Sensitivity analyses summary.

	Author	Date	Folder[a]	Script model[b]	Script results[b]	Base model[c]	New model[c]	Object	Features
0. Transition									
Item 0.0	The team	2023-02-17 09:09:21	model/2013_SST_SSV3_30_21	v324_v330_transition.R	2013_v324_v330_bridge_comparison.R	13.sq	23.sq.fixQ	Bridging	
Item 0.1	Matthieu VERON	2023-03-14 20:38:28	0.1_Bridging_models	0.1_Bridging_models_Analyses.R	0.1_Bridging_models_Outputs.R	23.sq.fixQ	23.sq.fix	All Param fixed	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 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 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 model where all parameters are freely estimated (Q included).
	Matthieu VERON	2023-03-14 20:38:28	0.1_Bridging_models	0.1_Bridging_models_Analyses.R	0.1_Bridging_models_Outputs.R	23.sq.fixQ	23.sq.floatQ	Floating Q	
	Matthieu VERON	2023-03-14 20:38:28	0.1_Bridging_models	0.1_Bridging_models_Analyses.R	0.1_Bridging_models_Outputs.R	23.sq.fixQ	23.sq.est	All Param estimated	
Item 0.2	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.sq.floatQ	23.land.update	Update landings	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 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 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."
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.land.update	23.disc.update	Updates discard rates	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.disc.update	23.surv_geo.update	Update survey geostat indices	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.surv_geo.update	23.lcs_survey.update	Update survey length comps	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.lcs_survey.update	23.lcs_fisheries.update	Update fisheries length comps	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.lcs_fisheries.update	23.disc_weight.update	Update discard mean weights	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.disc_weight.update	23.growth.update	Update growth	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.growth.update	23.maturity.update	Update maturity	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.maturity.update	23.fecundity.update	Update fecundity	
	Team Thomyheads	2023-04-05 10:48:24	0.2_Update_Data	0.2_Update_Data_Analyses.R	0.2_Update_Data_Outputs.R	23.fecundity.update	23.mortality.update	Update natural mortality	
1. Landings									
Item 1.1	Adam Hayes	2023-05-01 13:44:12	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 landings	Replace the landings with values from the 2013 assessment
	Adam Hayes	2023-05-01 13:44:12	1.1_Landings_Sensitivity	1.1_Landings_Sensitivity_Analyses.R	1.1_Landings_Sensitivity_Outputs.R	23.model.francis_2	23.land.2013	2013 assessment landings	
Item 1.2	Joshua Zahner	2023-05-24 14:51:58	1.2_Landings_ashop	1.2_Landings_ashop_Analyses.R	1.2_Landings_ashop_Outputs.R	23.model.francis_2	23.landings.ashop	ASHOP Catches	Integrating At-Sea Hake catches of SST. This data was provided in May and processed by Kiva Oken.
Item 1.3	Adam Hayes	2023-06-05 07:30:41	1.3_Landings_4fleet	1.3_Landings_4fleet_Analyses.R	1.3_Landings_4fleet_Outputs.R	23.model.francis_2	23.landings.4fleet	23.landings.4fleet	Base Model + 4 commercial fleets
3. Surveys									
