The benefits of phytoplankton monitoring for aquaculture operations
Lessons learnt from HAMP and the DSP outbreak in 2011

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Phytoplankton monitoring
Overview

* The Harmful Algae Monitoring Program (HAMP)
* What we saw in the DSP 2011 event
* The benefits of phytoplankton monitoring to shellfish growers
The Harmful Algae Monitoring Program (HAMP)

- Work with salmon farmers on HABs
- Since 1999 (14 years and counting)
- Monitor 12 – 28 sites around Vancouver Island and Central Coast
- Weekly phytoplankton samples
- Consult during blooms
- Train farmers to ID plankton

For more information on HAMP: http://www.verney.ca/assets/SSEC_Presentations/Session%2010/10A_NickyHaigh Abstract.pdf
Weekly Plankton Sample Analysis

- Known and suspect HAB (to fish) species – ID and count
- Dominant phytoplankton species or group – ID and count
- Other phytoplankton species “to lowest practicable level”
- Sample biomass (rough scale 1 – 5)
- Biomass percent constituent: diatoms, dinoflagellates, raphidophytes, other flagellates, microzooplankton.
- Comments...
Comments... or “Things that make you go ‘hmmm...’”

- Unusual species
- Sub-dominant species
- High levels of other species of interest
Sometimes, yes...
Red herrings

But sometimes...
DSP in 2011, as seen in HAMP samples

- Notable levels of *Dinophysis* species at some HAMP monitoring sites
- Counted in HAMP samples from early July
Dinophysis in Conville Bay samples

Percentage of different Dinophysis species in Conville Bay samples from July 6 to August 31, 2011.

Dinophysis species in Conville Bay samples:
a) D. acuminata, b) D. acuta, c) D. fortii, d) D. rotundata
Benefits of phytoplankton monitoring to shellfish growers

- EARLY WARNING
  - Presence of toxic species (unmarketable product)
  - Possible harmful species to shellfish (product loss)
  - Low biomass or nutrition value (poor production)
- Cost effective
HAMP has been efficiently and effectively monitoring plankton in BC since 1999.
In 2011 we saw elevated levels of *Dinophysis* species in water samples before toxic event.
Phytoplankton monitoring can be a cost-effective tool for shellfish growers.
Thanks to:

* HAMP participants:
  * Marine Harvest Canada
  * Mainstream Canada
  * Grieg Seafood BC Ltd
  * Creative Salmon

* HAMPsters past and present
* BC Centre for Disease Control
And thank you for your attention!

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