

Guysborough County Inshore Fishermen's Association

Training and SFPFRTA Update

GCIFA and SFPFRTA, network coordinator (Ginny Boudreau) has coordinated industry training in 2010-11 for Guysborough and Richmond County fishermen. We also had a few Gulf region fishermen attend our training as well as offshore participants. The training has been held in Canso, at the GCIFA training Hall and in the New Harbour Community Centre. We were very, very fortunate to access some training dollars to assist with the course fees in 2011 through the SFPFRTA for courses listed below. A big thank you for their efforts and continued support.

- 3 - Marine First Aid
 - 3 - ROC-MC Radio Operators
 - 2 - SVOP
 - 1 - MED A1
 - 1 - SEN-L Simulated Electronic Navigations
- Class IV online training was offered as well

GCIFA partnered with the Department of Education Skills Development Training in four programs in 2010-11. Patricia Rhynold delivered 2 Market Research programs (New Harbour / Canso) that offered fishermen and their crew's information relating to online searches for marine related topics "Fishing Online – How the internet can assist your Fishing Enterprise" Patricia Rhynold and Jerome Boudreau offered classroom tutoring and preparation for Transport Canada Exams relating to the online Fishing Master Class IV program.

SFPFRTA has been successful in gaining another year of funding to provide information sessions and training coordination to the Scotia Fundy Region. Any captains or crew members needing industry training or have questions as to what certification they require please contact Ginny. If you need information regarding industry forms or assistance filling out forms please contact Ginny.



GCIFA took 2nd place at the Christmas Community dinner 'Festival of Trees'. Our theme was an ocean theme with beautiful sea shells

GCIFA has been successful in getting a Provincial Summer Student for 14 weeks and Larissa Childs of Hazel Hill has been hired. Larissa is completing a Bachelor of Science at Dalhousie University. A Federal Summer Student for 8 weeks has also been awarded but a student has not been hired to date. As well Miles Jackson is returning for the summer as our lobster intern funded through the Atlantic Lobster Stimulus Measures.

"Why don't lobsters share? They're shellfish."

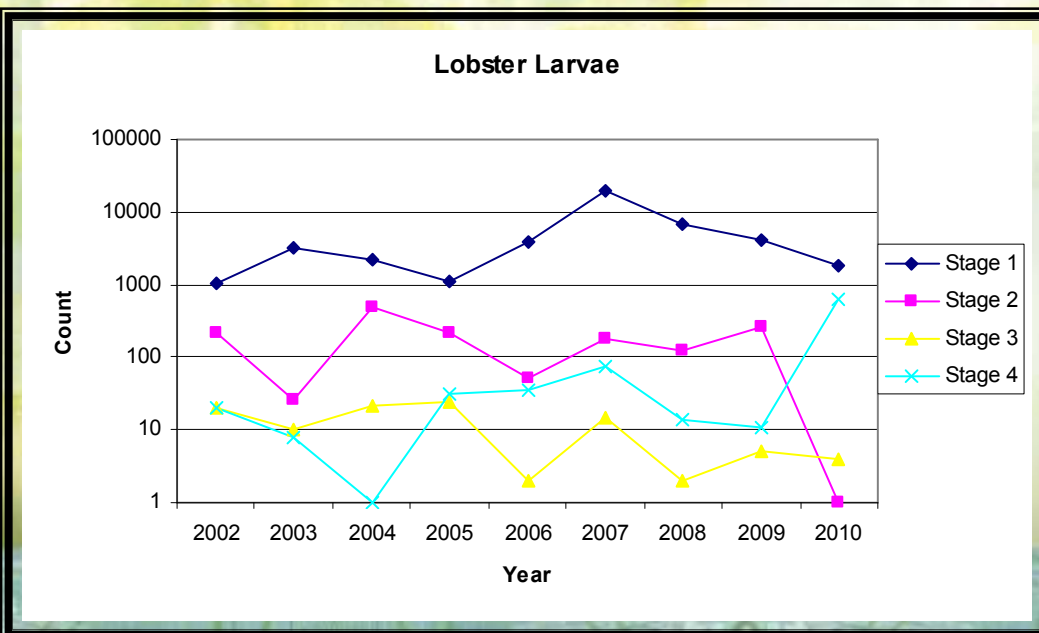
Sea Sampling

Port	# of days sampled	Average Lobsters /traps	Average Carapace (mm)	Average Sex Ratio, Male: Female (berried females included)	Average # of berried females
Canso	5	2.80	88.14	44:56	83
Dover	4	3.35	86.35	48:52	113
Whitehead	3	3.63	88.74	42:58	87
Queensport	3	2.40	83.78	54:46	68
Port Felix	3	2.48	87.27	47:53	74
Cole Harbour	1	4.30	86.90	51:49	160
New Harbour	4	2.51	86.19	43:57	58
Drumhead	1	3.95	88.73	41:59	112

