Council

NAC(16)8

Presentation of the ICES Advice to the North American Commission

REPORT OF ICES ADVISORY COMMITTEE

ON

NORTH ATLANTIC SALMON STOCKS

TO

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

NAC Area

CNL(16)9

Advice generated by ICES in response to terms of reference from NASCO

10.3 With respect to Atlantic salmon in the North American Commission area:

1. Describe the key events of the 2015 fisheries (including the fishery at St Pierre & Miquelon)
2. Update age-specific stock conservation limits based on new information as available
3. Describe the status of the stocks

Advice generated by ICES in response to terms of reference from NASCO

10.3 With respect to Atlantic salmon in the North American Commission area:

In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:

4. Provide catch options or alternative management advice for 2016-2019 with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding

5. Update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice

1. Key events of the 2015 fisheries

Gear and effort

- Three groups exploited salmon in Canada in 2015:
  - Aboriginal peoples
  - Resident's subsistence fishery in Labrador
  - Recreational fishers

- No commercial fisheries in Canada in 2015 (closed since 2000)

- No recreational or commercial fisheries for Atlantic salmon in USA in 2015
- France (Islands of St. Pierre & Miquelon)
  - 9 professional (max 3 nets of 360m) (12 in 2014)
  - 71 recreational (1 net of 180m) gill net licences issued (70 in 2014)

1. Key events of the 2015 fisheries

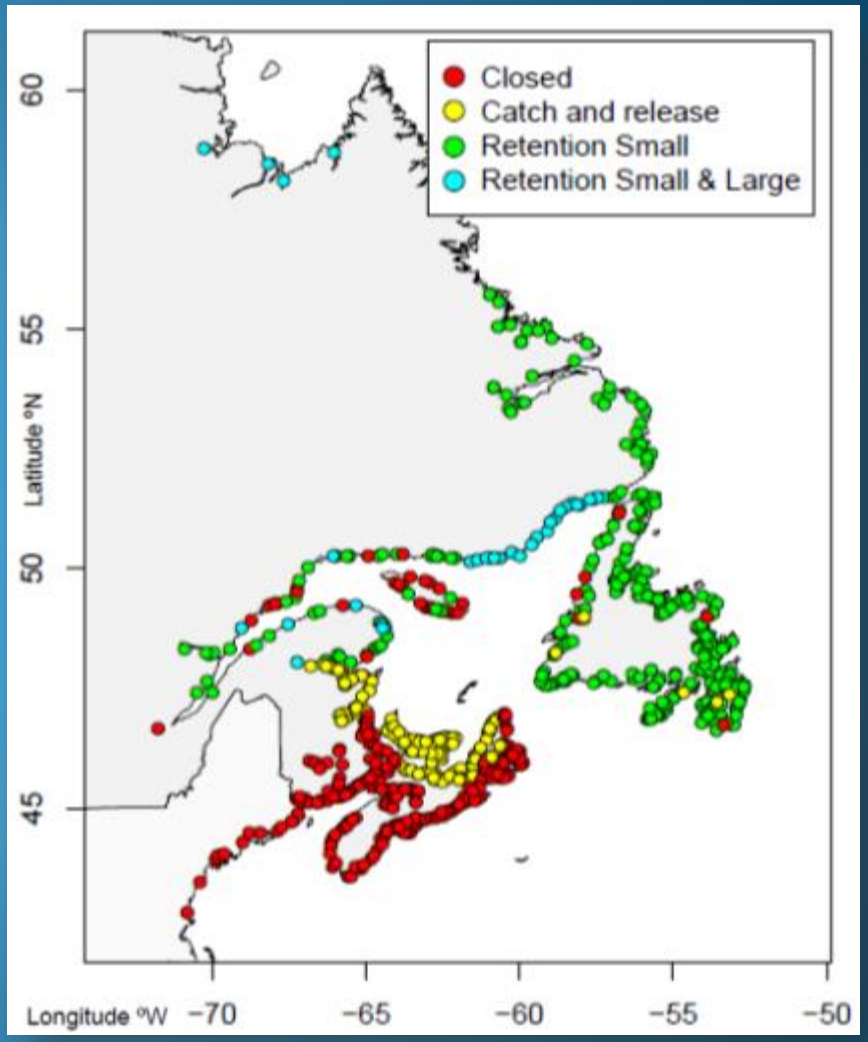
Canada 2015:

- No legal bycatch of salmon in commercial fisheries directing for other species, no estimates of bycatch or mortality – previous assessment indicated this as low (ICES, 2004)
- 94% of catch taken in rivers or estuaries
- Provisional harvest of 133.6t comprised:
  - 45 092 small salmon
  - 11 039 large salmon
  - 2% more small salmon and 26% more large salmon than 2014
- Overall catches remain very low relative to pre-1990 values

1. Key events Gear and effort

Recreational fisheries in Canada:

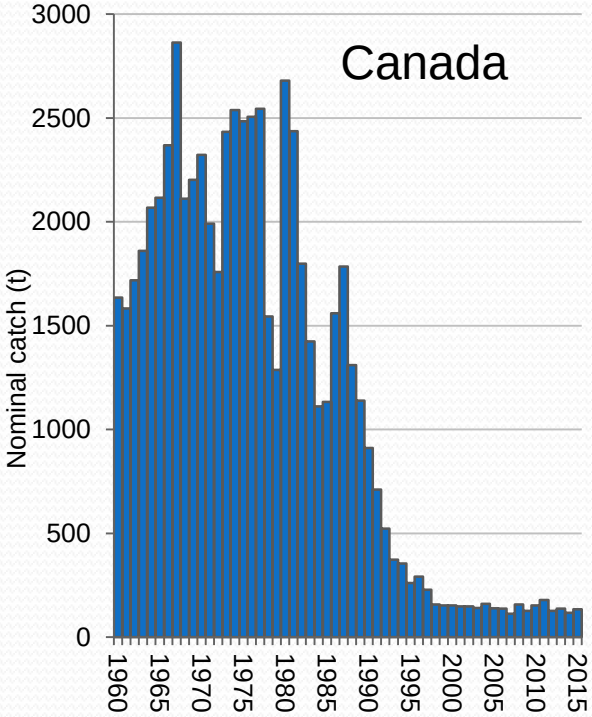
- Regulations vary between areas
- Large portions of the south closed to all directed salmon fisheries
- Gulf region:
  - Mandatory catch and release of small salmon implemented 2015
  - Mandatory release of large salmon cont'd

