Restigouche 2014

SCIENCE COMMITTEE / COMITE SCIENTIFIQUE

CGBVRR
RRWMC

CONSEIL DE GESTION DU BASSIN-VERSANT DE LA
RIVIÈRE RESTIGOUCHE INC.

RESTIGOUCHE RIVER
WATERSHED MANAGEMENT COUNCIL INC.

SCIENCE COMMITTEE / COMITE SCIENTIFIQUE

Terms of Reference

- advise on science matters pertaining to the management goals and program for the Restigouche Atlantic salmon
- coordinate the planning and implementation of stock assessment and research programs
- review the annual stock assessment for the Restigouche Atlantic salmon
- provide detailed outlines of stock assessment program, and supporting research

Mandat

- aviser sur les aspects scientifiques relatifs aux objectifs de gestion et du programme du saumon de la Restigouche
- coordonner la planification et l'amélioration des programmes d'évaluations et de recherche
- revoir l'évaluation annuel de l' état des stock de saumon de la Restigouche
- Recommandation sur programme d'ensemencement et autres recherches

SCIENCE COMMITTEE / COMITE SCIENTIFIQUE

Committee membership

- DFO Science
- NB DNRE
- Quebec MRNF
- Gespe'gewaq Mi'gmaq Resource Council (GMRC)
- Listuguj First Nation
- Eel River Bar First Nation
- Atlantic Salmon Federation
- FQSA
- RRWMC

Chair

- Paul Cameron (DFO)

Membres du comité

- MPO Science
- N-B MRNE
- Québec MRNF
- Gespe'gewaq Mi'gmaq Resource Council (GMRC)
- Listuguj First Nation
- Eel River Bar First Nation
- Fédération du Saumon Atlantique
- FQSA
- RRWMC

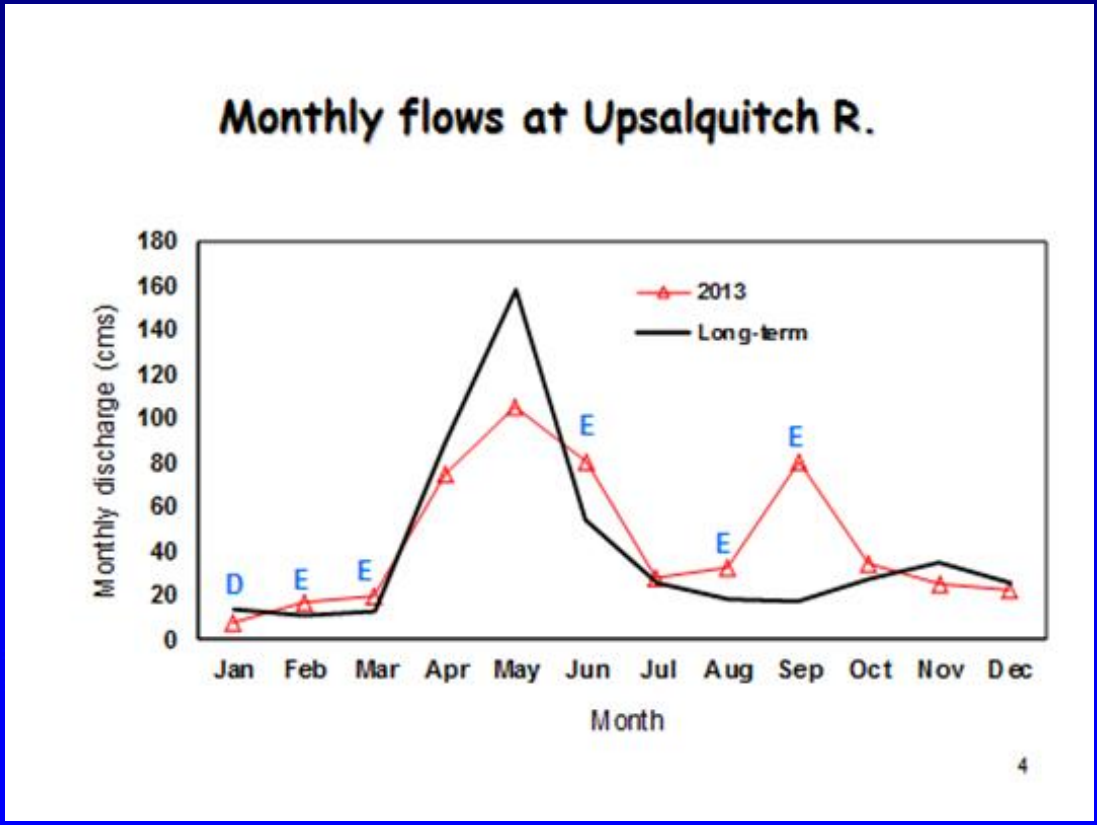
Président

- Paul Cameron (MPO)

Environment / L'environnement

- **High flow of 239 m^3/s was experienced on May 27th, (below the 2-year flood incidence). Excessive flows in February, March, June, August and September.**
- **Deficient flow in January.**

- **Niveau d'eau était supérieur à la moyenne fevrier, mars, juin, aout et septembre.**
- **Niveau d'eau inférieur dans janvier.**



Restigouche (Upsalquitch station) 2013

Environment / L'environnement

- **Water temperatures were close to average conditions in 2013.**
- **Highest July 16th (21.8 - 25.3°C)**
- **Year-round water temperature recorders are located at 21 sites within the Restigouche River all but one were retrieved in 2013.**

- **Températures étaient normale dans 2013.**
- **Température la plus chaude16 juillet (21.8 – 25.3°C).**
- **Capteurs de température durant toute l'année sont distribués sur 21 sites dans la Restigouche – 20 retrouver en 2013.**

Maximum Water Temperatures (2003-2013)
Température de l'eau maximum (2003-2013)

Water Temperatures (2003-2013)

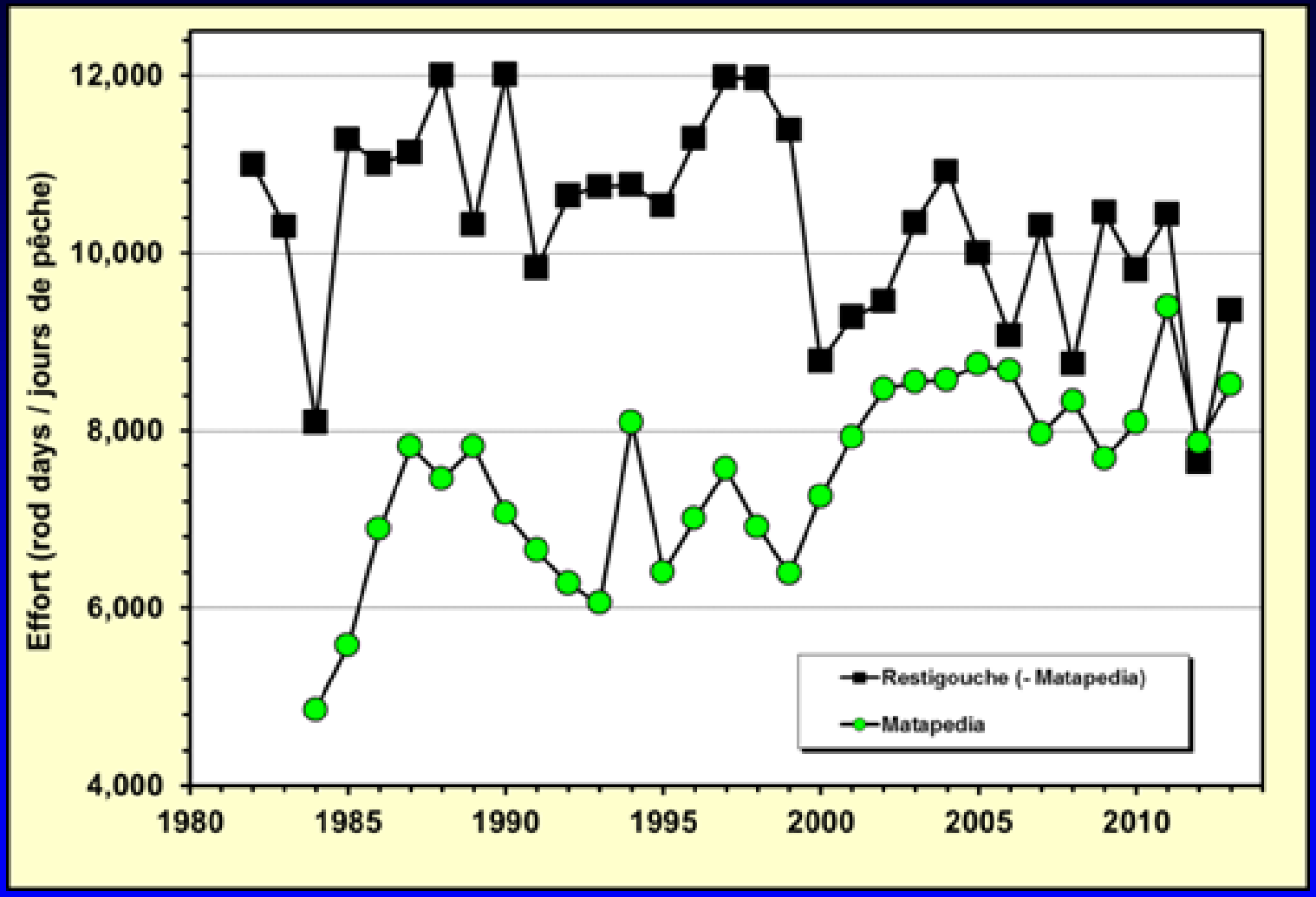
Summer water temperature statistitcs (July & Aug) for Restigouche River and tributaries (2003-2013)

