesser extent), total logbook catches are consistently greater than total annual commercial gill net catches, indicating a problem with commercial catch data in these areas.

Discussion: (Rapporteur - D. Orr)

- Abundance index from CPUE and perceptions of fishers. There are nine years of data.

- Bait allocations are not recorded, as logbooks only record commercial catch data.

- There is a bias in the Fortune Bay data as fewer fishermen are fishing for herring. Bait fishers buy herring now, as it is easier.

- Concern was expressed that there were a low number of logbooks and it was recommended that phone interviews be considered. It was also noted that there would have to be a high number of phone interviews in order to avoid biases.

- Note that the long term time series always ended in the assessment year, and therefore the long term mean was always changing. It was suggested that the long term time series extend over a fixed period (1996-2004).

Working Paper 4: Results of the East and Southeast Newfoundland Herring Purse Seine Questionnaires for 2002 to 2004 – J. P. Wheeler and P. Williams.

Abstract:

Since 1996, results from an annual telephone survey have been used to quantify the observations of herring purse seine fishers regarding herring abundance, the fishery and biological events. Fishers are asked to respond to the survey on a voluntary basis. The number of fishers participating in the telephone survey increased in White Bay - Notre Dame Bay from three in 2002, to four in 2003. The number decreased from four in 2002 to two in 2003 in Bonavista Bay - Trinity Bay. Similarly there was a decrease from eight in 2002 to four in 2003 in St. Mary's Bay – Placentia Bay but then the number increased to 10 in 2004 in this stock area. Overall, the numbers of fishers participating in the purse seine fishery has decreased from 49 in 1996 to 15 in 2003 (10 of whom participated in the telephone survey).

The level of effort, as defined by the number of sets per fisher, decreased in White Bay - Notre Dame Bay from four in 2002 to two in 2003. It increased in Bonavista Bay - Trinity Bay from four in 2002 to 17 in 2003, and in St. Mary's Bay - Placentia Bay from seven in 2002, to eight in 2003 and to nine in 2004.

In White Bay - Notre Dame Bay, fishers felt that abundance had increased from 2002 to 2003. Abundance in 2003 was perceived to be high and increasing. Similarly, fishers indicated that abundance in 2003 was higher than when they first started fishing herring.

Bonavista Bay - Trinity Bay fishers felt that abundance has decreased over the period 2002 to 2003. Abundance in 2003 was perceived to be above average and decreasing. Fishers indicated that abundance in 2003 was higher than when they first started fishing herring.

In St. Mary's Bay - Placentia Bay, fishers felt that abundance had decreased between 2002 and 2003 but then increased in 2004. Current abundance is thought to be high and increasing. Similarly, fishers indicated that current abundance is higher than when they first started fishing herring.

In all cases, commercial gill net fisher perceptions of recent increases or decreases were in agreement with the perceptions of seine fishers. However, commercial gill net fishers all felt that current abundance was below the average and either stable or decreasing marginally. This is in contrast to the seine fishers who all felt that current abundance was higher than when they started fishing.

The 2003 White Bay - Notre Dame Bay fishery took place during November and December but was restricted to the Fogo Island area due to the low quotas. Total landings were 201 t. The level of discarding was 193 t, of which 40% was estimated to have survived. This resulted in a high ratio (1.60) of removals to landings. The

discard level was considered to be higher than in the previous year, and was generally due to gear damage and “quota restrictions”.

In Bonavista Bay - Trinity Bay, the 2003 fishery occurred from October to December and was restricted to the northern part of Bonavista Bay. Total landings were 378 t. The level of discarding was 25 t, of which 20% was estimated to have survived. This resulted in a low ratio (1.10) of removals to landings. The discard level was considered to be the same as the previous year, and was due to ‘quota restrictions’.

In St. Mary’s Bay - Placentia Bay, the 2004 fishery occurred during March and was restricted to the eastern sides of Placentia Bay and St. Mary’s Bay. Total landings were 1272 t. The level of discarding was 2 t, of which 100% was estimated to have survived. The discard level was considered to be lower than the previous year, but no reasons were given for discarding.

In many areas and years, total landings according to questionnaires are equal to or less than those recorded in the commercial landings data. However, in several instances (Bonavista Bay - Trinity Bay 1996, 1997, 1999, and 2003, St. Mary’s Bay - Placentia Bay 1996, 1997, 2002, and 2004), landings reported from questionnaires were substantially higher than those recorded in commercial landings data. The discrepancy between questionnaires and commercial catch data plus information on discard rates and survival of discards indicates that total removals, as recorded in the commercial landings data, are probably underestimated.