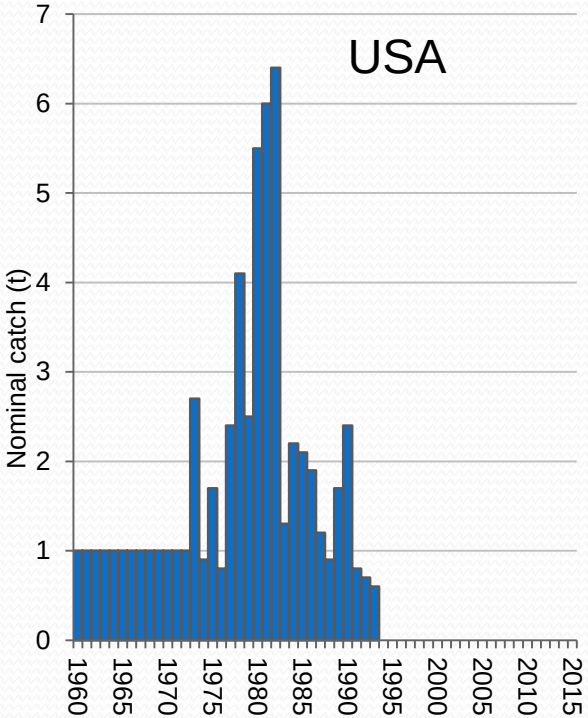


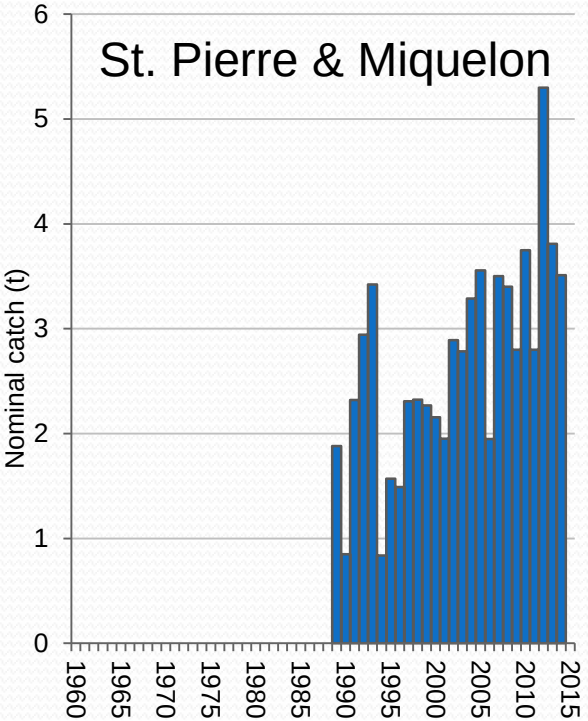
- Small salmon < 63cm FL
- Large salmon ≥ 63cm FL

1. Key events: Nominal catch (excl. C&R)

2015 (2014)	Canada	USA	St. P&M
Catch (t)	134 (118)	0 (0)	3.51 (3.8)
Unreported (t)	17 (21)	0 (0)	N/A