River	2003-2012 Mean	2013 Mean	2003-2012 Max	2013 Max	
Kedgwick River at Forks Pool	14.4	15.5	23.8	21.8	←
Kedgwick River 1 Mile bridge	15.7	16.6	25.3	22.9	
Main Restigouche River at junction pool	16.0		24.5		
Upsalquitch River at Crib Pool	17.1	16.7	25.7	23.3	
Restigouche River at Camp Harmony	17.5	17.3	27.1	25.0	
Patapedia River at 2 Mile	15.2	16.0	23.7	23.0	
Patapedia River at 30 Mile	16.3	16.5	25.9	25.2	
Restigouche River at Indian House	17.4	17.2	25.6	23.6	
Restigouche River at Two Brooks	16.9	17.1	24.5	22.8	
Restigouche River at Brandy Brook	17.4	17.9	27.8	25.1	
Restigouche River at Moses Island	17.6	17.7	25.9	23.6	
Restigouche River at Butters Island	18.2	18.2	27.1	24.0	
N.W.Upsalquitch River at Ten Mile Pool	16.7	16.2	27.5	24.0	
S.E.Upsalquitch above Basket Rock	15.8	15.5	24.5	23.6	
Upsalquitch River at Two Brooks	16.9	16.7	24.5	23.2	
Causapscal River at Barrier	16.1	16.7	26.8	25.3	←
Matapedia River below mouth of Causapscal	17.0	17.7	24.7	24.3	
Matapedia River at Village Bridge	17.0	17.3	25.9	23.7	
Little Main Restigouche River at Boston Brook	15.1	15.4	24.5	22.3	
Larry's Gulch at DFO Meteorological Station	17.8	17.1	24.8	23.2	

Mean temp. very close to average conditions
Max temp. (2013) = 21.8°C to 25.3°C


SPORTS FISHERIES /
Les PÊCHERIES SPORTIFS

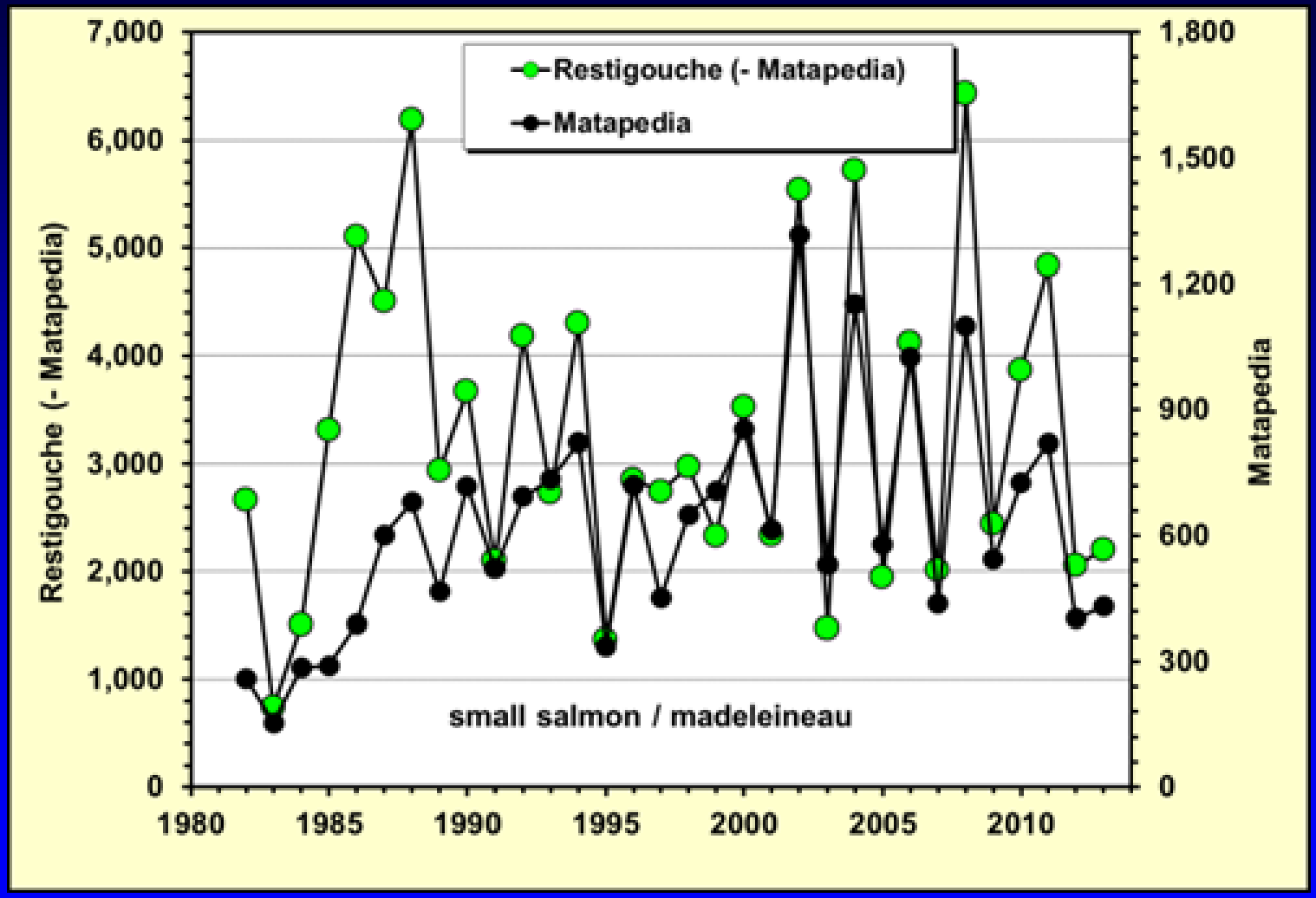
L'effort de pêche été superior dans le Restigouche et le Matpédia en 2013 en comparison à 2012.



Effort was up in 2013 compared to 2012 for both the Restigouche and Matapedia rivers.

