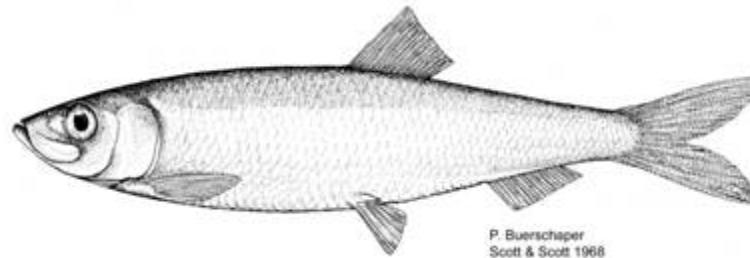




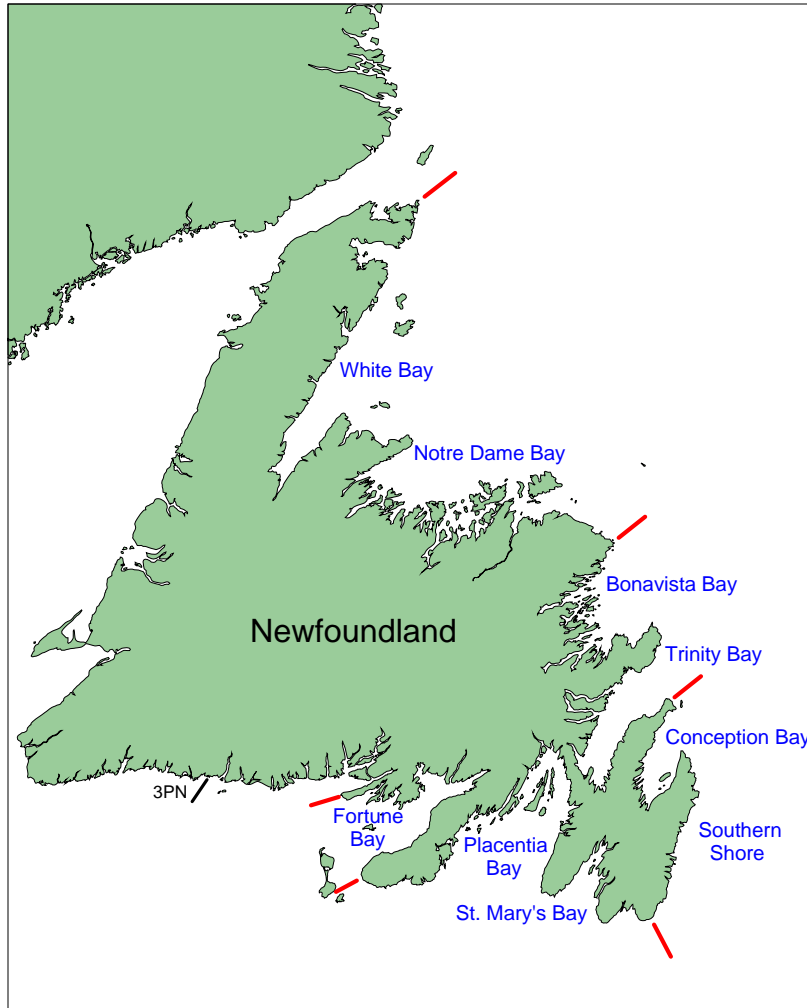
# NL Region East and Southeast Coast Herring

FRCC Briefing - January 2008



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Section Head, Pelagic Fish  
Science Branch

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Resource Manager, Pelagics  
Fisheries Management Branch



## East and Southeast Newfoundland

Five stock complexes:

1. White Bay – Notre Dame Bay
2. Bonavista Bay – Trinity Bay
3. Conception Bay – Southern Shore
4. St. Mary's Bay – Placentia Bay
5. Fortune Bay

Plus:

Southern Labrador  
Southwest Coast



Wheeler, J. P. and G. H Winters. 1984. Migrations and stock relationships of east and southeast Newfoundland herring (*Clupea harengus*) as shown by tagging studies. J. Northw. Atl. Fish. Sci. 5: 121-129.

- Between 1974 and 1981, 117000 herring were tagged at 23 localities.
- Coastal populations intermingle in varying degrees at different times of the year.
- Stocks are best defined during spawning in the spring when each bay contains its own discrete spawning groups which show consistent homing behavior.
- After spawning, herring tend to move northward out of the bays resulting in population intermixture.
- Fisheries on mixed populations should be managed in the context of stock complexes.
- For spring fisheries, consideration should be given to individual spawning populations to avoid depletion of localized components.
- Populations in eastern Newfoundland appear to be quite distinct from those of the west coast.
- Migration patterns exhibited during periods of high abundance may not occur when stock sizes are smaller.



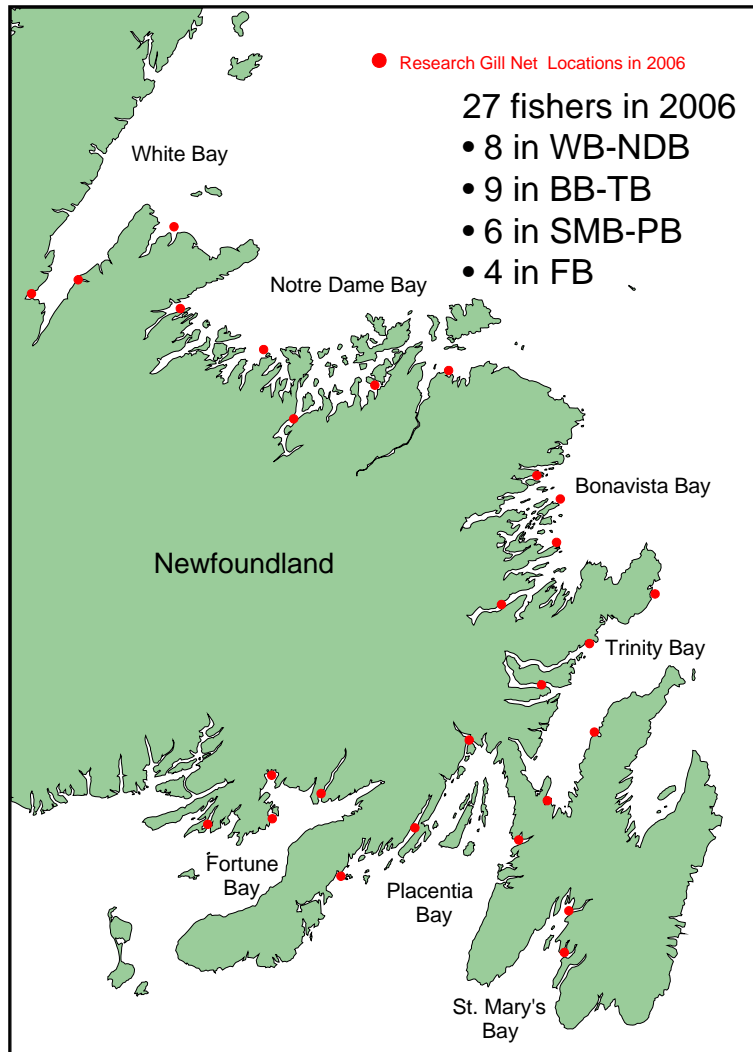
## Science Assessment Process

- Bi-annual regional assessments
- Most recent assessment: November 2006
- Performance Reports – current stock status and short term prospects
  
- DFO, 2006. Assessment of Newfoundland east and south coast herring stocks to 2006. DFO Can. Sci. Advis. Sec. Advis. Rep. 2006/042.
- Wheeler, J. P., B. Squires, and P. Williams. An assessment of Newfoundland east and south coast herring stocks to the spring of 2006. Can. Sci. Advis. Sec. Res. Doc. 2006/101.



## Assessment Data Sources

1. Research gill net program (1982 – 2006)
2. Commercial gill net logbook program (1996 – 2006)
3. Commercial purse seine questionnaire (1996 – 2006)
4. Commercial gill net telephone survey (2006)
  - Acoustic surveys (1983 – 2001)
  - Commercial Fishery Data
  - Biological and Ecological Data



## 1) Research Gill Net Program

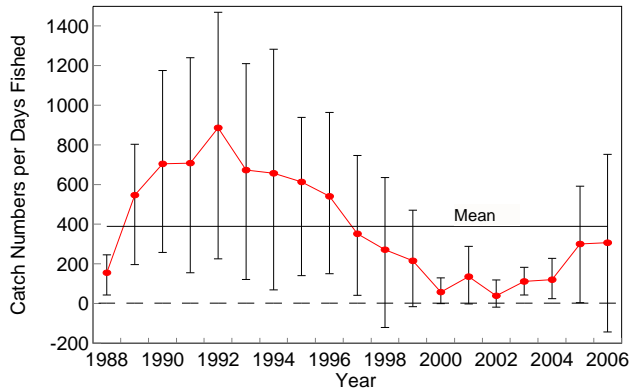
- Commercial gill net fishers under contract to DFO
  - Five standardized gill nets
  - Fished from a fixed location
  - Fished for one month each spring
  - Daily record of catches by net
  - Samples collected throughout the month
  - Multiple locations in each stock area
- 
- Age disaggregated abundance index independent of fishery
  - CPUE = catch numbers per nights fished
- 
- Since 1982 for SMB-PB and FB
  - Since 1988 for WB-NDB and BB-TB



