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I. Type of data and information created

1. **What data will you collect or create in the research?**
   Contextual statement describing what data are collected and relevant URL (IOOS Certification, f 2)
   Nearshore bathymetry data has been collected at least annually along the northwest Oregon and southwest Washington coasts since summer 1997. These data are collected by a partnership between Oregon State University, the Washington State Department of Ecology, the Oregon Department of Geology and Mineral Industries, and the United States Geological Survey (USGS) comprising a beach and nearshore monitoring program partially funded by NANOOS. The monitoring program was initiated in summer of 1997 to "fill the coastal processes knowledge gap," in an effort to better understand causes and possible responses to coastal change (Ruggiero et al., 2005). Data are typically collected using Real Time Kinematic Differential Global Positioning System (RTK DGPS) at interannual timescales, and are later post processed, quality controlled, and archived.

2. **What data types will you be creating or capturing?**
   2-dimensional, cross-shore oriented bathymetric profiles are collected at discrete transects along the coast. These profiles typically extend from ~12-15 m water depth to as shallow as is safely possible to collect (~0.5 m depth). The bathymetric profiles capture morphologic changes occurring in the highly dynamic surf zone as well as throughout the subaqueous nearshore planform. These transects can capture both horizontal and vertical morphologic change in the sediment below the water surface, and can be used to determine changes in sediment volume, sandbar migration rates, and contour change rates.

3. **How will you capture or create the data?**
   Describe how the data are ingested (IOOS Certification, f 2)
   Nearshore bathymetry data are collected using the Coastal Profiling System (CPS). This system utilizes a highly maneuverable personal watercraft (PWC) equipped with an echosounder to measure water depth, RTK-DGPS receiver and antenna for position information, and on-board computer system for data collection/storage and navigational capabilities. Cross-shore oriented transects are collected at discrete locations, typically spaced 200 m to 1 km in the alongshore direction. The same individual transects are collected during each survey (typically on interannual timescales), highlighting changes in nearshore morphology through comparison of subsequent surveys. Elevation profile data are post-processed and quality checked in Matlab, and are archived both locally and externally at Oregon State University.

   Describe how data are managed (IOOS Certification, f 2)

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Data are stored locally on the CPS computer system through Hypack® hydrographic survey software. After collection, survey data are immediately backed-up externally. Raw elevation data are stored in Hypack file format (.raw and .bin) per daily survey .LOG file. Raw GPS data are stored as well to be used for post-processing if needed. Elevation profile data are later post-processed and quality controlled to create the final data products, provided as .xyz text files.

Describe the data quality control procedures that have been applied to the data. (IOOS Certification, f 3)

We use Trimble® R7 GPS receivers, powered by Trimble Maxwell 6 chips and an unparalleled 440 GNSS channels, capable of tracking carrier signals from a wide range of satellite systems, including GPS and GLONASS. This system consists of a GPS base station (R7), Zephyr Geodetic antenna (model 2), HPB450 radio modems, and R7 "rover" GPS. Trimble reports that the R7 survey-grade GPS receivers used in this project have manufacturer reported RMS accuracies of approximately ±2*cm* + 2ppm * the baseline length (typically 10*km* or less from the base station) in the horizontal and approximately ±3*cm* + 2ppm * the baseline length in the vertical while operating in Real Time Kinematic (RTK) surveying mode (Trimble, 2005).

Bathymetric data are collected at a sample frequency of 20 Hz using an Odom CV100 echosounder, with a 9° single beam transducer, capable of measuring water depths ranging from 0.5 – 200 m. Data collection techniques lead to high quality, accurate data. However, there are instances- often in the turbulent surf zone region- where the automated digitizing of the bottom surface by the echosounder is inaccurate. A Matlab based graphical user interface (GUI) has been developed to visualize, inspect, and post-process bathymetric sounding data. Using this program, the user can look through each transect profile data to determine errors in elevation data caused by improper automated digitization of the seafloor. When this is the case, the user can manually digitize the bottom surface by visual inspection of the raw acoustic backscatter returns. This GUI also allows for filters and smoothing functions to be applied to the collected elevation data, removing the effects of heave, pitch, and roll of the survey vessel.