Grilse / Madeleineaux

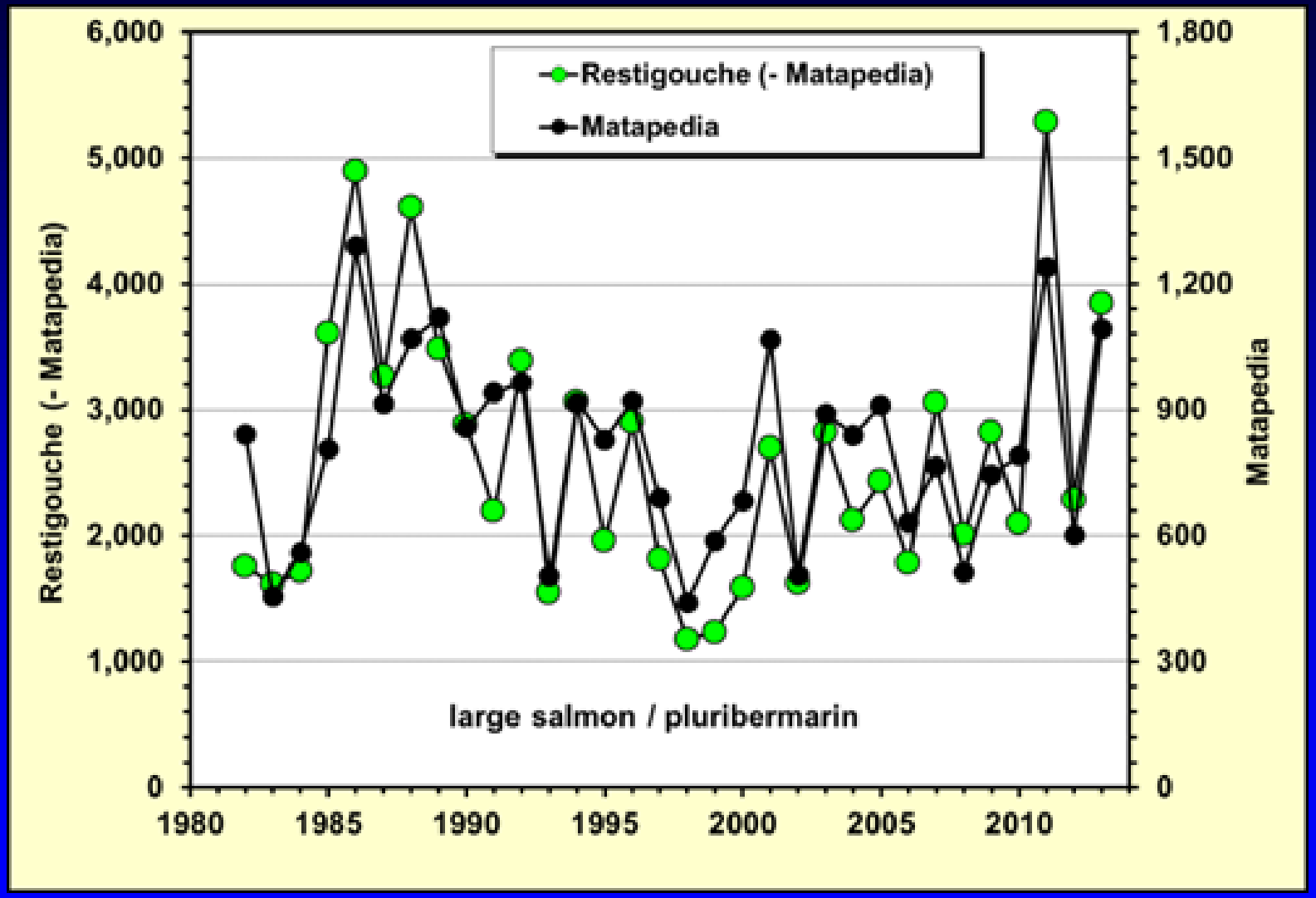
Captures de madeleineaux superior en 2013 en comparison à 2012.



Grilse catches in the system were up in 2013 compared to 2012

Salmon / Saumon

Captures de saumons superior en 2013 en comparison à 2012



Salmon catches in the system were up in 2013 compared to 2012

Returns and spawners / Montaisons et reproducteurs

Returns and spawners / Montaisons et reproducteurs

Restigouche New Brunswick spawner counts conducted in late September and early October were above the conservation requirement for the Kedgwick and near the CR for Little Main Restigouche. Counts on the Upsalquitch and mainstem could not be completed.

-Matapedia: counts indicated egg depositions at 109% of conservation requirement.

-Patapedia: counts indicated egg depositions were 185% of conservation requirements

Décomptes de géniteurs ont superior le niveaux de conservation pour la Kedgwick et pres de le niveau de conservation pour Little Main Restigouche. Décomptes de géniteurs n'été pas possible pour la l'Upsalquitch et la Restigouche.

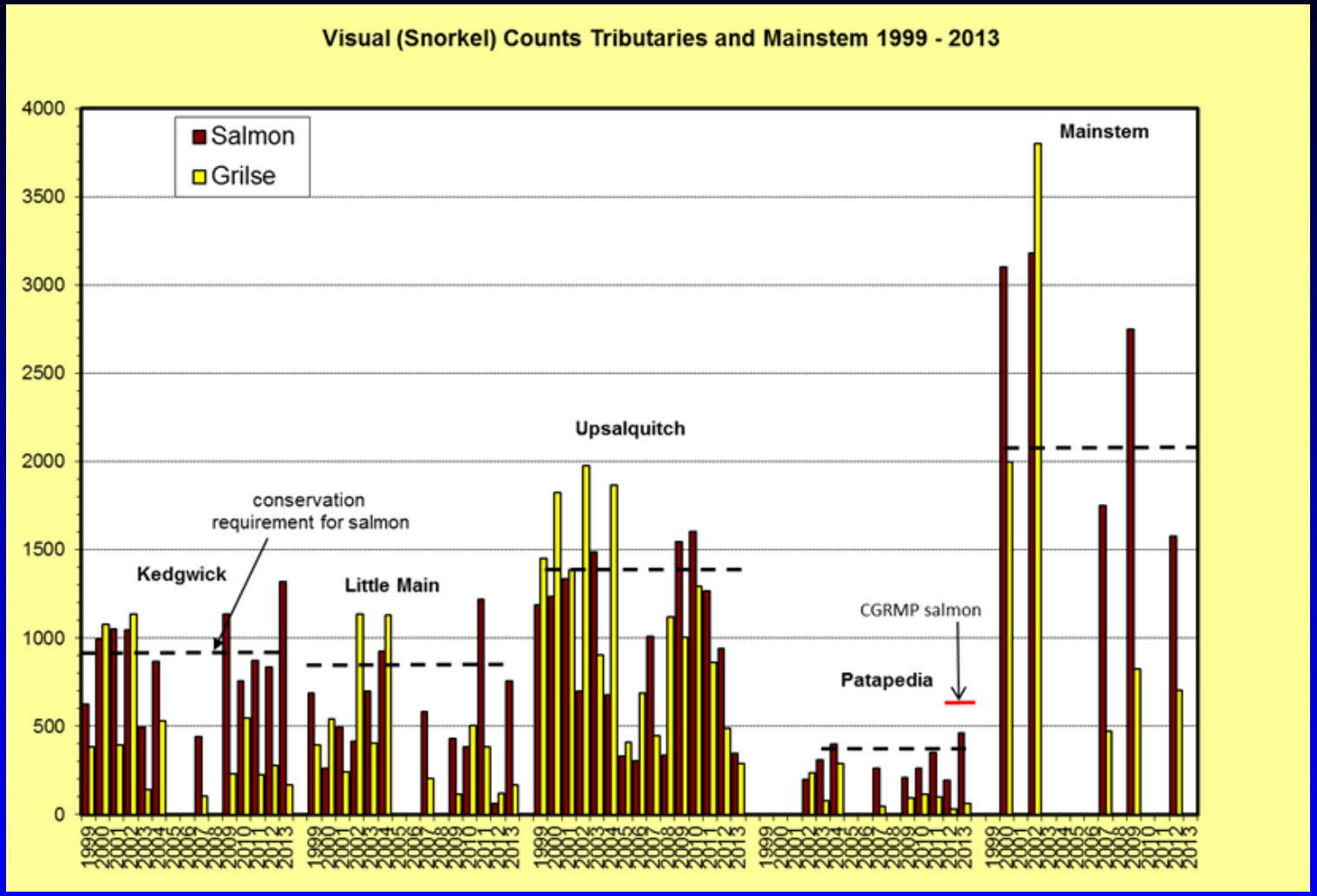
-Matapédia : décompte indique une déposition d'oeufs à 109% du niveau de conservation.

-Patapédia : décompte indique une déposition d'oeufs de 185% du niveau de conservation.

Fall count / Décompte automnale

Rivers / Rivières	Grilse / Madeleineaux	Salmon
Upsalquitch	287	349
Little Main	168	755
Mainstem Restigouche	n.a.	n.a.
Kedgwick	167	1318
Causapscal	93	773
Patapédia	157	645
Matapedia	252	1,111

