

**Elasmobranch fisheries: status, assessment and management.**

An overview of the situation of elasmobranch fisheries around the world and problems for their assessment and management are presented. Four different studies are carried out, each attacking a particular problem under this general topic. The first, is an in-depth review recent trends in elasmobranch exploitation and management on a worldwide basis aimed closing the gap in baseline information about these fisheries on a global scale. In the second study, a deterministic age-structured simulation model is developed to analyse density-dependent changes in fecundity as a response to increased fishing mortality in a hypothetical shark population. The use of the model as an aid in management decision-making is exemplified with a case from a tropical shark fishery. Monte Carlo analysis is used in the third study, to evaluate the Schaefer and Fox surplus production models and the delay-difference model of Deriso-Schnute for the estimation of assessment and management parameters of elasmobranch fisheries. The fishery models are evaluated by comparing their estimates of stock assessment and management parameters against the known values of a full age-structured stochastic simulation model of a shark population. Different scenarios of stock recruitment relationship, fishable stock size, spatial behaviour of the sharks, and data quality are used for testing robustness. None of the fishery models performs satisfactorily under situations of density-dependent catchability. When catchability remains constant, the Deriso-Schnute model outperforms the Schaefer or Fox models, both for biomass and management parameter estimation. In the final study, the multispecies shark fishery of Yucatan, Mexico, is used as an example of the problems for elasmobranch stock assessment in the real world. The fishery is analysed by fitting the Schaefer model to catch and cpue data. The results highlight severe deficiencies in the data available for assessment which are characterised by a lack of contrast in the cpue data. Some alternative management recommendations aimed at improving the data for assessment are given.