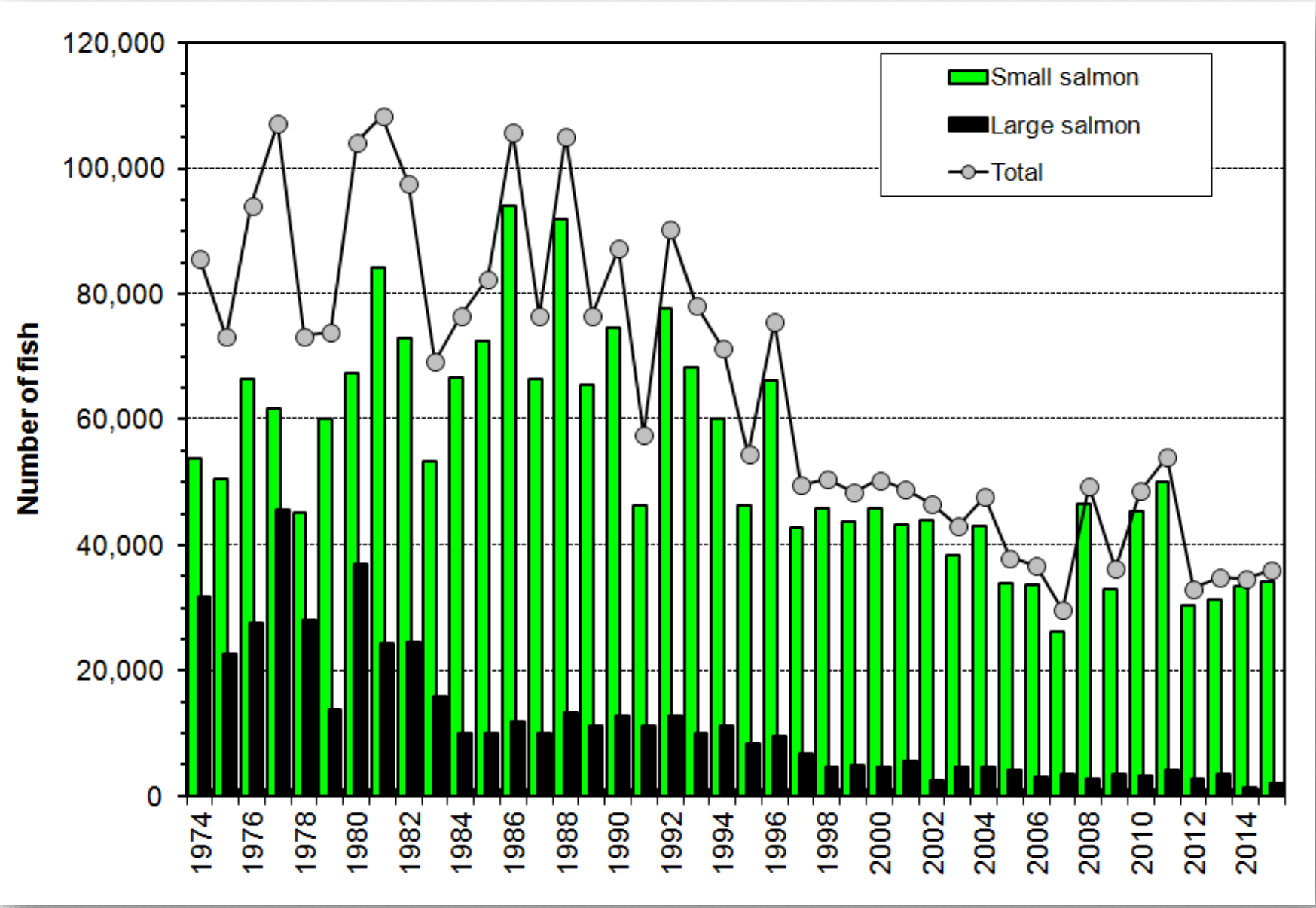




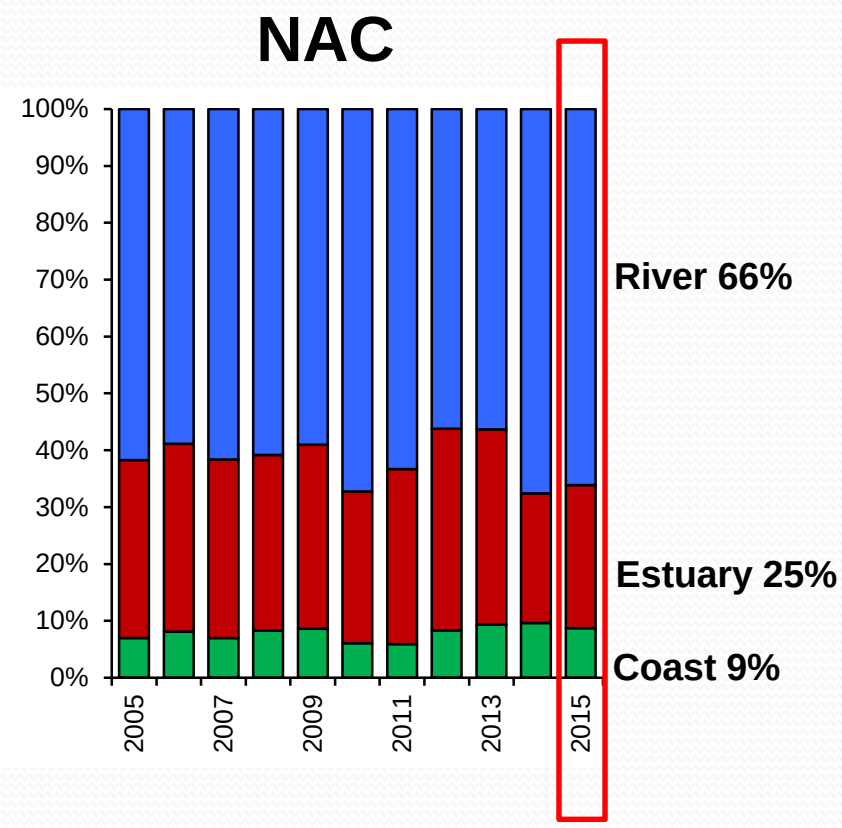


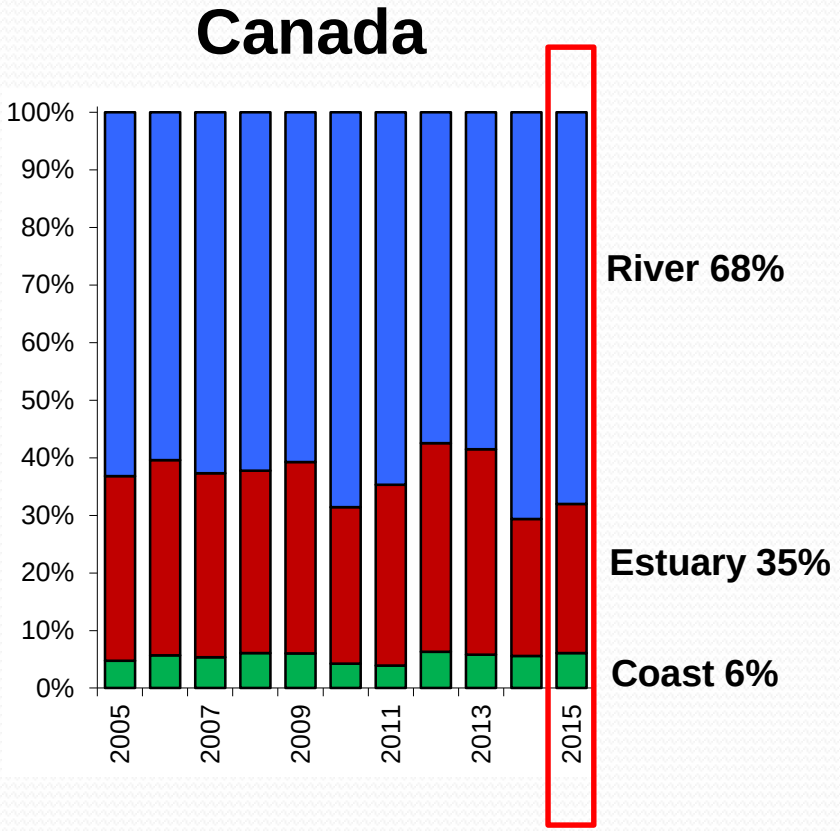
- Large decline in Canadian catches since commercial fishery moratorium (1992 on)
- Total NAC catch in 2015 (137.5t) 13% more than 2014 (121.8 t)