Note: Upsalquitch – barrier count only

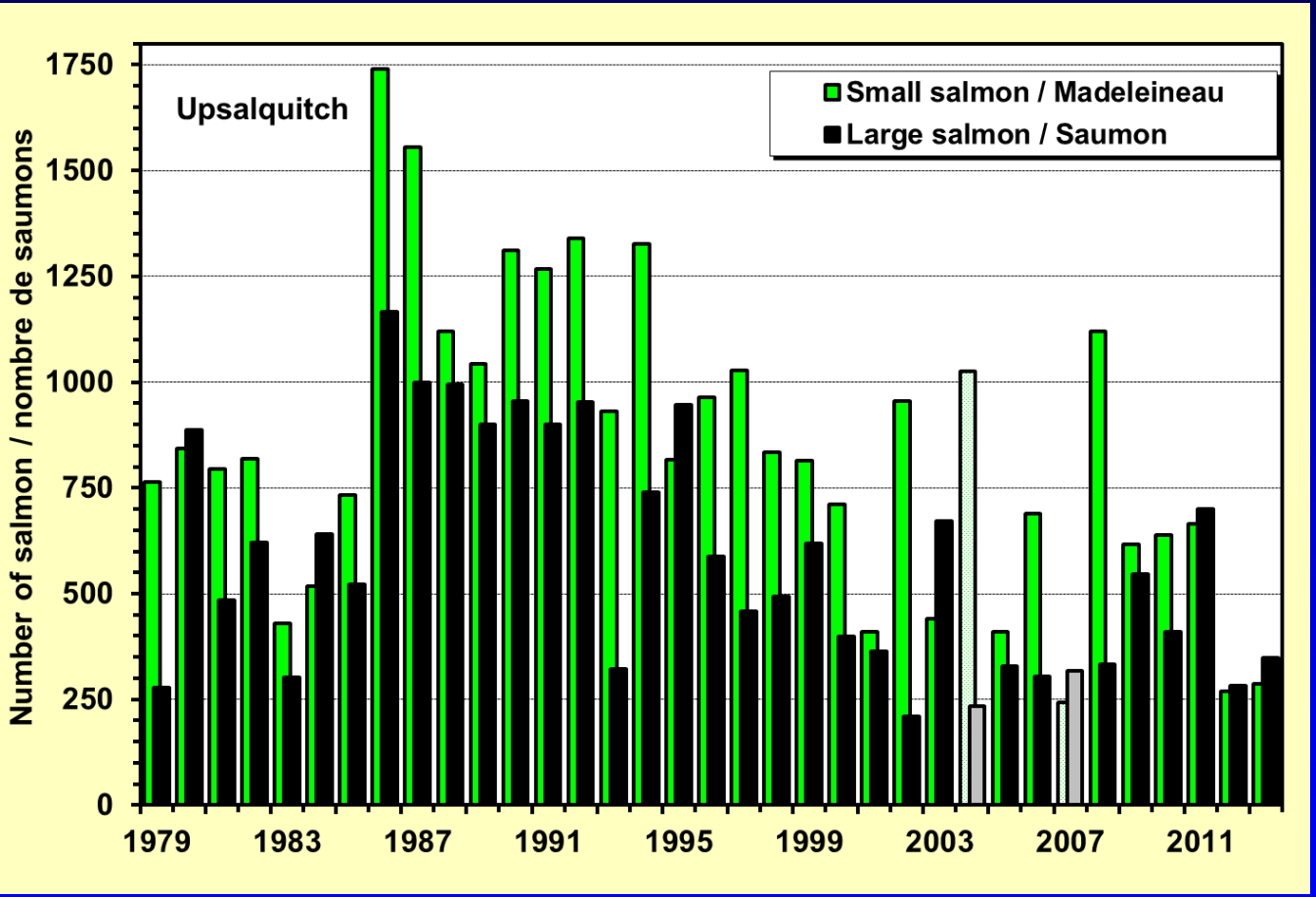


Counts are considered a minimum /

Ces décomptes représentent le minimum de poissons

North West Upsalquitch barrier

Décompte à la barrière de l'Upsalquitch (N-O); madeleineaux et saumons superior en 2013 en comparison à 2012

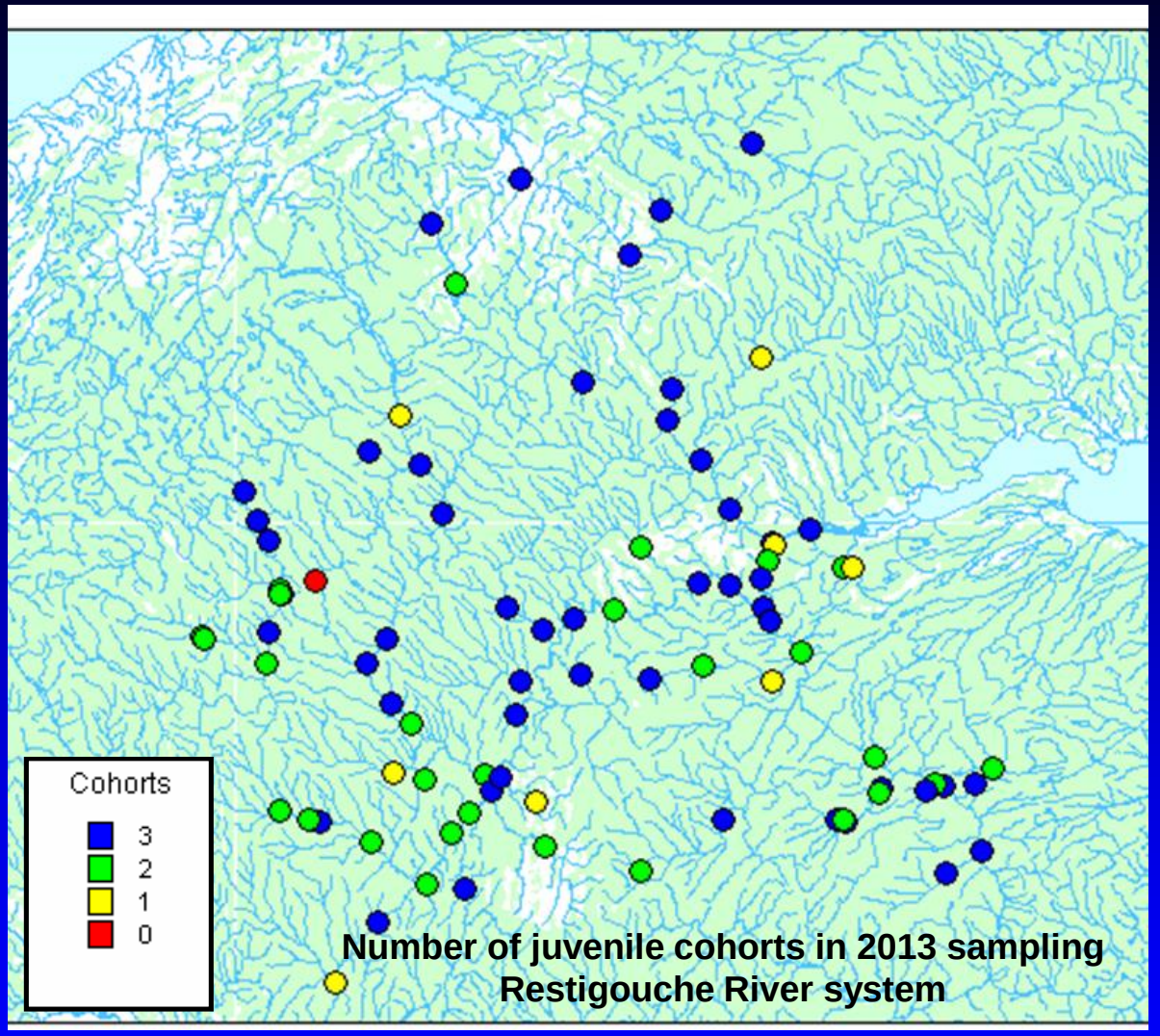


Grilse and salmon counts in 2013 were up compared to 2013
Barrier only operational 65 days – lowest of time series

Salmon juveniles / Juvéniles de saumon

Abundances of juveniles sampled at 87 stations in 2013. Most sites had 2 to 3 juvenile year classes present.

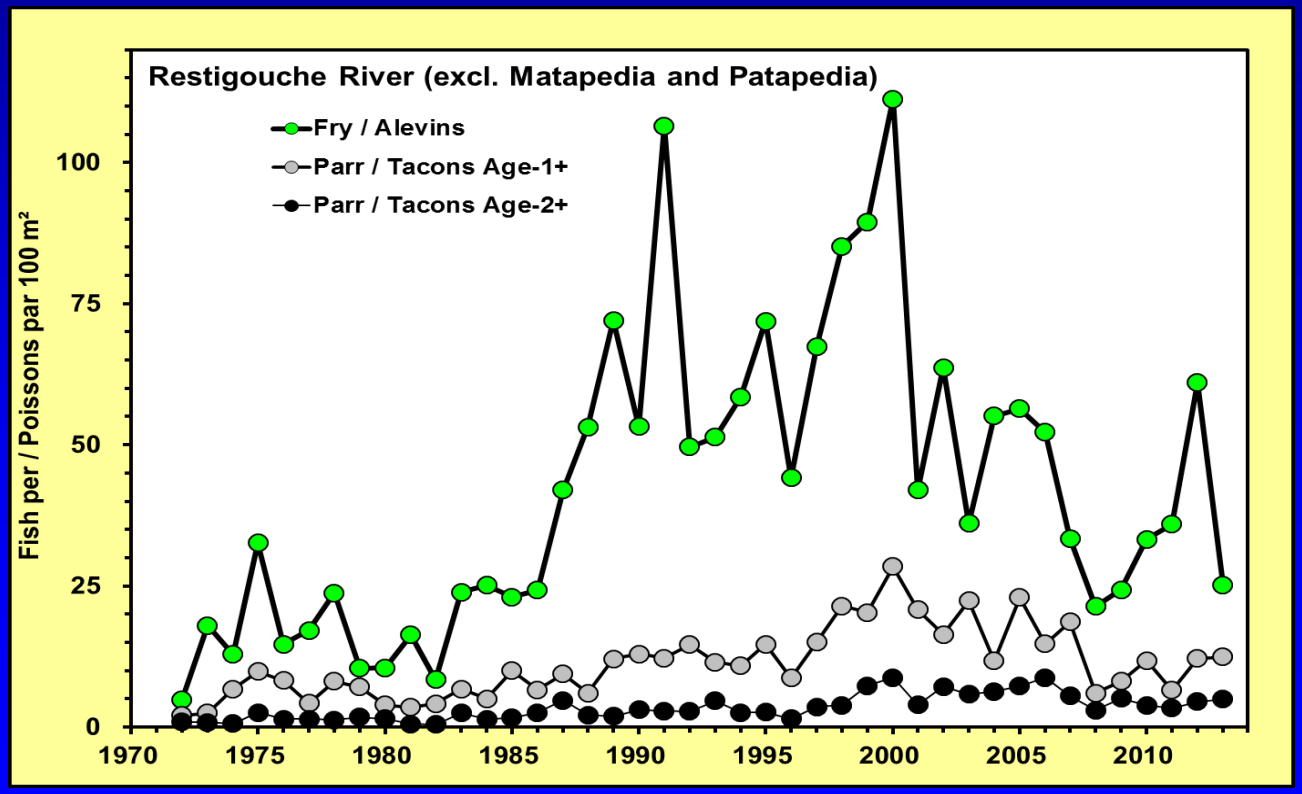
Abondances de juvéniles échantillonnés à 87 sites en 2013. Il y avait de 2 à 3 cohortes de juvéniles dans la majorité des sites



