

# **Ecosystem approach in the research and management Of the Chilean fisheries**

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## **1. Introduction**

Research aimed at fishery resource management in Chile has been coordinated for the last 12 years by two governmental organizations: the Fishery Undersecretary (Subsecretaría de Pesca) and the Fishery Research Fund (Fondo de Investigación, FIP). Although Chilean fishery management policies do not explicitly consider an ecosystem approach, this concept has been applied to some practical examples.

In terms of developed research, it should be noted that the ecosystem approach to the analysis of important fishery resources in Chile is recent and has been aimed largely at the use of trophodynamic models that attempt to describe the abundance changes observed in some resources. Nonetheless, and in spite of the value of these contributions, two main problems exist: the imbalance in available knowledge and the number of suppositions that must be considered.

## **2. Information collection programs**

The Chilean fishery industry began to grow in importance over 40 years ago and has been accompanied by the collection of information, which is subjected to increasingly demanding standards in terms of the quality of the information. In this sense, three primary sources stand out:

- The National Fishery Monitoring Program (Programa de Monitoreo de las Pesquerías Nacionales), historically developed by the Fishery Support Institute (Instituto de Fomento Pesquero, IFOP), covers the sampling and analysis of the biological-fishery attributes of over 20 target species and gathers information related to the diversity of accompanying fauna.
- The Scientist Observer Program (Programa de observadores científicos), recently initiated, attempts to formalize access to private biological-fishery information, as well as to provide a protocol for collecting information on target

### **3. Application experiences**

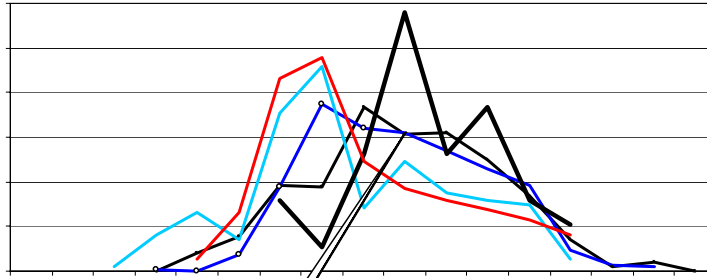
#### **3.1. Basic research**

Noteworthy university research has been done by scientists at the Universidad de Concepción, including quantitative analyses of trophic interactions between the predator common hake (*Merluccius gayi*) and changes in the abundance of squat lobster (*Pleuroncodes monodon*), shrimp (*Cervimunida johi*), and small pelagic fish like anchovy (*Engraulis ringens*) and common sardine (*Strangomera bentinki*) with the EwE model. More recently, FIP financed a project in which these same scientists focused on

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- Fishing mortality (PBR)
- Expected recruitment
- Relative Humboldt giant squid presence

Size (mm) with year (ha)



- A protection plan for sharks and rays, as incidental fauna in the industrial long-line fishery mainly targeting sword fish.
- A protection plan for marine birds, whose incidental deaths are recorded in the industrial long-line fishery targeting hake in southern Chile.

The main objective of these plans is to prevent, detain, and eliminate both illegal fishing and under-reporting.

Along with this, Chile has initiated protection policies for biodiversity through the

FAO. 1984. Informe de la Conferencia Mundial de la FAO sobre Ordenación y Desarrollo Pesquero. Roma, 27 de junio al 6 de julio de 1984. Púb. Organización de las