

## **Trade-offs in the debate for setting biological and productive thresholds that are sustainable**

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### **Abstract:**

Sustainable development issues are dynamics and encompass several (potentially conflicting) dimensions (we shall focus here on conflicts between environmental and economic/productive agents). In practice, multi-criteria approaches based on sustainability indicators (observations) and thresholds are used. Sustainability indicators follow the dynamic evolution of quantities representing various issues (e.g., the spawning stock biomass, the fishing mortality, catches) and thresholds represent constraints that should not be overshoot by the indicators.

In this talk we provide a tool that put in evidence the trade-offs between these objectives, under qualitative assumptions that, for example, are valid for mono-specific fishery models.

As case studies, we will present the trade-offs that exist between biological objectives and management objectives, for determining sustainable thresholds of: minimal spawning stock biomass, maximal levels of fishing mortality, and minimal levels of landings, for two stocks of Chilean fisheries.