



Session 02

State-space hierarchical models for predator-prey relationships and abundance estimates

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Abstract

Scientific monitoring of fishery resources is difficult or, in some cases, impossible or too costly. When completed, they provide only one (or two) biomass estimate per year. The development of approaches based on interpreting vessel behavior to infer prey abundance would provide a reliable alternative to provide in-real-time indices of abundance and better describe activity and identify the effort to which the resources are subject. This poster aims to present the development of Markovian and semi-Markovian hierarchical models in state space by using VMS (Vessel Monitoring System) data. Once trajectories are interpreted, they can be used to fine-tune the activities carried out by ships during their tides and to validate these estimates by observing data. The domains of application of these models range from the determination of abundance indices to the mapping of prey distributions (target species). The 5-state model (fishing, day-trip, night-time and night-road), developed here, allows for night data ignored by other two- or three-state models. Thus, the total effort becomes quantifiable.



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