Item 3.1	Andrea Odell	2023-05-04 19:59:00	3.1_surveys_Sensitivity	3.1_surveys_Sensitivity_Analyses.R	3.1_surveys_Sensitivity_Outputs.R	23.model.francis_2	23.surveys.gamvln	gamma vs ln error	Testing sensitivity of gamma vs long normal error structure in geostatistical abundance indices
Item 3.2	Andrea Odell	2023-05-11 14:33:13	3.2_surveys2_Sensitivity	3.2_surveys2_Sensitivity_Analyses.R	3.2_surveys2_Sensitivity_Outputs.R	23.model.francis_2	23.surveys.db	MB vs DB indices	Base model with design-based indices of abundance
Item 3.3	Andrea Odell	2023-06-01 10:56:12	3.3_surveys3_Sensitivity	3.3_surveys3_Sensitivity_Analyses.R	3.3_surveys3_Sensitivity_Outputs.R	23.model.francis_2	23.surveys.notriennial	No Triennial Survey	This sensitivity analysis broadly explores the effect of different survey structures to understand the importance (or lack thereof) of the slope surveys and the triennial surveys
	Andrea Odell	2023-06-01 10:56:12	3.3_surveys3_Sensitivity	3.3_surveys3_Sensitivity_Analyses.R	3.3_surveys3_Sensitivity_Outputs.R	23.model.francis_2	23.surveys.extaSDwcgbts	extra SD on WCGBTS	
	Andrea Odell	2023-06-01 10:56:12	3.3_surveys3_Sensitivity	3.3_surveys3_Sensitivity_Analyses.R	3.3_surveys3_Sensitivity_Outputs.R	23.model.francis_2	23.surveys.useslope	2 survey vs 4 survey structure	
4. Biological Info									
Item 4.1	Sabrina Beyer and Jane Sullivan	2023-04-30 18:42:11	4.1_Growth_Sensitivity	4.1_Growth_Sensitivity_Analyses.R	4.1_Growth_Sensitivity_Outputs.R	23.model.francis_2	23.growth.low	Growth Sensitivity Low	Sensitivity of the base model (23.model.francis_2) to different growth curves
	Sabrina Beyer and Jane Sullivan	2023-04-30 18:42:11	4.1_Growth_Sensitivity	4.1_Growth_Sensitivity_Analyses.R	4.1_Growth_Sensitivity_Outputs.R	23.model.francis_2	23.growth.high	Growth Sensitivity High	
Item 4.2	Sabrina Beyer and Jane Sullivan	2023-05-01 09:33:08	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 maturity curve	Sensitivity of the 2023 SST base model to different maturity curves
	Sabrina Beyer and Jane Sullivan	2023-05-01 09:33:08	4.2_Maturity_Sensitivity	4.2_Maturity_Sensitivity_Analyses.R	4.2_Maturity_Sensitivity_Outputs.R	23.model.francis_2	23.maturity.pgcurve	PG maturity	
Item 4.3	Sabrina Beyer	2023-05-23 15:25:35	4.3_Fecundity_Sensitivity	4.3_Fecundity_Sensitivity_Analyses.R	4.3_Fecundity_Sensitivity_Outputs.R	23.model.francis_2	23.biology.no_fecundity	Sensitivity to fecundity	Sensitivity of the base model to removing the length-fecundity relationship and assuming spawning biomass is equivalent to spawning output
Item 4.4	Team SST	2023-06-06 18:29:26	4.4_WL_Sensitivity	4.4_WL_Sensitivity_Analyses.R	4.4_WL_Sensitivity_Outputs.R	23.model.francis_2	23.WL.sensitivity	Sensitivity to weight-length relationship	Sensitivity to WL relationship to removing fish <=16 cm
Item 4.5	Sabrina Beyer	2023-06-07 09:22:36	4.5_SigmaR_Sensitivity	4.5_SigmaR_Sensitivity_Analyses.R	4.5_SigmaR_Sensitivity_Outputs.R	23.model.francis_2	23.SigmaR.sensitivity	Sensitivity to sigmaR	Change the sigmaR input to 0.76 as suggested in model tuning
5. Model									
Item 5.1	Team Thomyheads	2023-04-10 13:43:47	5.1_Explore_RecDevs	5.1_Explore_RecDevs_Analyses.R	5.1_Explore_RecDevs_Outputs.R	23.model.recdevs_initYear	23.model.recdevs_steep	S-R Steepness	Exploration of recruitment deviation options including the initial and terminal years, steepness assumptions, and bias adjustment.