# Research Gill Net Catch Rates – by Stock Area

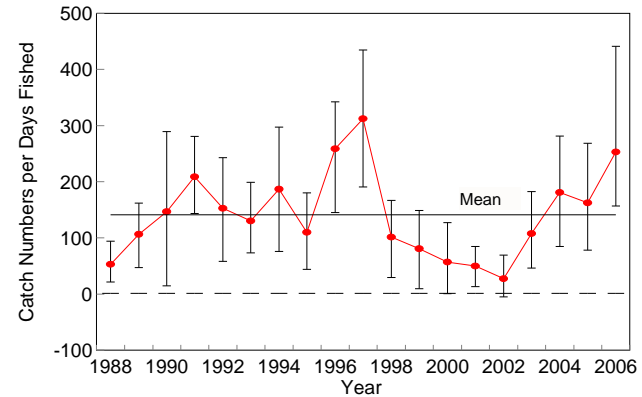
**White Bay - Notre Dame Bay**

AS and SS with 95% confidence limits



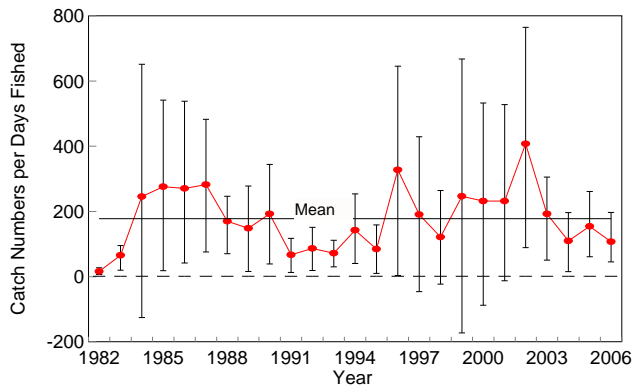
**Bonavista Bay - Trinity Bay**

AS and SS with 95% confidence limits



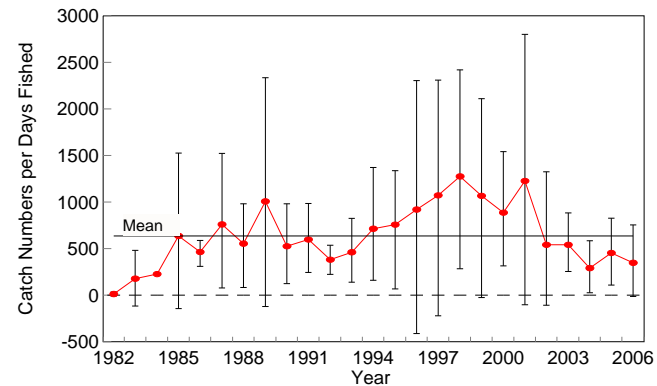
**St. Mary's Bay - Placentia Bay**

AS and SS with 95% confidence limits



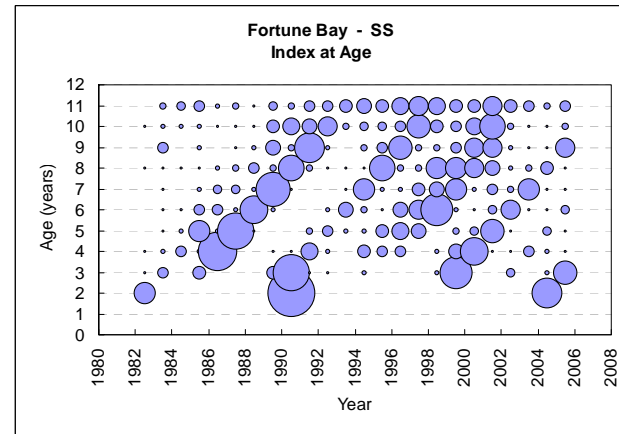
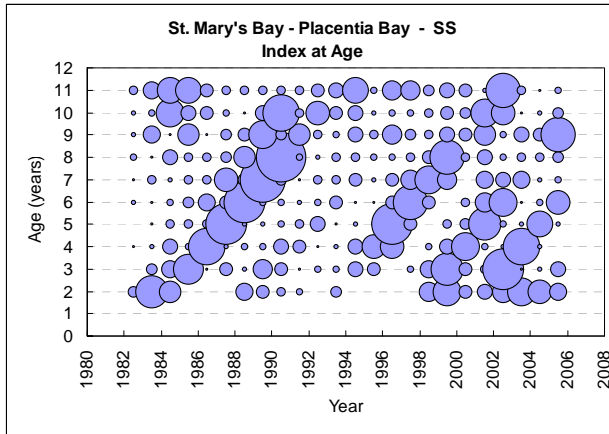
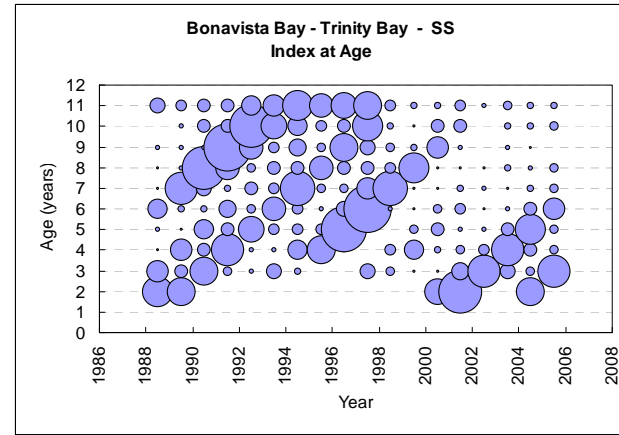
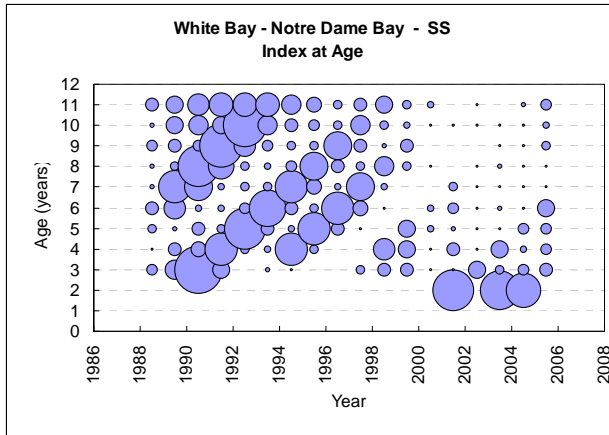
**Fortune Bay**

AS and SS with 95% confidence limits





# Research Gill Net Indices at Age – by Stock Area





## 2) Commercial Gill Net Logbook Program (1996 – 2006)

- Approximately 2800 logbooks sent annually to licenced fixed gear herring fishers and/or bait permit holders.
- Return of logbooks is voluntary.
- Number of logbooks returned is generally very low; in 2006 18 logs were returned.
  
- $CPUE = \text{catch (kg)} / \text{standard net} / \text{nights fished}$
- Perceptions of abundance (10 point scale)
  
- Given inherent variability and small sample sizes, these data provide very limited information as an abundance index.