1. Canadian recreational catch (No.)



1. Catch by fishing area - 2015



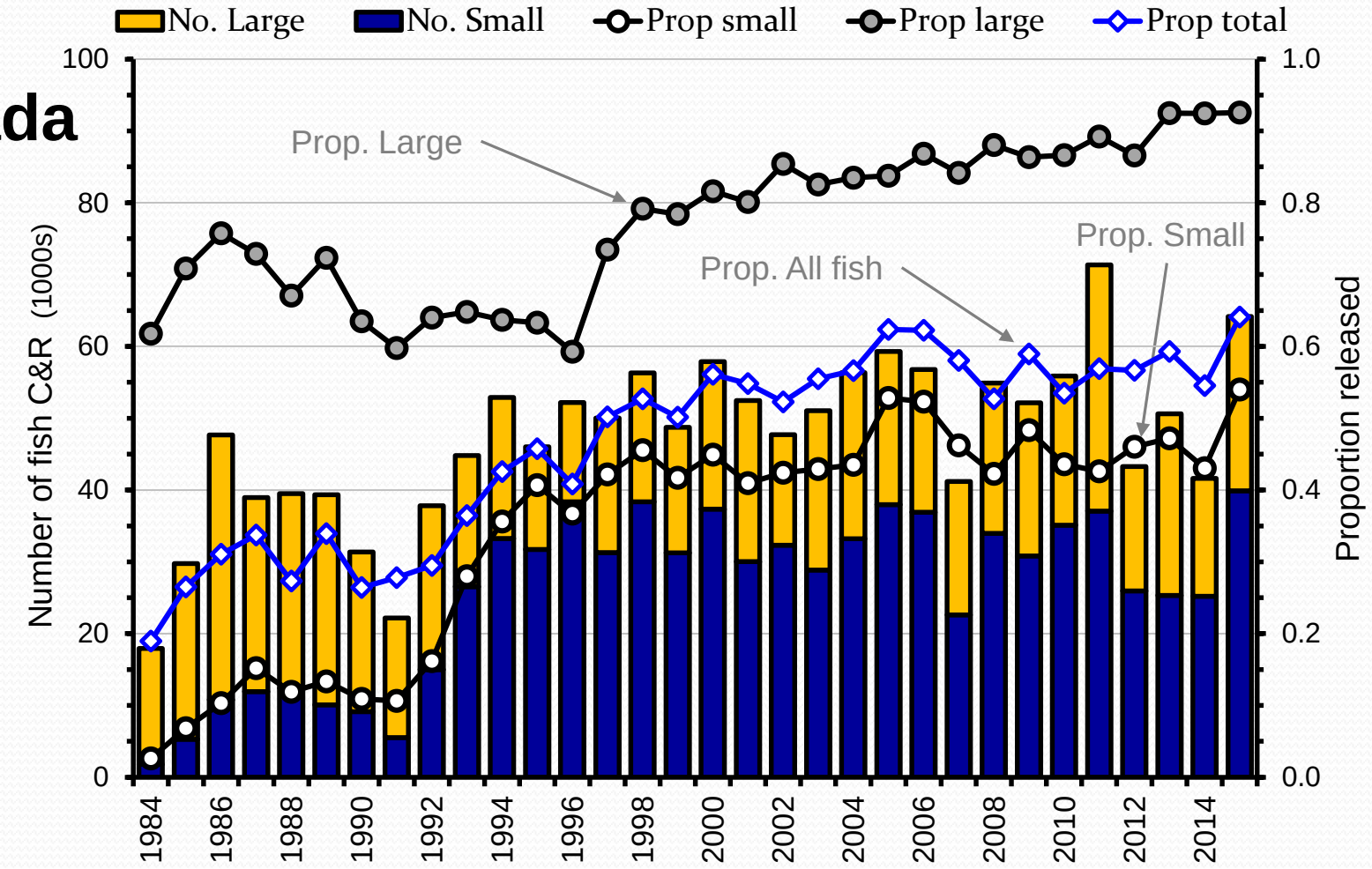


Catch primarily from rivers

St. Pierre & Miquelon: Coast 100%

1. Catch & release: recreational fisheries

Canada



- Approx. 64,200 salmon (~39,900 small and 24,300 large) were reported caught and released in 2015: 64% of total (59% in 2014)
- Proportion released greater than 50% since 1997

1. Origin and composition of catch

Sampling of fisheries which may intercept salmon from other areas of N. America:

Sampling programme for Labrador Aboriginal fisheries

Continued in 2015 - **880** samples collected (5.8% harvest by No.) (*208 in 2014*)

- **212**(*92*) Northern Labrador **204**(*42*) Lake Melville **464**(*74*) Southern Labrador
- **77**%1SW salmon **19**% 2SW **4**% previous spawners
- **98**% river age 3-5, therefore very few from southern N. American stocks (US/Scotia-Fundy), as previous, which are typically river age 1-2

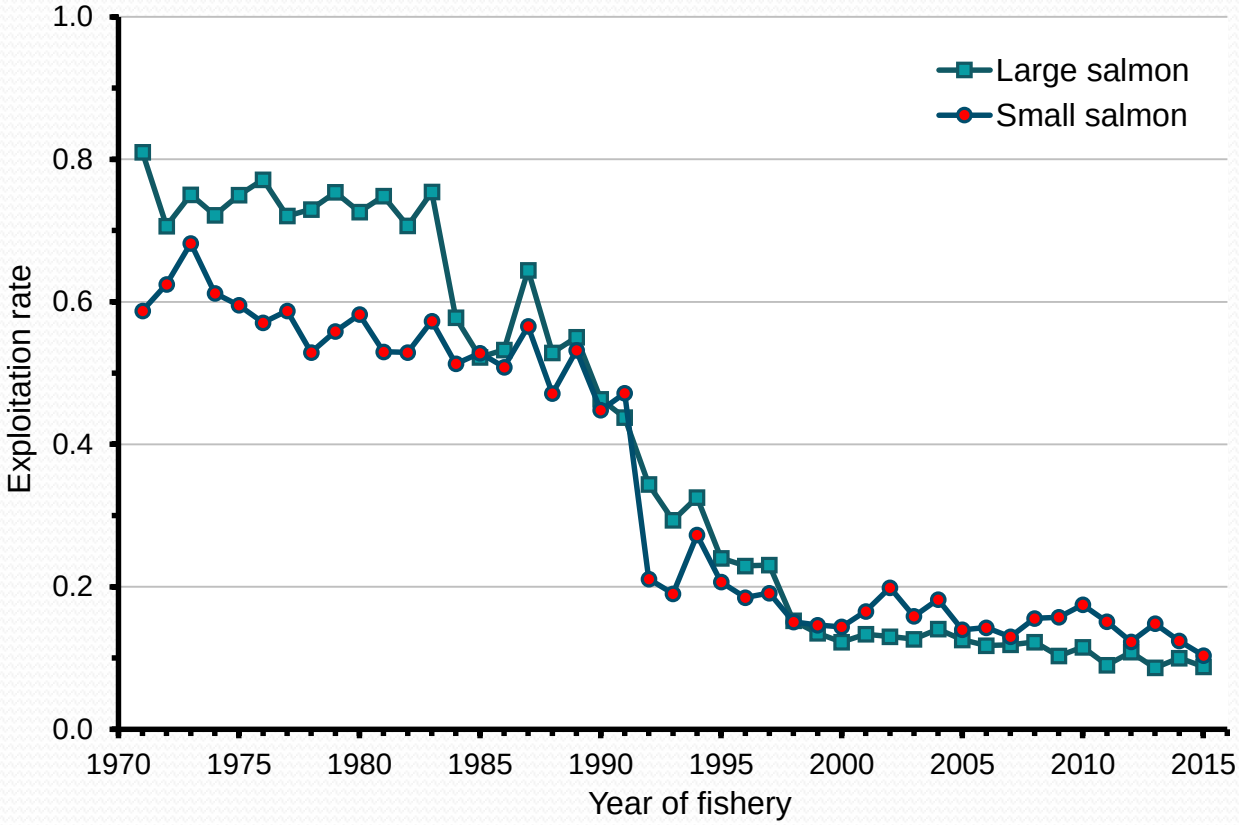
St. Pierre & Miquelon fishery – Sampling

- 2015 - **109** samples collected (26 May - 30 June)
  - Predominantly river age **2** (32%) and **3** (52%)
  - 1SW salmon comprised **73**%

- In 2015 ICES had expressed concern over small sample sizes and recommended expansion
- Genetic analysis planned & will be reported upon completion.