Salmon juveniles / Juvéniles de saumon

Restigouche New Brunswick fry densities are down in 2013 compared to 2012. Small and large parr densities are up overall.

L'abondance d'alevins été inférieures et les petit et gros tacons est plus haut en 2013 que 2012 dans Restigouche Nouveau Brunswick.



Atlantic salmon smolt production and biological characteristics

Caractéristiques et production de saumonneaux de saumon Atlantique

Collaborative Science Project / Projet de Collaboration Scientifique

Listuguj First Nation, Eel River Bar First Nation, Restigouche River Watershed Management Council, Kedgwick Salmon Club, various lodges, Atlantic Salmon Federation, Fisheries and Oceans Canada, N. B. Department of Natural Resources

Atlantic salmon smolts / Saumonneaux de saumon Atlantique

Smolts are the final stage of fresh water production

Objective:

- Is smolt production different among the tributaries?
- Is Atlantic salmon abundance limited by freshwater conditions?
- Is sea survival limiting adult salmon in the Restigouche?

Saumonneaux sont le dernier stade de production en eau douce

Buts :

- Est-ce que la production de saumonneaux diffère entre les tributaires ?
- Est-ce que l'abondance du saumon est limitée par des facteurs en eau douce ?
- Est-ce que la faible survie en mer limite l'abondance de saumon adulte dans la rivière Restigouche ?

Atlantic salmon smolts / Saumonneaux de saumon Atlantique

Smolt abundance / Abondance de saumonneaux

	Kedgwick	Restigouche total
2003	91,800	379,000
2004	131,500	500,000
2005	67,000 (min.)	630,000
2006	129,000	500,000
2007	116,000	1,100,000
2008	110,000	487,000
2009	127,000	491,000
2010	108,600	636,000
2011	275,000	792,000
2012	155,000	842,000
2013	104,000 (min.)	n.a.

Age - Kedgwick 0 % 2yr, 99% 3yr , 1% 4yr

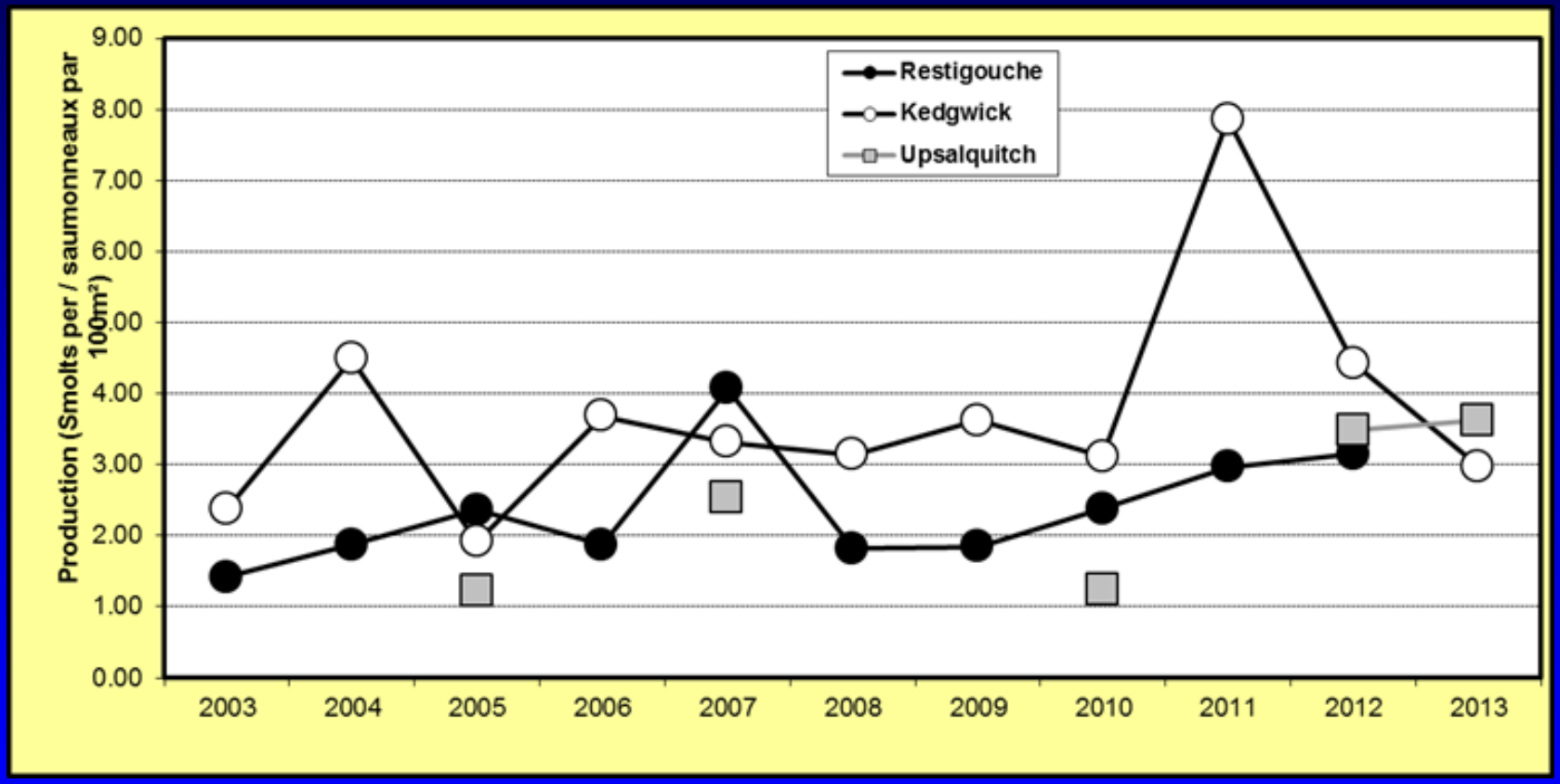
Atlantic salmon smolts / Saumonneaux de saumon Atlantique

Smolt abundance / Abondance de saumonneaux

	Upsalquitch
2003	
2004	na / nd
2005	65,000 (min.)
2006	na / nd
2007	134,000 (min.)
2008	na / nd
2009	na / nd
2010	66,000 (min.)
2011	na / nd
2012	185,000 (min.)
2013	192,000 (min.)

