Data Management Plan

1. **Types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project**

This project will generate new qualitative and quantitative ethnographic data associated with Question B and compile databases of qualitative and quantitative behavioral, economic, fisheries, spatial and ecological data for Questions A & C (see table for detailed descriptions). Question B will develop a database of spatial data layers representing "communities-at-sea" in the northeast U.S. after processing Vessel Trip Report, Vessel Monitoring System, and vessel permit data. R and MATLAB scripts will be created during ecological and data analysis. Finally, undergraduate lab investigations will be produced.

Data type	Content of data	Reference
Empirical interviews	Responses to semi-structured interviews concerning coping strategies – historic and current contexts	Proposed research
Coding Schemes for interviews	NVIVO Qualitative Data Analysis software files	Proposed research
Vessel Trip Reports	Location, species and amount caught, gear, duration, crew, and port for each commercial fishing trip, 1994-2011	Northeast Regional Office Data Matching Imputation System database (accessed by Julia Olson)
Vessel Monitoring System	Vessel positions at 30 or 60 minute intervals	Northeast Regional Office VMS database (accessed by Julia Olson)
Vessel permit data	Boat length, horsepower, home port, principal port, and year built	Northeast Fisheries Science Center (accessed by Julia Olson)
Fishing community data	Population, economy, employment, and indices of community resilience	U.S. Census, County Business Patterns, NOAA's Digital Coast
Groundfish bottom trawl survey data	Georeferenced biomass and length by species from 1963-2013 for 9 regions of North America (includes northeast U.S.)	Pinsky et al. (2013) and Northeast Fisheries Science Center survey database (accessed by Fogarty)
Scallop survey data	Georeferenced biomass and size from 1977-2013 for the northeast U.S.	Northeast Fisheries Science Center survey database (accessed by Fogarty)
Commercial fisheries catch	Georeferenced (10') catch by species and year 1977-2013 for northeast U.S.	Northeast Fisheries Science Center catch database (accessed by Fogarty)
Sea temperature and climate velocity	Georeferenced bottom and surface temperatures from 1963-2011 for North America continental shelf	Pinsky et al. (2013)
Benthic habitat	Grain size, rugosity, and topography for the northeast U.S.	Anderson et al. (2010), Hare et al. (2010), http://www.conservationgateway.org/
Estuarine temperatures	PRISM monthly temperature, 1971-present, 30 arc-second grids (~800m)	Daly et al. (2008) and http://www.prism.oregonstate.edu/
Oxygen and zooplankton	Northwest Atlantic ROMS-CoSINE hindcast 1958-2007, 7km grid	Kang and Curchitser (2013) and Curchitser Lab @ Rutgers

Harvest rate	Catch/biomass by stock and by year for North America	RAM Legacy Stock Assessment Database (http://fish.dal.ca)
Life history traits	Dispersal, growth rates, maximum size, trophic levels, longevity	Fishbase, published literature, Pinsky et al. (2013), and Pinsky et al. (2011)
Undergraduate lab investigations	Lesson plans and data visualizations	Proposed broader impacts activity

2. Standards to be used for data and metadata format and content

We will follow the guidelines for data curation in Hook et al. (2010). These guidelines include 1) define the contents of data files, 2) use consistent data organization, 3) use consistent file structure and stable file formats, 4) assign descriptive file names, 5) perform basic quality assurance, 6) assign descriptive data set titles, and 7) provide documentation. Ecological and social datasets will be stored in ASCII comma-separated value (CSV) text files to ensure long-term usability. The interview data, including mp3 audio files and field notes, will be entered in a NVIVO Qualitative Data Analysis (QDA) project. NVIVO files will be periodically exported to backup formats (e.g., ASCII text, Microsoft Word, and Excel) to ensure long-term usability. Our lab investigations will consist of web pages. All file names will include dates or version numbers.

Documentation will include the NVIVO coding schemes and the R and MATLAB scripts used for statistical analysis and modeling, which will be maintained along with datasets. In addition, we will store metadata with the data files (e.g., Ecological Markup Language). For compiled databases of existing data, we will document the source, access details, ownership, data format, and the details of our analysis.

3. Policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements

All data associated with Question B will be stored on a server in the St. Martin lab in the Department of Geography at Rutgers University and backed up daily. All data associated with Questions A and C will be similarly stored and backed up in the Pinsky lab in the Department of Ecology, Evolution, and Natural Resources at Rutgers. Both servers will be available to the research team through Secure File Transfer Protocol (SFTP) connections with unique log-in credentials for each user.

Particularly for Question B, we will follow NSF Directorate for Social, Behavioral, and Economic Sciences guidelines on the protection of human subjects and work with Rutgers' Institutional Review Board (IRB) to ensure we take appropriate precautions with human subject data. All team-members working with human subject data will be certified on our IRB protocols and confidential data. Furthermore, the project will comply with National Marine Fisheries Service confidentiality guidelines. De-identified or aggregated data will be provided where relevant to users who request data.

All datasets underlying published papers will shared freely on Dryad (http://www.datadryad.org). Unpublished data from the project (after de-identification of human subjects) and public presentations will be made freely available to the research community through the Rutgers University Community Repository (RUcore, http://rucore.libraries.rutgers.edu) within a year of the project completion.

4. Policies and provisions for re-use, re-distribution, and the production of derivatives

We will make datasets from published papers freely available for re-use (with appropriate attribution) on Dryad, while unpublished data and presentations will be similarly available through RUcore.

5. Plans for archiving data, samples, and other research products, and for preservation of access

Data, analysis scripts, and outreach materials will be archived and backed up on servers in the St. Martin and Pinsky labs for future team use and for responding to requests from other researchers. Published data will be archived on Dryad with a permanent Digitial Object Identifer (DOI). Unpublished data and presentations will be archived on RUcore with permanent URLs.

References

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