**CRUISE REPORT**

Cruise Number: DY17-07

**Ship:**

NOAA Ship Oscar Dyson

**Area of Operations:**

Western Gulf of Alaska

**Itinerary:**

**Leg 1** **Date depart / port:** August 21, 2017 / Kodiak, AK

**Leg 1 Date arrive / port:** September 2, 2017 / Kodiak, AK

**Leg 2** **Date depart / port:** September 4, 2017 / Kodiak, AK

**Leg 2 Date arrive / port:** September 15, 2017 / Dutch Harbor, AK

**Participating organizations:**

NOAA - Alaska Fisheries Science Center (AFSC)

NOAA – Pacific Marine Environmental Laboratory (PMEL)

**Chief Scientist:**

Matt Wilson (Leg 1) M / AFSC / Eco-FOCI

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**Personnel:**

**Leg 1**

John Brogan M / AFSC / REFM

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Corey Fugate M / AFSC / RECA

Jesse Lamb M / AFSC / Eco-FOCI

Todd Miller M / AFSC / RECA

Amanda Dice F / Teacher At Sea

Jessica Stocking F/ PWS Sci. Ctr.

**Leg 2**

Annette Dougherty F / AFSC / Eco-FOCI

Colleen Harpold F / AFSC / Eco-FOCI

Jamal Moss M / AFSC / EMA

Melanie Paquin F / AFSC / Eco-FOCI

Lauren Rogers F / AFSC / Eco-FOCI

Jennifer Smallwood F / Teacher At Sea

David Strausz M / PMEL

**Cruise Objectives:**

Conduct a fisheries (midwater trawl) and oceanographic survey to:

1. Extend time series of abundance of age-0 Walleye Pollock and other select forage

fishes in the western Gulf of Alaska;

2. Collect zooplankton and measure environmental variables that potentially affect the

ecology of these fishes;

3. Trial surface trawling for age-0 juvenile Sablefish;

4. Conduct CTD casts and water sampling at stations along two transects to examine the

physical, chemical, and biological oceanography associated with cross-shelf flow.

5. Conduct underway seabird observations.

**Summary of Operations:**

The primary objective of the cruise was to conduct a trawl survey for age-0 Walleye Pollock and a bongo survey to collect age-0 Walleye Pollock associated prey in the western Gulf of Alaska. Two transect lines of CTDs were occupied to provide information on cross shelf flow.

**Samples Collected**

20cm bongo (20BON) 130

60cm bongo (60BON) 130

Stauffer trawl 130

Seabird FastCAT CTD (CAT) 130

CTD without bottle samples 5

CTD with bottle samples (CTDB) 14

See Table 1 for summary by station.

**Summary of Cruise**

Oscar Dyson departed Kodiak, AK on August 21, 2017, changed crew (from Leg 1 to Leg 2) during 2-4 September, and arrived at Dutch Harbor, AK on September 15, 2017. During Leg 1, about a half day was lost to weather. During Leg 2, after meeting with the CO about a large storm that was predicted to come through our area of operations (area between Shumagin Islands and Unimak Island), it was agreed that it would be best to head to Dutch Harbor about 2.5 days earlier than planned because conditions would be unsafe to work in for the remaining days of the survey.

At each grid location, a bongo tow was conducted first to collect zooplankton followed by a Stauffer trawl to sample age-0 Walleye Pollock and other forage fishes (Fig. 1). The gear for zooplankton sampling was a 60-cm bongo frame with 0.505-mm mesh netting paired with a 20-cm bongo with 0.153-mm mesh. A FastCat was mounted above the bongo to provide depth, temperature, and salinity data. Bongo tows were to 200 meters depth or 10 meters off the bottom where water depth was shallower. For each bongo array, Net 1 was preserved in 1.8% formaldehyde, and buffered with sodium borate. At selected stations, zooplankton from Net 2 from both arrays were sorted and counted and then discarded.

The Stauffer trawl was deployed to a headrope depth of 200 meters, or 10 meters off the bottom, whichever was shallowest. A SBE-39 was deployed on the headrope as a backup depth sensor, and data were saved. Net depth was monitored using the ship’s Simrad ITI (trawl eye) and FURUNO system. Standard trawl operations were used for deployment. The trawl was fished over a double-oblique path. At 2 sites, we tested surface trawling, but the headrope was at about 50 m during each test and the floats tangled during our third attempt so surface trawling tests were stopped.

Walleye pollock (all age classes), Pacific Cod, Rockfishes, Sablefish, Capelin, Eulachon, and flatfishes were sorted from the catch. Flatfishes were sorted to species if possible. Standard length (SL) was the body-length metric for age-0 Walleye Pollock. Fork length (FL) was the body-length metric for age-1+ Walleye Pollock. The following groups were frozen for subsequent examination in the laboratory: age-0 Walleye Pollock, age-0 Pacific Cod, age-0 rockfish, Sablefish, and Arrowtooth Flounder. They were flash frozen in the –80oC freezer and then moved to the –20oC freezer.

CTD transects: Transects were occupied for CTD cross-shelf analysis (Figure 1). At each transect location a CTD (with bottles) was conducted. All hydrographic casts included high-resolution vertical profiling of water properties (including temperature, salinity, chlorophyll fluorescence, PAR, dissolved O2) to within 10 m of the bottom using a Seabird 911Plus CTD. Discrete oxygen samples were collected, and that data were used to calibrate the CTD oxygen sensors. Nutrients were collected and frozen for analysis at a later date at the NOAA laboratories in Seattle.

**Days Lost to Weather:**

**Leg 1:** 0.5 days were lost to weather.

**Leg 2:** 2.5 days were lost to weather.

**Days Lost to Equipment Failure:**

0

**Recommendations:**

None

**Acknowledgments:**

The scientific party would like to acknowledge the hard work and support of the officers and crew of NOAA Ship Oscar Dyson.

**Attachments:**

Table 1. DY17-07 cruise summary. Double click on table below for the complete cruise summary (an embedded .pdf file will open).



Figure 1. Station Map

