##### **Scientific Research Plan**

Alaska Fisheries Science Center/Auke Bay Laboratories eastern Gulf of Alaska pelagic trawl survey for the R/V *Northwest Explorer*, June 24 – August 29, 2016.

Vessel Information:

Vessel: FV *Northwest Explorer* AK6767N (VON 609384)

Vessel Design: 160 ft workboat, constructed of steel (dark blue), with house forward (white)

Call sign: WCZ 9007

Satellite Phone: 011881631834767

Home Port: Seattle, WA

B&N Fisheries in Seattle, WA, Jerry Downing (206) 783-1948

E-mail: jerryd@bnfisheries.net

Vessel Master: Ray Haddon

Telephone: 907-723-0303

E-mail: northwest.explorer@amosconnect.com

##### Survey Dates:

##### June 24 – August 29, 2016

Ports of Call:

*Northwest Exlorer*

Juneau June 24-25

Juneau July 1-2

Sitka July 15

Juneau July 24-25

Juneau August 2-3

Sitka August 11

Juneau August 20-21

Juneau August 28-29

Personnel:

 *Northwest Explorer* **SECM**

|  |  |  |
| --- | --- | --- |
| **Leg** | **Name** | **Affiliation** |
| 1 | Joseph Orsi1 | AFSC/ABL |
|  | Wess Strasburger | AFSC/ABL |
|  | Jeanette Gann | AFSC/ABL |
|  | Jamal Moss | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  |  |  |
| 2 | Joseph Orsi1 | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  | Corey Fugate | AFSC/ABL |
|  | Julie Bednarski | ADFG |
|  | TBD Contract | AFSC/ABL |
|  |  |  |
| 3 | Joseph Orsi | AFSC/ABL |
|  | TBD Contract | AFSC/ABL |
|  | TBD Contract | AFSC/ABL |
|  | Andy Gray | AFSC/ABL |
|  | Mark Sogge | ADFG |
|  | TBD Contract | AFSC/ABL |

1. -- Chief Scientist

AFSC -- Alaska Fisheries Science Center

ABL -- Auke Bay Laboratories Division

 ADFG --Alaska Department of Fish and Game

 *Northwest Explorer* **EGOA**

|  |  |  |
| --- | --- | --- |
| **Leg** | **Name** | **Affiliation** |
| 1a | Wess Strasburger1 | AFSC/ABL |
|  | Alex Andrews | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  |  |  |
| 1b | Wess Strasburger1 | AFSC/ABL |
|  | James Murphy | AFSC/ABL |
|  | TBD Contractor |  |
|  | Jamal Moss | AFSC/ABL |
|  | Brian Beckman | NWFSC |
|  | TBD Contract | AFSC/ABL |
|  |  |  |
| 2a | Wess Strasburger1 | AFSC/ABL |
|  | Jamal Moss | AFSC/ABL |
|  | Kristin Cieciel | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  |  |  |
| 2b | Wess Strasburger1 | AFSC/ABL |
|  | James Murphy | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |
|  | TBD Contractor | AFSC/ABL |

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 NWFSC --Northwest Fisheries Science Center

###### 1. Project Objectives and Rationale:

The primary objectives of the 2016 pelagic trawl survey cruises in coastal and offshore waters of the eastern Gulf of Alaska are to:

1) Provide information on how species distribution and marine food webs are altered by climate including the warm blob and El Niño.

2) Collect biological and oceanographic information pertinent to juvenile salmon and forage fishes in the region.

3) Continue the 19 year oceanographic time series sampling the inside waters of Icy Strait and Chatham Strait.

4) Collect information about the offshore extent of age-0 rockfishes in the eastern Gulf of Alaska.

5) Perform 5 live box trawls to capture intact large scyphomedusae for onboard digestion experiments that will fulfill objectives of an NPRB funded project.

6) Assess the feasibility of variable mesh gillnet deployment from a large vessel format.

2. Experimental Design:

The survey will be conducted aboard the chartered fishing vessel, R/V Northwest Exloprer. Salmon and other pelagic fish will be collected with a midwater rope trawl, model 400/601 made by Cantrawl Pacific Ltd[[1]](#footnote-1). of Richmond, B.C., Canada. The trawl is 198 m long, with hexagonal mesh in wings and body, a 1.2-cm mesh liner in the codend, and a typical spread of 50 m horizontally and 30 m vertically. The trawl will be towed at or near the surface for 30 minutes at speeds approximately 4.5 knots at each station. Stations have been selected as part of a spatially systematic sampling design of the inside waters of northern southeast Alaska, as well as a systematic grid covering the nearshore on shelf offshore basin areas of the eastern Gulf of Alaska.

