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


Nicole Burnett
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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
Data Analysis

• 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
Total Zooplankton

- Ploeg
- Bayview
- Gong
Data Analysis

- COPEPODite
Total Zooplankton

Ploeg

Bayview

Gong

Seasonal Anomaly
Plankton ID Categories

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

Year | Ploeg | Bayview | Gong
--- | --- | --- | ---
2008 | 50k | 40k | 5k
2009 | 50k | 40k | 5k
2010 | 50k | 40k | 5k
2011 | 50k | 40k | 5k
2012 | 50k | 40k | 5k
2013 | 50k | 40k | 5k
Copepods

Ploeg

- Nauplii
- Copepod
- Copepod + Nauplii
Barnacles

Graph showing the number of barnacles (in thousands) from 2008 to 2013 for locations Ploeg, Bayview, and Gong.

Sub-plots showing seasonal anomaly for specific months:
- Jan + Feb + Mar
- Apr + May + Jun
- Jul + Aug + Sep
- Oct + Nov + Dec
Crab Larvae
Data Analysis

• COPEPODite
# Zooplankton Relationships

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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

Comparison 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