Sensitivity analyses summary. Folder^a Script model^b Script results^b Object **Features Author** Base model^c New model^c 0. Transition The team 2023-02model/2013_SST_SSV3_30_21 13.sq v324_v330_transition.R 2013_v324_v330_bridge_comparison.R 23.sq.fixQ Bridging Item 0.0 09:09:21 23.sq.fix All Param Matthieu VERON 2023-03-0.1_Bridging_models_Outputs.R 0.1_Bridging_models 0.1_Bridging_models_Analyses.R 23.sq.fixQ fixed 20:38:28 Revisiting the transition of the 2013 model. For the transition, the model created was based on the 2013 model except that the catchability parameters were set to the "estimated" value from the 2013 23.sq.floatQ Floating Q 0.1_Bridging_models Matthieu 2023-03-0.1_Bridging_models_Analyses.R 0.1_Bridging_models_Outputs.R 23.sq.fixQ assessment (which used a floating approach by setting Q as a scaling factor such that the estimate is median unbiased). Three models are developed here: i) a model where all the parameters are fixed to **VERON** 0.1 their estimated value from the 2013 assessment, ii) a second model which consider a floating approach for Q (i.e., an analytical solution is used and Q is not estimated as an active parameter) and iii) a third 20:38:28 model where all parameters are freely estimated (Q included). All Param Matthieu 2023-03-0.1_Bridging_models 0.1_Bridging_models_Analyses.R 0.1_Bridging_models_Outputs.R 23.sq.fixQ 23.sq.est **VERON** 14 estimated 20:38:28 23.land.update Team 2023-04-0.2_Update_Data 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R 23.sq.floatQ Update Thornyheads 05 landings 10:48:24 23.land.update 23.disc.update Team 2023-04-0.2_Update_Data Updates 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R Thornyheads discard rates 10:48:24 23.disc.update 0.2_Update_Data 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R Update Team 2023-04-23.surv_geo.update Thornyheads survey 10:48:24 geostat indices 23.lcs_survey.update Team 2023-04-0.2_Update_Data 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R Update 23.surv_geo.update 05 Thornyheads survey length 10:48:24 comps 23.lcs_fisheries.update 23.lcs_survey.update 0.2_Update_Data 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R Update Team 2023-04-Thornyheads fisheries Updating the data sets from the 2013 assessment to the 2023 assessment without changing the structural assumptions. The data sets that are updated as part of this analysis include fishery landings (using 10:48:24 length the status quo four fleet structure), discards, new geostatistical indices from glmTMB, composition data, and biological parameters. The growth parameters are new and are based on Butler data. Maturity comps 0.2 parameters are new and based on Melissa Head's data. Fecundity parameters are new and based on Cooper et al 2005. Natural mortality is new and based on Hamel and Cope 2022 longevity estimator. These updates are collectively considered "best avail science." 0.2_Update_Data 0.2_Update_Data_Analyses.R Update Team 2023-04-23.disc_weight.update 0.2_Update_Data_Outputs.R 23.lcs_fisheries.update 05 Thornyheads discard 10:48:24 mean weights Team 2023-04-0.2_Update_Data 0.2_Update_Data_Analyses.R 23.disc_weight.update 23.growth.update Update 0.2_Update_Data_Outputs.R 05 Thornyheads growth 10:48:24 Team 2023-04-0.2_Update_Data 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R Update 23.growth.update 23.maturity.update Thornyheads 05 maturity 10:48:24 23.fecundity.update 0.2_Update_Data 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R Update Team 2023-04-23.maturity.update fecundity 10:48:24 0.2_Update_Data 0.2_Update_Data_Analyses.R 0.2_Update_Data_Outputs.R Team 2023-04-23.fecundity.update 23.mortality.update Update Thornyheads natural 10:48:24 mortality 1. Landings Adam Hayes 2023-05-1.1_Landings_Sensitivity 1.1_Landings_Sensitivity_Analyses.R 1.1_Landings_Sensitivity_Outputs.R 23.model.francis_2 23.land.hist_impute Imputed historical 13:44:12 landings Replace the landings with values from the 2013 assessment 1.1 Adam Hayes 