Discussion: (Rapporteur - D. Orr)

- In White Bay-Notre Dame Bay, quotas were so small that few fishers are looking for herring. As a result, fishing was concentrated around Fogo Island.

- Seine fishers felt that current abundance is well above average.

- Fishers expressed concern that a large number of fish are being destroyed because fishers were forced to discard fish rather than exceed trip quotas.

- Trip limits were removed from the management plan during 2004.

Working Paper 5: Examination of Biological and Ecological Data for East and Southeast Newfoundland Herring – J. P. Wheeler.

Abstract:

In White Bay - Notre Dame Bay, mean weight (ages 4 – 10 spring spawning herring) has exhibited an increasing trend since 1998. However, the 2003 mean weight was only 89% of the long-term mean (1983 – 2003). In Bonavista Bay - Trinity Bay, mean weight (ages 4 – 10 spring spawning herring) has exhibited an increasing trend since 1996; however, the 2003 mean weight was still only 96% of the long-term mean. In St. Mary's Bay - Placentia Bay, mean weight (ages 4 – 10 spring spawning herring) has exhibited a decreasing trend since 1983. The 2003 mean weight was 89% of the long-term mean. In Fortune Bay, mean weight (ages 4 – 10 spring spawning herring) has exhibited a decreasing trend since 1983. The 2003 mean weight was 88% of the long-term mean.

Relative year class strength was estimated from 2003 research gill net catch rates at age, by averaging catch rates at ages 4, 5, and 6. For the most recent year class (1999), only the catch rate at age 4 was available. For the 1998 year class, catch rates at ages 4 and 5 were averaged. In White Bay - Notre Dame Bay, the 1999 year class was estimated to be above the long-term mean since 1982. Four of six current mature year classes (1993 to 1998) are estimated to be below average. In Bonavista Bay - Trinity Bay, the 1999 year class was estimated to be above the long-term mean. Four of six current mature year classes (1993 to 1998) are estimated to be below average. In St. Mary's Bay - Placentia Bay, the 1999 year class was estimated to be well above the long-term mean (1976 to 1999 year classes). Four of six current mature year classes (1993 to 1998) are estimated to be below average. In Fortune Bay, the 1999 year class was estimated to be above the long-term mean (1976 to 1999 year classes). Four of six current mature year classes (1993 to 1998) are estimated to be below average.

The mean annual water temperature (Station 27 at 20 m) has been increasing since 1992. The 2003 mean was 122% of the long-term mean (1983 – 2003). The mean annual salinity (Station 27 at 20 m) has exhibited an increasing trend since 2001. The 2003 mean was 101% of the long-term mean (1983 – 2003).

Information on length and age at maturity was not updated for this assessment. In 2002, it was determined that for spring spawners in all stock areas, the length at which 50% maturity occurs was smaller in 1999 – 2001 than in 1982 – 1984. The age at which 50% maturity occurs, was the same or larger in 1999 – 2001 than in 1982 – 1984.

Garry Stenson (pers. comm.) indicated that there had been no update on the proportion of herring in the harp seal diets since 2002. Additional seal diet samples are currently being analyzed. An updated harp population estimate will also be available by the summer of 2005. The seal model will then provide greater

geographic separation in distribution and diet and will include additional sources of uncertainty. This information should be available for the 2006 herring assessment.

Working Paper 6: Performance Reports by Stock Area for East and Southeast Newfoundland Herring to 2004 – J. P. Wheeler and P. Shelton.

Abstract:

Similar to the 2002 assessment, detailed performance reports have been tabulated for each stock area up to 2004. A standardization procedure was developed to allow inter-annual comparisons of performance reports, by stock area. In general, annual performance reports are standardized by either ranking current year abundance indices against their long-term mean or by using the current year rank (in the case of gill net and purse seine fisher observations). Each of the ranked indices are summed and standardized to a value of 1.00. Standardized performance reports have been tabulated for 1998, 2000, 2002, and 2004, by stock area.

The "Precautionary Approach" has been applied to determine a "Level of Concern" for each stock. The level of concern is assessed by examining the current year research gill net catch rates in relation to the long-term mean research gill net catch rates (Appendix IV).

For White Bay - Notre Dame Bay, current abundance has increased from 2002 to 2004 and is marginally better than 1998. Abundance is still considered to be low. Prospects are similar to 2002; although the most recent year class (1999) is above average, most mature year classes are below average and are considered to be weak.

For Bonavista Bay - Trinity Bay, current abundance has increased marginally from 2002 to 2004 but is similar to 1998. Abundance is still considered to be low. Prospects have improved since 2002; although most mature year classes are below average and are considered to be weak, the most recent recruited year class (1999) is well above average.