Port	Average Ratio of Markets vs Shack, Berried and Windows	Average Highest % of Bycatch
Canso	64:36	84% Sea Urchin
Dover	54:46	50% Rock Crab
Whitehead	70:30	42% Sculpins
Queensport	41:59	85% Rock Crab
Port Felix	64:36	76% Sculpins
Cole Harbour	61:39	63% Rock Crab
New Harbour	67:33	47% Sculpins
Drumhead	74:26	63% Rock Crab

This year during sea samples we looked at what was being put back into the fishery as well as bycatch. On average 31A fishermen throw back 43% per day. This includes all lobsters under 82.5mm (males, females and berried) as well as those berried over 82.5mm and window lobsters. On average 31B fishermen throw back 34% per day. This includes all lobsters under 82.5mm (males, females and berried) as well as those berried over 82.5mm and v-notched lobsters. In all sea samples there was no AT RISK or endangered species caught in the traps.

Larval Tows



In this graph, there is a large drop in the amount of stage II's seen. The reason for this may be that we missed them since the berried females released much earlier in the season compared to 2009. We saw a vast increase in the amount of Stage IV lobsters. This may have been caused by an early release of eggs by the many small berried females; with favorable weather conditions the early released larvae had an increased chance of survival. (ie. increase in temperature and decrease in rainfall)

Lobster Maturity research in Canso and Nova Scotia

By Angelica Silva, Research Scientist, Fisheries and Oceans Canada

A research project of the Lobster research Unit at Fisheries and Oceans to study lobster maturity in Canso was initiated in 2008 to first establish a feasible protocol to determine lobster maturity. Since then, and in collaboration with GCIFA, we are now conducting the 4th year of sampling and have done verification of maturity from readings of cement gland development and ovaries. A preliminary account of results indicate that until June 2010 we have sampled over 2000 females and found that those above the minimum legal size are generally mature (between 60-90%) but it does vary with time of sampling and year. Of interest also was to evaluate if those that are "shorts" (smaller than the minimum legal size (MLS), and that are thrown back) are also mature. Preliminary findings indicate that 13% to 31% of those below MLS were mature since they either had eggs (between 3% to 18%), or were about to extrude eggs (4% to 23%). Complete data analysis will be carried out after the end of 2011 fishing season. A lobster maturity study has now expanded to Tangier, Port Mouton and Lobster Bay.

Lobsters that are mature can be easily observed when "egged" or "berried" females are found in traps during the fishing season and these are quickly returned to the water. Finding berried females is one certain way to determine mature female lobsters, but we know that lobsters become mature before extruding eggs, though the only way to verify this is by dissecting lobsters and examining the development of the ovary, this is costly and time consuming. Another method is to examine the development of the cement gland that appears in the abdominal appendages (right hand side photograph) as the ovaries becomes more mature, and it allows for a larger sample size, though it does require some verification of maturation of ovaries.

Finding a berried female in the spring near the minimum legal size (MLS) of 82.5 mm is an indicator that this lobster have molted and did mate 2 years ago and proceeded to extrude eggs a year after that, so when found it is about to release larvae within the next month or so (see photo to the right). Eggs are fertilized and develop into larvae for 8-10 months before released. Berried females that are found during spring have larvae at various stages of development that would be released late spring into early summer.



This is a photo of two mature female lobsters of the same size (79 mm). This photo under stereoscope of abdominal appendages (pleopods) shows that the one on the right hand side, have eggs, did molt 2 years ago, extruded eggs a year after, and this photo was taken a few weeks before releases its larvae (dark small spots are eyes, large greenish area are energy reserves). The second appendage (left hand side of this photo), shows that this female is about to extrude eggs (opaque spots along edge and centre of appendage) within the next 3-6 weeks and next year will be the same size but with eggs as it was not harvested because is just below the minimum legal size. (Photographed by A. Silva, May 2011)

Once released, lobster larvae are free living (eating small plankton, if not eaten) in surface waters for 4 to 8 weeks before seeking and finding a place to settle and hide in areas of suitable bottom.

