Assessment models in TMB - Woods Hole 2018

Day 1

- Introduction and installation (hopefully done before course) intro.pdf
- Running a first example
- Maximum likelihood in TMB (quick reminder: estimator, uncertainty, test) ml.pdf
- Getting data in and results out dat.pdf, datR.pdf, bh.dat, bh.R, bh.cpp
- Nonlinear model example nb.pdf, turbotpois.dat, turbotpois.R, turbotpois.cpp
- Dealing with parameters (bounds, phases, transformations, mapping) par.pdf, insect.R, insect.cpp, insectSol.R

Day 2

- Parametric age-based stock assessment model sca.pdf, fsa.R, fsa.cpp, fsa.RData
- Uncertainty quantification (delta-method, profile, MCMC, (bias-correction)) un.pdf, bh.R, bh.cpp, bh.dat, bh0.dat
- Splines in TMB spline.pdf, spline.dat, spline.R, spline.cpp
- Debugging TMB models debug.pdf, p1.cpp, p1.R, p2.cpp, p2.R, p3.cpp, p3.R,
- Biomass dynamic model bm.pdf, bm.dat, bm.R, bm.cpp

Day 3

- Random effects in TMB and simple state-space models tmbss.pdf, rw.dat, rw.cpp, rw.R, rwmissing.dat, theta.dat, slow.R, mvrw.dat, mvrw.R, mvrw.cpp
- From full parametric assessment to state-space sca2sam.pdf, fsa12.R, fsa12.cpp, fsa.RData, ssa12.R, ssa12.cpp
- Simulation within the TMB code and checking the Laplace approximation sim.pdf

Day 4

- Model validation in state-space models res.pdf, theta.cpp, theta.R
- Parallel computations parallel.pdf
- Assessment as state-space models yasam.pdf
- Example showing transformation trick to better Laplace approximation pg.R, pg.cpp
- Summing up and your examples