

**From:** Hargreaves, Brent  
**Sent:** Friday, October 16, 2009 10:10 AM  
**To:** Saunders, Mark <Mark.Saunders@dfo-mpo.gc.ca>  
**Subject:** RE: Favour Lice  
**Attach:** SeaLice BCSFA sea lice Reports in 3-2 (2004-08) BCMAL compiled October 2009 with Brent's additional graphs.xls; Map - Fish Farms locations and BC MAL fish health sub-zones.doc

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Hi Mark.

As you requested, I have examined the data Andy provided, regarding sea lice levels on fish farms in the Discovery Island Area of BC. The original data were a bit difficult to interpret, because each figure included sea lice data for both first year and second year farm fish.

For your convenience, I re-plotted all these data, separating the results for first year farm fish and second year farm fish. The attached spreadsheet has 8 additional figures, named as tabs Chart 1 to Chart 8. Charts 1-4 plot the sea lice counts for first year fish in January-March, April-June, July-September, and October-December. Charts 5-8 provide sea lice counts for second-year ("grow out" size farm fish) during the same time periods.

The "Motile" and "Female" categories are lice counts for adult and sub-adult stages of Lep. Salmonis only.  
The "Caligus" category is sea lice counts for adult and sub-adult stages of Caligus only.

Overall, I agree with Andy's conclusion.

These data do not provide any evidence that the sea lice counts on farm fish in the Discovery Islands were unusually high during any time period during 2007, when Fraser sockeye that returned in 2009 would have migrated out of the St. of Georgia.

There are two caveats I attach to this conclusion.

First, these sea lice data do not include any counts for Chalimus stage lice, so we do not know the total picture. The farms do collect this data, so it should be easily available. I don't know why these data were not provided, but to complete the picture (and ensure our interpretation is correct) I recommend we request the additional Chalimus lice counts from the BC Province or the farm companies.

Second, these data are averages for all the farms in this sub-zone. Overall the average sea levels generally appear to have been low in 2007, but we do not know what the sea lice levels were on each individual farm. If we could obtain the sea lice counts for each individual farm then we could likely also eliminate the possibility that the lice levels might have been unusually high on one or more individual farms.

I also think DFO should request the same detailed information for other sub-zones in BC. This would allow us to examine the next likely criticism that, even if sea lice levels were low on farms in the Discovery Islands, then juvenile Fraser sockeye in 2007 may still have been impacted by sea lice levels on farms further up the BC coast (e.g. upper Johnston Strait or Broughton).

For your convenience I have also attached a map I obtained from the BC MAL website that shows all the fish farm tenure locations in BC and the zone boundaries that BC MAL uses for fish health.

Brent

-----Original Message-----

From: Thomson, Andrew  
Sent: October 7, 2009 9:36 AM  
To: Hargreaves, Brent; Saunders, Mark; Klaver, March  
Subject: FW: Favour Lice

Mark / Brent / March

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Attached is a file of reported Sea lice numbers form Salmon farms in BC MAL area 3.2 ( Discovery Islands ).

It appears from the data that 2007 was not a particularly strong year for lice (Caligus or Lep) at the farms in the second quarter which is when I presume the migrating sockeye would be passing the area. The (1) and (2) denote first and second year class fish.

Andrew J. L. Thomson  
Director - Aquaculture Management | Directeur - Gestion de l'aquaculture

-----Original Message-----

From: Sheppard, Mark AL:EX [mailto:Mark.Sheppard@gov.bc.ca]  
Sent: October 6, 2009 1:23 PM  
To: Thomson, Andrew  
Cc: Keith, Ian AL:EX  
Subject: RE: Favour Lice

Hi Andy,

A very resourceful staff member of ours generated these quarterly graphs for you. They reflect BCSFA aggregate data, for the Discovery Islands (sub-zone 3.2), by calendar quarter, for both year classes. You'll note we don't ask industry for chalimus numbers (although the farms do assess this), but Motile and Female Leps as well as Caligus are graphed.

Also, here's the link to the monthly reports MAL receives from industry:  
[http://www.al.gov.bc.ca/ahc/fish\\_health/sealice\\_monitoring\\_results.htm](http://www.al.gov.bc.ca/ahc/fish_health/sealice_monitoring_results.htm)

Mark

-----Original Message-----

From: Thomson, Andrew [mailto:Andrew.Thomson@dfo-mpo.gc.ca]  
Sent: Friday, October 2, 2009 1:38 PM  
To: Sheppard, Mark AL:EX  
Subject: RE: Favour

Mark

I've already mined the audit data.  
Let me know if you think we can get the monthly aggregate reports.  
Week or two would be fine.

Andrew J. L. Thomson  
Director - Aquaculture Management | Directeur - Gestion de l'aquaculture

-----Original Message-----

From: Sheppard, Mark AL:EX [mailto:Mark.Sheppard@gov.bc.ca]  
Sent: October 1, 2009 4:10 PM  
To: Thomson, Andrew  
Subject: RE: Favour

Hi Andy,

Two ways to do this: one is to mine our audit data; the other is more accurate by using the monthly aggregated reports to BCMAL from the BCSFA. I'm away from the office until Monday - when are you in need of it? Mark

From: Thomson, Andrew [<mailto:Andrew.Thomson@dfo-mpo.gc.ca>]

Sent: Wed 30/09/2009 9:13 AM

To: Sheppard, Mark AL:EX

Subject: Favour

Mark

Could a plot be made of the monitored sea lice data from the Discovery Islands sub-area of sea lice counts showing the avg counts for the last 4 - 5 years? Different plots by species of louse would be ideal.

Andrew J. L. Thomson

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