

**From:** Trudel, Marc <Marc.Trudel@dfo-mpo.gc.ca>  
**Sent:** Friday, January 29, 2010 5:01 PM  
**To:** Mackas, Dave <Dave.Mackas@dfo-mpo.gc.ca>  
**Subject:** RE: Plankton in the Strait of Georgia

---

Hi Dave,

thanks for the update. Dick doesn't have any plankton data in his paper; he just hypothesized that the low return of Fraser River sockeye in 2007 was due to poor/low plankton production. But could not substantiate his interpretation with plankton data; just with Mixed-Layer Depth from the Nanoose station and Wind data.

Have a great weekend!  
Marc

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

From: Mackas, Dave  
Sent: January 29, 2010 9:16 AM  
To: Trudel, Marc  
Subject: RE: Plankton in the Strait of Georgia

The SofG zooplankton data are ready to "start to use, but with care and some skepticism"

I think Moira, Deb and I have identified and either fixed or removed most of the the truly "bad" data (due to huge errors in flowmeter reading or split factors for subsamples). The main remaining problem is that long-term changes in the zooplankton population are badly confounded with changes in spatial and seasonal distribution of sampling, depth range sampled, and taxonomic resolution of the IDs. These are worst for comparisons before vs after ~1994. But I am still trying to figure out how best to combine/compare the herring group data set (tows all shallow, and mostly near the shore) with the rest (IOS, COPRA, UBC, UVic, and your samples). Lingbo did an analysis of ONLY the herring group data (copepods taken as a single category, not to species) and found a big change ~1999-2000 in euphausiids and siphonophores. My analysis of the copepod species data would put the start of the change a couple of years earlier, and describe it as a trend more than a step. Neither of us saw the rapid (2-3 year time scale) back and forth between cool and warm water communities that has dominated WCVI.

Unfortunately, the database contains very few samples from 2007: UVic/UBC STRATOGEM had just ended, you had not started, and IOS only collected a couple of samples enroute back from offshore cruises. Chrys Neville says the Beamish group had also stopped sampling zooplankton that year.

Last time I heard Dick talk about zooplankton, he was arguing mostly based on an unpublished acoustics survey that picked up very large increase in "euphausiids". Is this still the basis of his paper?

Hi Dave,

I just finished reading a paper that Beamish wrote for the sockeye salmon inquiry, and there are some interesting ideas, though some of them are not well substantiated by data (notably by zooplankton data). In your opinion, is the zooplankton database that you derived for the Strait of Georgia ready to be use? Can the biomass be compared among years for a given month (say over the last 10-15 years)? How about the community anomalies?

Cheers,  
Marc

DFO-432875

\\svbcvanfp01\Cohen-Comm\Second Review\Email\Science\Dave Mackas\Cohen\_email\_Mackas\Georgia Basin\

CAN399033\_0001