Trends in Exploitation Rates

- Exploitation of large salmon (including 2SW) declined considerably with the introduction of the non-retention of large salmon in angling fisheries (1984) and reductions in commercial fisheries
- Exploitation of small salmon (mostly 1SW) declined following closure of the Newfoundland commercial fishery in 1992
- Declines continued in the 1990s with additional management controls in all fisheries to reduce exploitation
- In the last few years exploitation has remained the lowest in the time-series, averaging 11% for large and 14% for small
- However, exploitation rates across regions within North America are highly variable



2. Update age-specific stock conservation limits

- No changes in 2SW salmon CLs from those used previously

Stock area	2SW Conservation Limit	2SW Management objective
Labrador	34,746	
Newfoundland	4,022	
Gulf of St Lawrence	30,430	
Quebec	29,446	
Scotia-Fundy	24,705	10,976
Canada Total	**123,349**	
USA	29,199	4,549
NAC Total	**152,548**	

3. Describe the Status of the Stocks

Status of stocks is described for six regions in North America

- Labrador
- Newfoundland
- Gulf of St Lawrence
- Quebec
- Scotia-Fundy
- USA

3. Describe the Status of the Stocks

Smolt abundance – estimated for 11 rivers (2015)

- For the majority of rivers – no trend in smolt production
- Significant (p <0.05) declining trends in 5 monitored rivers:
  - Conne River, Newfoundland, Canada (1987–2015)
  - Nashwaak River, Scotia-Fundy, Canada (1998–2015)
  - St Jean, Québec, Canada (1989–2015),
  - de la Trinite, Québec, Canada (1984–2015)
  - Narraguagus River, USA (1997–2015)
- Significant (p <0.05) increasing trend in 1 river
  - Western Arm Brook, Newfoundland, Canada (1971–2015)

3. Describe the Status of the Stocks

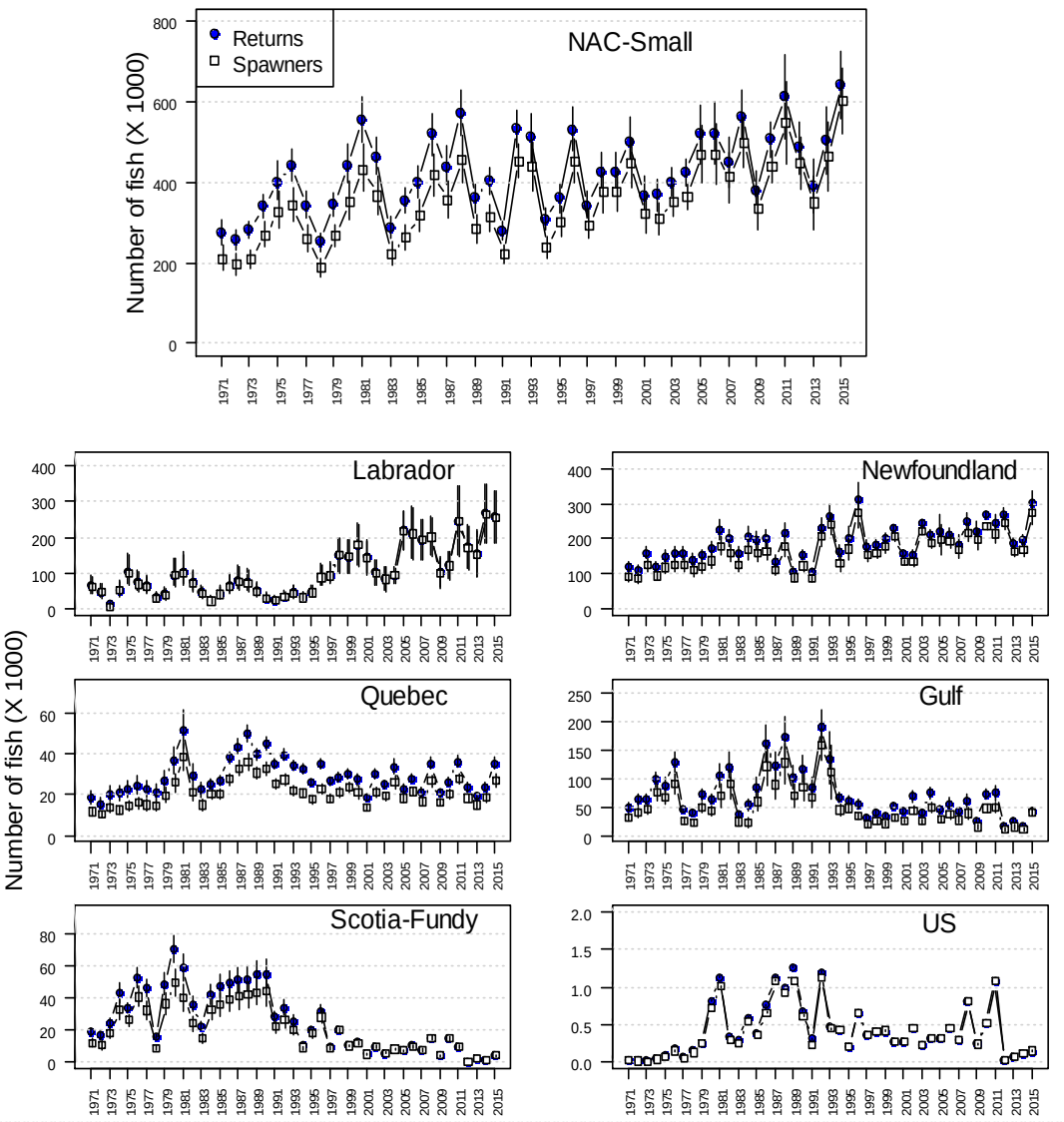
Adult abundance

- Returns and spawners of small (1SW), large (MSW salmon) and 2SW salmon are derived for each region (run-reconstruction)
- Variety of methods – counts at monitoring facilities; population estimates from mark-recapture studies; catch and exploitation rates; measurements of freshwater habitats
- 2SW component of large returns derived from sea-age composition of indicator stocks