As a NANOOS Observing System provider, we follow industry best practices and manufacturer guidance where applicable, to calibrate, operate, and maintain the equipment used in this effort, and will provide documentation of this upon request.

Further, we maintain documentation of equipment operation/deployment times, shipping logs, and instrument maintenance history logs, as appropriate, that are available upon request.

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4. **If you will be using existing data, state that fact and include where you got it. What is the relationship between the data you are collecting and the existing data?**
   N/A

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II. Expected schedule for data sharing

Adheres to the NOAA Data Sharing Procedural Directive. The System is an operational system; therefore the RICE should strive to provide as much data as possible, in real-time or near real-time, to support the operation of the System. (IOOS Certification, f 4)

After data is collected, post-processed, and quality controlled OSU generates PNG images of the profiles and change data. Typically, data is made available approximately 1-2 months after they have been collected. Access to .xyz ascii data is currently available upon request.

1. **How long will the original data collector/creator/principal investigator retain the right to use the data before opening it up to wider use?**
   N/A

2. **How long do you expect to keep the data private before making it available? Explain if different data products will become available on different schedules (Ex: raw data vs processed data, observations vs models, etc.)**
   All data is available immediately after post-processing and archiving upon request.

3. **Explain details of any embargo periods for political/commercial/patent reasons? When will you make the data available?**
   N/A

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III. Standards for format and content

1. **Which file formats will you use for your data, and why?**
   How can the information be accessed? (IOOS Certification, f 2)
   After data is collected and post-processed, 4 separate files are created for each transect profile:
   1) A .xyz text file containing easting (State Plane, meters), northing (State Plane, meters), and elevation (NAVD88, meters). Each of the coordinates in the file represents a collected point on that profile.
   2) A Google Earth file (.kml) to be used with Google Earth.
   3) A text (.txt) file containing the same information as the xyz file in a different form, longitude, latitude, elevation (NAVD88, meters).
   4) A netcdf (.nc) file containing all metadata in a structured format.

2. **What file formats will be used for data sharing?**
   All of the above mentioned files are available to all upon email request to the PI.

3. **What metadata/ documentation will be submitted alongside the data or created on deposit/ transformation in order to make the data reusable?**
   Metadata for each collected transect is stored in a netcdf file. Prior to 2014, metadata was stored in a .meta text file. Regardless of file type, all metadata files contain relevant information such as: hardware setup and equipment, software versions, PWC operator, location, time, base station monument, etc.

4. **What contextual details (metadata) are needed to make the data you capture or collect meaningful?**
   N/A

5. **How will you create or capture these details?**
   N/A

6. **What form will the metadata describing/documenting your data take?**
   As discussed above, metadata is stored in netcdf files in and after 2014, and in .meta files prior to this. Every collected transect has its own metadata file in one of these two formats.

7. **Which metadata standards will you use and why have you chosen them? (e.g. accepted domain-local standards, widespread usage)**
   Metadata files do not adhere to a specific standard, and are simply to provide basic information about each profile collected. There are plans, however, to implement FGDC metadata standards to each survey area for each year of data collection, throughout the

entirety of the data archive, to provide geospatial metadata in an acceptable format for widespread usage.

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IV. Polices for stewardship and preservation

1. **What is the long-term strategy for maintaining, curating and archiving the data?**
   Points of contact- Individuals responsible for the data management and coordination across the region (CV's attached); (IOOS Certification f 1.i)
   Peter Ruggiero – Associate Professor, College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, Principal Investigator
   541-737-1239
   pruggier@coas.oregonstate.edu

   Identify the procedures used to evaluate the capability of the individual (s) identified in subsection 997.23(f)(1) to conduct the assigned duties responsibly. (IOOS Certification, f 1iii)
   Oregon State University has a process in place for personnel evaluation. These evaluations are on file with the College of Earth, Ocean, and Atmospheric Sciences (CEOAS) Human Resources office. All personnel listed have received excellent evaluations.