Age - 0% 2yr, 100% 3yr , 0% 4yr

Atlantic salmon smolts / Saumonneaux de saumon Atlantique



2012 - 2013 Restigouche Summary / Sommaire

	2012	2013
Grilse / Madeleineaux	↓	↔
Salmon/Saumons	↓	↑
Angling / Pêche	↓	↑
Conservation	↓	↑↓
Juveniles / Juvéniles	↑	↓
Smolts / Saumonneaux	High	OK

Atlantic Salmon Smolt and Kelt Tracking Update

Jonathan Carr

Restigouche River Watershed Management Committee
Science Committee Meeting
February 4, 2014
Campbellton NB

ASF Smolt & Kelt Sonic Tracking

Finding the ocean murder site

- Sonically tag smolts from a South-to-North cline in rivers
- Follow movements and survival (quantitative) through fresh water and as far out to sea as possible
- Compare patterns among rivers, within and among years
- Document kelt migrations

The “Issue” in summary

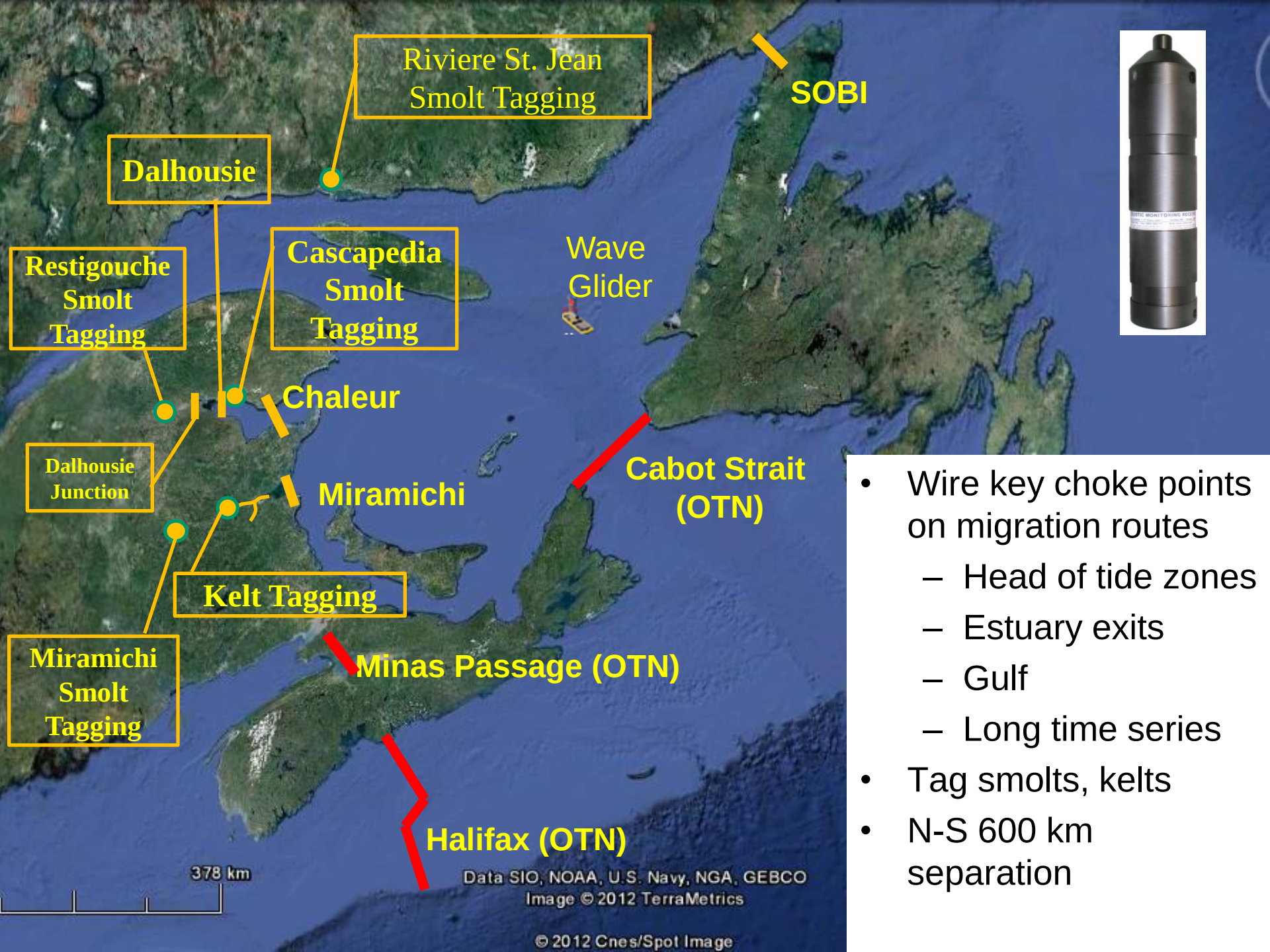
- North American salmon abundance stuck at historic low levels
- Hypotheses re. freshwater, estuary, sea
- High juvenile densities in key rivers
- Points to an unknown problem in ocean
- Follow the problem

Sonically Tagged Smolts & Kelts

	2008	2009	2010	2011	2012	2013
SMOLTS						
Miramichi	80	80	80	80	80	105
– Restigouche	46	81	80	99	105	80
– Cascapedia	40	54	40	45	64	39
– St. Jean (North Shore)	58	44	49	50	42	24
Totals	224	259	249	274	291	240
KELTS						
– Miramichi (sonic)	50	50	50	50	35	16
		Archival Pop up			**10**	**11**
Restigouche (sonic)						25

Stage distances

Tagging site		From tag site To HoT km	From HoT tot to Est Exit Km	From Est Exit to SoBI km
Miramichi				
	Rocky Brook (SW Mir)	127.49	55.91	800
	LSW (Catamaran Brook)	35.88	63.3	800
Restigouche				
	Kedgwick	115.29	125.33	800
	Upsalquitch	30.04	125.33	800
Cascapedia		8.06	6.18	800
Margaree		0.225	9.19	642
St Jean		20	3	655



- Wire key choke points on migration routes
  - Head of tide zones
  - Estuary exits
  - Gulf
  - Long time series
- Tag smolts, kelts
- N-S 600 km separation