3. Describe the Status of the Stocks

1SW (small) returns and spawners - NAC

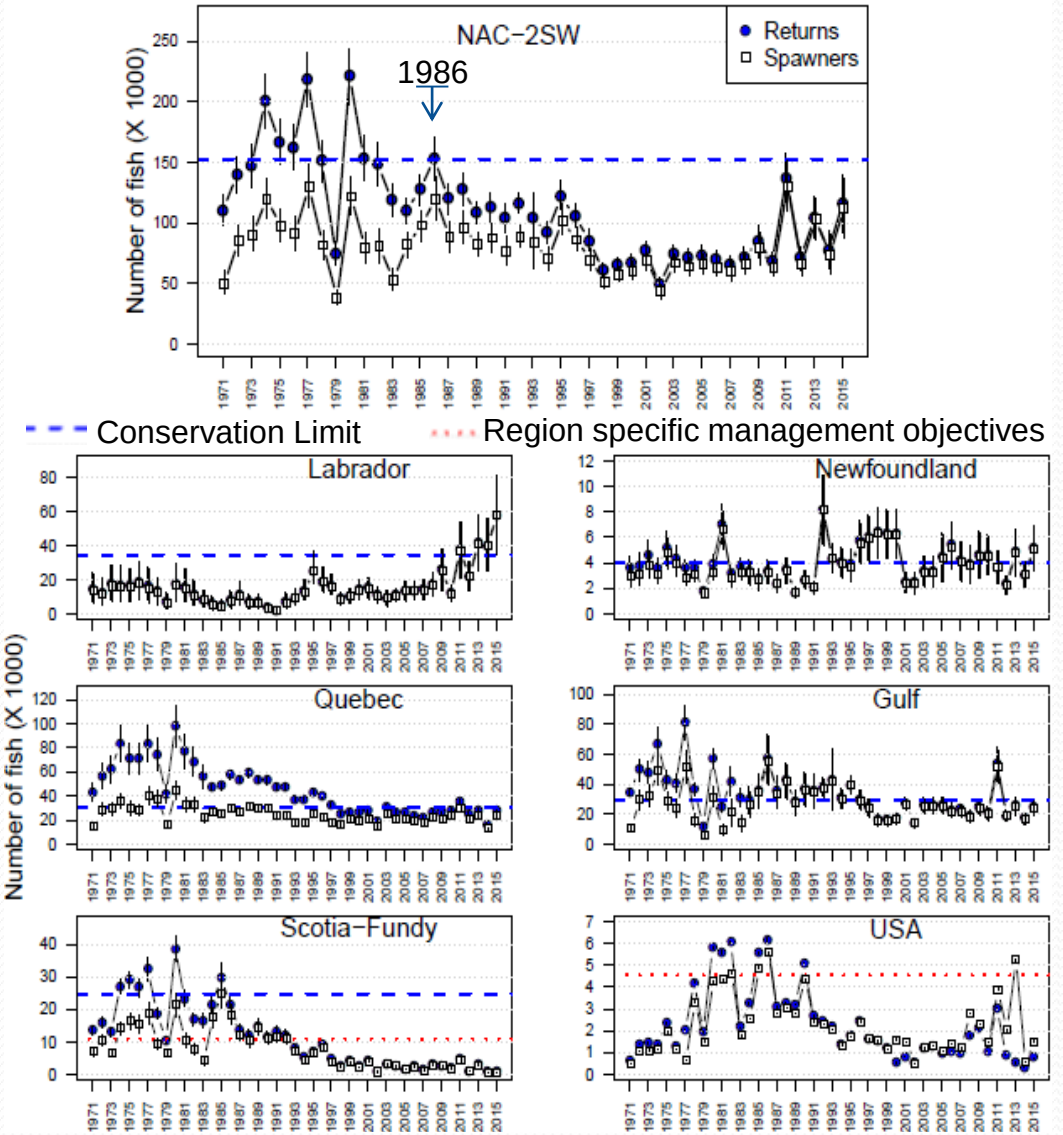
- Small returns (641,100) and spawners (600,650) in 2015 were both highest recorded
- 87% of small returns from Labrador & Newfoundland (40% & 47% resp.) Among highest recorded and trends increasing
- *Noting:* Return estimates for Labrador based on small number of monitoring facilities (1 in N. Labrador; 3 in S. Labrador)
- Elsewhere, 1SW returns & spawners low; with declining trends in southerly regions



3. Describe the Status of the Stocks

2SW returns and spawners - NAC

- NAC 2SW returns 2015: 116,000 (6th highest since 1986)
- NAC 2SW spawners 2015: 112,100 (6th highest since 1971)
- By region: 2SW returns 2015:
  - Highest on record for Labrador, among highest in Newfoundland
  - Lowest on record in Scotia-Fundy, among lowest in Quebec, Gulf and USA
- By region: 2SW spawners 2015:
  - Highest on record for Labrador, among highest in Newfoundland
- NAC below CL; and 4 of 6 regions;
- *Noting*: Return estimates for Labrador are based on small number of monitoring facilities (1 in N. Labrador; 3 in S. Labrador)



3. Describe the Status of the Stocks

Returns of 1SW & 2SW salmon by geographic area in 2015

Region	Rank of 2015 returns 1971 - 2015 (44 = lowest)		Rank of 2015 returns 2006 - 2015 (10 = lowest)		2SW spawners as % of CL (% of mgmt objective)
	Small (1SW)	2SW	Small (1SW)	2SW	**(%)**
Labrador	2	1	2	1	**167**
Newfoundland	2	10	1	2	**125**
Québec	10	32	2	4	**92**
Gulf	34	34	5	4	**80**
Scotia-Fundy	43	45	7	10	**3 (6)**
USA	36	40	7	8	**3 (17)**

- 1SW & 2SW returns among highest in time series in Labrador Newfoundland, while among the lowest in four areas – contemporary over the past 10 plus years
- **Region-specific 2SW spawners above CLs in Labrador / Newfoundland, but below CLs in other regions; poorest performance in the southern regions**

3. Describe the Status of the Stocks

Improvements in Labrador:

Noting that:

- Return for Labrador are based on four monitoring facilities and
- Improvements predominantly reflect counts on one river:

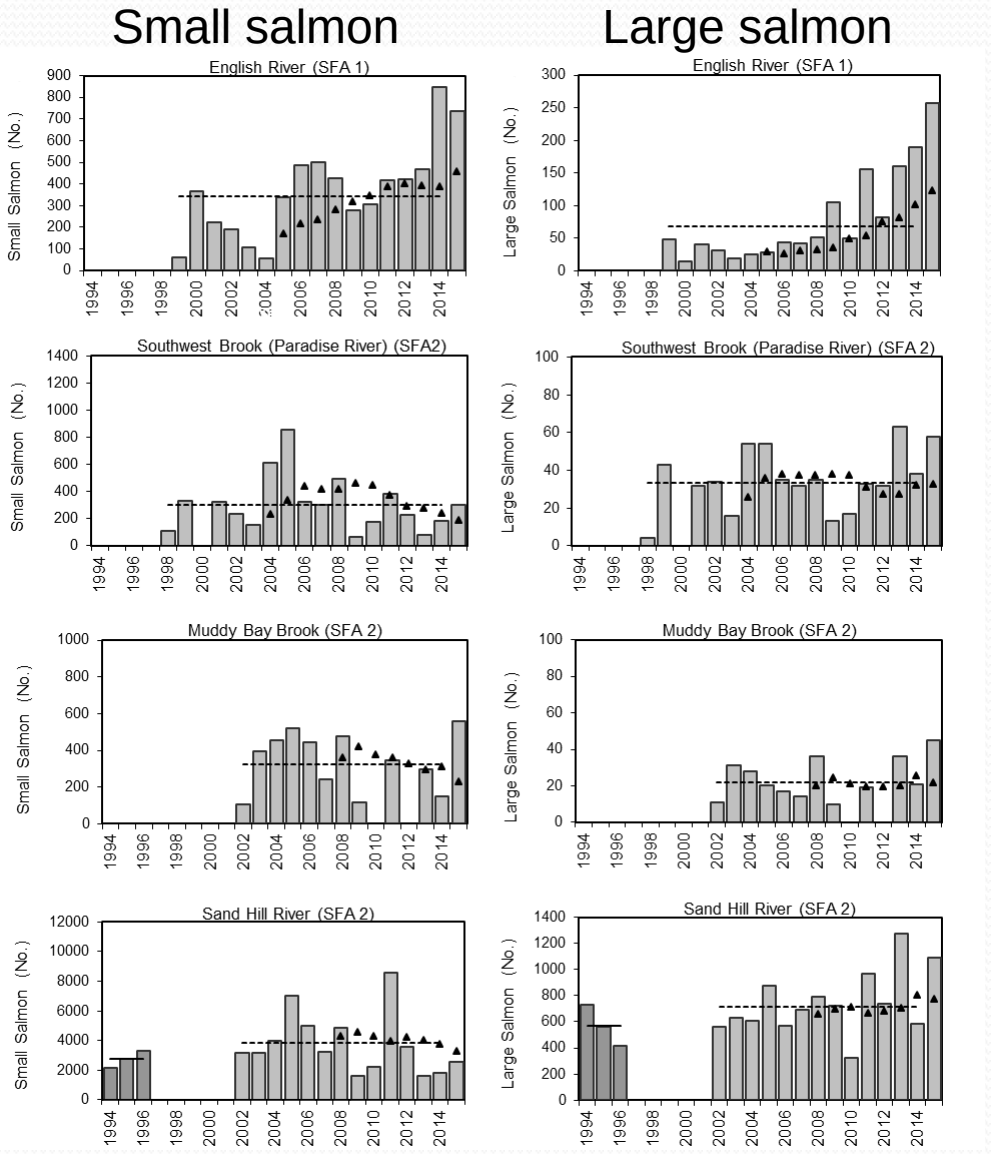
  English river

Additional monitoring recommended in Labrador & evaluation of other data (Aboriginal, recreational catch & effort) to describe stock status.

Solid line: pre-moratorium mean (commercial salmon fishery in Nfld and Lab)

