

Food Web Meeting
Dec 16, 2014
CDFW Fisheries Branch, Sacramento

Participants

CDFW – Alice Low, Rosemary Hartman, Stacy Sherman, Trishelle Morris, Dave Contreras, Dave Zezulak, Hildie Spautz
USGS – Larry Brown
DWR – Gardner Jones, Krista Hoffman, Heather Fuller, Betsy Wells, Anitra Pawley (phone)
ESA - Ramona Swenson
SWFCA - Kelsey Cowin (phone)
Bruce Herbold

Today's food web meeting mainly focused on any methods we may have missed and discussing the pros and cons of each method. In some instances, frequency of sampling, spatial extent, and preferred sampling method were discussed by the subteam.

Metric – Nutrients

- Optical sensors are shown on NWIS and depending on the sampling site, we may be spatially covered
 - Frequency – Continuous sampling during certain seasons
 - Con – Only captures nitrate
- Grab samples
 - Samples will vary across space and time
 - Frequency – must be standardized to characterize the site
 - Intensive sampling should occur at certain tides & locations
 - Spatial extent – composite through water column
- Need to connect with other teams to fully flesh this out
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Metric - Phytoplankton

- Genetics should be in special studies due to cost
- Mosquito control via spray may affect phytoplankton communities
- No mention if water is supporting growth:
 - Method addition – Productivity: incubation with radiolabeled carbon
 - Pros – get actual process, more accurate O₂
 - Method addition – Light and dark bottles
 - Pros – easier than radiolabeled carbon
 - Cons – less accurate than radiolabeled carbon
 - Method addition – LICOR meter
 - Lisa Lucas, Alex Parker, or Dugdale may assist with this
- What should be our community composition resolution?
 1. We should measure primary productivity (species composition ID)
 - Should mention in the monitoring plan because this is a specialized skill
 - Seasonal sampling (not everyday)
 - Keep it on a shelf, if you can't process the sample
 2. Chl a
 - Chl a will provide an estimate on biomass and productivity

Metric - Epibenthic Algae

- Method addition – Incubate sediment sample (use same methods as above)
 - Freq - High replicates
 - Rosie to talk with Rose Cohen about this method

Metric - Epiphytic Algae

- Sweep net appears to get more organisms than artificial substrate
- Artificial substrate (Hender Dendy disks)
 - Add slide disks and ceramic plates
 - Con – time affects composition
 - Perhaps we can set four sets of Hender Dendy disks at one location, pick a set up the following week and replace it to get an idea of succession
- Additional method – Hester Dendy disk sets in incubator

Metric - Harmful Algae Blooms

- Hyperspectral imaging – would be seasonal sampling
- Only sample harmful algal blooms if present on site
- Method – C. elegans, chemical analysis
- Move this under phytoplankton

Metric - Macrophytes

- Aerial photos - Midwinter water fowl survey occur every year, but photos may not be taken
- For vegetation subteam - how may macrophyte shading affect productivity
- For vegetation subteam – growth/death rates?
 - Side note: Boating and Waterways spraying will affect this

Metric - Particulate Organic Matter

- Boating and Waterways - spraying by boat will affect this
- Rosie will talk with Petra Lee or “the Brians” at USGS about POC

Metric - Epiphytic Inverts

- Biomass or production rates
 - We want biomass as production rates are difficult to do
 - Artificial substrates appear to be the way to go
 - We will miss the fast swimming inverts
 - Set artificial substrate with a pop up net to get at what’s swimming away

Metric - Zooplankton/mysids

- Method Addition – Zooplankton growth rates (either growing out or life stage ratios)
 - Pros – process based
 - Cons – growing out takes a while
- Frequency – Seasonal sampling
 - Focus on larval Delta Smelt life stage

Metric - Epibenthic Inverts

- Separate methods: sled trawl/light traps from artificial structures
- The subteam recommended using sweep net or artificial structures, and possibly trawls.

Metric - Benthic Inverts (clam driven)

- Biomass will provide grazing rates
- Clam size will be needed to estimate grazing rates

Metric - Fish Diet Analysis

- Stable isotopes provide a broad picture
 - Best for resident fish, not good for fish that move in and out
- Stomach fullness
 - Pros – good measure of health, fresh samples are what were eaten on site
 - Cons – need large sample size, time of day affects fullness

Metric - Non-fish predators

- Diet
 - Con – time consuming, birds are highly mobile
 - Birds may be eating predators
 - This method will be visual based counting than quantitative

Next Steps

- Spatial replication, sample timing, and analysis
- Down the road – data management