Trawl catches will be sorted by species and catch in weight and numbers will be estimated. Standard biological data will be collected from age-0 groundfish and forage species, including: length, weight, sex, condition, and maturity data. Scales, otoliths, genetic tissue samples, and whole fish specimens for laboratory analysis will also be collected from salmon species. Length frequency data and whole fish specimens for laboratory analysis will be collected from other pelagic nekton species. Diet information will be collected from stomachs of trawl caught fish. Live capture techniques (“live-box trawling”) may be used to capture adult scyphomedusae, when sufficient numbers of macro jellyfish are present and as time permits. Live capture of jellyfish will be used for on-board digestion experiments. Up to 100 *Chrysaora melanaster* and *Cyanea capillata* will be sampled with the live box. Sample requests and collections for all aspects of the survey by collaborating scientists will be filled as time permits.

Oceanographic data will also be collected at each main trawl station. Vertical profiles of salinity, temperature, chlorophyll a fluorescence, light attenuation (beam c), photosynthetic available radiation (PAR) and dissolved oxygen, will be obtained from surface to near bottom depths at each trawl station using a conductivity, temperature, and depth meter (CTD) with ancillary sensors (SBE-911, Sea-Bird Electronics, Inc, Bellevue, WA). Water samples for nutrients (N, P, Si), chlorophyll a (total and size fractionated), and phytoplankton will be collected at the surface and below the pycnocline using 5-L Niskin bottles. Zooplankton samples will be collected at each trawl station from surface to near bottom using double oblique bongo (60-cm diameter frame with 505 and 333 micron mesh nets) and 150 micron mesh.

**3. Geographical Area of Operation**:

The R/V *Northwest Explorer* survey will begin in Juneau, Alaska on June 24, 2016 and end in Juneau on August 29, 2016, with port calls scheduled in both Juneau and Sitka (Table 1).

**4. Cruise Schedule:**

Table 1. Tentative cruise itinerary for the *R/V Northwest Explorer* pelagic trawl survey in the coastal and offshore waters of northern southeast Alaska and offshore waters of the eastern Gulf of Alaska, June 24 – August 29, 2016.

Date Location/Activity

Leg 1

June 24 SECM-Embark scientists and load gear at subport, Juneau, AK

June 25 Depart Juneau in the evening, transit to Icy Strait, Upper Chatham or IP

June 26 Arrival and proceed to sample with grid stations

July 1 Port call Juneau, unload

Leg 2

July 25 SECM-Embark scientists and load gear at subport, Juneau, AK

July 26 Depart Juneau in the evening, transit to Icy Strait, Upper Chatham or IP

July 26 Arrival and proceed to sample with grid stations

August 2 Port call Juneau, unload

Leg 3

August 21 SECM-Embark scientists and load gear at subport, Juneau, AK

August 22 Depart Juneau in the evening, transit to Icy Strait, Upper Chatham or IP

August 22 Arrival and proceed to sample with grid stations

August 29 Port call Juneau, unload

Date Location/Activity

Leg 1a

July 2 GOA-Embark scientists and load gear at subport, Juneau, AK

July 3 Depart Juneau in the evening, transit to offshore grid via Cross Sound

July 4 Arrival and proceed to sample with grid stations

July 15 Port call Sitka, AK, supplies and shipping

Leg 1b

July 15 GOA-Depart Sitka in the evening, transit to offshore grid

July 16 Arrival and proceed to sample with grid stations

July 24 Port call Juneau, unload

Leg 2a

August 3 GOA-Embark scientists and load gear at subport, Juneau, AK

August 4 Depart Juneau in the evening, transit to offshore grid via Cross Sound

August 5 Arrival and proceed to sample with grid stations, Live Box & Gillnet

August 11 Port call Sitka, AK, supplies and shipping

Leg 2b

August 11 GOA-Depart Sitka in the evening, transit to offshore grid

August 12 Arrival and sampling, extended age-0 rockfish grid 100+ miles offshore

August 20 Port call Juneau, unload

**5. Catch of Restricted or Managed Species:**

A pelagic rope trawl (50-m horizontal, 35-m vertical, towed near the surface or midwater) will be used to collect fish in the coastal Northeast Bering Sea shelf. Based on previous surveys conducted in this area, we anticipate a total fish catch of approximately 3500 kg. Pingers will be attached to trawl gear to reduce the probability of marine mammal bycatch. All incidental takes will be reported as required by recent guidance.

**6. Sponsoring Organization Contact Information:**

Douglas P. DeMaster, Science and Research Director

Alaska Fisheries Science Center (AFSC), NMFS

Auke Bay Laboratories

17109 Point Lena Loop Road

Juneau, AK 99801

FAX: (907) 789-6094

**7. Principal Investigator/Chief Scientist Contact Information**

Wesley Strasburger, wes.strasburger@noaa.gov (907) 789-6009

##### Alaska Fisheries Science Center (AFSC), NMFS

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17109 Point Lena Loop Road

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**8. Steller Sea Lion Critical Habitat and Closures**

No stations are within designated Steller sea lion critical habitat.

1. Reference to trade names does not imply endorsement by the National Marine Fisheries Service, NOAA. [↑](#footnote-ref-1)