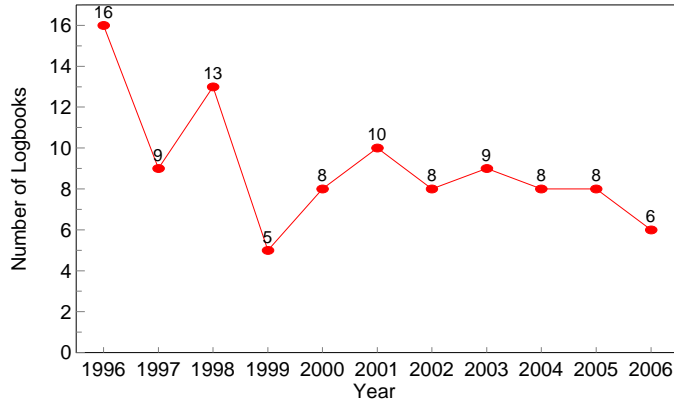




# Commercial Gill Net Logbook Program - Returns

**WB-NDB**

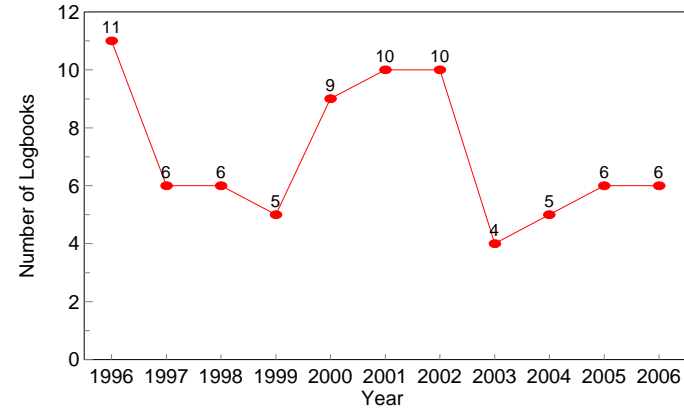
Number of Logbooks Returned



15 in  
2007

**BB-TB**

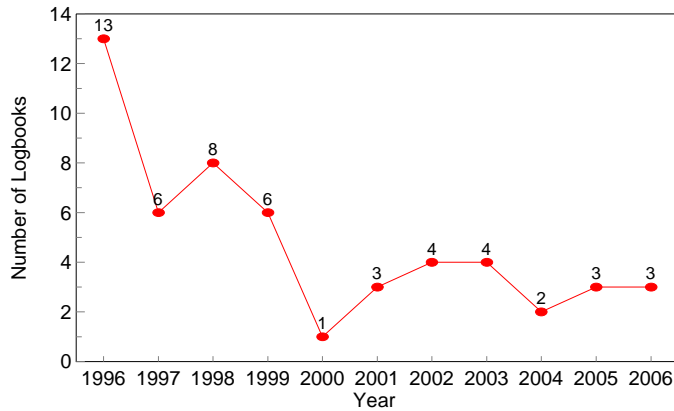
Number of Logbooks Returned



12 in  
2007

**SMB-PB**

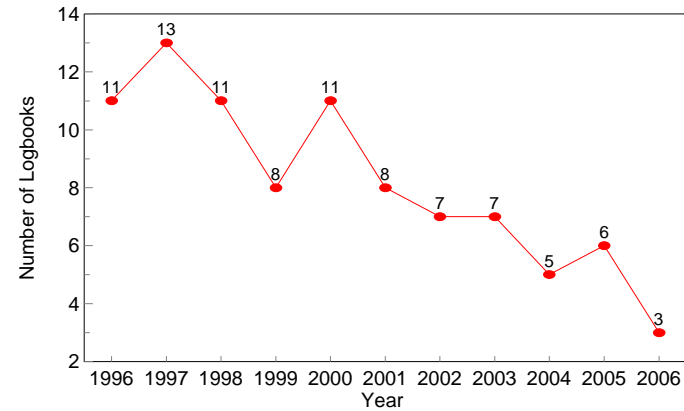
Number of Logbooks Returned



9 in  
2007

**FB**

Number of Logbooks Returned



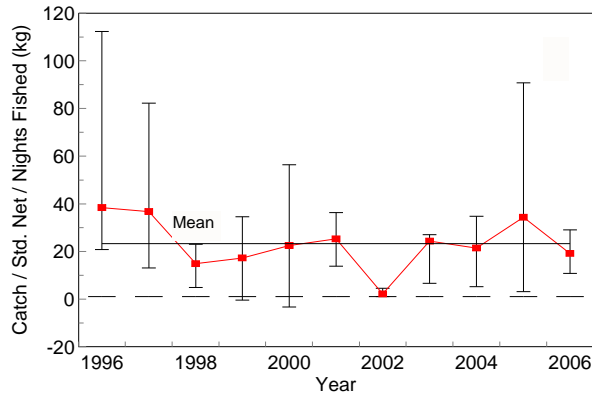
15 in  
2007



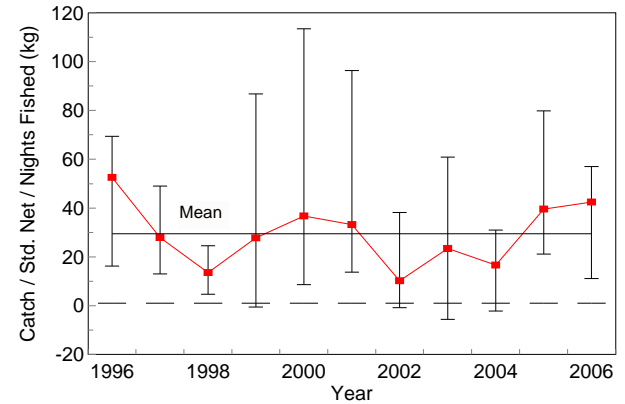


# Commercial Gill Net Logbook Catch Rates – by Stock Area

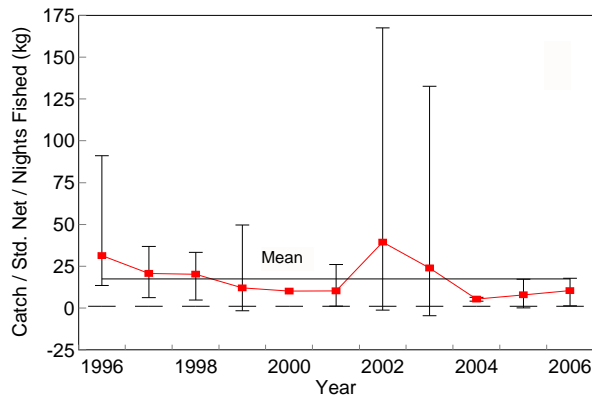
**White Bay - Notre Dame Bay**  
Catch Rates (with 95% confid limits)



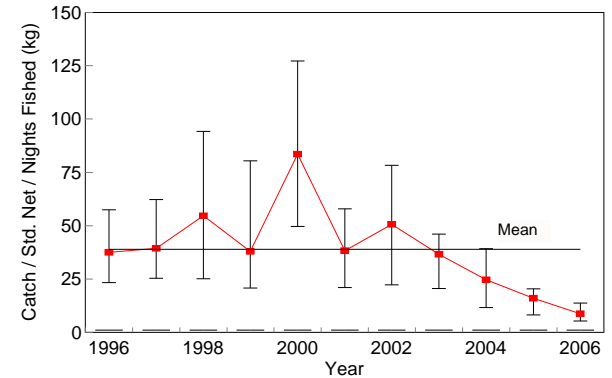
**Bonavista Bay - Trinity Bay**  
Catch Rates (with 95% confid. limits)



**St. Mary's Bay - Placentia Bay**  
Catch Rates (with 95% confid. limits)



**Fortune Bay**  
Catch Rates (with 95% confid. limits)





### 3) 2006 Phone Survey – Commercial Gill Net and/or Bait Permit Holders

#### Why ?

- Concern regarding small sample sizes of logbooks
- Increase observations of commercial gill net fishers

#### Objectives

1. To determine how many fished in 2006
2. To obtain perceptions of abundance from those that fished in 2006

#### Design

- Assuming an 80% response rate, sample enough fishers to provide a 10% margin of error.

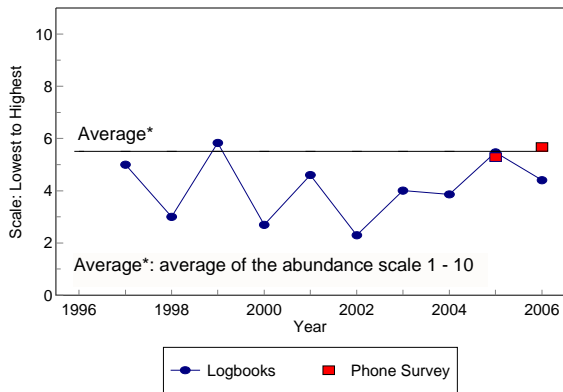
|                                  | All Areas Combined |       |
|----------------------------------|--------------------|-------|
|                                  | #                  | %     |
| Licences and Bait Permits        | 2326               | 100.0 |
| Fishers Phoned                   | 417                | 17.9  |
| Fishers Contacted                | 330                | 79.1  |
| Active Fishers                   | 168                | 50.9  |
| Fished for Bait                  | 159                | 94.6  |
| Fished Commercially              | 6                  | 3.6   |
| Fished Commercially and for Bait | 3                  | 1.8   |



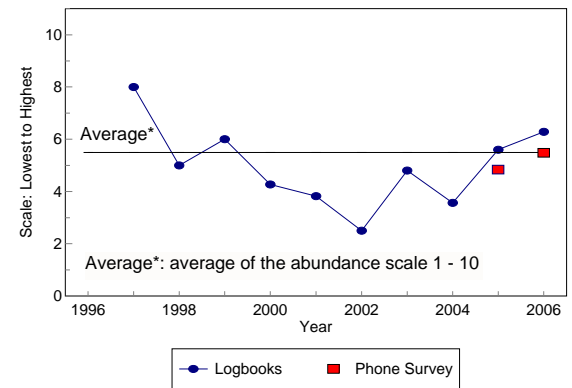


# Commercial Gill Net Fishers – Abundance Estimates

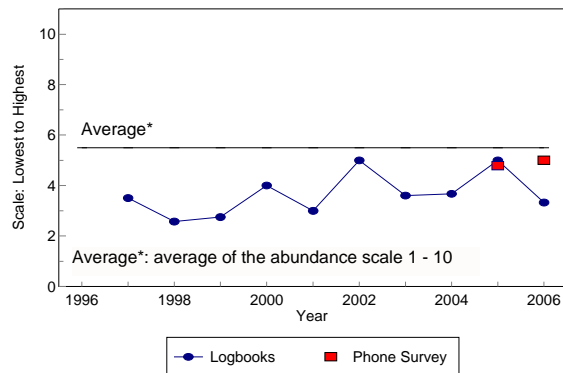
**White Bay - Notre Dame Bay**  
Gill Net Fisher Abundance Estimates



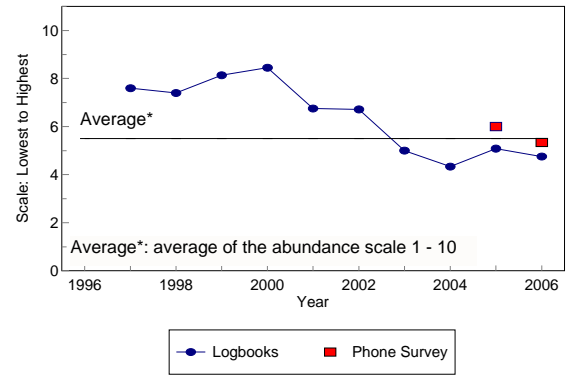
**Bonavista Bay - Trinity Bay**  
Gill Net Fisher Abundance Estimates



**St. Mary's Bay - Placentia Bay**  
Gill Net Fisher Abundance Estimates



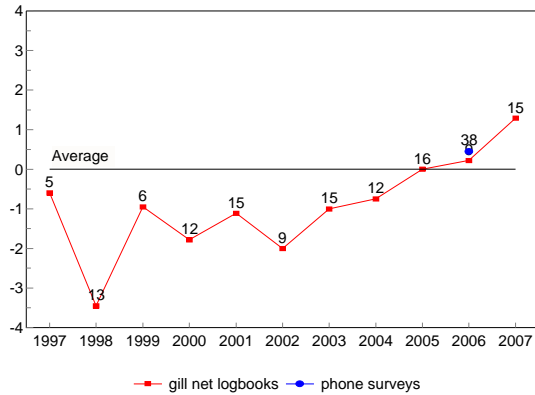
**Fortune Bay**  
Gill Net Fisher Abundance Estimates



