ECOTRAN model
Version: 2018-08-05
PI: J. Ruzicka (OSU)

This is a list of the included sub-directories and files:

The directory "/ECOTRAN_08052018/" includes a manual with basic instructions on the use of the ECOTRAN code suite version 8/5/2018: "README_ECOTRAN-Manual_08052018.docx". All model code files are in excel Visual Basic format or in Matlab (www.matworks.com) format.

Sub-directory "/FoodWeb_models/ComparativeShelves_models/" includes mass-balanced food web models for the Northern California Current, Coastal Gulf of Alaska, Georges Bank, and the North Sea. There are two files for each model: 1) an excel Visual Basic .xlsm file used to construct the mass-balanced model, and 2) a .csv version of the model parameter set to be read and processed by ECOTRAN.

Sub-directory "/FoodWeb_models/TEST_model/" includes a functional example "TEST" mass-balanced food web model. There are three files for the test model: 1) an excel Visual Basic .xlsm file used to construct the mass-balanced model, 2) a .csv version of the model parameter set to be read and processed by ECOTRAN, and 3) a .mat file containing an example set of 1000 generated Monte Carlo models.

Sub-directory "/ECOTRAN_code/" includes the main function used to generate an ECOTRAN model from a provided mass-balanced food web model (ECOTRANuncertainty_05062016.m) and seven required supporting functions (f_AggregateResults_EwE_03122015.m, f_CalcPredationMatrix.m, f_ECOfunction_05142015.m, f_read_EwE_csv_02022016.m, f_read_EwE_csv_04292016.m, f_RedistributeCannibalism.m, f_WebProductivityWLoss.m).

Sub-directory "/ECOTRAN_code/StaticScenario_code/" includes the main code to perform static scenario analyses (ECOTRAN_StaticScenarios_TEST_08052018.m) and three required supporting functions (f_CompileScenarioResults_08192013.m, f_ScenarioGenerator_08302013.m, p_PlotScenarioResults_02092018.m).

Sub-directory "/ECOTRAN_08052018/ECOTRAN_code/TimeDynamic_code/" includes two main code files to perform time-dynamic model simulations within different physical settings (ECOTRANdynamic_context_08032018.m, ECOTRANdynamic_context_basin_08030218.m) and eight required supporting functions (f_ECOTRANode_DefinedBoundary_08032017.m, f_ECOTRANode_DefinedBoundary_basin_08032017.m, f_ECOTRANode_ReflectiveBoundary_05182017.m, f_ECOTRANode_ReflectiveBoundary_basin_05242017.m, f_FunctionalResponse_MonteCarlo_09122016.m, f_InitialProductionRates_05112016.m, f_MichaelisMenten_05152016.m, f_StaticProductionTimeseries_09042017.m).

Sub-directory "/ECOTRAN_code/Footprint_and_Reach_code /" includes the main code to calculate footprint and reach metrics from an ECOTRAN end-to-end model (FootprintReach_TEST_07262018.m) and six required supporting functions

(f_DietTrace_03152015.m, f_DietTraceDownward_03152015.m, f_Footprint_07272018.m, f_ProductionTrace_07272018.m, f_Reach_01212018.m, p_WebPlotter_01032017.m).

Sub-directory "/ECOTRAN_code/MonteCarlo_method1_code/" includes three functions for generating Monte Carlo models for analysis of error propagation within ECOTRAN (f_E2E_MonteCarlo_08032018.m, f_E2E_pedigree_08032018.m, f_TerminalDetritus_08032018.m).

Sub-directory "/ECOTRAN_code/MonteCarlo_method2_code/" includes an archival set of seven functions for generating Monte Carlo models using a prior and NO LONGER SUPPORTED method (EwE_MonteCarlo_01182015.m, f_DietPreference_Readjust_04052014.m, f_E2E_MonteCarlo_08032018.m, f_E2E_pedigree_08032018.m, f_EE_MonteCarlo_04092014.m, f_EwEinterval_MonteCarlo_04092014.m, f_EwEnormal_MonteCarlo_04092014.m).

Sub-directory "/ECOTRAN_08052018/ECOTRAN_code/Physics_code" includes functions defining model geometries and for generating time-series of advection, mixing, and sinking rates for four different physical environments (f_ECOTRANphysics_upwelling_08022018.m, calcur_res.mat, f_ECOTRANphysics_downwelling_08022018.m, cgoa_ancyc.mat, f_ECOTRANphysics_bank_08022018.m, gb_ancyc.mat, f_ECOTRANphysics_basin_08022018.m, f_LightIntensity.m).

Sub-directory "/ECOTRAN_code/MATLAB_ToolBoxes/" includes miscellaneous supporting function suites. The "JornDiedrichsenToolbox" includes modified boxplot functions currently used by the ECOTRAN code suite but can be substituted with other plotting functions. The "NaNSuite" expands upon the built-in Matlab NaN functions. The sub-directory "/ECOTRAN_08052018/ECOTRAN_code/MATLAB_ToolBoxes/ OtherTools/" includes three other required functions that appear in several of the ECOTRAN functions (f_OrdinalDate.m, round2.m, wprctile.m).

Sub-directory "/TimeDynamic_simulations/" is an empty directory that is currently referred to by the time-dynamic simulation code files for storing model results.