2. **Which archive/repository/database have you identified as a place to deposit data?**
   Documents of the RICE's data archiving process or describes how the RICE intends to archive data at the national archive center (e.g., NODC, NGDC, NCDC) in a manner that follows guidelines outlined by that center. Documentation shall be in the form of a Submission Agreement, Submission Information Form (SIF) or other, similar data producer-archive agreement (IOOS Certification, f 6).
   Collected data are stored in the Coastal Imaging Lab Archive, a directory on college operated servers within CEOAS.

3. **What procedures does your intended long-term data storage facility have in place for preservation and backup?**
   Data are regularly backed up on hard drive disk (HDD) storage, and is duplicated in multiple external hard drive locations. College servers are routinely backed up and maintained.

4. **How long will/should data be kept beyond the life of the project?**
   Data are indefinitely stored.

5. **What data will be preserved for the long-term?**
   All data is publicly available and preserved.

6. **What transformations will be necessary to prepare data for preservation / data sharing?**

Raw data is processed and formatted, analyzed and quality controlled.

7. **What metadata/ documentation will be submitted alongside the data or created on deposit/ transformation in order to make the data reusable?**
   All metadata discussed in the sections above will be available with the data. This metadata is either a .meta or a netcdf file, and contains relevant information such as: hardware setup and equipment, software versions, PWC operator, location and time of data collection, etc.

8. **What related information will be deposited?**
   Hypack project files with raw survey position and elevation data, and raw GPS files when collected.

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V. Procedures for providing access

1. **What are your plans for providing access to your data? (on your website, available via ftp download, via e-mail, or another way)**
   Describe how data are distributed including a description of the flow of data through the RICE data assembly center from the source to the public dissemination/access mechanism. (IOOS Certification, f 2 and 4)
   Access to raw and processed data, as well as metadata, is available upon request by email. Additionally, basic analysis of the data, such as contour change plots, can also be made available upon request.

2. **Will any permission restrictions need to be placed on the data?**
   Data is available for public use, provided that the data is cited properly.

3. **With whom will you share the data, and under what conditions?**
   Data are publicly available.

4. **Will a data sharing agreement be required?**
   In general, a data sharing agreement will not be required. However, data should be properly acknowledged.

5. **Are there ethical and privacy issues? If so, how will these be resolved?**
   N/A

6. **Who will hold the intellectual property rights to the data and how might this affect data access?**
   The funding agency & Oregon State University through a contractual agreement.

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VI. Previous published data

Ruggiero, P., Kaminsky, G., Gelfenbaum, G., Cohn, N. 2016. Morphodynamics of prograding beaches: A synthesis of seasonal- to century-scale observations of the Columbia River littoral cell, *Marine Geology*, 376, 51-68, 10.1016/j.margeo.2016.03.012.

Cohn, N. and **Ruggiero, P**., 2016. The influence of seasonal to interannual nearshore profile variability on extreme water levels: Modeling wave runup on dissipative beaches, *Coastal Engineering*, http://dx.doi.org/10.1016/j.coastaleng.2016.01.006.

Di Leonardo, D. and **Ruggiero, P.**, 2015. Regional scale sandbar variability: Observations from the U.S. Pacific Northwest, *Continental Shelf Research*, 95,74-88, http://dx.doi.org/10.1016/j.csr.2014.12.012i

Barnard, P., Allan, J., Hansen, J., Kaminsky, G.M., **Ruggiero, P**., and Doria, A., 2011. The impact of the 2009-10 El Niño on U.S. West Coast beaches. *Geophys. Res. Lett.*, doi:10.1029/2011GL047707.

Ruggiero, P., Walstra, D.J., Gelfenbaum, G., and Ormont, M.V., 2009. Seasonal scale nearshore morphological evolution: Field observations and modeling, *Coastal Engineering, (56) 1153-1172, DOI:10.1016/j.coastaleng.2009.09.003.*

Ruggiero, P., Kaminsky, G.M., Gelfenbaum, G., and Voigt, B., 2005. Seasonal to interannual morphodynamics along a high-energy dissipative littoral cell, *Journal of Coastal Research*, 21(3), 553-578.

Ruggiero, P., & Voigt, B. G. (2000). *Beach monitoring in the Columbia River littoral cell, 1997-2000*. Coastal Monitoring & Analysis Program, Washington Department of Ecology.