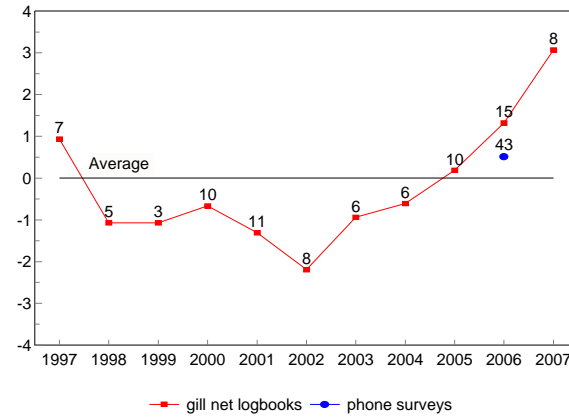


# Gill Net Fishers – Cumulative Abundance Estimates (to October 2007)

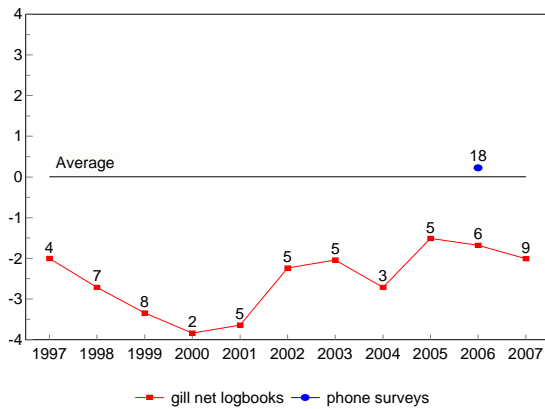
White Bay - Notre Dame Bay



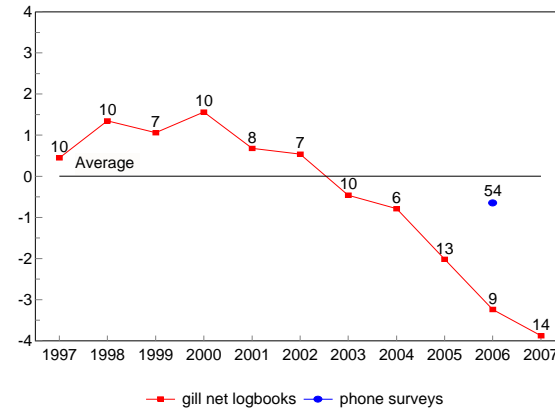
Bonavista Bay - Trinity Bay



St. Mary's Bay - Placentia Bay



Fortune Bay





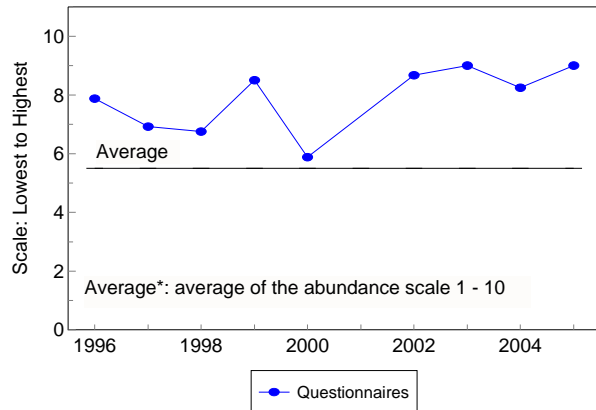
## 4) Commercial Purse Seine Questionnaire

- Attempts are made to contact all active purse seine fishers by telephone after the fishery each year.
- Each fisher is asked a series of standardized questions.
- Response rates are high; in 2005, 20 of 28 fishers responded.
- Quantitative evaluation of biological and fishery related information.
- Perceptions of abundance (10 point scale).
- Available from 1996 to 2006 for SMB-PB.
- Available from 1996 to 2005 for WB-NDB and BB-TB.
- No purse seine fishery in FB.

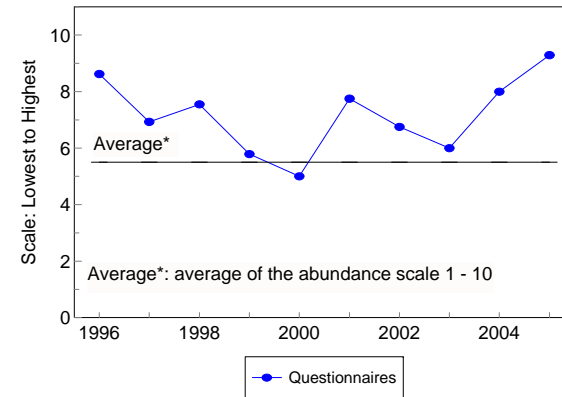


# Commercial Purse Seine Fishers – Abundance Estimates

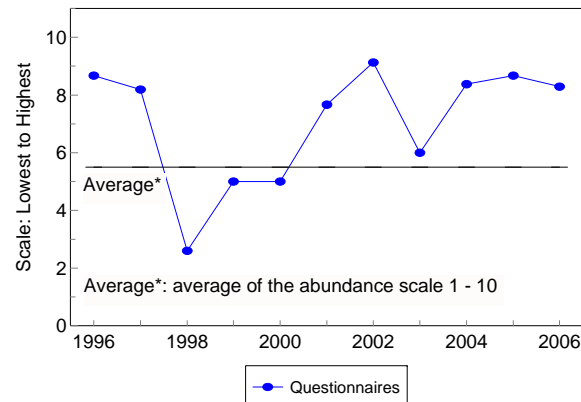
**White Bay - Notre Dame Bay**  
Purse Seine Fisher Abundance Estimates



**Bonavista Bay - Trinity Bay**  
Purse Seine Fisher Abundance Estimates



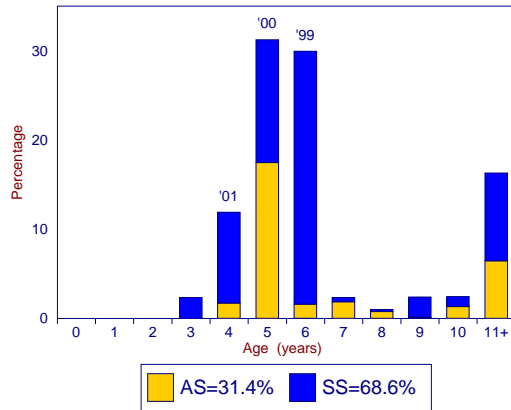
**St. Mary's Bay - Placentia Bay**  
Purse Seine Fisher Abundance Estimates



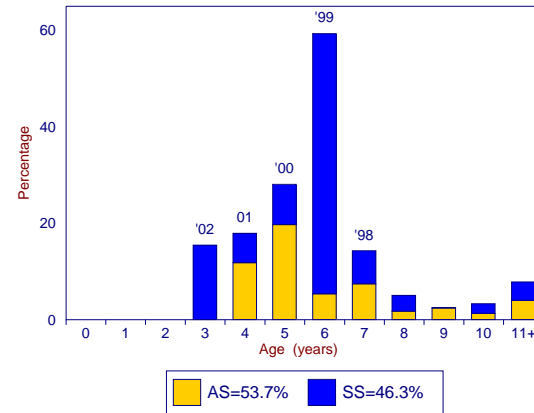


# Biological Characteristics – 2005 Research Gill Net Age Compositions

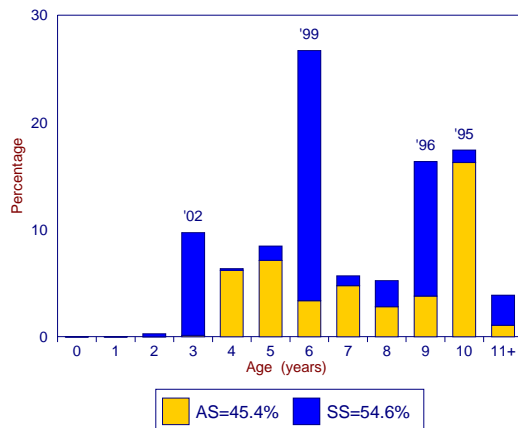
WB-NDB 2005



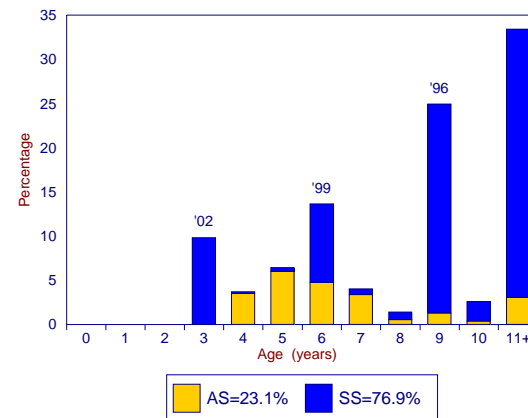
BB-TB 2005



SMB-PB 2005



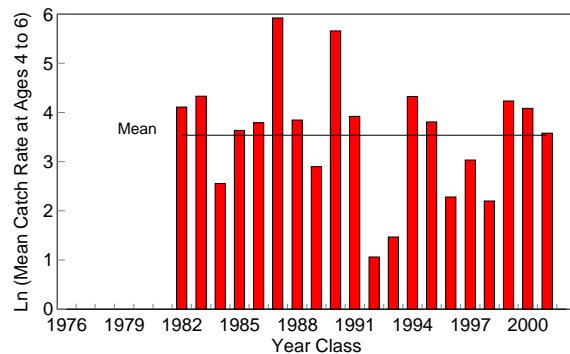
FB 2005



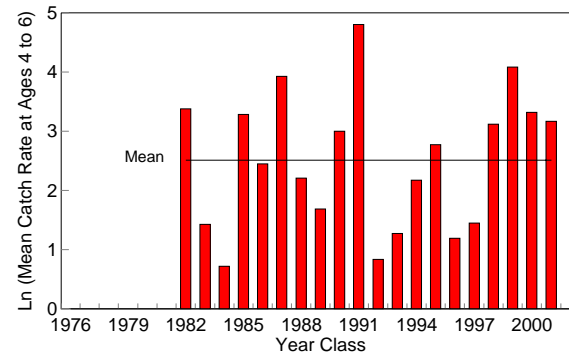


## Biological Characteristics – Relative Year-class Size (from research gill net catch rates at ages 4 to 6)

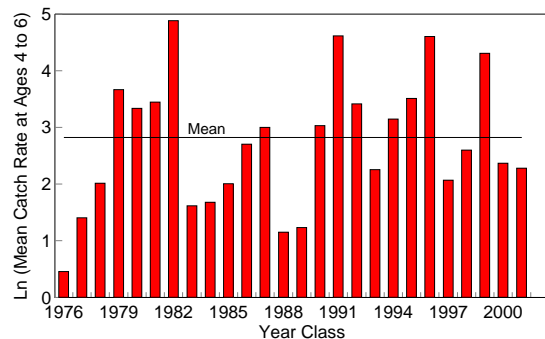
**White Bay - Notre Dame Bay**  
AS and SS - Relative Year Class Sizes



