

Appendixes

Appendix 1 – Sediment grain-size distribution data from the pre-placement stockpile.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_1/)

Grain size distribution data from the stockpile sediment samples are provided in the workbook: *Appendix_1_Results*. There are three sheets within this file:

Progress – A summary of the completion dates for the laboratory methods utilized for these analyses.

Weights – Raw weights and computed weight-based percentages of the sediment samples from grain-size sieving.

SDSZ – The integrated grain-size distribution results for the sediment samples. Results are presented in the weight-based percentage of sample in 0.25-phi classes. In addition to these results, a number of sediment statistics were calculated using the USGS SEDSIZE software. Further details about SEDSIZE can be found at http://water.usgs.gov/cgi-bin/man_wrdapp?sedsize. Grain-size statistics generated by SEDSIZE include:

- percentage of gravel (>2 mm) by weight,
- percentage of sand (0.063–2 mm) by weight,
- percentage of silt (0.004–0.063 mm) by weight,
- percentage of clay (<0.004 mm) by weight,
- percentage of mud (combined silt and clay) by weight,
- various ratios of the grain-size classes described above, and
- statistical measures of the grain-size distributions made by using techniques suggested by Folk and Ward (1957), Inman (1952), and Trask (1932).

Appendix 2 – Sediment grain-size distribution data from seafloor samples.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_2/)

Grain-size distribution data from the seafloor sediment samples are provided in two Excel spreadsheets, one for each sampling phase of this project (pre-project and Phase II). Seafloor samples were not collected during Phase I of the project. The data files are named *Appendix_2_Results_PhaseII* and *Appendix_2_Results_PreProject*. These files have three worksheets:

Progress – A summary of the completion dates for the laboratory methods utilized for these analyses.

Weights – Raw weights and computed weight-based percentages of the sediment samples from grain-size sieving.

SDSZ – The integrated grain-size distribution results for the sediment samples. Results are presented in the weight-based percentage of sample in 0.25-phi classes. In addition to these results, a number of sediment statistics were calculated using the USGS SEDSIZE software. Further details about SEDSIZE can be found at http://water.usgs.gov/cgi-bin/man_wrdapp?sedsize. Grain-size statistics generated by SEDSIZE include:

- percentage of gravel (>2 mm) by weight,
- percentage of sand (0.063–2 mm) by weight,
- percentage of silt (0.004–0.063 mm) by weight,
- percentage of clay (<0.004 mm) by weight,
- percentage of mud (combined silt and clay) by weight,
- various ratios of the grain-size classes described above, and
- statistical measures of the grain-size distributions made by using techniques suggested by Folk and Ward (1957), Inman (1952), and Trask (1932).

In addition, the pre-project file includes the following worksheet:

Sampling_Notes – A summary of the sample dates, sample location (latitude, longitude, relative location on the beach), and the laboratory methods utilized for these analyses.

Appendix 3 – Sediment grain-size distribution data from beach samples.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_3/)

Grain-size distribution data from the beach-sediment samples obtained during the pre-project and Phase II of the project are provided in two workbooks named:

Appendix_3_Results_PhaseII and **Appendix_3_Results_PreProject**. Both files contain the following worksheets:

Weights – Raw weights and computed weight-based percentages of the sediment samples from grain-size sieving.

SDSZ – The integrated grain-size distribution results for the sediment samples. Results are presented in the weight-based percentage of sample in 0.25-phi classes. In addition to these results, a number of sediment statistics were calculated using the USGS SEDSIZE software. Further details about SEDSIZE can be found at http://water.usgs.gov/cgi-bin/man_wrdapp?sedsize. Grain-size statistics generated by SEDSIZE include:

- percentage of gravel (>2 mm) by weight,
- percentage of sand (0.063–2 mm) by weight,
- percentage of silt (0.004–0.063 mm) by weight,
- percentage of clay (<0.004 mm) by weight,
- percentage of mud (combined silt and clay) by weight,
- various ratios of the grain-size classes described above, and
- statistical measures of the grain-size distributions made by using techniques suggested by Folk and Ward (1957), Inman (1952), and Trask (1932).