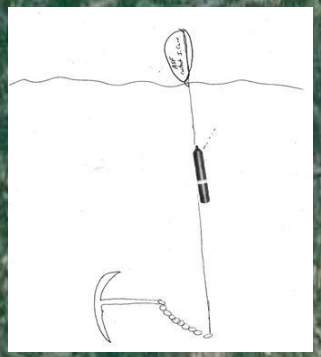
Baies Des Chaleurs Receiver Lines

Restigouche Receivers
3 VR2W Receivers
3VR2 Receivers

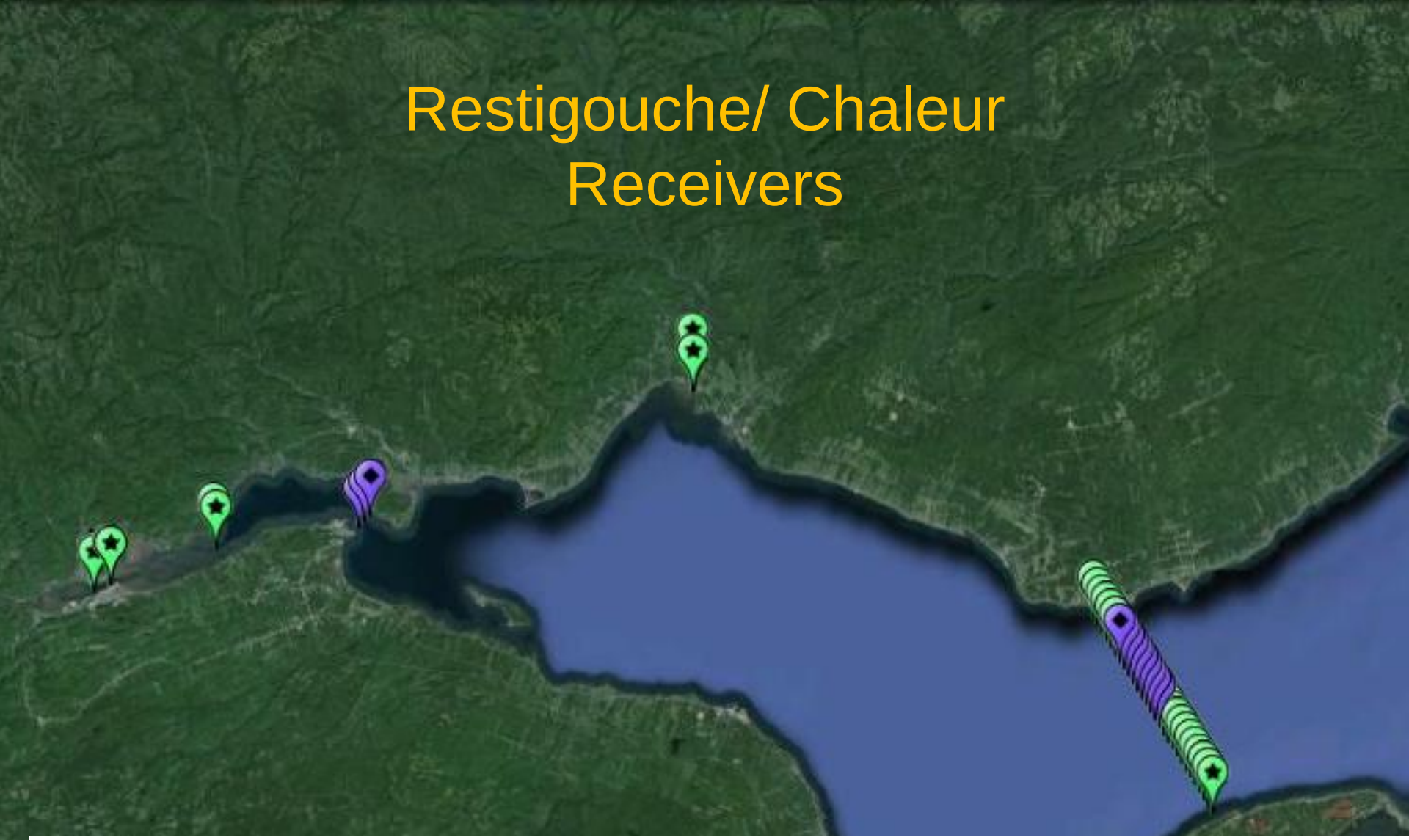
Cascapedia Receivers
2 VR2W Receivers

Dalhousie Receivers
4 VR2W Receivers on
Acoustic Releases

Chaleur Receivers
28 VR2W Receivers
5 on Acoustic Releases
3 Sentinel Tags

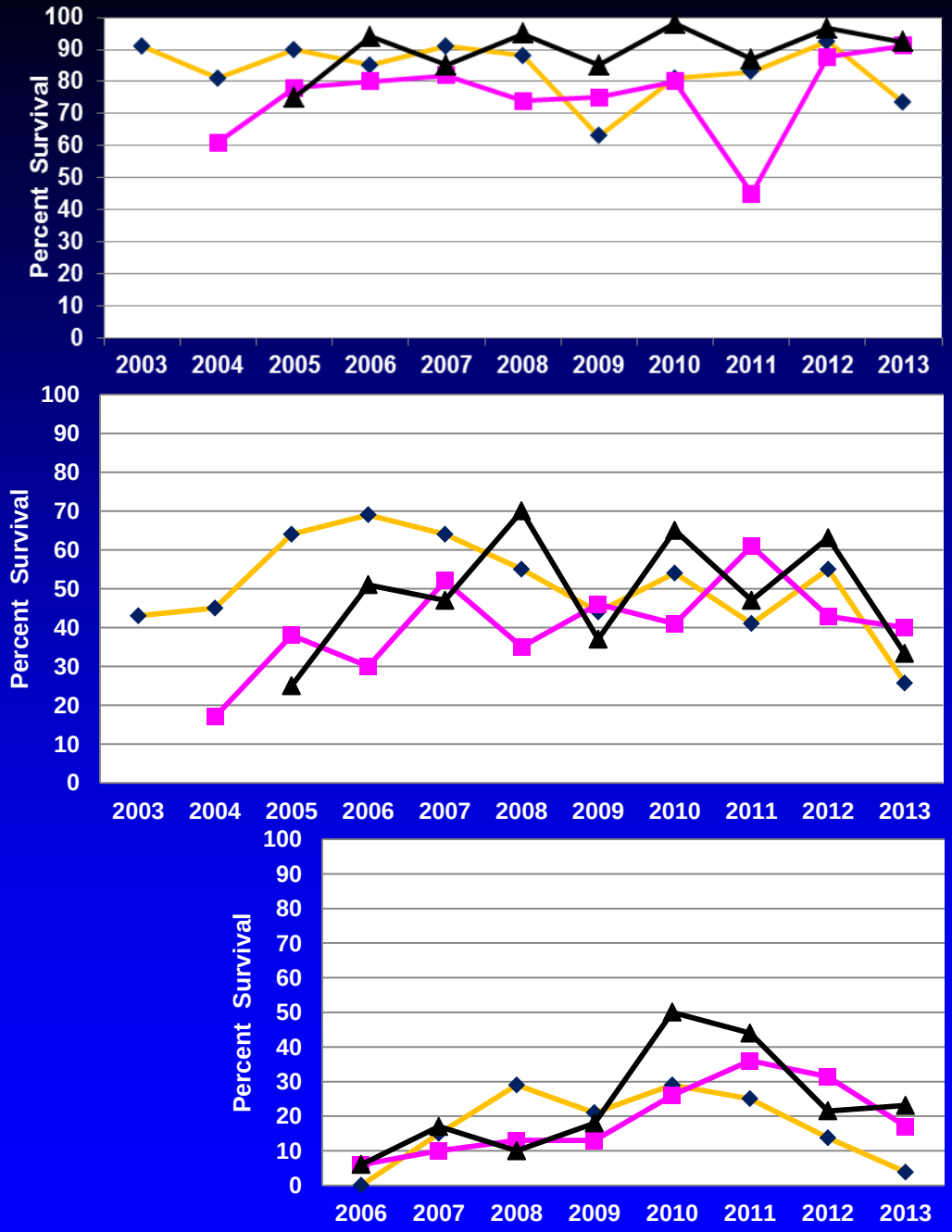


Restigouche/ Chaleur Receivers



% Survival Estimates

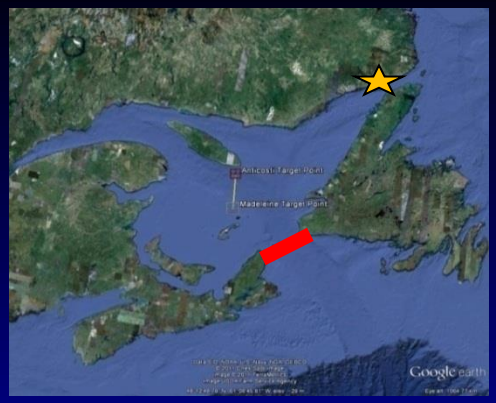
Year	HoT		DalJunct		Dal		Chaleur		SOBI
2012	88%		na	-20%-	71%	-27%-	51%	-39%-	39%
2013	91%	-19%-	81%	-0%-	81%	-51%-	40%	-44%-	18%