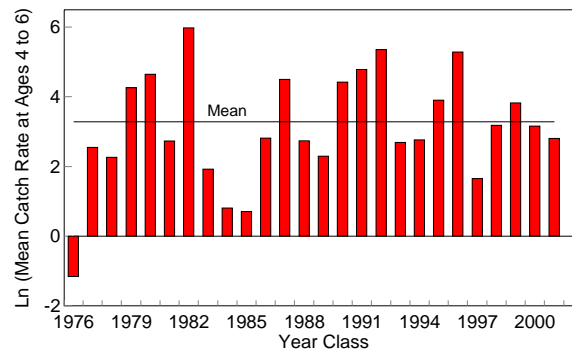
**Bonavista Bay - Trinity Bay**  
AS and SS - Relative Year Class Sizes



**St. Mary's Bay - Placentia Bay**  
AS and SS - Relative Year Class Sizes



**Fortune Bay**  
AS and SS - Relative Year Class Sizes





| <i>The Fishery</i>   | <i>Observation</i>   |   |
|--|--|---|
| Reported Landings: 2004 - 2005   | Landings increased from 265 t in 2004 to 911 t in 2005; 83% of the TAC was taken in 2005; average landings of 2800 t during 1990's; peak landings of 15,700 t in 1979.   |   |
| Total Removals: 2005   | In addition to reported landings in 2005, an unknown amount of herring (considered to be less than 500 t) was caught in the gill net bait fishery; mortality from discards in the purse seine fishery, due to quota restrictions, was reported by fishers to be approximately 8 t. |   |
| Effort: 2005 and 2006  | Documented effort has declined since the 1980's; purse seine effort decreased by 95% from 1997 to 2005; gill net effort has also decreased by 83% from 1996 to 2006.   |   |
| Geographic Distribution of Fishery                                     | The 2005 purse seine fishery, in November and December, was mostly in the Fogo Island area. The 2006 gill net fishery, from early May to late June, was mostly in Notre Dame Bay.  |   |
| <i>Abundance Indices</i>   | <i>Observation</i>   | <i>Interpretation</i>   |
| Research Gill Net Catch Rates 1988 – 2006 (numbers / nights fished)    | Increased from 2004 to 2006; 2006 = 307, mean = 390, maximum = 887.  | Current abundance below average.  |
| Commercial Gill Net Catch Rates 1996 – 2006 (kg / net / nights fished) | Decreased from 2004 to 2006; (2006 = 6 logbooks); 2006 = 20, mean = 23, maximum = 38.  | Current abundance below average.  |
| Gill Net Fisher Observations 1996 - 2006                               | Abundance perceived to be higher in 2006 than in 2005 and was average.   | Current abundance average.  |
| Purse Seine Fisher Observations 1996 - 2005                            | Abundance perceived to be higher in 2005 than in 2004 and above average.   | Abundance in 2005 above average.  |
| <i>Biological Characteristics</i>                                      | <i>Observation</i>   | <i>Interpretation</i>   |
| 2005 Research Gill Net Age Compositions (ages 3+)                      | The 1999 and 2000 year classes each accounted for ~30% of the catch; 3 year classes each account for >5% of catch.   | Population age structure considered to be stable due to substantial contribution of older fish. |
| Current Year Classes: 1995 to 2001 Series: 1982 - 2001 year classes    | 4 of 7 current mature year classes below average.  | Most current mature year classes average or below average.                                      |
| Recruitment: 2001 year class Series: 1982 to 2001 year classes         | 2001 year class average.   | Average recruitment of the most recent estimatable year class.                                  |
| Mean Weight: (ages 4 to 10) 1983 - 2005                                | Decreasing trend since 2002; below average in 2005 (242), mean = 255, maximum = 342.   | Potential increase in fishing mortality per tonne caught.                                       |
| <i>Ecological Considerations</i>                                       | <i>Observation</i>   | <i>Interpretation</i>   |
| Water Temperature: 1983 - 2005 (at 20 m, Station 27 off St. John's)    | Above average in 2005 (4.02); mean = 3.67, maximum = 4.71.   | Recent higher temperatures may enhance recruitment.   |
| Water Salinity: 1983 - 2005 (at 20 m, Station 27 off St. John's)       | Above average in 2005 (31.89); mean = 31.80, maximum = 32.18   | Recent higher salinities may enhance recruitment.   |

## Performance Report Example

### White Bay – Notre Dame Bay

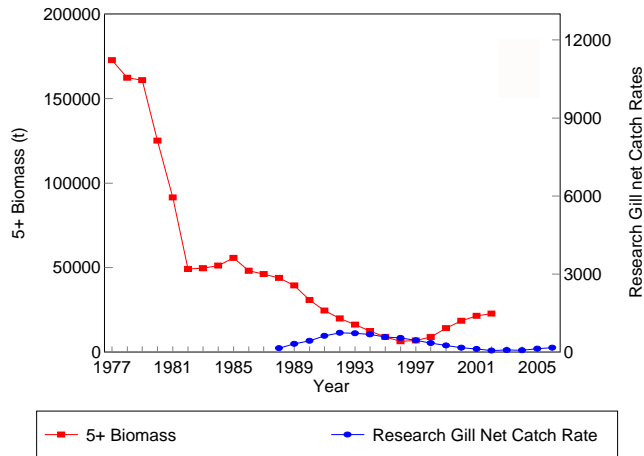
|   |  |
|---|--|
| - | Concern for Current Status or Prospect |
| ? | Uncertainty of Interpretation          |
| + | Positive Evaluation                    |

| <i>Stock Status</i>    | <i>Interpretation</i>   | <i>Evaluation</i> |
|------------------------|---|-------------------|
| Current vs. Historical | Current abundance is substantially lower than historical estimates in the 1970's.   | -                 |
| Current vs. Recent     | Stock status has improved since 2004.   | +                 |
| Short Term Prospects   | Uncertain; average recruitment of 2001 year class; most current mature year classes are average or below average and are considered to be weak. | ?                 |

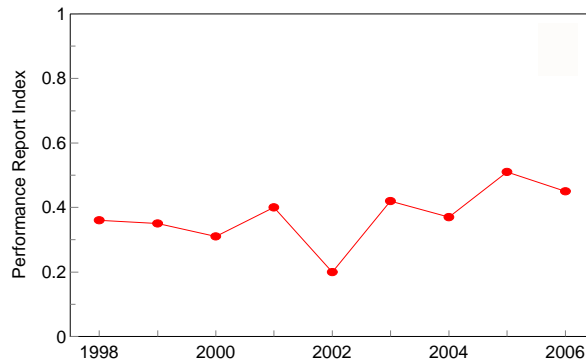
The standardized performance index indicates that stock status improved from 2002 to 2004 and again from 2004 to 2006. However, current abundance is substantially lower than historical estimates in the 1970's. Short term prospects are uncertain; the 2001 year class is average and most mature year classes are average or below average and are considered to be weak, compared to historical levels.



Current vs. Historical Status



Current vs. Recent Status  
Performance Index



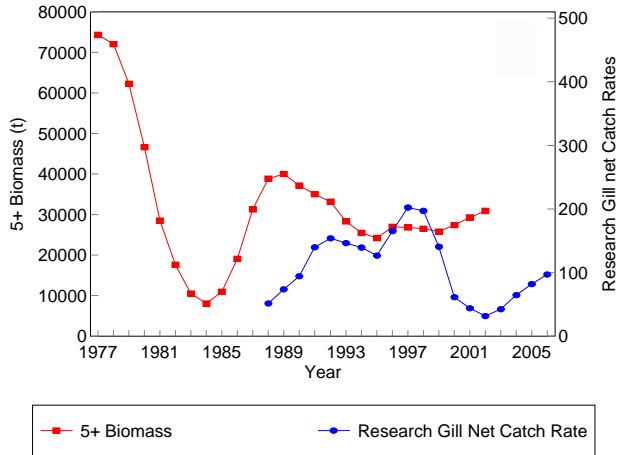
## Current Status and Short Term Prospects

### White Bay – Notre Dame Bay

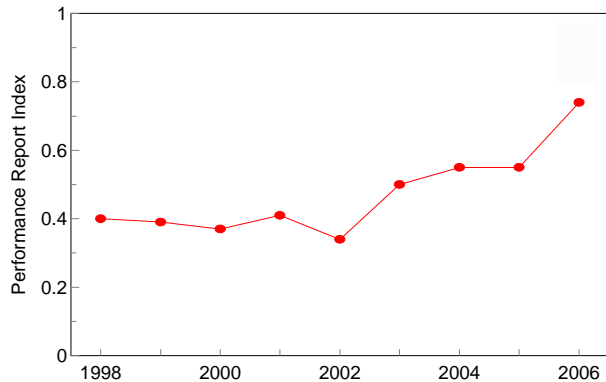
- Biomass estimates are available to 2001. A visual comparison with research gill net catch rates suggests that current abundance is substantially lower than historical estimates in the 1970's (top left panel).
- The composite performance index indicates that stock status has improved from 2002 to 2006 (lower left panel).
- Short term prospects are uncertain; the 2001 year class is average and most mature year classes are average or below average compared to year classes since 1982. All year classes in the time series are weak compared to historical levels.



