FISHERMEN & SCIENTISTS RESEARCH SOCIETY

LFAs 33/34 Lobster Moult & Quality Monitoring Project

November 2013 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 123,730 lobsters were sampled in 15 different sites in LFAs 33/34. The information collected for this project is available on the Internet (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 **2013** compared to similar dates in 2012, 2011 and 2010.
(**** due to budget restrictions Sambro, Cape Sable and Moose Harbour were not sampled in the pre-season in 2013**)

	Lobster Bay				Jacquard's Ridge				Sambro**			
Sampling date	29 Oct 2013	Nov 02 2012	Oct 27 2011	Oct 28 2010	Oct 30 2013	Nov 03 2012	Oct 28 2011	Oct 30 2010	Nov 04 2012	Oct 24 2011	Oct 30 2010	Oct 27 2009
Mean Protein level	9.3	9.5	8.8	10.3	8.52	11.6	8.8	9.9	10.0	8.8	10.4	10.2
% active pre-moult	0.8	0	1.6	0	0	0	1.6	0	0%	0%	0%	0%
% hard-shell	67.2	70.4	78.4	80	48.8	82.4	77.6	86.6	89.6%	80.0%	92.0%	87.2%

	Yarmouth Inside				Yarmouth Outside				Port La Tour			
Sampling date	Oct 28 2013	Oct 29 2012	Oct 26 2011	Oct 26 2010	Oct 27 2013	Oct 28 2012	Oct 25 2011	Oct 25 2010	Oct 23 2013	Nov 03 2012	Oct 26 2011	Oct 27 2010
Mean protein levels	10.15	10.4	8.0	8.6	9.65	7.9	7.8	8.3	8.21	9.9	8.1	6.6
% active pre-moult	1.6	4.8	3.2	0	1.6	2.4	0	08	0	2.4	1.6	1.6
% hard-shell	77.6	37.1	68.8	93.1	72.8	54.1	76	88	69.6	75.2	78.4	83.2

	Cape Sable Island Inside**				Cape Sable Island Outside**				St. Mary's Bay			
Sampling date	Nov 05 2012	Oct 28 2011	Oct 26 2010	Oct 28 2009	Nov 4 2012	Oct 27 2011	Oct 25 2010	Oct 27 2009	Nov 04 2013	Nov 04 2012	Oct 28 2011	Oct 29 2010
Mean protein levels	9.6	6.3	6.9	6.3	9.9	6.0	6.1	6.6	10.7	10.6	10.9	11.4
% active pre-moult	0%	0.8%	0.8%	1.5%	0%	0.8%	0.8%	1.0%	1.6	0	1.6	0
% hard-shell	71.2%	91.2%	84.0%	96.8%	72.8%	92.0%	76.0%	98.4%	79.2	62.4	80	79.2

	Moose Harbour**			
Sampling date	Nov 03 2012	Oct 27 2011	Oct 29 2010	Oct 30 2009
Mean protein levels	8.3	7.9	8.1	8.3
% active pre-moult	0%	0%	0%	0%
% hard-shell	56.0%	48.8%	58.4%	68.8%

What can we expect from the 2013 fall season?

Using the data collected in the last weeks of October and first of November, a prediction of lobster quality was produced. It is important to keep in mind that ***several factors can influence blood protein levels such as moult cycle, water temperature, health, diet, handling, etc.*** and therefore, caution must be used when making predictions.

BLOOD PROTEIN LEVELS - BRIX INDEX - Looking at the 2013 pre-season sampling data conducted in 6 sites, it can be seen that the mean blood protein levels are above 8 on the Brix index in every site. Jacquard's Ridge and Port La Tour sites did have blood protein levels lower than last year's pre-season levels, although the 2012 levels are the second highest of all sites sampled. *Therefore, based on blood protein levels alone, the 2013 pre-season sampling points toward a similar or slower recovery from the moult compared to the 2012 season.*

When looking at the quality parameters from the 2013 pre-season sampling, the lobsters landed at the start of the season in Southwest Nova Scotia may be in similar or slightly worse to those landed at the start of last season. The lobster blood protein levels are pointing towards a slightly slower recovery from the moult in almost every sampling location, while shell-hardness is suggesting that we could see higher proportion of soft-shelled lobsters being landed at the start of the season in around Jacquard's Ridge area. 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. Lobsters coming out of Port La Tour and Lobster Bay could be in similar or better condition than lobsters landed in the same areas at the start of the season last year. Lobsters coming out of Yarmouth Inside & Outside, and St. Mary's Bay should have better blood proteins at the start of the season compared to last year, but could still show a higher proportion of soft shells.

SHELL HARDNESS & MOULT CYCLE - Overall, very few lobsters sampled 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 around the sites sampled. Yarmouth Inside and Outside did showed the highest proportion of lobsters in active pre-moult, although that proportion is still less than 5 %. When looking at the shell hardness parameter, Jacquard's Ridge showed a significantly lower proportion of lobsters classified as 'hard-shelled' in the 2013 pre-season sampling compared to last year. *Based on the shell hardness alone, the 2013 pre-season sampling indicates that the proportion of softer lobsters at the start of the fall season could be similar or slightly more than in previous years, especially around Jacquard's Ridge.*

Date	LFA	Port	Temperature °C
23-Oct-13	33	Port LaTour-inside	10.68
27-Oct-13	34	Yarmouth-outside	12.72
28-Oct-13	34	Yarmouth Inside	12.36
29-Oct-13	34	Loster Bay - inside	12.13
30-Oct-13	34	Lobster Bay - Outside	12.34
5-Nov-13	34	St Mary's Bay	10.94

Note: Only the latest sampling dates are shown here. All size categories are part of the analysis, including sub-legal lobsters with carapace lengths of 70-82.5 mm. The overall pattern throughout the year for the parameters monitored was considered when predicting the quality of the LFAs 33/34 2012 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.

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