

# Molluscan Ecology Shellstring and Dredge Metadata

**Latest Update:** February, 26 2020

Note: Contents of this document are subject to change throughout the QAQC process. Contact Missy Southworth (melsouth@vims.edu) with any additional data-related questions.

## I. Data Set and Research Descriptors

### 1) Principal investigator(s) and contact persons

Virginia Institute of Marine Science  
College of William and Mary  
PO Box 1346, Gloucester Point, VA 23062

Dr. Roger Mann - E-mail: rmann@vims.edu; (804) 684-7360  
Melissa Southworth - E-mail: melsouth@vims.edu; (804) 684-7821

Additional researchers in past years:

J.M. Harding - 1999-2012  
R. Morales-Alamo - 1994-1998  
B. Barber - 1988-1992  
J. Whitcomb - 1983-1988  
P. Kendall - 1974-1982  
D. Haven - 1970-1982

### 2) Entry verification

Data are compiled from field collection sheets (file of scanned sheets is located in the data archive) and entered by hand into a SQL database since 2011. Prior data were entered into FilemakerPro. Current values are verified as being within acceptable data range by M. Southworth.

### 3) Research objectives - Shellstring Survey

The research objective for the Shellstring Survey is to provide an index of oyster population reproduction as well as an estimate of the development and survival of larvae to the settlement stage. Settlement of spat on the shellstrings can be used as an estimate of potential oyster recruitment into a particular estuary.

### 4) Research objectives - Dredge Survey

Every year the Virginia Institute of Marine Science (VIMS) in collaboration with VMRC (since the 1990s), conducts a dredge survey of selected public oyster bars in Virginia tributaries of the western Chesapeake Bay to assess the status of the existing oyster resource. These surveys have been conducted in both the spring (1986-1992, 1994-1997) and fall (late 1960s to present). The objective of the spring surveys was to give an estimate of over-winter mortality, to determine bushel counts prior to fall harvest for seed and to assess the condition of market and seed oysters on selected oyster bars. The fall surveys provide information about oyster settlement and recruitment, mortality and relative changes in abundance of seed and market-size oysters from one year to the next.

### 5) Research methods - Shellstring Survey

The shellstring survey is conducted every year from late spring through early-fall in several Virginia tributaries. A shellstring consists of twelve oyster shells of similar size drilled through the center and strung on heavy gauge wire. Shellstrings are replaced on a weekly basis and the number of spat that settle on the smooth underside of the middle ten shells are counted. A manual outlining the shellstring survey methods can be found here:

[https://www.vims.edu/research/units/labgroups/molluscan\\_ecology/docs/Shellstring\\_manual.pdf](https://www.vims.edu/research/units/labgroups/molluscan_ecology/docs/Shellstring_manual.pdf)

## **6) Research methods - Dredge Survey**

The dredge survey is conducted every year in the fall in several Virginia tributaries. Surveys were also conducted in the spring on select oyster bars from 1986 to 1992 and 1994 to 1997. In both fall and spring surveys, samples of bottom material were collected on each bar using an oyster scrape/dredge. From each sample, the number of market oysters (76 mm = 3-in. in length or larger), small oysters (< 76 mm, excluding spat), spat (recently settled recruits), new boxes (inside of shells perfectly clean; presumed dead for approximately < 1 week) and old boxes were counted.

## **7) Site location and character**

Various shellstring and dredge sites have been monitored throughout the course of the survey. A full list of sites and their respective collection dates (years) is included in the data archive.

## **8) Data collection - Shellstring Survey**

The Shellstring Program has data for current tables entered from 1988 - present; however, reports from 1970 onward are available. Data weren't collected from all sites for all years.

From 1998 to 2009, there were 2 replicates (A & B) collected at each sample site. From 1998 to 2001, the A string was used in the data reports. From 2002 to 2009, an average was computed using data from both strings and that number was used in the data reports. In 2010, a statistical comparison was performed on the ten years of data where data from 2 replicates was available. There was no significant difference found between the replicates; therefore, collection methods returned to 1 sample per site.

## **9) Distribution and Disclaimer**

Manuscripts resulting from this research that are produced for publication in open literature, including refereed scientific journals, must acknowledge that the research was conducted under an award from the Molluscan Ecology Program at the Virginia Institute of Marine Science, College of William and Mary. The data set enclosed within this package/transmission is only as good as the quality assurance and quality control procedures outlined by the enclosed metadata reporting statement. The user bears all responsibility for its subsequent use/misuse in any further analyses or comparisons.

## **II. Physical Structure Descriptors**

### **10) Sensor specifications**

The following is a list of various sondes and the years they were used. Prior year's temperature and salinity were measured with a handheld thermometer and refractometer. 2005-2011 YSI 85, 2012-present YSI Pro2030.

Dissolved oxygen measurements were collected from 2005-present (YSI Pro2030).

Note: There are differences between shellstring and dredge surveys for the type of equipment used. YSI 30 for the Dredge Survey. Prior data were collected with a handheld refractometer and handheld thermometer for the Dredge Survey.

Depth: Also collected for Shellstring and Dredge Surveys.

Tidal Stage: a general estimation was recorded on the shellstring field sheets.

All YSI data were collected 0.5 m from the bottom. A Niskin bottle was used in prior years to retrieve water at a depth 0.5 m from the bottom for measurement with handheld thermometers (temperature) and refractometers (salinity).