Current vs. Historical Status



Current vs. Recent Status  
Performance Index

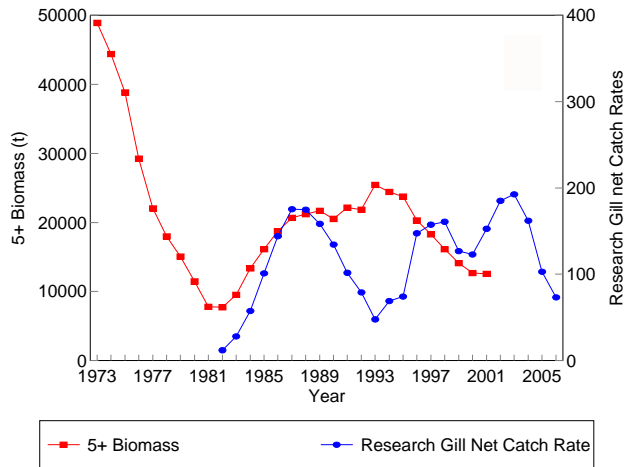


## Current Status and Short Term Prospects Bonavista Bay - Trinity Bay

- Biomass estimates are available to 2001. A visual comparison with research gill net catch rates suggests that current abundance is substantially lower than historical estimates in the 1970's (top left panel).
- The composite performance index indicates that stock status has improved from 2002 to 2006 (lower left panel).
- Short term prospects are positive; the 2001 year class is above average and most mature year classes are above average compared to year classes since 1982. However, all year classes in the time series are weak compared to historical levels.



Current vs. Historical Status



Current vs. Recent Status  
Performance Index



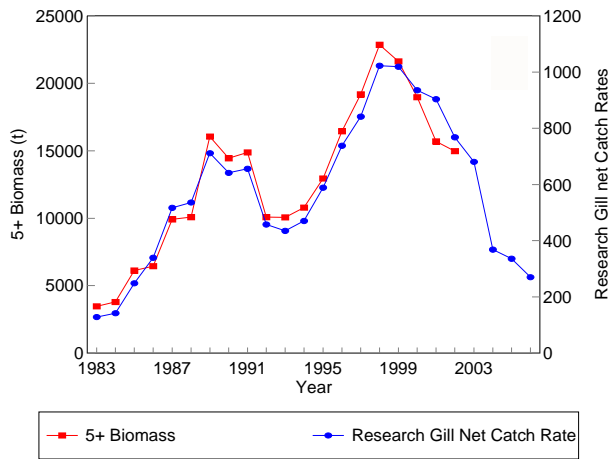
## Current Status and Short Term Prospects

### St. Mary's Bay - Placentia Bay

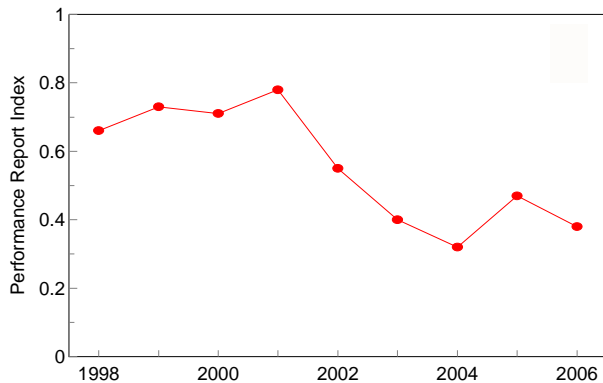
- Biomass estimates are available to 2000. A visual comparison with research gill net catch rates suggests that current abundance is substantially lower than historical estimates in the 1970's (top left panel).
- The composite performance index indicates that stock status deteriorated from 2002 to 2004 and has improved slightly from 2004 to 2006 (lower left panel).
- Short term prospects are negative; the 2001 year class is below average and most mature year classes are below average compared to year classes since 1976. All year classes in the time series are weak compared to historical levels.



Current vs. Historical Status



Current vs. Recent Status  
Performance Index



## Current Status and Short Term Prospects Fortune Bay

- Biomass estimates are available to 2001. A visual comparison with research gill net catch rates suggests that current abundance is substantially lower than peak estimates in the late 1990's (top left panel).
- The composite performance index indicates that stock status deteriorated steadily from 2001 to 2004, improved slightly in 2005 and deteriorated again in 2006 (lower left panel).
- Short term prospects are negative; the 2001 year class is below average and most mature year classes are below average compared to year classes since 1976. All year classes in the time series are weak compared to historical levels.



## Important Current Science Issues

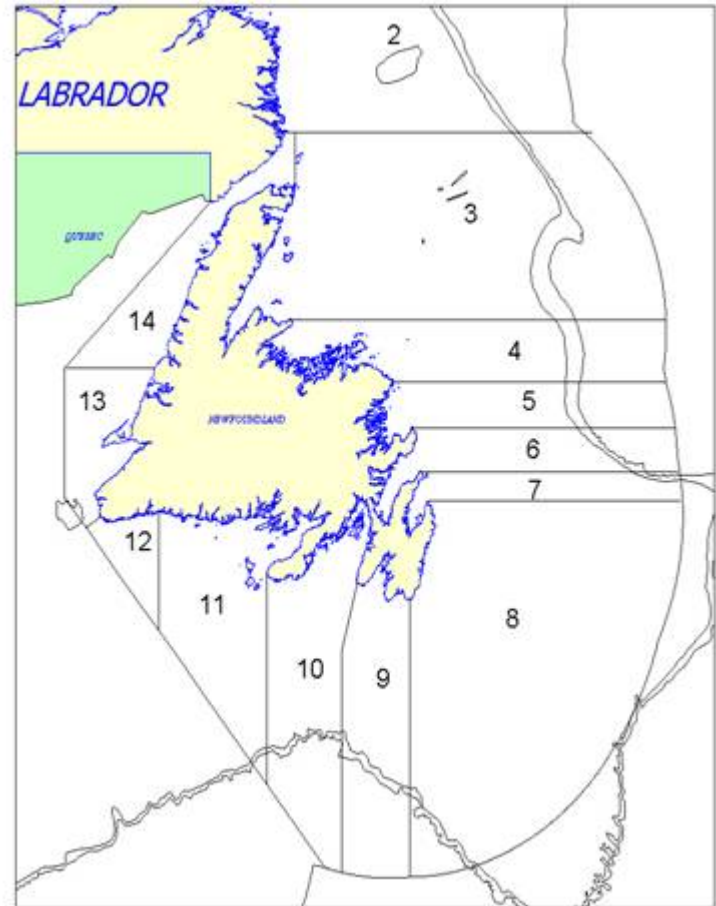
1. The inability to estimate current stock sizes and exploitation rates, and to place these estimates within an historical context.
2. Due to the limited fishery and research data, sample sizes for the abundance indices are generally small resulting in higher uncertainties.
3. There are no catch statistics available for the herring bait fishery since the mid 1990's. Without such data, estimation of stock sizes is even more difficult.
4. There has been a reduction in length and age at maturity over the past thirty years which may have an impact on fishery management measures such as minimum commercial size.



