May 1st, 3:30 PM - 5:00 PM

Spartina Control Program in British Columbia – New and Improved with an herbicide option

Dan Buffett
*Ducks Unlimited Canada, d_buffett@ducks.ca*

Gary Williams

Matthias Herborg
*British Columbia. Ministry of Environment*

Becky Brown
*British Columbia. Ministry of Forests, Lands and Natural Resources Operations*

Dave Ralph
*British Columbia. Ministry of Forests, Lands and Natural Resources Operations*

See next page for additional authors

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**Speaker**
Dan Buffett, Gary Williams, Matthias Herborg, Becky Brown, Dave Ralph, Kathleen Moore, Rob Knight, and Kim Houghton

This event is available at Western CEDAR: https://cedar.wwu.edu/ssec/2014ssec/Day2/254
Zooplankton Monitoring in the Eelgrass Dominated Padilla Bay: A Baseline for Examining Future Changes

Nicole Burnett
Padilla Bay National Estuarine Research Reserve
Padilla Bay

- Approx. 8000 acre eelgrass bed
  - 1 of the largest contiguous eelgrass beds in North America
  - *Zostera marina* and *japonica*

- Shallow bay
  - 12 ft tidal range
  - Most of the bay is exposed at low tide
Limited previous zooplankton work in Padilla Bay
Compliments long term water quality and nutrient monitoring
Serve as baseline

Started mid 2007
Once a month at 3 sites
153 µm mesh
Identified to broad categories
• COPEPODite
  – Interactive Time-series Explorer module of the COPEPOD global plankton database project

• Online plankton time-series visualization toolkit
• Plankton, water quality and nutrient data
Data Analysis

- COPEPODite
Plankton ID Categories

- Copepods
- Crabs
- Barnacles
- Other Arthropods
- Annelids
- Gelatinous
- Mollusks
- Larvaceans
- Echinoderms
- Chaetognaths
- Unknown
Copepods

Ploeg

- Nauplii
- Copepod
- Copepod + Nauplii
Crab Larvae

2008 2009 2010 2011 2012 2013

0 600 1200 1800

Ploeg Bayview Gong
Data Analysis

• COPEPODite
### Zooplankton Relationships

| SST | Total Zo | Annelid | Crab Larvae | Barnacle Larvae | Copepod + Nauplii | Other Arthro | Chaetognatha | Larvaceans | Hydrozoans | Ctenophores | Unk Gel Zoo | Echinoderms | Mollusca | Other unk | Chla | PO4 | NH4 | NO2 | NO3 | NO23 | temp | sal | DO | pH | Turbidity | Hadley Sal | SAT | Chl | Sur | Winds |
|-----|----------|---------|-------------|----------------|------------------|--------------|--------------|-------------|------------|-------------|------------|------------|-----------|----------|----------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|--------|---------|-----|-----|-----|-------|
| SST |          |         |             |                |                  |              |              |             |            |             |            |            |           |          |        |     |     |     |     |     |      |     |     |     |     |        |         |     |     |     |       |
Zooplankton Relationships
Shallow Eelgrass Sites

- Total zooplankton has significantly increased since 2007
- Copepods and annelids are the dominant groups
  - Vary year to year in which groups blooms and intensity of the bloom

Deep Water Site

- Increasing trend of zooplankton but not significant
- Copepods and Larvaceans are the dominant groups
  - Little variation in annual pattern

Comparative Analysis

- Few consistencies between or among sites
- Inconclusive results with water quality and nutrient data
Take Home Messages

- COPEPOdite is a great tool for analysis
- Longer time-scale to pick up trends with abiotic factors
- Even with broad categories and limited resources community trends can be detected
Thank You!

http://www.st.nmfs.noaa.gov/copepodite/
http://copepodite.org/