Forage fish in the southern Salish Sea: results of the midwater acoustic trawl survey

Todd Sandell  
*Washington Dept. of Fish and Wildlife, United States*, todd.sandell@dfw.wa.gov

Michael Burger  
*Washington Dept. of Fish and Wildlife, United States*, michael.burger@dfw.wa.gov

Adam Lindquist  
*Washington Dept. of Fish and Wildlife, United States*, adam.lindquist@dfw.wa.gov

Patrick Biondo  
*Washington Dept. of Fish and Wildlife, United States*, patrick.biondo@dfw.wa.gov

Dayv Lowry  
*Washington Dept. of Fish and Wildlife, United States*, dayv.lowry@dfw.wa.gov

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Sandell, Todd; Burger, Michael; Lindquist, Adam; Biondo, Patrick; and Lowry, Dayv, "Forage fish in the southern Salish Sea: results of the midwater acoustic trawl survey" (2018). *Salish Sea Ecosystem Conference*. 56.  

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Results of the Southern Salish Sea
Midwater Acoustic Trawl Survey,
2016-’17

*Todd Sandell (todd.sandell@dfw.wa.gov), Mike Burger,
Adam Lindquist, Patrick Biondo, Chris Fanshier and Dayv Lowry
WDFW Marine Fish Science Unit, Forage Fish
MWT

18 stations in PS, HC, SJDF, SJI, SSOG

Non-randomized survey design

Mostly daylight sampling

Minimum ~30m depth
Midwater Trawl 2016-2017
(Bi-monthly)

- **Acoustic Survey:**
  - Biosonics DTX Acoustic (split beam 38 and 120 kHz) survey throughout SSS
  - Targeting forage fish sign at any depth >15m.
  - Day, night and crepuscular sampling

- **Pelagic Trawl Survey:**
  - 32-inch mesh Polish Rope trawl fitted with a fine mesh codend liner
  - Marport depth sensor on net (>Feb16)
  - CTD and 0.5m Vertical Plankton tow
  - Two tows per station (multiple acoustic transects)
Which basins had the highest biomass? ("acoustically relevant species")
What did we catch out there??

* Marport net sounder not yet available during this month
MWT Biomass: most abundant organisms, Fish and squid only

Acoustic Biomass Estimate

Kg

Feb Apr Jun Aug Oct Dec 17-Feb

Walleye pollock
Northern anchovy
Loligo squid
Other
Chinook salmon
Spiny dogfish
Pacific whiting (Hake)
Pacific herring
Herring density by month

* Marport net sounder not yet available during this month
Correlation between warm waters and Anchovy?

February-April

June-August

October-December

Slide from Will Duguid, U. Victoria; Deep Sea Research, submitted
Gathering data on multiple trophic levels during Spawn deposition surveys (Jan-June)
Birch Head, Cherry Point

June 2017
Questions ?

Thanks to the Kurt Dobszinsky and the crew of the F/V Chasina, our volunteers, and the Washington state legislature for funding the 2016-’17 MW trawl survey.
“Acoustically Relevant Species”

YOY Schools at mid water

Diffuse band of fish at discrete depth
MWT catch data: 7 most abundant fish species, by basin
Estimated Annual Herring Biomass by Region from Spawn Deposition Surveys
Herring Individual Stock Biomass

ESTIMATED HERRING SPAWN BY INDIVIDUAL STOCK w/o CHERRY PT

BIOMASS IN TONS

Herring Age Structure (SL) and Timing

Herring- All Basins

- Age 4+
- Age 3/4
- Age 3
- Age 2/3
- Age 2
- Age 1
- YOY

Feb-16 | Apr-16 | Jun-16 | Aug-16 | Oct-16 | Dec-16 | Feb-17

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