Formation of a Salish Sea Dungeness Crab Monitoring Working Group
Recent Larval Crab Monitoring and Other Auxiliary Information

Presented by Dr. Evelyn Brown, Lummi Natural Resources
We Badly Need a Regional Crab Working Group
Lots of Issues – Lots of Data Gaps

- Dramatic increase in socio-economic importance with salmon decline
- Increase in harvest
- Recruitment failures?
- Ecological importance of larval crab
- Unknown from anthropogenic risks
- Current management and enforcement capacity exceeded
- Collaborations and cooperation are required
Developing and Implementing a Plan

• Implementation of critical monitoring was initial motivation
  – Early life stage monitoring deemed critical by three diverse groups (crab-fishery, salmon-, and forage fish-centric)
  – Implementation by two monitoring and one research group preceded development of formal plan

• Using PCSGA Forum to formalize group in workshop setting this September

• Develop type of plan, defined by mission, goals, and objectives, via decision tree

• Shape of plan depends on initiators, motivation of participants, and those seeking long term solutions rather than short term profits; in our case, tribal resource management agencies made the first move!
Implementing Stage 1 Critical Monitoring

- MSP Bottom-up – Salmon love crab larvae
- Lummi and Swinomish doing it
- First meeting was in March
- Primary goal was filling research gaps
- Three key focuses are represented:
  - Crab recruitment
  - Crab as salmon food
  - Opportunity to also monitor forage fish
Catches and Processing

- Traps good for larval crab and fish
- Low by-catch
- Processing is quick
- Used grid-based method for big catches
- CPUE for comparisons
- Index samples saved for validation
- Easy to keep alive for 24 hrs if kept cool
Trends in Cancridae Crab – MSP Zooplankton Monitoring Program
21 Stations in US Salish Sea – 2018 is 5th Year
Light Trap Catches

• Tested 3 traps per site at 3 sites
• Among site variation greater than within site
• Site with strongest tidal flux / exchange had highest catches (Hales Pass – below)
• Site exposed to ocean transport had second highest (Sandy Point)
• Site within a protected bay had lowest catches
Light Trap Catches

• Timing of recruitment varies among sites (Lummi Sites – Right)
• Major recruiting periods may reflect different population sources
• Within a recruiting period, CPUE appears to peak with higher tides series

CPUE from Lights Traps at NOAA’s Mukilteo Site – 2016 (P. McElhany)
Correlations Between Offshore Net and Light Traps Catches Within the Same Region?

• Left Axis: Ln (Max Megalop Dens) from MSP stations closest to light trap sites at San Juan Islands (KWT) and Eliza Island near the southern end of Lummi Island (Lummi)

• Right Axis: Ln (Max Megalop CPUE) from two light trap sites; Hales Pass (HP LT) and Sandy Point SP LT)