OysterFutures larval transport model code, input files, output files, resulting connectivity matrices, and LTRANS User's Guide

Website: https://www.bco-dmo.org/dataset/808650
Data Type: model results
Version: 1
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Project
» Coastal SEES Collaborative Research: Oyster fisheries in the Chesapeake Bay: Integrating stakeholder objectives with natural system models to promote sustainable policy (Chesapeake Bay Oyster Fisheries)

Contributors	Affiliation	Role
North, Elizabeth	University of Maryland Center for Environmental Science (UMCES/HPL)	Principal Investigator
Rauch, Shannon	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
This dataset contains the OysterFutures larval transport model code, input files, output files, resulting connectivity matrices, and LTRANS User's Guide which provides extensive information about model structure and input/output files and variables.

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Dataset Description

This dataset contains the OysterFutures larval transport model code, input files, output files, resulting connectivity matrices, and LTRANS User's Guide which provides extensive information about model structure and input/output files and variables. These files are available below as a large .zip file (6.62 GB).

Each folder in this data set contains a complete model run with code, input, and output files. Folder names correspond to release number (R1-R5, each with a different particle release date) and release replicate number (1-5, each with a different seed value for the random number generators). Please see the LTRANS User's Guide for parameter descriptions.

Methods & Sampling

The open-source Lagrangian TRANSport model (LTRANS) was implemented for the Chotpank and Little Choptank Rivers in Maryland.

The code of LTRANS is available on the PI's website at https://northweb.hpl.umces.edu/LTRANS.htm and on GitHub at https://github.com/LTRANS/LTRANSv.2b.

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Data Files

File
OysterFutures Larval Transport Model filename: OysterFutures_Larval_Transport_model_all_files.zip (ZIP Archive (ZIP), 6.62 GB) MD5:e1ad9d5835511e7b8a9c53294a6be838 This dataset contains the OysterFutures larval transport model code, input files, output files, resulting connectivity matrices, and LTRANS User's Guide which provides extensive information about model structure and input/output files and variables.

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Supplemental Files

File
LTRANS Users Guide filename: LTRANSv2_UsersGuide_6Jan12.pdf (Portable Document Format (.pdf), 1.67 MB) MD5:fb4d2b235f702769d551397776659b4a Lagrangian TRANSport model (LTRANS) v.2 User's Guide. Schlag, Z. R., and E. W. North. 2012. Lagrangian TRANSport (LTRANS) v.2 model User's Guide. Technical Report of the University of Maryland Center for Environmental Science Horn Point Laboratory. Cambridge, MD. 183 p.

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Related Publications

Schlag, Z. R., and E. W. North. 2012. Lagrangian TRANSport model (LTRANS v.2) User's Guide. University of Maryland Center for Environmental Science, Horn Point Laboratory. Cambridge, MD. 183 pp. (1.7 MB .pdf) *Software*

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Parameters

Parameters for this dataset have not yet been identified

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Project Information

Coastal SEES Collaborative Research: Oyster fisheries in the Chesapeake Bay: Integrating stakeholder objectives with natural system models to promote sustainable policy (Chesapeake Bay Oyster Fisheries)

Website: https://oysterfutures.wordpress.com/

Coverage: Chesapeake Bay

NSF Award Abstract:
Researchers will use the oyster fisheries in the Chesapeake Bay as a test case for collaborative policy development that is grounded in sound science. Environmental policies often create controversy and can be difficult to enforce, particularly when people do not understand the reason for the rules or do not consider the

rules to be fair. Natural resources can be better sustained by policies developed cooperatively among all affected stakeholders, scientists, and government representatives. In a systematic approach, the project team will hold a series of workshops in which a full set of stakeholders will work with scientists to guide development of a model, select policy objectives, and apply the model to make policy recommendations. A collaborative modeling approach will ensure that stakeholders have an opportunity to incorporate their values, objectives, and knowledge into the model of the estuarine ecosystem which will include many benefits from the natural system such as commercial and recreational fishing, safe swimmable water, and other ecosystem services. Researchers will study the sociology and economics that influence stakeholder involvement and policy formation in order to better understand the human dimensions, improve the process, and enhance the implementation success of recommended policies. The lessons learned regarding the oyster ecosystem and fishery will advance the tools and practices of sustainable management of shellfisheries. The policy recommendations from the stakeholder workshops will be evaluated by state and federal agencies, and if implemented, would be an outcome that would directly enhance coastal sustainability. One Ph.D. student, two masters students, and one postdoctoral researcher will be trained in the science of coupled natural-human systems. This project is supported as part of the National Science Foundation's Coastal Science, Engineering, and Education for Sustainability program - Coastal SEES.

This research aims to improve the utility of predictive models for shaping natural resource policy and management. The research team will build an innovative natural systems model that integrates three-dimensional hydrodynamic, water quality and larval transport models with oyster demographics, human uses, and economics at a scale that is applicable to restoration and management. The modeling system developed will substantially advance methods for investigating, and understanding, natural systems with complex feedbacks between physical conditions, vital rates of organisms, and humans. Researchers will include stakeholder values, objectives, and knowledge in the model design process. Through a series of workshops, stakeholders will select the policy objectives and the integrated model will project how well policies are expected to meet these objectives. This iterative process will ensure that the natural system model will incorporate the complex human uses of the ecosystem. A targeted effort will be made to study the socioeconomic drivers of stakeholder involvement, information flow, use and influence, and the policy formation in order to improve the process and enhance the implementation success of recommended policies. By doing so, this research will advance understanding of the human dimensions needed to create sustainable policy as well as provide important new strategies for integrating natural and social sciences, and scientists, in sustainable resource management. This generalizable research component provides an important complement to the research on oysters, both of which will advance the tools and practices of sustainable management of shellfisheries.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1427019

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