For St. Mary's Bay - Placentia Bay, current abundance has decreased from 2002 to 2004 and is marginally better than 1998. Abundance is considered to be low. Prospects have improved since 2002; although most mature year classes are below average and are considered to be weak, the most recent recruited year class (1999) is well above average.

For Fortune Bay, current abundance has decreased from 2002 to 2004 and is substantially lower than 1998. Prospects have improved since 2002; although most mature year classes are below average and are considered to be weak, the most recent year class (1999) is above average.

Discussion: (Rapporteur – D. R. Osborne)

- The traffic light system is a subjective process.

- Concern was expressed that while the level of risk for stocks are considered low, the populations are still at low levels compared to historic population levels. It was noted that this is an assessment. Fish Management will have to consider other factors when setting quotas.

- Concern was expressed over the idea that even small increases in abundance results in a+ rating. It was noted that the ratings are based solely on performance compared to 2002.

- There is a need to be consistent throughout the document in terms of reference year (i.e. 2002 or 2003?). It is agreed that 2002 should be used as the reference point. This is particularly suitable when you consider that some data are only available up to 2003.

- In the opinion of the fishers present, the assessment of Fortune Bay does not agree with their own personal experiences fishing in the area.

- It was noted that no matter which methodology is used (i.e., research gillnets, seine observations, etc.), it is just a snap-shot in time. Seiner's perceptions are always much more optimistic than gillnet research results, but usually follow the same trends (but not this time).

- It was noted that age class distributions are different between fixed gear and seine data.

- It would be difficult/ impossible to reconcile the differences between purse seine and gillnet fishers.

- Seine fishers were concerned about the accuracy of the gillnet data. They wondered whether some gillnet fishers could be providing false data in order to put others (seiners, non-lobster fishers) out of business?

- Purse seiners around Fogo were reporting a lot of herring in the area.

- Acoustic surveys on the south coast had been showing a decrease in stocks up to 2001. With such large landings and low recruitment, how can a stock "not" decrease?

PROGRESS ON RECOMMENDATIONS FROM 2002 RAP MEETING

Recommendation 1: Performance reports provide a good method to qualitatively evaluate stock indicators, such as abundance indices, biological characteristic and ecological considerations. However, in this assessment, current stock status and future prospects were derived from a subjective review of the above indicators. Methodologies must be developed to objectively define status for these stocks. A meaningful weighting for all parameters should be developed because not all indices are equally important in maintaining a sustainable fishery.

- **Progress:** In the current assessment, a weighting factor was applied to each of the performance measurements used to determine current stock status and future prospects (see Table 1). The weighting factors were determined by evaluating the ability of each performance measure to indicate the status of the stock and also by evaluating the measurement error associated with the respective performance measures.

Recommendation 2: The methodologies need to be formalized.

- **Progress:** In the current assessment, each of the performance measures was defined and ranked. For example, in White Bay - Notre Dame Bay, the 2004 research gill net catch rates were 27% of the long-term mean (Table 2). Based upon the ranking procedure defined in Table 1, the 2004 research gill net catch rates were assigned a rank = 2. This rank was then weighted, as noted above for Recommendation 1, to give a weighted rank = 4. Similarly, all other performance measures of current status were assigned weighted ranks. These weighted ranks were then summed and expressed as a fraction of the total possible weighted ranks to provide a 2004 index of current status (0.60) for White Bay - Notre Dame Bay. The same procedure was followed to calculate an index of future prospects.

Recommendation 3: Performance reports were presented as a new assessment tool for herring stocks off the eastern and southeastern coasts of Newfoundland; therefore, a set of retrospective performance reports should be produced for the recent few years. The outcomes from the retrospective analyses are to be compared with previous assessment output to determine whether the overall message presented to resource management is dependent upon the tool used. Present performance reports may not provide risk analysis; however, do they provide a different overall impression of stock performance than ICA?

- **Progress:** Standardized and weighted performance report indices were calculated for 1998, 2000, 2002 and 2004 (see Table 2). These were compared with previous assessment outputs (ICA); however, this was not discussed in detail during the current RAP.

Recommendation 4: A suggestion was also made to contact fish harvesters in the Fortune Bay area (eg. B. Fidley) to obtain one or two representative samples.

- **Progress:** There was increased biological sampling of the Fortune Bay bar seine fishery in 2003 and 2004.

Table 1: Performance report standardization parameters, ranks, and weighting factors.