2023-05-1.1_Landings_Sensitivity 1.1_Landings_Sensitivity_Analyses.R 1.1_Landings_Sensitivity_Outputs.R 23.land.2013 2013 23.model.francis_2 assessment 13:44:12 landings 3. Surveys 3.1_surveys_Sensitivity 3.1_surveys_Sensitivity_Analyses.R 3.1_surveys_Sensitivity_Outputs.R Testing sensitivity of gamma vs long normal error structure in geostatistical abundance indices Andrea Odell 2023-05-23.model.francis_2 23.surveys.gamvln gamma vs 3.1 04 In error 19:59:00 4. Biological Info Sabrina Beyer and 2023-04-4.1_Growth_Sensitivity 4.1_Growth_Sensitivity_Analyses.R 4.1_Growth_Sensitivity_Outputs.R 23.growth.high 23.model.francis_2 Growth Sensitivity Jane Sullivan 30 18:42:11 High Sensitivity of the base model (23.model.francis_2) to different growth curves Sabrina Beyer 2023-04-4.1_Growth_Sensitivity 4.1_Growth_Sensitivity_Analyses.R 4.1_Growth_Sensitivity_Outputs.R 23.model.francis_2 23.growth.low Growth 30 Sensitivity Sullivan 18:42:11 Low 4.2_Maturity_Sensitivity Sabrina Beyer and 2023-05-4.2_Maturity_Sensitivity_Analyses.R 4.2_Maturity_Sensitivity_Outputs.R 23.model.francis_2 23.maturity.pgcurve PG maturity Jane Sullivan 09:33:08 Sensitivity of the 2023 SST base model to different maturity curves 4.2 Sabrina Beyer 2023-05-4.2_Maturity_Sensitivity 4.2_Maturity_Sensitivity_Analyses.R 4.2_Maturity_Sensitivity_Outputs.R 23.model.francis_2 23.maturity.mix_curve Intermediate and Jane maturity Sullivan 09:33:08 curve 5. Model 5.1_Explore_RecDevs 23.mortality.update Team 2023-04-5.1_Explore_RecDevs_Analyses.R 5.1_Explore_RecDevs_Outputs.R 23.model.recdevs_termYear Update 10 Thornyheads **Terminal** 13:43:47 RecDev Year Exploration of recruitment deviation options including the initial and terminal years, steepness assumptions, and bias adjustment. 5.1 5.1_Explore_RecDevs 5.1_Explore_RecDevs_Analyses.R Team 2023-04-5.1_Explore_RecDevs_Outputs.R 23.model.recdevs_termYear 23.model.recdevs_initYear Update Thornyheads 10 Initial 13:43:47 RecDev Year Applying Francis Data Weighting method to the 2023 condensed fleet structure model. As the the number of fleets have changed, and a new abundance index method is used, the old 2013 weights are no 5.3_Francis_Reweighting_Outputs.R Team 2023-04-5.3_Francis_Reweighting 5.3_Francis_Reweighting_Analyses.R 23.model.fleetstruct_5 23.model.francis 5.3 Thornyheads Reweighting longer valid and need to be recalculated. 17 10:43:44 5.4_SS_Model_Warnings_Analyses.R 5.4_SS_Model_Warnings_Outputs.R Team 2023-04-5.4_SS_Model_Warnings These models will fix outstanding warnings from SS. 23.model.francis 23.model.survey_timing Survey Timing 18 Thornyheads 14:48:28 5.1_Explore_RecDevs 5.1_Explore_RecDevs_Analyses.R 5.1_Explore_RecDevs_Outputs.R Team 2023-04-23.model.recdevs_steep S-R 23.model.recdevs_initYear Thornyheads 10 Steepness 13:43:47 Exploration of recruitment deviation options including the initial and terminal years, steepness assumptions, and bias adjustment. 5.1 5.1_Explore_RecDevs 5.1_Explore_RecDevs_Analyses.R 5.1_Explore_RecDevs_Outputs.R 23.model.recdevs_bias Team 2023-04-Bias 23.model.recdevs_steep Thornyheads 10 Adjustment 13:43:47 Years Team 2023-04-5.5_Improve_LC_Fits 5.5_Improve_LC_Fits_Analyses.R 5.5_Improve_LC_Fits_Outputs.R 23.model.sample_sizes 23.model.sexed_survey_selectivity Sex-Specific Thornyheads 20 Survey 13:16:01 Selectivity Improve fits to length composition data by modifying estimated selectivity parameters and remove poor data. This includes removing LCs where sample sizes are <11.5, using sex-specific selectivities for 5.5 survey length comps, and modifying selectivity pars for the fisheries fleets. 