# Area of Consideration

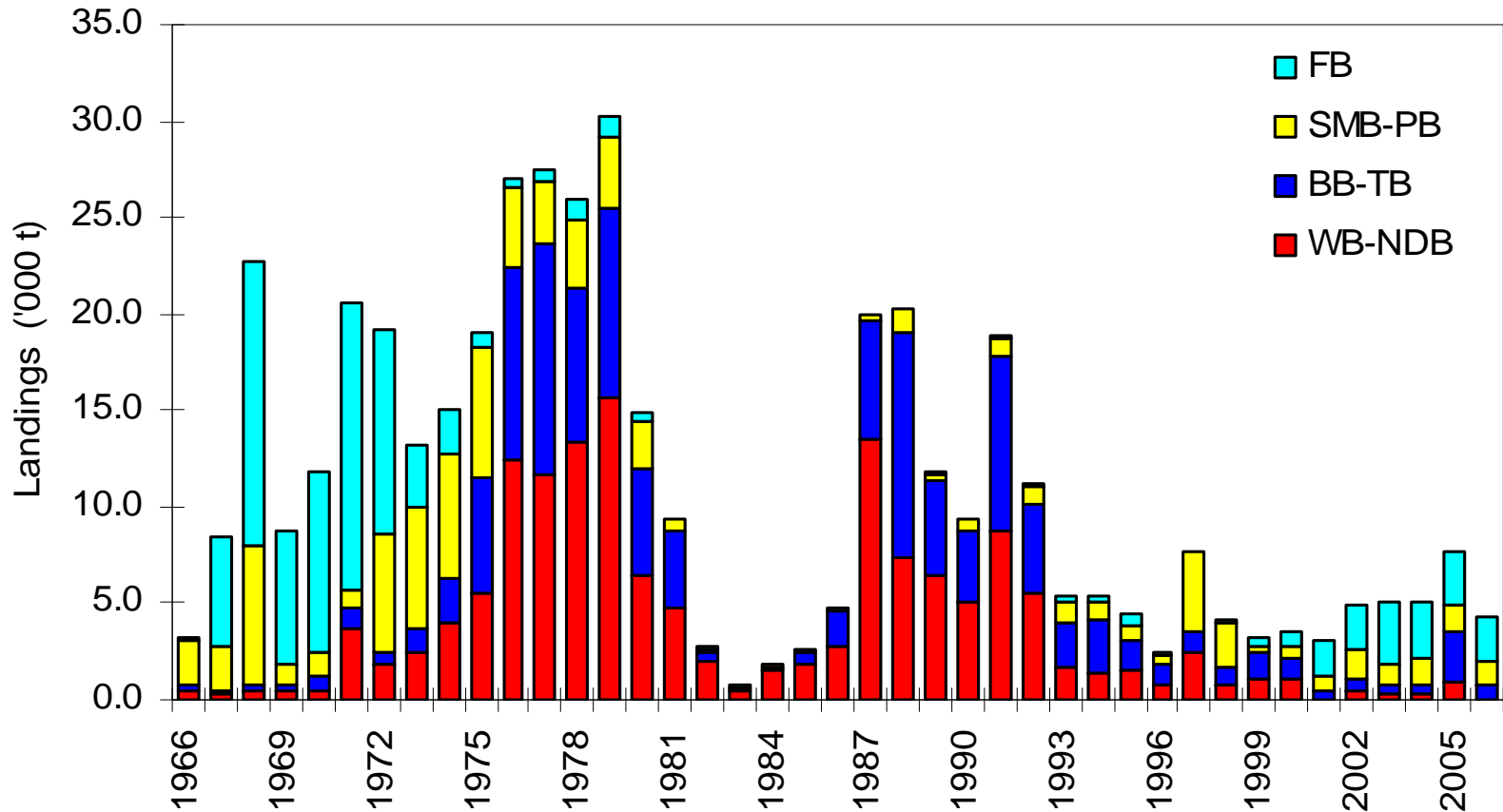
The five herring stock complexes have been divided into seven quota areas.

- Southern Labrador (Fishing Area 2)
- White Bay - Notre Dame Bay (Fishing Areas 3 & 4)
- Bonavista Bay - Trinity Bay (Fishing Areas 5 & 6)
- Conception Bay - Southern Shore (Fishing Areas 7 & 8)
- St. Mary's Bay -Placentia Bay (Fishing Areas 9 & 10)
- Fortune Bay and Pass Island to Cinq Cerf Bay (Fishing Area 11)





# History of the Fishery





## Licences - Historical

- Historically - commercial fishery has supported up to 2,500 fishing enterprises.
- Currently a 'limited entry' fishery - a prohibition on new entrants was implemented in 1995.





## Licences - Current

- In 2007, a total of 1,663 fish harvesters were licenced to harvest herring on a commercial basis.
  - 1,425 licenced for fixed gear
    - *All three gear types (gillnets, traps and bar seines) are included under a single fixed gear licence*
  - 238 licenced for purse seine gear on vessels under sixty-five feet (inshore fleet)



## Licences – Commercial (by Area)

| QUOTA AREA         | FIXED GEAR  |
|--------------------|-------------|
| 01                 | 3           |
| 02                 | 41          |
| 03                 | 131         |
| 04                 | 395         |
| 05                 | 151         |
| 06                 | 170         |
| 07                 | 136         |
| 08                 | 85          |
| 09                 | 18          |
| 10                 | 125         |
| 11                 | 170         |
| <b>Grand Total</b> | <b>1425</b> |

| QUOTA AREA         | PURSE SEINE |
|--------------------|-------------|
| 3-8                | 216         |
| 9&10               | 22          |
| <b>Grand Total</b> | <b>238</b>  |



## Licences - Bait

- Herring bait licences form part of a generic bait licence that includes mackerel & winter flounder.
- Licences are issued to fish harvesters who require bait for other high value commercial fisheries (e.g. lobster, crab, groundfish longline).
  - Both commercial and non-commercial herring licence holders are able to access herring for bait
  - Bait allocations have been identified as a component of the TAC for each herring stock area
  - Seasons are specified through a condition of licence (i.e. separate from commercial fishing season)



## Licences –Bait (by NAFO division)

- In 2007, there were 2,670 bait licences issued to fishers in NAFO divisions 2J3KL & subdivision 3Ps.

| <b>NAFO</b>        | <b>Total</b> |
|--------------------|--------------|
| 2J                 | 95           |
| 3K                 | 842          |
| 3L                 | 961          |
| 3PS                | 772          |
| <b>Grand Total</b> | <b>2670</b>  |



## Licences - Participation

- Limited markets and the resulting low price paid to fishermen has limited participation in commercial fishery
- Only one hundred and sixteen (116) commercial licence holders 'active' in the fishery in 2007 - approximately 7% of eligible licence holders
- Actual level of activity varied by fleet and area



## Timeframe of the Fishery

- The fishery has traditionally occurred over two seasons; spring and fall.
  - Actual dates vary for each fleet and quota area.
  - May vary from year to year (re: ice conditions, availability of herring, market conditions)
- Normally, the spring season opens in the January to April timeframe and continues through to May 31.
- The fall season, depending on gear type, generally starts in early September or October and can continue into late December.