Data Source	Calculation of Ranks	Minimum Rank	Maximum Rank	Weighting Factor	Indicator of:
Research Gill Net Catch Rates (year = n)	<= 20% of mean = 1 21 - 40% of mean = 2 41- 60% of mean = 3 61 - 80% of mean = 4 81 - 100% of mean = 5 101 - 120% of mean = 6 121 - 140% of mean = 7 141 - 160% of mean = 8 161 - 180% of mean = 9 > 180% of mean = 10	1	10	2.0	Current Status
Commercial Gill Net Catch Rates (year = n)	<= 20% of mean = 1 21 - 40% of mean = 2 41- 60% of mean = 3 61 - 80% of mean = 4 81 - 100% of mean = 5 101 - 120% of mean = 6 121 - 140% of mean = 7 141 - 160% of mean = 8 161 - 180% of mean = 9 > 180% of mean = 10	1	10	0.5	Current Status
Gill Net Fisher Observations (year = n)	very poor = 1 average = 5 very good = 10	1	10	0.5	Current Status
Purse Seine Fisher Observations (year = n – 1)* * except SMBPB where year = n	very poor = 1 average = 5 very good = 10	1	10	2.0	Current Status
Research Gill Net Age Compositions (year = n - 1) (number of age 3+ groups >= 5% of catch)	very poor if n = 1 average if n = 5 very good if n = 9	1	9	0.5	Current Status
Current Year Classes (n - 10 to n - 6) (number of mature year classes greater than mean strength)	very poor if n = 1 average if n = 3 to 4 very good if n = 6	1	6	1.0	Prospects
Recruitment (year class = n – 5)	<= 20% of mean = 1 21 - 40% of mean = 2 41- 60% of mean = 3 61 - 80% of mean = 4 81 - 100% of mean = 5 101 - 120% of mean = 6 121 - 140% of mean = 7 141 - 160% of mean = 8 161 - 180% of mean = 9 > 180% of mean = 10	1	10	1.0	Prospects

Table 2: Performance report indices of current status and prospects (standardized and weighted), by stock area, 1998 – 2004.

	White Bay - Notre Dame Bay				Bonavista Bay –Trinity Bay				St. Mary's Bay – Placentia Bay				Fortune Bay			
	2004	2002	2000	1998	2004	2002	2000	1998	2004	2002	2000	1998	2004	2002	2000	1998
Research Gill Net Catch Rates	0.27	0.08	0.11	0.48	1.07	0.19	0.31	0.58	0.68	2.83	1.08	0.71	0.43	0.84	1.25	2.19
Comm. Gill Net Catch Rates	1.07	0.10	0.87	0.50	0.36	0.35	1.16	0.43	0.28	1.91	0.53	0.84	0.55	1.04	1.65	1.25
Gill Net Fisher Observations	3.78	2.30	2.69	3.00	2.75	2.50	4.27	5.00	3.50	5.00	4.00	2.57	4.33	6.71	8.45	7.40
Purse Seine Fisher Obser.	9.00		8.50	6.92	6.00	7.75	5.79	6.93	8.38	9.13	5.00	2.60	-	-	-	-
Research Gill Net Age Comp.	5	4	5	5	6	8	6	4	5	6	8	4	3	7	5	5
Current Year Classes	2	3	3	4	2	2	2	4	2	5	4	4	2	4	4	6
Recruitment	1.31	1.14	1.22	0.13	1.89	0.61	1.36	-2.50	2.50	0.95	1.76	-0.77	1.19	0.05	1.45	-2.31
Current Status:	0.60	0.20	0.39	0.43	0.60	0.41	0.43	0.43	0.61	0.87	0.58	0.38	0.29	0.60	0.69	0.83
Prospects:	0.56	0.56	0.63	0.31	0.75	0.38	0.56	0.31	0.75	0.63	0.81	0.31	0.50	0.31	0.75	0.75

RESEARCH RECOMMENDATIONS FROM 2004 RAP MEETING

Recommendation 1: Concern was expressed regarding the number of commercial fixed gear logbooks for 2002-2004. Such low numbers could lead to biased results. It is recommended that phone interviews be used. This would require a large sample size to avoid bias.

Recommendation 2: Fishers from St. May's Bay – Placentia Bay recommended an acoustic survey and offered the use of a commercial seine fishing boat, as they felt gill nets did not provide consistent answers. This would only be possible if sufficient funds were allocated within DFO to pay DFO staff to participate in these surveys.

During the meeting it was made clear that there would probably be no DFO funds to charter a vessel. The vessel would have to be supplied by industry and that the same vessel would have to be made available at the same time each year throughout the survey time series. A meaningful survey would require a minimum time series of 5-6 years using the same boat.