5.5_Improve_LC_Fits 5.5_Improve_LC_Fits_Analyses.R Team 2023-04-5.5_Improve_LC_Fits_Outputs.R 23.model.sexed_survey_selectivity 23.model.improve_trawln Improve 20 Thornyheads Trawl_N LC 13:16:01 5.4_SS_Model_Warnings These models will fix outstanding warnings from SS. Team 2023-04-5.4_SS_Model_Warnings_Analyses.R 5.4_SS_Model_Warnings_Outputs.R 23.model.survey_timing 23.model.settlement_events Settlement Thornyheads Events 14:48:28 Team 2023-04-5.5_Improve_LC_Fits 5.5_Improve_LC_Fits_Analyses.R 5.5_Improve_LC_Fits_Outputs.R 23.model.sample_sizes Remove Improve fits to length composition data by modifying estimated selectivity parameters and remove poor data. This includes removing LCs where sample sizes are <11.5, using sex-specific selectivities for 23.model.settlement_events 5.5 survey length comps, and modifying selectivity pars for the fisheries fleets. Thornyheads 20 small 13:16:01 sample size LCs 5.7_Fix_Warnings 5.7_Fix_Warnings_Outputs.R 23.model.recdevs_inityear_1996 Team 2023-04-Fix warning messages in base model 5.7_Fix_Warnings_Analyses.R 23.fix_warnings Fix warnings 5.7 Thornyheads 13:19:00 23.fix_warnings 5.8_Francis_Reweighting_2 5.8_Francis_Reweighting_2_Analyses.R 5.8_Francis_Reweighting_2_Outputs.R 23.model.francis_2 A second round of francis weighting for the final base model. Team 2023-04-Francis 5.8 Reweighting Thornyheads 28 14:01:15 Team 2023-04-5.5_Improve_LC_Fits 5.5_Improve_LC_Fits_Analyses.R 5.5_Improve_LC_Fits_Outputs.R 23.model.improve_trawln Improve fits to length composition data by modifying estimated selectivity parameters and remove poor data. This includes removing LCs where sample sizes are <11.5, using sex-specific selectivities for 23.model.improve_other Improve 5.5 Thornyheads 20 Other LC survey length comps, and modifying selectivity pars for the fisheries fleets. 13:16:01 Fits 5.6_Update_Recdevs_Inityear 5.6_Update_Recdevs_Inityear_Analyses.R 5.6_Update_Recdevs_Inityear_Outputs.R 23.model.sexed_survey_selectivity Update the initial year for recdevs 1996 Team 2023-04-Modify Thornyheads 5.6 27 recdev init 12:16:32 year Pierre-Yves 2023-05- 5.9_Retention_Selectivity_Sensitivity 5.9_Retention_Sensitivity_Analyses.R 5.9_Retention_Sensitivity_Outputs.R 23.model.francis_2 23.blkret.T1 blk Trawl 89 Hernvann 21:49:29 Pierre-Yves 2023-05- 5.9_Retention_Selectivity_Sensitivity 5.9_Retention_Sensitivity_Outputs.R 23.blkret.T2 blk Trawl 5.9_Retention_Sensitivity_Analyses.R 23.model.francis_2 mid10 21:49:29 5.9_Retention_Sensitivity_Analyses.R Pierre-Yves 2023-05- 5.9_Retention_Selectivity_Sensitivity 5.9_Retention_Sensitivity_Outputs.R 23.blkret.T3 blk Trawl 89-23.model.francis_2 Hernvann 05 mid10 21:49:29 Pierre-Yves 2023-05- 5.9_Retention_Selectivity_Sensitivity 5.9_Retention_Sensitivity_Analyses.R 5.9_Retention_Sensitivity_Outputs.R 23.model.francis_2 23.blkret.T4 blk Trawl 89-Sesnsitivity analysis to time blocks for retention parameters for trawl and non trawl fleets 05 Hernvann mid10-19 21:49:29 Pierre-Yves 2023-05- 5.9_Retention_Selectivity_Sensitivity 5.9_Retention_Sensitivity_Analyses.R 5.9_Retention_Sensitivity_Outputs.R 23.model.francis_2 23.blkret.T3.NT1 blk Trawl 89-21:49:29 NonTrawl 05-13 Pierre-Yves 2023-05- 5.9_Retention_Selectivity_Sensitivity 5.9_Retention_Sensitivity_Analyses.R 5.9_Retention_Sensitivity_Outputs.R 23.model.francis_2 23.blkret.T3.NT2 blk Trawl 89-05 Hernvann mid10 21:49:29 NonTrawl 05-13-17 5.10_Prior_Selectivity_Sensitivity 5.10_Prior_Sensitivity_Analyses.R 5.10_Prior_Sensitivity_Outputs.R Pierre-Yves 2023-05-23.blkret.T3 23.slx.Prior.1Blk Prior on Hernvann & 80 Selectivity -Matthieu Veron 10:59:58 1 Blk Pierre-Yves 2023-05-5.10_Prior_Sensitivity_Analyses.R 5.10_Prior_Sensitivity_Outputs.R 23.slx.Prior.2Blk 23.blkret.T3 Prior on 5.10_Prior_Selectivity_Sensitivity Hernvann & 80 Selectivity -Matthieu 10:59:58 2 Blks Incorporation of Priors and time blocks in Selx parameters (peak) 5.10 Veron 23.slx.Prior.3Blk Prior on Pierre-Yves 2023-05-5.10_Prior_Selectivity_Sensitivity 5.10_Prior_Sensitivity_Analyses.R 5.10_Prior_Sensitivity_Outputs.R 23.blkret.T3 Selectivity -Hernvann & Matthieu 10:59:58 3 Blks Veron Here is a general comments where to find scripts, folders, and models. ^a The **Folder** is housed in the 'model/Sensitivity_Anal' repertory; b The scripts are housed in the 'R/ss/Sensitivity_Anal' repertory; ^c The models are housed in the 'model/Sensitivity_Anal/**Folder**' repertory