In addition, the pre-project file contains the following worksheet:

Sampling_Notes – A summary of the sample dates, sample locations (latitude, longitude, relative location on the beach), and the laboratory methods utilized for these analyses.

The Phase II file contains the following additional worksheets:

Progress – A summary of the completion dates for the laboratory methods utilized for these analyses.

Pit Details – Sample location information, including sample depth and along-trench distance.

Appendix 4 – Suspended-sediment concentration and grain-size distribution data from beach-swash samples.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_4/)

Suspended-sediment concentration and grain-size distribution data from the swash-water samples are provided in two workbooks named *Appendix_4_Results_PhaseI* and *Appendix_4_Results_PhaseII*. There are two sheets within these files:

Weights – Raw weights and computed weight-based percentages of the suspended-sediment samples from grain-size sieving.

SDSZ – The integrated grain-size distribution results for the fine fractions of the suspended-sediment samples. Results are presented in the weight-based percentage of sample in 0.25-phi classes. In addition to these results, a number of sediment statistics were calculated using the USGS SEDSIZE software. Further details about SEDSIZE can be found at http://water.usgs.gov/cgi-bin/man_wrdapp?sedsiz. Grain-size statistics generated by SEDSIZE include:

- percentage of gravel (>2 mm) by weight,
- percentage of sand (0.063 – 2 mm) by weight,
- percentage of silt (0.004 – 0.063 mm) by weight,
- percentage of clay (<0.004 mm) by weight,
- percentage of mud (combined silt and clay) by weight,
- various ratios of the grain-size classes described above, and
- statistical measures of the grain-size distributions made by using techniques suggested by Folk and Ward (1957), Inman (1952), and Trask (1932).

Appendix 5 – Conductivity-temperature depth (CTD) and optical turbidity measurements from small vessel water sampling.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_5/)

The CTD data from both Phase I and II of the Demonstration Project are provided in raw text files (.cnv files). Each file includes all samples from one CTD cast, including the initial samples at the water surface, the downcast, and the upcast. These files are organized by sample date, and each complete sampling of the stations is provided in a unique folder. The folder names have the following format: **CTD_YYYY_MM_DD**, where:

YYYY is the year,

MM is the numerical month, and

DD is the numerical day of the month.

Each file within these folders represents the entire CTD cast for one station. The station name (for example, C08, D14, and Buoy-N) is given in each file name.

The downcast CTD data from Phase II of the Demonstration Project also were depth averaged using a 0.25 m interval and compiled with station latitude and longitude in structured arrays within Matlab (.mat) files. These depth-averaged data are available in the *Appendix_5_Results_CTD_PhaseII* folder. Each file contains a complete sampling of all of the stations, which typically incorporates all of the sampling from a single day. Three files are available for the September 30, 2009, because the stations were sampled three complete times. Within each file the sampling data are stored within a structured array entitled *ctdBin* that includes the following fields:

name—the original raw data file name,

station—coastal sampling station,

variable—the original CTD sample variables recorded,

spans—the length of sample record averaged,

samp_interval—the depth interval in meters for averaging,
 mtime—the Matlab time of the beginning of sampling,
 gtime—the calendar time of the beginning of sampling [year month day hour minute second],
 sensors—names of sensors sampled,
 latitude—latitude of station in decimal degrees,
 longitude—longitude of station in decimal degrees,
 tzone—the time zone of sampling,
 timeJ—time of sample in Julian days,
 timeS—time of sample in seconds after the sensor turned on,
 prdM—average pressure of samples in dbar,
 depSM—average depth of samples in meters,
 c0S—average conductivity of samples in microSiemens per meter,
 sal00—average salinity of samples in practical salinity units (psu),
 tv290C—average temperature of samples in degrees Celsius,
 density00—average density of samples in kilograms in cubic meters,
 v0—average voltage of the transmissometer external sensor (channel #0),
 bat—average beam attenuation of the transmissometer sensor in meters⁻¹,
 v2—average voltage of the optical backscatterance external sensor (channel #3),
 flag—‘NaN’ if no data available for averaging, ‘0’ if adequate data for averaging,
 scan—average number of the sequential scan since the CTD was turned on, and
 dep_reg—midpoint of the 0.25-meter depth averaged bins.