Recommendation 3: Research should be conducted to determine whether the relationship between temperature, salinity and herring recruitment (Winters and Wheeler, 1985) persists.

Recommendation 4: Predator/ prey information should be updated.

Recommendation 5: Numerous fishers reported problems with mixing of large commercial sized herring and small non-commercial sized herring in the purse seine sets. The current regulations allow for a maximum of 10% (by number) of non-commercial sized herring. There was a consensus that this regulation needs to be examined in detail.

APPENDIX I: LIST OF PARTICIPANTS

Name	Affiliation/Address
Jim Carscadden	DFO-Science, St. John's
Jean-Maurice Coutu	DFO, National Capital Region
Brian Johnson	DFA, St. John's
Bruce Mayne	DFO-FAM, St. John's
Fran Mowbray	DFO-Science, St. John's
Brian Nakashima	DFO-Science, St. John's
David Orr	DFO-Science, St. John's
Derek Osborne	DFO-Science, St. John's
Melvin Pierce	Fisher, Harbour Breton
Ralph Ryan	Fisher, Southern Harbour
John Wheeler	DFO-Science, St. John's
Paul Williams	DFO-Science, St. John's

APPENDIX II: LIST OF WORKING PAPERS

C.S.A.S. WP 2004/H1: Description of the East and Southeast Newfoundland 2002 and 2003 Commercial Herring Fisheries and Commercial Catches at Age - J. P. Wheeler, B. Squires and P. Williams.

C.S.A.S. WP 2004/H2: Results of the East and Southeast Newfoundland Herring Research Gill Net Program for 2002-2004 - J. P. Wheeler and P. Williams.

C.S.A.S. WP 2004/H3: Results from the East and Southeast Newfoundland Herring Commercial Fixed Gear Logbooks for 2002-2004 – J. P. Wheeler and B. Squires.

C.S.A.S. WP 2004/H4: Results of the East and Southeast Newfoundland Herring Purse Seine Questionnaires for 2002 to 2004 – J. P. Wheeler and P. Williams.

C.S.A.S. WP 2004/H5: Examination of Biological and Ecological Data for East and Southeast Newfoundland Herring – J. P. Wheeler.

C.S.A.S. WP 2004/H6: Performance Reports by Stock Area for East and Southeast Newfoundland Herring to 2004 – J. P. Wheeler and P. Shelton.

APPENDIX III: REMIT

Herring Meeting, DFO, Newfoundland and Labrador Region
E.P.S. Boardroom, Northwest Atlantic Fisheries Centre
St. John's, Newfoundland and Labrador
November 22-23, 2004

Meeting Chairperson:
TBA

Meeting Content:
An update of any new information available concerning the status of East and Southeast Newfoundland Herring as follows:

- White Bay – Notre Dame Bay
- Bonavista Bay – Trinity Bay
- St. Mary's Bay – Placentia Bay
- Fortune Bay

The meeting will focus on the general state of herring stocks in Newfoundland and Labrador and identify any conservation issues requiring adjustments to the management plan.

The following topics will be discussed:

- Description of the 2002 and 2003 Commercial Fisheries
- Results of the Herring Research Gill Net Program for 2002 – 2004.
- Results from Herring Commercial Fixed Gear Logbooks for 2002 – 2004.
- Results of the Herring Purse Seine Questionnaires for 2002 – 2004.
- Examination of Biological and Ecological Data for 2002 -2004.

A stock status update, proceedings report, and an associated research document will be produced as a result of this meeting.

Distribution List:

Internal
A/Regional Director General
Regional Directors
Area Directors
All Staff-Science
John Wheeler
J. Walsh
Len Knight
Bruce Mayne

External
Mr. Robert McCarthy, Co-Chair
Mr. Wilson Fudge
Mr. George Feltham
Mr. Sandy Feltham
Mr. Gary Hoskins
Mr. Derrick Philpott
Mr. Gary Hearn
Mr. Tom Best
Mr. Tom Dooley
Mr. Frank Dicks
Mr. Ralph Ryan
Mr. Melvin Pierce

APPENDIX IV: LEVEL OF CONCERN

Application of the Precautionary Approach to performance reports based upon current year research gill net catch rates in relation to mean research gill net catch rates.

	Level of Concern	**Measure of Concern**
Area of Concern	Very High Risk	<= 2.5% of mean
	High Risk	2.6% to 5.0% of mean
	Medium Risk	5.1% to 7.5% of mean
	Low Risk	7.6% to 10.0% of mean
Limit Reference Point		
Area of No Concern	Very Low Risk	10.1% to 30.0% of mean
	No Risk	> 30.0% of mean