Knowledge of range of sizes at which female lobsters become mature is important to ensure that those lobsters under MLS are returned to the ocean to mature and reproduce. In 2010 and in collaboration with FSRS we are also sampling Tangier and Lobster Bay. Sampling for 2011 is ongoing and will be conducted until the end of June in Canso. Preliminary findings in 2010 indicate that locations northeast of Halifax (Canso and Tangier) had a greater percentage of egg carrying (berried) lobsters (~25%) during the spring fishing season than southwest of Halifax in

Port Mouton and Lobster Bay locations (~ 3%) sampled during spring and summer. Observed differences may be related to the slightly different sampling period further into the summer for the southwest, as shown in the figure below.

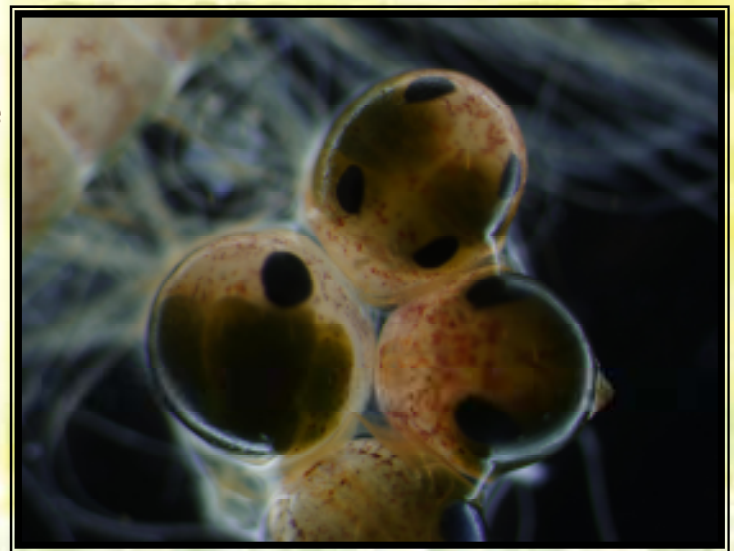
Overall, the minimum size of lobsters sampled during 2010 was lower in Canso, Tangier and Port Mouton than in Lobster Bay and the minimum size of berried females was generally lower at Canso and Tangier. The largest lobsters were sampled in Lobster Bay. It appears that areas east of Halifax have lobsters that mature earlier in the season and that mature at smaller sizes than southwest areas. The effect of the different sampling periods (May to June in the east and June-to July in the southwest) needs further analysis.

Acknowledgements

Many thanks to Guysborough County Inshore Fishermen Association, their fine volunteer lobster fishermen P. Richardson, K. Snow, and B. Dobson; field technicians Sarah Delorey, Miles Jackson, Katherine Newell, Danielle Parker, and Larissa Childs (GCIFA); and to Ginny Boudreau that made it work. From Fisheries and Oceans, Alan Reeves, Shelley Armsworthy, the late Steve Nolan and Angelica Silva contributed in the field. Funding for this project has been supported from Fisheries and Oceans, Science.

TWINS! Found in Canso during 2011 Maturity Study

Recently in May after the first maturity sampling in Canso, Sarah Delorey and Miles Jackson (GCIFA) collected pleopods and eggs from female lobsters for the Maturity project and probably thought they have just done a good job with K. Snow at the helm. Well, what a surprise it was when they learned that there was a set of twins among the lobster larvae found at Bedford Institute of Oceanography by Dr. Angelica Silva. This is the first record of twins, 2 pair of eyes within one egg case (left photograph by A. SILVA at DFO) for Canso from a female with a carapace length of 79.4 mm. A Second twin for was discovered June 21 and another one was found in Tangier in early June. Must be the year of twins!!!



Juvenile Trapping

The amount of juveniles can vary however after years of research in Dover, Whitehead, Queensport and Cooks Cove have consistently set their traps in the same area; therefore their numbers are more consistent. It was the first year in Cole Harbour so you will not see as many juveniles until the locations are more fixed. In the small traps this year, we saw the smallest lobsters we have ever seen with a lobster measuring **36mm** in Whitehead and an amazing **29mm** in Queensport.