For more information about the .mat file format, please see Mathworks at www.mathworks.com. Note that *NaN* within any of these fields represents ‘not a number’ and is utilized for fields in which no data were recorded or available.

Appendix 6 – Suspended-sediment concentration measurements from small vessel water sampling.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_6/)

Suspended-sediment concentration data from the coastal surface-water samples are provided in the workbook named **Appendix_6_Results**. There is one sheet within this file that provides the raw weights and computed weight-based percentages of the suspended-sediment samples from grain-size sieving.

Appendix 7 – Remote-sensing imagery.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_7/)

Digital data from the remote-sensing images are provided in the **Appendix_7_Remote_Sensing_Imagery_PhaseII** folder. The raw data files are large, approximately 55 MB for the thermal infrared (TIR) images and 110 MB for the red, green, blue (RGB) images. Because of these large file sizes, smaller TIFF files of these images are provided in the **Imagery_Clips** folder. These TIFF files are named using the following convention: **YYYY_MM_DD_XXX**, where **YYYY** is the year, **MM** is the numeric month, **DD** is the day of the month, and **XXX** is the image type (**‘rgb’** or **‘TIR’**). Note that two images were collected on September 23, 2009, and these are labeled **A** and **B** for the early and late flights, respectively.

Raw data are provided in the *Imagery_ALL* folder. Before accessing these data, please review the metadata provided for both the RGB data (*dmisc_xxxxxx_rgb_metadata.htm*) and the TIR data (*tir_xxxxxx_rgb_metadata.htm*). These metadata files have complete information about image acquisition and processing. Each individual image has three files: a full resolution TIFF file (.tif), a full resolution raster file (.rrd), and an auxiliary information file associated with the image (.aux). These files are named with the following convention:

ZZZ_MMDDYY_XXX.YYY, where **ZZZ** is the sensor type (*'dmisc'* for the multispectral sensor, *'tir'* for the thermal infrared sensor), **MM** for the numeric month, **DD** for the day of the month, **YY** for the last two digits of the year (*'09'* for 2009), **XXX** for the image type (*'rgb'* or *'tir'*), and **YYY** for the file type as noted above. For further information about these images and imagery data, see the metadata.

Appendix 8 – Oceanographic data.

(Files available at

http://pubs.usgs.gov/of/2012/1083/of2012-1083_appendixes/of2012-1083_appendix_8/)

The oceanographic data from the tripods and buoys are organized by phase of the Demonstration Project and mooring ID. All data from a specific mooring are contained with a separate folder. The folder names are the mooring IDs and have the following format:

PPPYMMMM, where

PPP is the project (“TJR” for all),

YY is the final two digits of the year (“08” or “09”), and

MMM is the mooring number, where

the first digit is the location (“N” for northern, “C” for central, “S” for southern),

the second digit is the mooring number at that location, and

the third digit denotes the type of mooring (“T” for benthic tripod, “S” for surface buoy).

The data are stored in the netCDF format as noted above in this report, and metadata and information about measurement units and sampling intervals are provided in each file.

Information about the netCDF file format can be found in Montgomery and others (2008). File names have the following format: **PPPYMMMMNNFF.nc**, where

PPPYMMMM is the mooring ID as noted above,

NN is the sequential file number from this mooring (“01”, “02”, etc. to the total number of files), and

FF is the instrument and data type, including:

“adv2s-cal” for SonTek/YSI ADV-O current measurements and concurrent OBS and/or transmissometer data,

“aq-cal” for calibrated Nortek AS Aquadopp current meter data,

“aw-cal” for Nortek AWAC current data and concurrent OBS data,

“awWvs-p” for Nortek AWAC directional wave data,

“ls-s” for Sequoia Scientific Inc. LISST-100X data,

“mc” for Seabird microcat CTD,

“nx” for the Falmouth Scientific, Inc. (now part of Teledyne RDI) Non-eXternal Inductive Cell (NXIC) CTD, and

“wh” for Teledyne RDI ADCP currents.