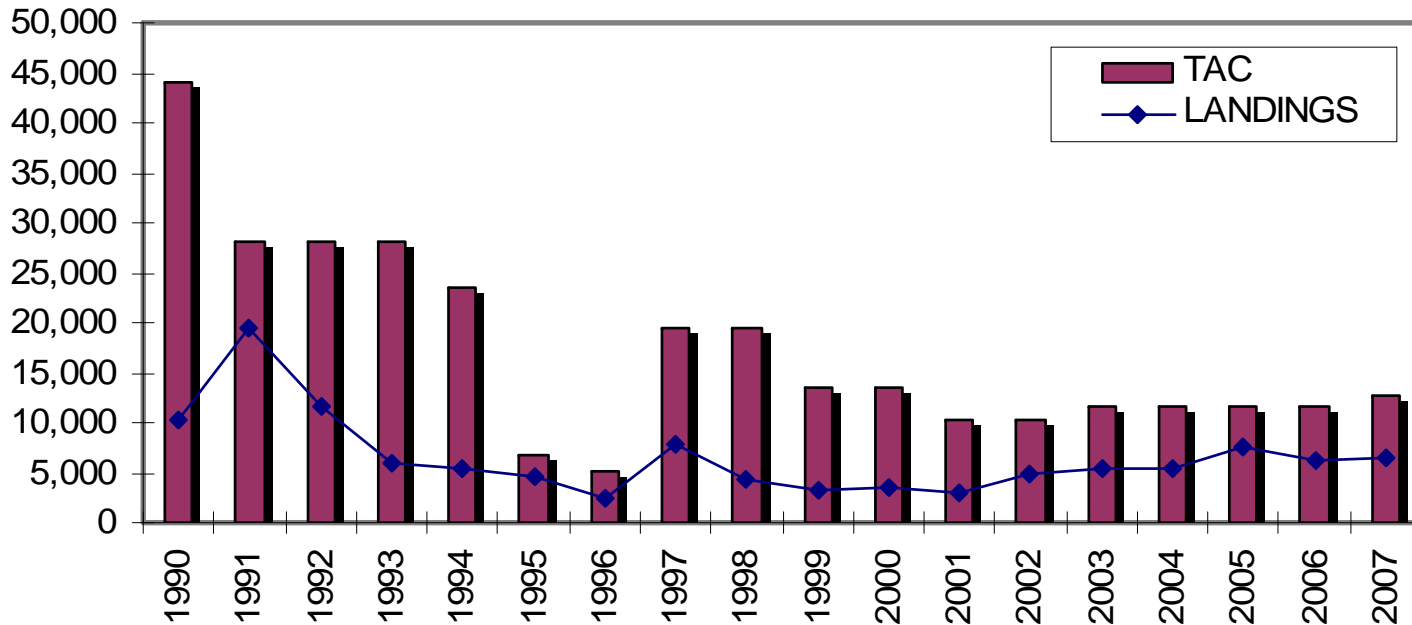
# Commercial Fishing Seasons - 2007/08

| Fishing Area                   | Gear Type         | Spring - IFMP |        | Fall - IFMP |        |
|--------------------------------|-------------------|---------------|--------|-------------|--------|
|                                |                   | Open          | Close  | Open        | Close  |
| Labrador                       | Gillnets/ Traps   | 10-May        | 14-Jun | 18-Aug      | 31-Dec |
| White Bay                      | Bar Seines        | 10-May        | 14-Jun | 18-Aug      | 31-Dec |
| White Bay                      | Gillnets/ Traps   | 10-May        | 14-Jun | 18-Aug      | 31-Dec |
| White Bay                      | Purse Seine       | Closed        |        | 1-Oct       | 31-Dec |
| Notre Dame Bay                 | Bar Seines        | 14-Apr        | 31-May | 15-Sep      | 31-Dec |
| Notre Dame Bay                 | Gillnets/ Traps   | 14-Apr        | 31-May | 15-Sep      | 31-Dec |
| Notre Dame Bay                 | Purse Seine       | Closed        |        | 1-Oct       | 31-Dec |
| Bonavista Bay                  | Bar Seines        | 10-Apr        | 31-May | 15-Sep      | 31-Dec |
| Bonavista Bay                  | Gillnets/ Traps   | 10-Apr        | 31-May | 15-Sep      | 31-Dec |
| Bonavista Bay                  | Purse Seine       | Closed        |        | 1-Oct       | 31-Dec |
| Trinity Bay                    | Bar Seines        | 1-Apr         | 31-May | 15-Sep      | 31-Dec |
| Trinity Bay                    | Gillnets/ Traps   | 1-Apr         | 31-May | 15-Sep      | 31-Dec |
| Trinity Bay                    | Purse Seine       | Closed        |        | 1-Oct       | 31-Dec |
| Conception Bay                 | Gillnets/ Traps   | 1-Apr         | 31-May | 1-Oct       | 31-Dec |
| Conception Bay/ Southern Shore | Bar Seines        | 1-Apr         | 31-May | 1-Oct       | 31-Dec |
| Conception Bay/ Southern Shore | Purse Seine       | Closed        |        | 1-Oct       | 31-Dec |
| Southern Shore                 | Gillnets/ Traps   | 1-Apr         | 31-May | 1-Oct       | 31-Dec |
| St. Mary's Bay                 | Bar Seines        | 10-Mar        | 31-May | 1-Oct       | 31-Dec |
| St. Mary's Bay                 | Gillnets/ Traps   | 1-Feb         | 31-May | 1-Oct       | 31-Dec |
| St. Mary's Bay                 | Purse Seine < 55' | 1-Apr         | 31-May | 1-Oct       | 31-Dec |
| St. Mary's Bay                 | Purse Seine > 55' | 8-Jan         | 31-May | 10-Nov      | 31-Dec |
| Placentia Bay                  | Bar Seines        | 10-Mar        | 31-May | 1-Oct       | 31-Dec |
| Placentia Bay                  | Gillnets/ Traps   | 1-Feb         | 31-May | 1-Oct       | 31-Dec |
| Placentia Bay                  | Purse Seine < 55' | 8-Jan         | 31-May | 1-Oct       | 31-Dec |
| Placentia Bay                  | Purse Seine > 55' | 8-Jan         | 31-May | 10-Nov      | 31-Dec |
| Fortune Bay                    | Bar Seines        | 1-Apr         | 31-May | 1-Oct       | 31-Dec |
| Fortune Bay                    | Gillnets          | 1-Apr         | 31-May | 1-Oct       | 31-Dec |
| Fortune Bay                    | Traps             | 4-Apr         | 31-May | 1-Oct       | 31-Dec |
| Pass Island to Cinq Cerf       | Bar Seines        | 7-Mar         | 7-Jun  | 1-Oct       | 31-Dec |
| Pass Island to Cinq Cerf       | Gillnets          | 7-Mar         | 31-May | 1-Oct       | 31-Dec |
| Pass Island to Cinq Cerf       | Traps             | 4-Apr         | 7-Jun  | 1-Oct       | 31-Dec |



## Landings and Landed Value

- Although controlled by a biological TAC, the fishery since the mid 1980's has been driven largely by market availability and in most years quotas have not been taken.





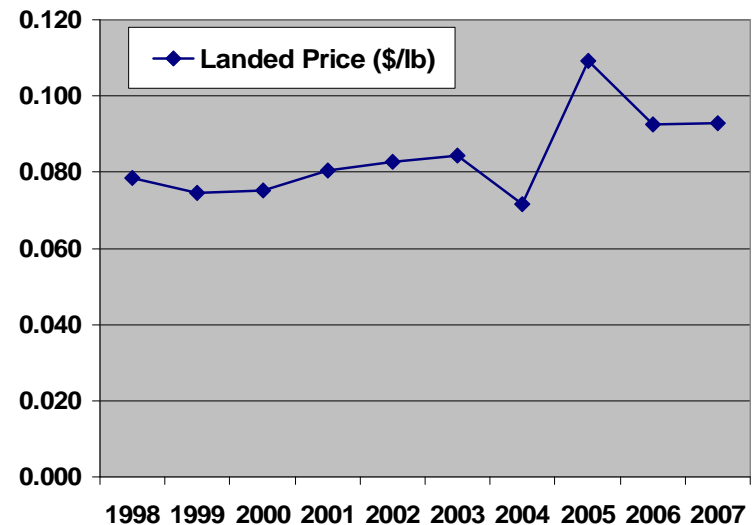
## Landings and Landed Value - 2007

- The 2007 fishery:
  - The spring fishery accounted for about  $\frac{2}{3}$  of all landings
  - Limited fall fishery due to general market availability and price – mackerel was main focus of purse seine fleet
  - Two-thirds ( $\frac{2}{3}$ ) of the herring landed was caught by fixed gear



## Landings and Landed Value

- Over the last ten years, the average landed price per pound has generally ranged from 7-11¢ per pound.
- In 2007, the average price paid to fish harvesters was about **9¢ per pound**.
  - Price ranged from 5-15¢ per pound
  - Total landings of 6,672t
  - Landed value ~ \$1.36M





# Management Regime – Process/ Structure

- The Department holds consultations, at least semi-annually, with herring industry representatives in an advisory forum known as the Small Pelagics Advisory Committee (SPAC).
  - Main forum for representatives of industry, governments and other interested groups to provide input into the development of management measures for the herring fishery
  - Most recent SPAC meeting was held in February 2007 to solicit industry views on development of the 2007 -2008 IFMP.
- Herring Working Group
  - Subcommittee of SPAC – meets as required, usually at least once per year
  - Day-to-day and long-term issues in the fishery
  - Provide recommendations to the SPAC on management considerations where appropriate.



# Management Regime – The Fishery

- Commercial quotas are allocated by area and gear type taking into consideration bait requirements and fleet shares
  - Bait allocations within each stock area have been established on the basis of historic annual bait catches.
  - Extensive consultations were conducted with all gear sectors in arriving at an agreed sharing arrangement for the 1997/1998 fishery

| <b>STOCK AREA</b> | <b>LAB<sup>1</sup></b> | <b>WB/ NDB</b> | <b>BB/TB</b> | <b>CB/SS<sup>2</sup></b> | <b>SMB/PB</b> | <b>FB</b> | <b>PI-CFB<sup>3</sup></b> | <b>TOTAL</b> |
|-------------------|------------------------|----------------|--------------|--------------------------|---------------|-----------|---------------------------|--------------|
| TAC               | 150                    | 1,700          | 4,000        | 600                      | 2,500         | 3,200     | 500                       | 12,650       |
| COMMERCIAL QUOTAS | 50                     | 1,200          | 3,700        | 550                      | 2,350         | 2,800     | 400                       | 11,050       |
| BAIT ALLOCATIONS  | 100                    | 500            | 300          | 50                       | 150           | 400       | 100                       | 1,600        |



# Management Regime

| STOCK AREA                      | GILLNETS/ TRAPS | BAR SEINES   | PURSE SEINES | RESERVE      |
|---------------------------------|-----------------|--------------|--------------|--------------|
| LABRADOR                        | 50              | 0            | 0            | 0            |
| WHITE BAY                       | 150             | 50           | 400          |              |
| NOTRE DAME BAY                  | 150             | 50           | 400          |              |
| BONAVISTA BAY                   | 320             | 605          | 925          | 0            |
| TRINITY BAY                     |                 | 720          | 925          |              |
| CONCEPTION BAY                  | 100             | 30           | 320          | 0            |
| SOUTHERN SHORE                  | 100             |              |              |              |
| ST. MARY'S BAY                  | 205             | 100          | 460          | 920          |
| PLACENTIA BAY                   | 205             |              | 460          |              |
| FORTUNE BAY                     | 765             | 1,530        | 0            | 505          |
| PASS ISLAND TO<br>CINQ CERF BAY | 200             | 100          | 0            | 100          |
| <b>TOTALS</b>                   | <b>2,500</b>    | <b>3,135</b> | <b>3,890</b> | <b>1,525</b> |

- Quotas within each gear sector and area are generally fished competitively



## Regulatory Measures

- In accordance with the Atlantic Fishery Regulations (AFR), no person shall fish for, sell, or have in their possession any herring that is less than 26.5 cm fork length (10.5 inches);
  - Exception of up to 10% of small herring (by count) per fishing trip when the taking of small herring is incidental to the capture of larger herring
  - Minimum size provision does not apply to herring caught by gillnets





## Regulatory Measures

- Herring may be retained as a by-catch in a directed mackerel fishery when the quantity of herring is no more than 10% of the weight of mackerel caught and retained during a fishing trip.
  - The taking of herring as a by-catch in quantities greater than 10% is permitted to a person who is licenced for herring, with a gear, in an area and at a time that is permitted for the capture of herring. In such cases, herring by-catch will be deducted from the fleet or individual quota.





## Regulatory Measures

- The maximum amount of fixed gear permitted to be fished at any one time by a licence holder:
  - ten gillnets (maximum of 500 fathoms in total),
  - one trap, and
  - one bar seine
- Monofilament netting material is prohibited in trapnet leaders and gillnets.
- The use of trap net leaders with a mesh size greater than 2 inches and less than 7 inches is prohibited.





## Control and Monitoring

- All licenced herring fishers operating vessels greater than or equal to 35 feet length overall (LOA) must, as a condition of licence, provide detailed **logbook** records of catch and fishing activity.
- Mobile gear licence holders will be required to carry an **at-sea observer** intermittently throughout the fishery at the request of the Department.
- Commercial herring landings are subject to a **dockside monitoring** program.
  - Requirement was introduced in the fall of 2007 for fixed gear licence holders, previously limited to purse seine licence holders only



## Management Challenges & Issues

- Limited Science Advice (Re: establishment of TAC levels; minimum size regulations; etc.)
- By-catch issues (e.g. small herring; salmon; groundfish; etc.)
- Reporting of catches in bait fisheries
- Excess capacity relative to limited quotas
- Availability of markets