	Dover	Whitehead	Queensport	Cooks Cove	Cole Harbour
2010					
August	310	305	331	225	154
September	310	251	314	146	124
October	310	179	120	104	86
2009					
August	286	264	393	239	n/a
September	297	272	188	206	n/a
October	264	194	120	182	n/a
2008					
August	273	329	367	232	n/a
September	25	218	307	197	n/a
October	321	200	200	114	n/a

Artificial Collectors

The fall of 2010 was very exciting for the collectors. We had four lobsters in Canso and six in Whitehead. Here are the numbers:

Date	Location	Collector #	Carapace (mm)
29 - Oct - 10	Canso	13877	16.2
29 - Oct - 10	Canso	13866	11.7
29 - Oct - 10	Canso	13866	16
29 - Oct - 10	Canso	13898	38.3
1 - Nov - 10	Whitehead	13869	13.1
1 - Nov - 10	Whitehead	13855	37.6
1 - Nov - 10	Whitehead	13862	13.7
1 - Nov - 10	Whitehead	13859	13.2
1 - Nov - 10	Whitehead	13845	15.4
1 - Nov - 10	Whitehead	13844	15.8

Young of the year lobster are lobsters that have a carapace length up to 17mm, so therefore we had three young of the year in Canso and five in Whitehead. This is the most we have ever seen in either location. As of now there is no explanation as to why we have caught them now as opposed to previous years since the controls were the same as last year; however with the large increase in stage IV lobsters we would expect to see some young of year lobsters in the collectors. In 2011 we are adding 25 more collectors to the Canso site.

Window Assessment

Canso and Dover had 5 more participants in 2010 than in 2003. Whitehead has the same amount and Queensport had one more participant in 2010 than in 2003.

- **33** Window sized lobsters caught in Canso during three days sea sampling in 2010, compared to **8** windows caught in three days of 2009
- **18** Window sized lobsters caught in Dover during two days of sea sampling in 2010, compared to **2** caught in two days of sea sampling in 2009.
- **4** Window sized lobsters caught in Whitehead during one day of sea sampling in 2010, compared to **5** caught in one day of sea sampling in 2009. Total number of windows caught in 2010 sea sampling was **22** for all three days
- **10** Window sized lobsters caught in Queensport during two days of sea sampling in 2010, compared to **1** window caught in two days of sea sampling in 2009



Young of the year lobsters in Canso collectors, courtesy of Melissa Bond



Young of the year lobster in Canso collectors, courtesy of Melissa Bond

Port	2010	
	Tagged	Recaptured
Canso	773	133
Dover	637	97
Whitehead	774	164
Queensport	93	32
Port	2003	
	Tagged	Recaptured
Canso	424	62
Dover	462	82
Whitehead	503	243
Queensport	105	29

Window Count for 2003 and 2010 season

Upcoming research....

Over the last two years the Guysborough County Inshore Fishermen's Association, working closely with other fishermen's organizations across the country, established the Canadian Capture Fisheries Research Network. These research questions range from the effectiveness of closed areas to the impacts of grey seal predation on fish stocks. A major area of the Network's research is on lobster. Over the next 5 years as part of the Network's Lobster Node GCIFA members along with fishermen from Newfoundland to the Gulf of Maine will be collecting data that will shed some light on two key questions: 1) how lobster larvae gets distributed across LFAs and 2) whether our lobster is made up of one or many different stocks. Along with fishermen elsewhere in the Atlantic Provinces we started collecting information this year on berried females- their size, location and stage and quality of their clutch development – to get the most complete information possible on larval production. The Network's objective is to collect this data at 50 km or better intervals all along the Atlantic coast.

This data will be used to feed oceanographic models that predict what will happen to lobster larvae once they are released into the marine environment. The models follow individual lobster larvae over time from when and where they are released to when and where they are ready to settle on the seabed. Next year we will also start collecting lobster specimens for genetic testing to see if there are differences in lobster in different parts of the range. We will also study whether differences in the temperature of the water column act as barriers to the movement, survival and settlement of lobster larvae, what happens to larvae after they settle on the seabed and track adult lobster movements. The Network has received 5 year funding from the Natural Sciences and Engineering Council of Canada (NSERC) and is an initiative of the Canadian Council of Professional Fish Harvesters.

If you would like to learn more about the Network contact Ginny at the GCIFA office.



Stage 1: New Eggs (Black)



Stage 2: Eyed Eggs



Stage 3: Mature Eggs



**Stage 4: Larvae Released/
Mossy**

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