Percent Survival HoT

Percent Survival Bay

% Survival Gulf



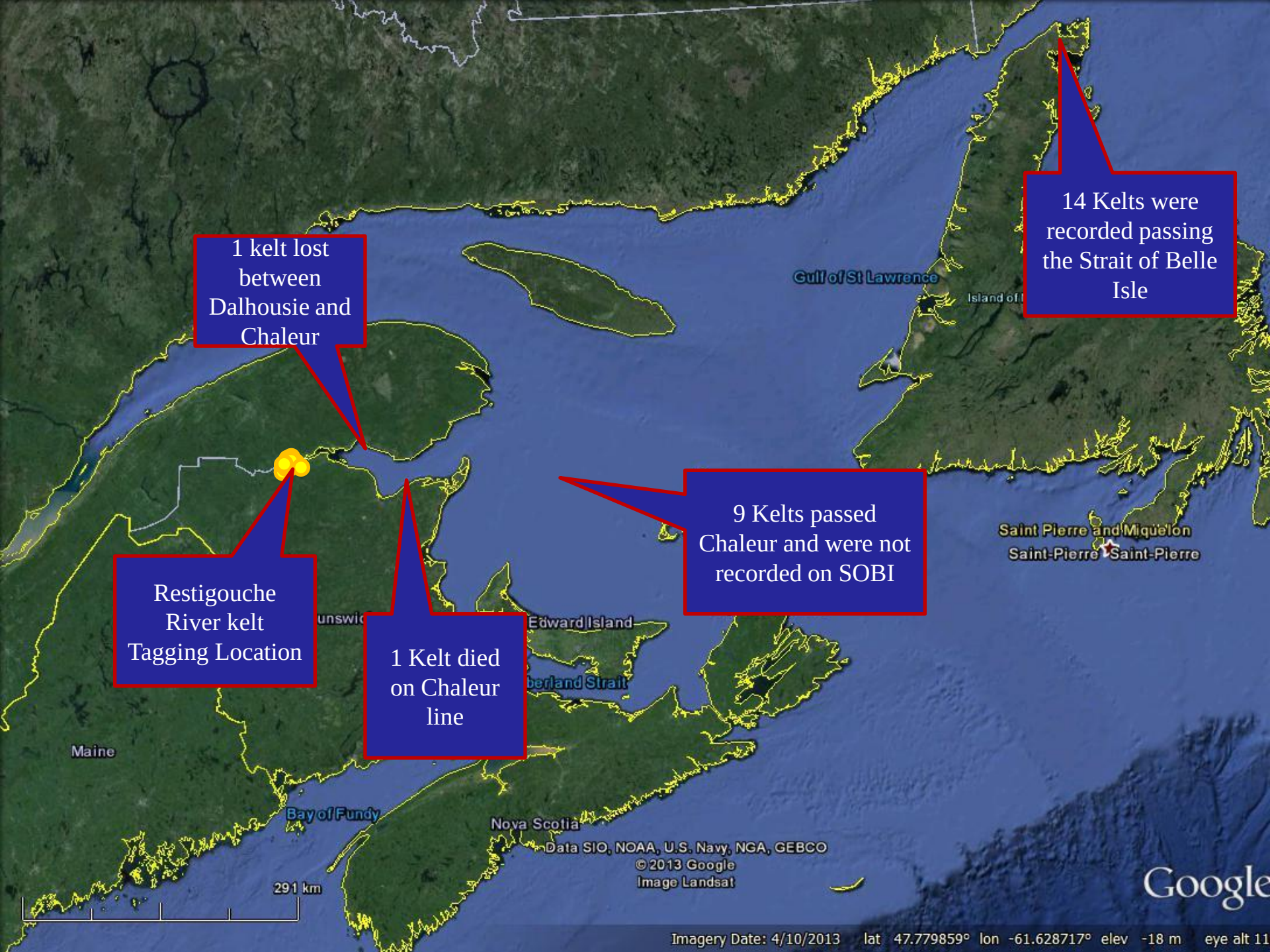
Number of Salmon

2011

RSJ Kelts
Mir Kelts 2012
Casc smolt
Rest smolt
Mir Smolt
Rest Kelts

2012

2013


1 kelt lost between Dalhousie and Chaleur
14 Kelts were recorded passing the Strait of Belle Isle
9 Kelts passed Chaleur and were not recorded on SOBI
Restigouche River kelt Tagging Location
1 Kelt died on Chaleur line
Gulf of St Lawrence
Saint Pierre and Miquelon
Saint-Pierre
Saint-Pierre
Edward Island
Maine
Bay of Fundy
Nova Scotia
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2013 Google
Image Landsat
291 km
Google
Imagery Date: 4/10/2013 lat 47.779859° lon -61.628717° elev -18 m eye alt 11

Other subjects addressed by the Science committee/
Autres sujets discutés au Comité Scientifique

Received an update on Didymo / Situation de l'algue Didymo

- didymo continues to show seasonal and annual variability between rivers.
- in 2013 – persistent blooms on the North West Upsalquitch R.
- extreme didymo event on the Duval River.
- the research project is led by Carole-Anne Gillis.
- volunteer committee continued - 70 volunteers from 22 organizations monitoring 24 different rivers.
- from 2010-2013 more than 1,300 observations.

North West Upsalquitch Protection Barrier

Duval River

Other subjects addressed by the Science committee/ Autres sujets discutés au Comité Scientifique

Received an update on fungus / Situation du champignon Saprolegnia

The RRWMC noted there did not seem to be many fungus affected salmon in 2013.

During visual counts conducted from September 30th to October 7th the snorkel crews noted the observed salmon and grilse seemed to be in generally good physical condition with some fungus noted (a bit more than 2012).

Other subjects addressed by
the Science committee/
Autres sujets discutés au Comité Scientifique

Gespe'gewaq Mi'gmaq Resource Council (GMRC) – project updates

In 2103 GMRC worked with N.B. Power on elver tracking and monitoring on the Nepisiguit River.

GMRC partnered with Pabineau First Nation towards a salmon rehabilitation project on the Little River near Bathurst. The rehabilitation involves the utilization of streamside incubation to hatch salmon eggs and stocking of the resultant fry to acceptable locations in the Little River system. This first year involved the training project staff members.

Other subjects addressed by
the Science committee/
Autres sujets discutés au Comité Scientifique

Gespe'gewaq Mi'gmaq Resource Council (GMRC) – project updates

In the area of salmon conservation the GMRC assisted with the fish friends program in three area schools. It is hoped that the salmon curriculum program developed in 2010 will be implemented at Alaqsite'w Gitpu School (AGS) – fall 2014.

Contaminants research which is ongoing since 2008 continued in 2013 looking at contaminant levels in Atlantic salmon, lobster and clams.

GMRC personnel assisted the ASF with the smolt/kelt receivers and anticipates continuing assistance in 2014.

Other subjects addressed by the Science committee/
Autres sujets discutés au Comité Scientifique

RRWMC – project summaries

Thermal Imaging

- continued to identify and map the location of thermal refugia throughout the Restigouche watershed.
- update the information on the quality and availability of habitat for juvenile salmon for all the tributaries of the Restigouche River.
- Final year of project.

Other subjects addressed by the Science committee/ Autres sujets discutés au Comité Scientifique

RRWMC – project summaries

A beaver dam survey was conducted on the Little Main Restigouche. Electrofishing upstream of these dams determined there were no fry present indicating passage was blocked to spawners in 2012.

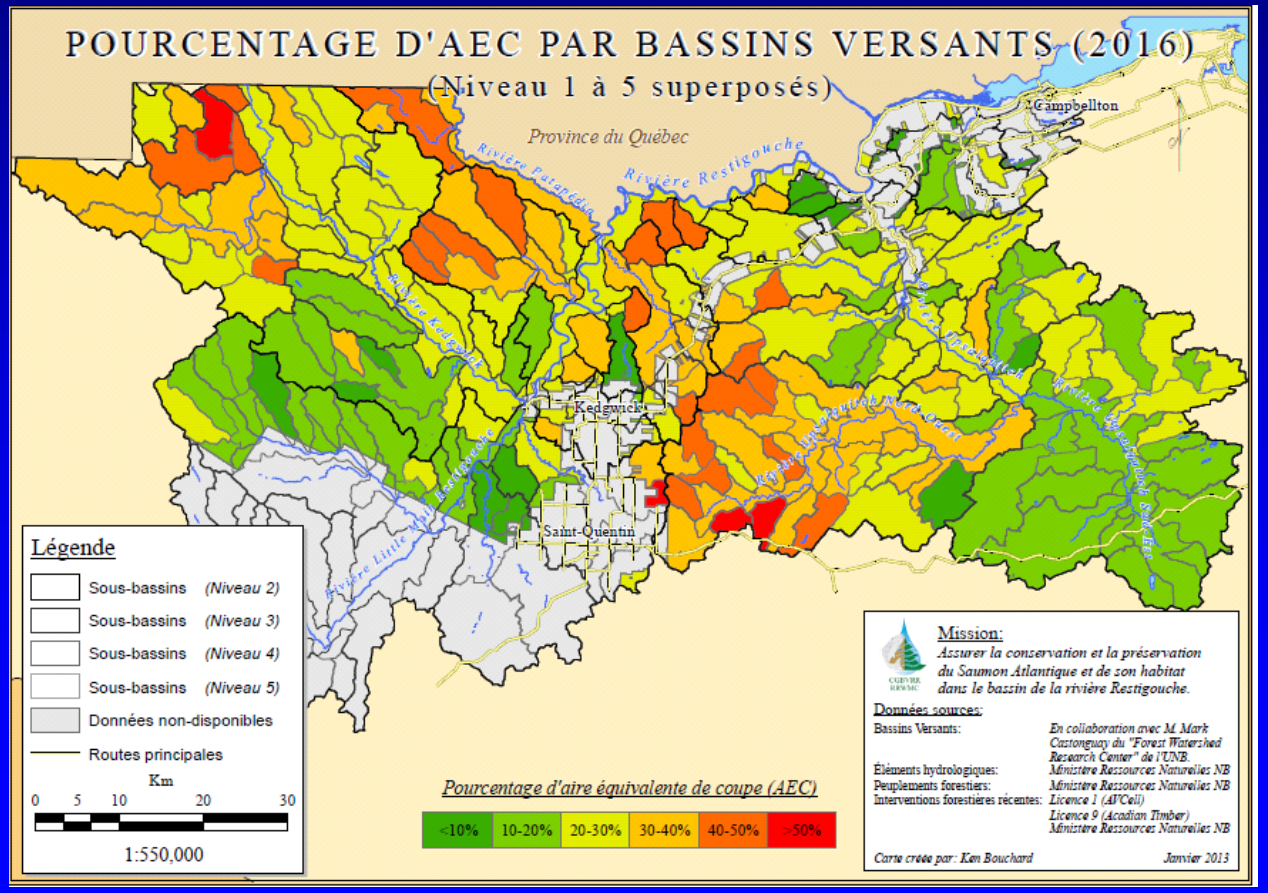
Undertook a survey to determine the number of fin clipped grilse (indicating returns from hatchery stocking) angled on the Upsalquitch.

Three angled rainbow trout were reported in 2013 and were sent to Quebec MNR for sampling.

Other subjects addressed by the Science committee/
Autres sujets discutés au Comité Scientifique

RRWMC – project summaries

Continued work on equivalence cuts - which measures the impact of forestry activities on watersheds



Other subjects addressed by the Science committee/
Autres sujets discutés au Comité Scientifique

Representatives of the organizations present summarized their tentative work activities for the upcoming field season.

Thanks / Remerciements

- All those camps who reported their very important statistics
- Participating individuals and agencies
- New Brunswick Wildlife Trust Fund