	Team Thomyheads	2023-04-10 13:43:47	5.1_Explore_RecDevs	5.1_Explore_RecDevs_Analyses.R	5.1_Explore_RecDevs_Outputs.R	23.model.recdevs_steep	23.model.recdevs_bias	Bias Adjustment Years	
	Team Thomyheads	2023-04-10 13:43:47	5.1_Explore_RecDevs	5.1_Explore_RecDevs_Analyses.R	5.1_Explore_RecDevs_Outputs.R	23.model.recdevs_termYear	23.model.recdevs_initYear	Update Initial RecDev Year	
	Team Thomyheads	2023-04-10 13:43:47	5.1_Explore_RecDevs	5.1_Explore_RecDevs_Analyses.R	5.1_Explore_RecDevs_Outputs.R	23.mortality.update	23.model.recdevs_termYear	Update Terminal RecDev Year	
Item 5.3	Team Thomyheads	2023-04-17 10:43:44	5.3_Francis_Reweighting	5.3_Francis_Reweighting_Analyses.R	5.3_Francis_Reweighting_Outputs.R	23.model.fleetstruct_5	23.model.francis	Francis Reweighting	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 longer valid and need to be recalculated.
Item 5.4	Team Thomyheads	2023-04-18 14:48:28	5.4_SS_Model_Warnings	5.4_SS_Model_Warnings_Analyses.R	5.4_SS_Model_Warnings_Outputs.R	23.model.francis	23.model.survey_timing	Survey Timing	These models will fix outstanding warnings from SS.
	Team Thomyheads	2023-04-18 14:48:28	5.4_SS_Model_Warnings	5.4_SS_Model_Warnings_Analyses.R	5.4_SS_Model_Warnings_Outputs.R	23.model.survey_timing	23.model.settlement_events	Settlement Events	
Item 5.5	Team Thomyheads	2023-04-20 13:16:01	5.5_Improve_LC_Fits	5.5_Improve_LC_Fits_Analyses.R	5.5_Improve_LC_Fits_Outputs.R	23.model.settlement_events	23.model.sample_sizes	Remove small sample size LCs	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 survey length comps, and modifying selectivity pars for the fisheries fleets.
	Team Thomyheads	2023-04-20 13:16:01	5.5_Improve_LC_Fits	5.5_Improve_LC_Fits_Analyses.R	5.5_Improve_LC_Fits_Outputs.R	23.model.sexed_survey_selectivity	23.model.improve_trawln	Improve Trawl_N LC Fit	
	Team Thomyheads	2023-04-20 13:16:01	5.5_Improve_LC_Fits	5.5_Improve_LC_Fits_Analyses.R	5.5_Improve_LC_Fits_Outputs.R	23.model.improve_trawln	23.model.improve_other	Improve Other LC Fits	
	Team Thomyheads	2023-04-20 13:16:01	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 Survey Selectivity	
Item 5.6	Team Thomyheads	2023-04-27 12:16:32	5.6_Update_Recdevs_Inityear	5.6_Update_Recdevs_Inityear_Analyses.R	5.6_Update_Recdevs_Inityear_Outputs.R	23.model.sexed_survey_selectivity	23.model.recdevs_inityear_1996	Modify recdev init year	Update the initial year for recdevs 1996
Item 5.7	Team Thomyheads	2023-04-27 13:19:00	5.7_Fix_Warnings	5.7_Fix_Warnings_Analyses.R	5.7_Fix_Warnings_Outputs.R	23.model.recdevs_inityear_1996	23.fix_warnings	Fix warnings	Fix warning messages in base model
Item 5.8	Team Thomyheads	2023-04-28 14:01:15	5.8_Francis_Reweighting_2	5.8_Francis_Reweighting_2_Analyses.R	5.8_Francis_Reweighting_2_Outputs.R	23.fix_warnings	23.model.francis_2	Francis Reweighting 2	A second round of francis weighting for the final base model.
