

## Gillespie, Graham

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**From:** Field [John.Field@noaa.gov]  
**Sent:** April 8, 2011 5:03 PM  
**To:** Gillespie, Graham  
**Subject:** Re: Squid tummies

Hi Graham-

I haven't heard of any in California, I did hear from Gilly that catches were low to very low in the Gulf of California and W. coast of Baja, given that and how cold it's been, I would be fairly surprised if we saw many this year. If we're not shut down in May we should have our cruise out and I'll report back if we run into any-  
cheers, John

On 4/7/2011 1:25 PM, Gillespie, Graham wrote:

Hi John

Another question - any indication of northward movement of Humboldts yet this year? We are doing field planning and I need to know whether to ask for \$\$ and space on the hake survey for a jiggling crew.

Thanks and cheers

Graham Gillespie

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Note New Email Address: [Graham.Gillespie@dfo-mpo.gc.ca](mailto:Graham.Gillespie@dfo-mpo.gc.ca)

"If we knew what it was we were doing, it would not be called research, would it?" -  
Albert Einstein

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**From:** Field [mailto:John.Field@noaa.gov]  
**Sent:** April 5, 2011 9:40 AM  
**To:** Gillespie, Graham  
**Subject:** Re: Squid tummies

Hi Graham,

So out of I believe 160 (or very nearly thereabouts) stomachs from the B.C. sampling, we encountered salmon in two stomachs. One stomach (CAN 107-4) had at least three *Oncorhynchus* sp. for which the otoliths were a decent morphological match for *O. kisutch* but too eroded to ID morphologically with high confidence, genetic analysis of the vertebrae in that sample suggested that samples were mostly *O. keta* (4 of 16 bones tested) with one *O. gorbuscha* (1 of 16 bones tested). All of the other bones (and otoliths) from that sample were *Clupea pallasii*. A second sample from BC (LN04-2) had no identifiable otoliths, but all 8 of the bones tested from that sample were identified genetically as *O. gorbuscha*. Those are the only samples that we've confirmed salmon in from the BC samples you sent me, all told there were about 2400 prey items identified morphologically from those ~160 stomachs, and about 70 bones from 15 samples were analyzed using genetic means (from samples in which no morphological sample was possible, or salmon were likely or suspected). The vast majority of prey were very small gonatid squids, lanternfish and coastal pelagic species (although the salmon were among the larger of the prey items and thus represented likely a greater proportion of the diet by mass than inferred by numbers alone). There were no *O. nerka* in any of these.

In the other samples, a total of three stomachs held salmon otoliths or bones, all three from a batch of 20 squid collected in nearshore waters near Sekiu, WA in Sept. 2009. A total of three chinook and two coho were encountered in those stomachs (as well as literally hundreds of herring, sculpin and other small fishes). These ID's were made based on otolith ID's initially and validated with genetic methods. The size range of all of the salmon encountered, based on otolith length/fish length relationships, was about 10-15 cm. No other salmon were encountered in samples collected off of the Pacific Northwest (N=~140) or northern, central, southern California (N=~600), although "salmon size" coastal pelagic species are relatively common throughout the range of squid. We have also made or confirmed the IDs of ~100 other prey items (with multiple replicates) using genetic methods- focusing most recently on identifying rockfish (*Sebastes*) to the species level for many of the Ca (as well as some BC and PNW) samples. Latest there was identification of a widow rockfish (*S. entomelas*) in LN04-3, but vast majority of rockfish are shortbelly (*S. jordani*).

We are wrapping up the genetics work and I am plugging away at the manuscript- I had hoped to have it done but this is also stock assessment season and I'm a stock assessment person so that has taken priority. But I do still hope to have a draft ready to circulate within the next month or two. Provided I still have a job by then (shutdown again looming). Let me know if you'd like any more details.

cheers, John

On 4/1/2011 1:02 PM, Gillespie, Graham wrote:

Hi John

Just wondering if you can provide a data summary from the Humboldt tummies off BC. In particular, I am being asked about salmon remains, how often they are present and which species (sizes) might be involved. Of course, the big interest is sockeye.

Any information you can provide would be appreciated.

Cheers

Graham Gillespie

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