FISHERMEN & SCIENTISTS RESEARCH SOCIETY

LFAs 33/34 Lobster Moult & Quality Monitoring Project

November 2014 update

Monitoring of lobster blood protein levels, shell hardness and moult stage was initiated in the summer 2004 with pre-season, during and post-season sampling. Since June 2004, approximately 141,311 lobsters were sampled in 15 different sites in the Maritimes. The information collected for this project is available at www.lobstermoult.ca and allows the user to look at lobster sex, size, blood protein (Brix), moult stage and shell hardness by sampling location or dates.

Below is a breakdown of some of the pre-season sampling sites for **2014** compared to similar dates in 2013, 2012 and 2011.

	Lobster Bay				Jacquard's Ridge				West Pennant/ Sambro			
Sampling date	29 Oct 2014	Oct 29 2013	Nov 02 2012	Oct 27 2011	Oct 28 2014	Oct 30 2013	Nov 03 2012	Oct 28 2011	Oct 28 2014	No 04 2012*	Oct 24 2011	Oct 30 2010
Mean Protein level	10.06	9.3	9.5	8.8	7.66	8.52	11.6	8.8	9.29	10	8.8	10.4
% active pre-moult	2.4	0.8	0	1.6	2.4	0	0	1.6	0	0	0	0
% hard-shell	79.2	67.2	70.4	78.4	65.6	48.8	82.4	77.6	84.0	89.6	80	92

	Yarmouth Inside				Yarmouth Outside				Port La Tour			
Sampling date	Nov 1 2014	Oct 28 2013	Oct 29 2012	Oct 26 2011	Oct 31 2014	Oct 27 2013	Oct 28 2012	Oct 25 2011	Oct 30 2014	Oct 23 2013	Nov 03 2012	Oct 26 2011
Mean protein levels	8.15	10.15	10.4	8.0	7.84	9.65	7.9	7.8	7.97	8.21	9.9	8.1
% active pre-moult	1.6	1.6	4.8	3.2	0	1.6	2.4	0	0	0	2.4	1.6
% hard-shell	70.4	77.6	37.1	68.8	80.8	72.8	54.1	78	64.8	69.6	75.2	78.4

	Cape Sable Island Inside				Cape Sable Island Outside				St. Mary's Bay			
Sampling date	Oct 30 2014	Nov 05 2012*	Oct 28 2011	Oct 26 2010	Oct 29 2014	Nov 04 2012*	Oct 27 2011	Oct 25 2010	Oct 31 2014	Nov 04 2013	Nov 04 2012	Oct 28 2011
Mean protein levels	8.57	9.6	6.3	6.9	7.65	9.9	6.0	6.1	9.86	10.7	10.6	10.9
% active pre-moult	0	0	0.8	0.8	0	0	0.8	0.8	0	1.6	0	1.6
% hard-shell	72	71.2	91.2	84	67.2	72.8	92.0	76.0	71.2	79.2	62.4	80

	Moose Harbour			
Sampling date	Oct 31 2014	Nov 03 2012*	Oct 27 2011	Oct 29 2010
Mean protein levels	8.56	8.3	7.9	8.1
% active pre-moult	0	0	0	0
% hard-shell	61.6	56.0	48.8	58.4

Note: Only the latest sampling dates are shown here. All legal sizes and sub-legal lobsters with carapace lengths of 80-82.5 mm were sampled. The overall pattern throughout the year for the parameters monitored was considered when predicting the quality of the LFAs 33/34 2014 fall season. Confidence is highest for those locations where sampling was done closest to the start of the season. The spatial coverage of the sampling is very limited and therefore, the results from each location may not necessarily be generalized to the entire LFA.

What can we expect from the 2014 fall season?

When looking at the quality parameters from the 2014 pre-season sampling, the lobsters landed at the start of the season in Southwest Nova Scotia may be similar quality to those landed at the start of last season. There will likely be some softer shelled lobsters which might not be of the best quality for holding or shipping. The lobster blood protein levels are suggesting that some lobsters are still in recovery from the moult. The values for the moult stage show that not many of the lobsters sampled were undergoing the moult but there will always be some have a delayed moult. Examining the shell-hardness values, they are suggesting that we could see a similar proportion of soft-shelled lobsters being landed at the start of the season as 2013, especially around Lobster Bay/Jacquard's Ridge areas.
While shell hardness assessment is not as objective as measuring blood protein, there is a rigorous and consistent procedure in place to ensure that the results are accurate and precise.
Temperature data is collected during the lobster quality sampling and you can see in the graph below that the temperatures in 2014 were warmer than the previous year.

Depending on the location, we have between 6-10 years of continuous data.* There were no samples in Sambro, Moose Harbour and Cape Sable locations in 2013. From the sampling data collected in the last week of October, we are presenting a prediction on the lobster quality once the season opens at the end of November 2014. It is important to keep in mind that ***several factors can influence blood protein levels including moult cycle, water temperature, health, diet, handling, etc.*** and therefore, caution must be used when making predictions.

BLOOD PROTEIN LEVELS - BRIX INDEX - When looking at the 2014 pre-season sampling conducted in 10 sites, we see that lobster blood protein levels are around 8 on the Brix index in every site. Overall the blood protein levels are lower than the previous year with the exception of the Lobster Bay site. *Therefore, based on blood protein levels alone, the 2014 pre-season sampling points toward a similar recovery from the moult as the 2013 season. It would appear by looking at these values that the some lobsters caught around the sampling sites could still be recovering from the moult.*

SHELL HARDNESS & MOULT CYCLE - Overall, very few lobsters assessed were in active pre-moult. This is suggesting that the majority of lobsters have already moulted, while only a small proportion will be moulting in the weeks or days surrounding the opening of the fall season. The Lobster Bay and Jacquard's Ridge sites along with Yarmouth Inside site showed the highest proportion of lobsters in active pre-moult, although that proportion is still less than 5 %. The corresponding shell hardness values for those sites indicate that the lobsters are still recovering from their moult. *Based on the shell hardness alone, the 2014 pre-season sampling indicates that the proportion of softer lobsters at the start of the fall season could be similar to last year.*

LFA	Port	Date	Temperature °C 2013	Date	Temperatures°C 2014
33	Port LaTour-inside	23-Oct-13	10.68	31-Oct-14	13.36
34	Yarmouth-outside	27-Oct-13	12.72	31-Oct-14	13.46
34	Yarmouth Inside	28-Oct-13	12.36		
34	Lobster Bay	29-Oct-13	12.13	29-Oct-14	13.65
34	Jacquard's Ridge	30-Oct-13	12.34	28-Oct-14	13.05
34	St Mary's Bay	5-Nov-13	10.94	31-Oct-14	13.01
33	Sambro			28-Oct-14	13.87
33	Moose Harbour			31-Oct-14	8.19
34	Cape Sable Inside			30-Oct-14	13.63
34	Cape Sable Outside			29-Oct-14	9.57

(depth ranges for these samples is : 6-10 fathoms (Lobster Bay and Sambro) to 11-26 fathoms (other sites) and 55 fathoms (Cape Sable outside)

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