Item 5.9	Pierre-Yves Hernvann	2023-05-05 21:49:29	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	Sesnsitivity analysis to time blocks for retention parameters for trawl and non trawl fleets
	Pierre-Yves Hernvann	2023-05-05 21:49:29	5.9_Retention_Selectivity_Sensitivity	5.9_Retention_Sensitivity_Analyses.R	5.9_Retention_Sensitivity_Outputs.R	23.model.francis_2	23.blkret.T2	blk Trawl mid10	
	Pierre-Yves Hernvann	2023-05-05 21:49:29	5.9_Retention_Selectivity_Sensitivity	5.9_Retention_Sensitivity_Analyses.R	5.9_Retention_Sensitivity_Outputs.R	23.model.francis_2	23.blkret.T3	blk Trawl 89-mid10	
	Pierre-Yves Hernvann	2023-05-05 21:49:29	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-mid10-19	
	Pierre-Yves Hernvann	2023-05-05 21:49:29	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-mid10 NonTrawl 05-13	
	Pierre-Yves Hernvann	2023-05-05 21:49:29	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-mid10 NonTrawl 05-13-17	
Item 5.10	Pierre-Yves Hernvann & Matthieu Veron	2023-05-08 10:59:58	5.10_Prior_Selectivity_Sensitivity	5.10_Prior_Sensitivity_Analyses.R	5.10_Prior_Sensitivity_Outputs.R	23.blkret.T3	23.slx.Prior.3Blk	Prior on Selectivity - 3 Blks	Incorporation of Priors and time blocks in Selx parameters (peak)
	Pierre-Yves Hernvann & Matthieu Veron	2023-05-08 10:59:58	5.10_Prior_Selectivity_Sensitivity	5.10_Prior_Sensitivity_Analyses.R	5.10_Prior_Sensitivity_Outputs.R	23.blkret.T3	23.slx.Prior.1Blk	Prior on Selectivity - 1 Blk	
	Pierre-Yves Hernvann & Matthieu Veron	2023-05-08 10:59:58	5.10_Prior_Selectivity_Sensitivity	5.10_Prior_Sensitivity_Analyses.R	5.10_Prior_Sensitivity_Outputs.R	23.blkret.T3	23.slx.Prior.2Blk	Prior on Selectivity - 2 Blks	
Item 5.11	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.model.francis_2	23.blksel.T1	base blksel 2003	Sensitivity analysis for the time blocks on selectivity
	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.model.francis_2	23.blksel.T2	base blksel 2011	
	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.model.francis_2	23.blksel.T3	base blksel 2003+2011	
	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.model.francis_2	23.blksel.T4	base blksel 2003+2011+2019	
	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.blkret.T3	23.blkret.T3.blksel.T1	blkretT3 blksel 2003	
	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.blkret.T3	23.blkret.T3.blksel.T2	blkretT3 blksel 2011	
	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.blkret.T3	23.blkret.T3.blksel.T3	blkretT3 blksel 2003+2011	
	Pierre-Yves Hernvann	2023-05-08 23:59:23	5.11_Selectivity_Sensitivity	5.11_Selectivity_Sensitivity_Analyses.R	5.11_Selectivity_Sensitivity_Outputs.R	23.blkret.T3	23.blkret.T3.blksel.T4	blkretT3 blksel 2003+2011+2019	
Item 5.12	Haley Oleynik	2023-05-09 15:25:45	5.12_Dirichlet_Multinomial	5.12_Dirichlet_Multinomial_Analyses.R	5.12_Dirichlet_Multinomial_Outputs.R	23.model.francis_2	23.dmn	Dirichlet Multinomial Length Comps	Use Dirichlet Multinomial for Length comps
Item 5.13	Matthieu VERON	2023-06-06 15:25:46	5.13_Request_3	5.13_Request_3_Analyses.R	5.13_Request_3_Outputs.R	23.model.francis_2	23.STAR.Panel.M.045	Fix M at 0.045	Provide two sensitivity runs with M=0.045 and M=0.05
	Matthieu VERON	2023-06-06 15:25:46	5.13_Request_3	5.13_Request_3_Analyses.R	5.13_Request_3_Outputs.R	23.model.francis_2	23.STAR.Panel.M.05	Fix M at 0.05	
Item 5.14	P.Y. HERNVANN	2023-06-07 12:08:24	5.14_Request_4	5.14_Request_4_Analyses.R	5.14_Request_4_Outputs.R	23.blkret.T3.blksel.T3	23.est.max.ret	Estimate Maximum Retention	Estimate the maximum retention for Panel Request 4

Note:

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