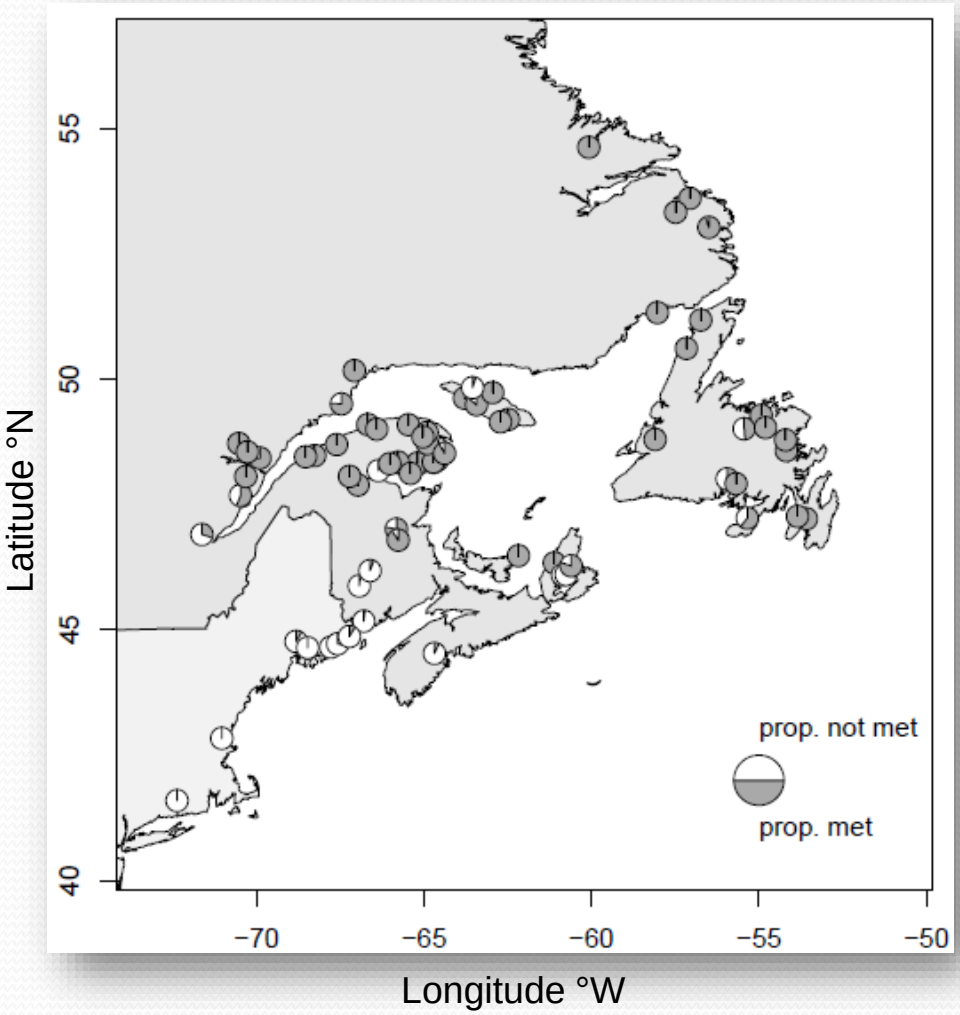
Dashed line: moratorium mean

Triangles: previous six-year mean



3. Describe the Status of the Stocks

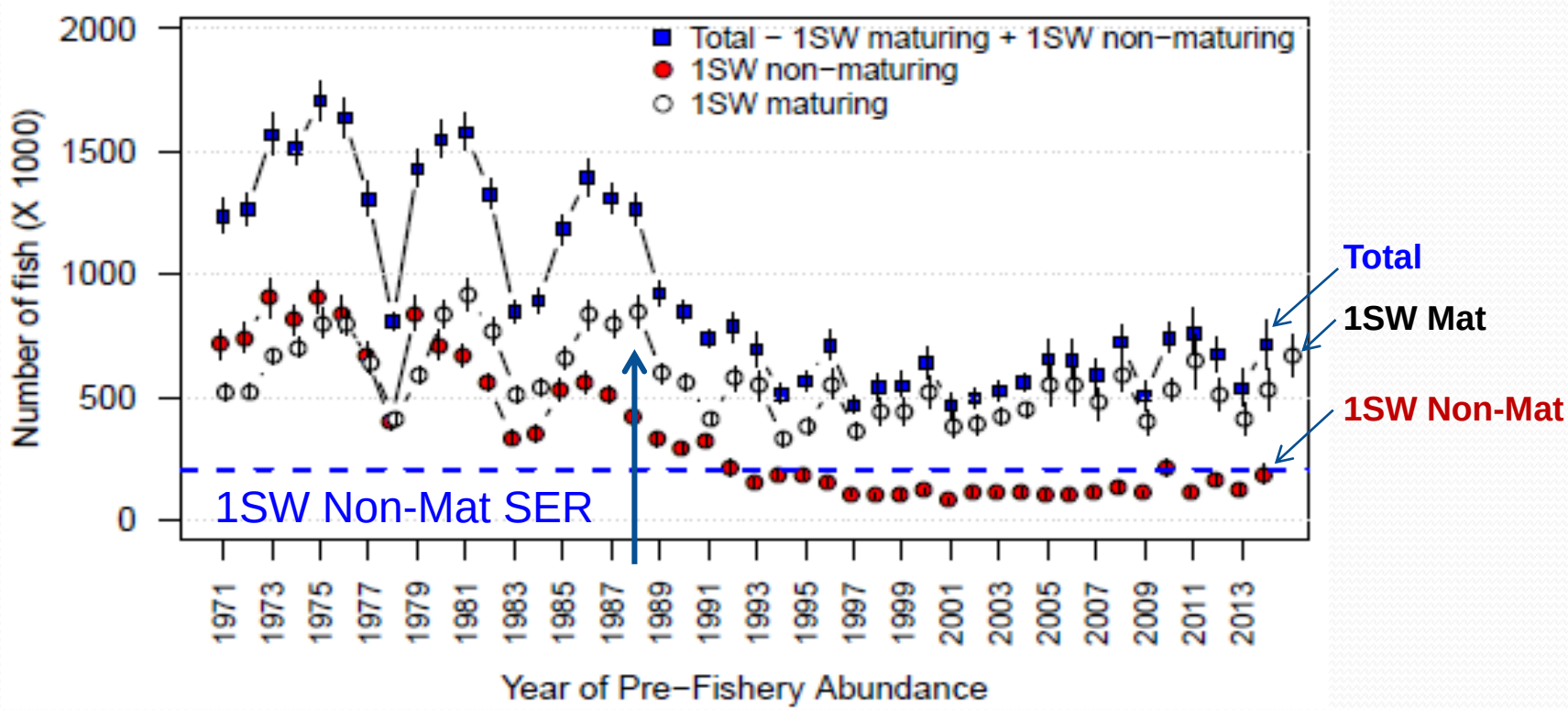
Egg depositions in rivers in 2015



- Egg deposition (all sea-ages combined) met river-specific CLs in 41 of the 64 assessed rivers (64%) (27% in 2014, 60% in 2013)
- 23 rivers (36%) achieved less than 50% of CL
- Particularly large deficits in the southern areas of North America (USA, Scotia-Fundy)

3. Describe the Status of the Stocks

Pre-fishery abundance (PFA)



- Continued low abundance of North American adult salmon
- Total population of 1SW and 2SW Atlantic salmon generally declined from the mid 1970s to mid 1990s, followed by persistent low abundance
- PFA of maturing 1SW salmon in 2015 increased by 27% on 2014; highest since 1988
- PFA of non-maturing 1SW salmon (for 2014) 28% above 2009 to 2013 average but still below SER

3. Summary of Stock Status

- 2SW salmon stocks in four of the six areas are below CL / suffering reduced reproductive capacity, with particularly large deficits in the southern areas (Scotia-Fundy and USA)
- For Labrador and Newfoundland the midpoint of the estimated 2SW spawners exceeded the CL
- Despite major changes in fisheries management, increasingly more restrictive fisheries measures and subsequent reductions in exploitation over the past 25 to 30 years, returns remain low and many populations are currently threatened with extirpation
- Continued low abundance, despite significant fishery reductions and generally sustained smolt production, strengthens the view that factors acting on survival in the first and second years at sea are constraining abundance

4. Provide catch options / management advice

In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:

FWI Did not indicate that reassessment was required

Therefore multiyear management advice provided in 2015 for 2016 and 2017 remains unchanged:

- **No mixed-stock fishery catch options for 2015 to 2018 on 1SW non-maturing and 2SW salmon in North America**

  Noting that:

  This is Consistent with the management objectives defined for the stock complex

  Management advice in the form of catch options is only provided for the non-maturing 1SW and maturing 2SW components, as the maturing 1SW component is not fished outside of home waters

Recommendations

- ICES recommends for future activities:

1. That sampling and supporting descriptions of the Labrador and Saint Pierre & Miquelon mixed-stock fisheries be continued and expanded (i.e. sample size, geographic coverage, tissue samples, seasonal distribution of the samples) in future years to improve the information on biological characteristics and stock origin of salmon harvested in these mixed-stock fisheries

2. That additional monitoring be considered in Labrador to estimate stock status for that region. Additionally, efforts should be undertaken to evaluate the utility of other available data sources (e.g. Aboriginal and recreational catches and effort) to describe stock status in Labrador

Advice generated by ICES in response to terms of reference from NASCO

Supporting information and details in the report of the ICES Working Group on North Atlantic Salmon available at:
http://www.ices.dk/publications/library

Acknowledgements

Members (23) of participating countries (10) to the Working Group on North Atlantic Salmon, 30 March–8 April 2016, in ICES HQ, Copenhagen, Denmark

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