

2009 Seacat Data Documentation Form

Data submission to NOAA/PMEL

Date: 6/10/2010

Section 1. Contributor Identification

| | |
|--|--|
| 1. Name of contributor Lauri Sadorus | 5. Telephone 206-634-1838 x211 |
| 2. Organization name International Pacific Halibut Commission | 6. Email lauri@iphc.washington.edu |
| 3. Mailing address P.O. Box 95009 | 7. Fax 206-632-2983 |
| 4. City, State, Zip, Country/Province Seattle, WA, 98145-2009 | 8. Alternate contact name and phone Michael Larsen x204 |

Section 2. General Dataset Description

| | |
|--|--|
| 1. Dataset Title: IPHC Oceanographic Profile Data | |
| 2. Dataset Abstract: The IPHC conducts an annual longline fish survey on a 10x10 nautical mile grid from southern Oregon north to the Gulf of Alaska, out along the Aleutian Island chain, and into the Bering Sea in depths ranging from 30 to 500 m. Beginning in 2000, the IPHC conducted a pilot project looking at the practicality of collecting oceanographic profile data alongside fishery data at the longline survey stations. The project was expanded to stations off Oregon in 2007 and coast-wide in 2009. Profiles were taken at each station immediately prior to hauling the longline gear so that oceanographic data collection is coincident with the haul. The data collected are surface to depth profiles of pressure (depth), temperature, conductivity (salinity), dissolved oxygen, pH, and chlorophyll-a concentration. | |
| 3. Dataset purpose/general description: Surface to depth profiles are collected at each of about 1200 longline fishing stations in the IPHC survey. The geographic range of the survey allows the IPHC to take an oceanographic “snapshot” each summer of conditions along the continental shelf in the north Pacific and parts of the Bering Sea that will likely be useful to researchers worldwide as the time series builds. Furthermore, collecting these data coincident with longline survey fishing will enable stock assessment scientists to examine the role of oceanographic conditions in relation to distributions of commercially caught groundfish. | |
| 4. Dataset collection dates First day of data collection: 5/30/09 Last day of data collection: 6/13/09 | |
| 5. Dataset location Northernmost latitude: 52°40.29'N Southernmost latitude: 51°09.86'N Easternmost longitude: 172°47.33'W Westernmost longitude: 179°28.09'E IPHC Survey region: Adak (ADK) | 9. Vessel name and type F/V Pacific Sun (abbreviation: PCS) 122' longline fishing vessel |

| | |
|--|---|
| 6. Instruments used to collect these data: We use SBE19plus and SBE19plusV2 water column profilers made by Seabird Electronics Inc. in Bellevue, WA, outfitted with auxiliary sensors to measure dissolved oxygen (SBE43), pH(SBE18), and chlorophyll a concentration (WETLabs – ECO-FLRTD) | 10. Trip/cruise number Trip: 1 |
| 7. Parameters measured Pressure, temperature, conductivity (translated to salinity), dissolved oxygen, pH, chlorophyll-a concentration. Calculated: Sigma-T, Oxygen saturation. | 11. Station number range 6067-6112 |
| 8. Number and type of files/casts transferred 44 total casts/files. Original file formats in xml and cnv (SeaBird software) per cast. Processed data in two formats (1 cast/set per file): NetCDF files (PMEL:EPIC standard), and ODV-friendly tab-delimited ASCII file with 2-line header. No data file at station 6107 (cast 013). | 12. Description of file names NetCDF and TXT Filename prefix: IPHC2009 (Organization and year), 3-letter Vessel (see Section 2.9), 4-digit Area, cast (set) number cNNN (c and three digits). Suffix is .nc or .txt |

Section 3. Scientific Content of Dataset

| Name of measured parameter | Unit of measure used for parameter | Observation method and instrument used | Data processing techniques |
|---|---|--|---|
| Pressure Temperature Salinity Dissolved O ₂ pH Chlorophyll-a Sigma-T oxygen | Strain guage (db) ITS-90 °C psu ml/L pH mg/m ³ kg/m ³ % saturation | SBE19plusV2 SBE19plusV2 SBE19plusV2 SBE43 SBE18 Wetlabs-ECO-FLRTD calculated value calculated value | All data are processed from raw using SeaBird “SEASOFT SBE Data Processing” software, and a configuration (*.con) file that includes integrated instrument serial numbers and calibration coefficients. Data are averaged to 1-meter. Salinity is calculated from conductivity, temperature and pressure using the 1978 Practical Salinity Scale (PSS, IEEE Journal of Oceanic Engineering, V. OE-5, No.1, Jan.1980, p.14). Calculated values (2): sigma-T (density-1000) and % Oxygen concentration. |

Section 4. File Format of Dataset

Each file contains one station profile (cast/set) in both text (txt suffix) and NetCDF (nc suffix) file formats. All times are GMT. Attributes contained in the NetCDF file are:

Latitude: all North latitude 0-90° in decimal degrees, and labeled “degree_north” (NetCDF) or “degrees north” (txt files)

Longitude in txt files (ODV-friendly):

positive decimal degrees from 0-360° and labeled “degrees east”

Longitude in NetCDF files:

positive decimal degrees from 0-180° and labeled “degree_west” or “degree_east”

CRUISE: IPHC vessel code and region abbreviation (see Sec.6)

CAST: IPHC set number, defines one profile of data at one location

STATION_NAME: 4-digit IPHC survey station number

DATA_CMNT: lists data source CNV file name

Data columns described in the header information are as follows:

Column 1: scan (row number)
Column 2: depth (dbar pressure)
Column 3: temperature (°C)
Column 4: dissolved oxygen (ml/L)
Column 5: pH
Column 6: chlorophyll *a* concentration (mg/m³)
Column 7: Salinity (psu)
Column 8: oxygen (umol/kg)
Column 9: Sigma-T (kg/ m³ Calculated)
Column 10: oxygen (% saturation)

Data files include all downcast data, with occasional upcast information filling in if data problems occur in downcast.

Section 5. Instrument Calibration

Configuration file included (6193_09.con).

Winkler titrations were not performed for calibration of dissolved oxygen data. Water samples necessary for calibration were not collected due to field circumstances. SeaBird SBE-43 instruments are considered very reliable. In more usual cases, bottle data are collected, and slope and offset calibration values are applied to profile data. For low values of oxygen concentration, calibration values are generally small, and larger for higher values. Oxygen concentrations greater than 100% (supersaturation) are not unusual. This can be due to variations in temperature and salinity due to heating rates and ventilation of the water column, wind and turbulence at the surface, and biological influences (photosynthesis). Oxygen data should be used with the consideration that water samples were not collected and corrections have not been applied. Data are indicative of variations in spatial patterns, but are not exact.

Section 6. Other

GIS generated map is included to illustrate distribution of stations.

Notes:

**** Stations in this region span the border between W and E longitude.**

- 1) Longitude is designated “degrees east” and “degrees west” both with positive values. Four stations in this set are east of the Dateline.
- 2) At station 6107, the profiler was left on for 30 minutes after the cast. When data were uploaded XML file was generated but no hex file (or subsequent cnv file), therefore no profile data for cast013 (station 6107).

