



PROGRAMME 2014-2020

Cofinanciado por:



UNIÃO EUROPEIA

Fundo Europeu
dos Assuntos Marítimos
e das Pescas

Introduction

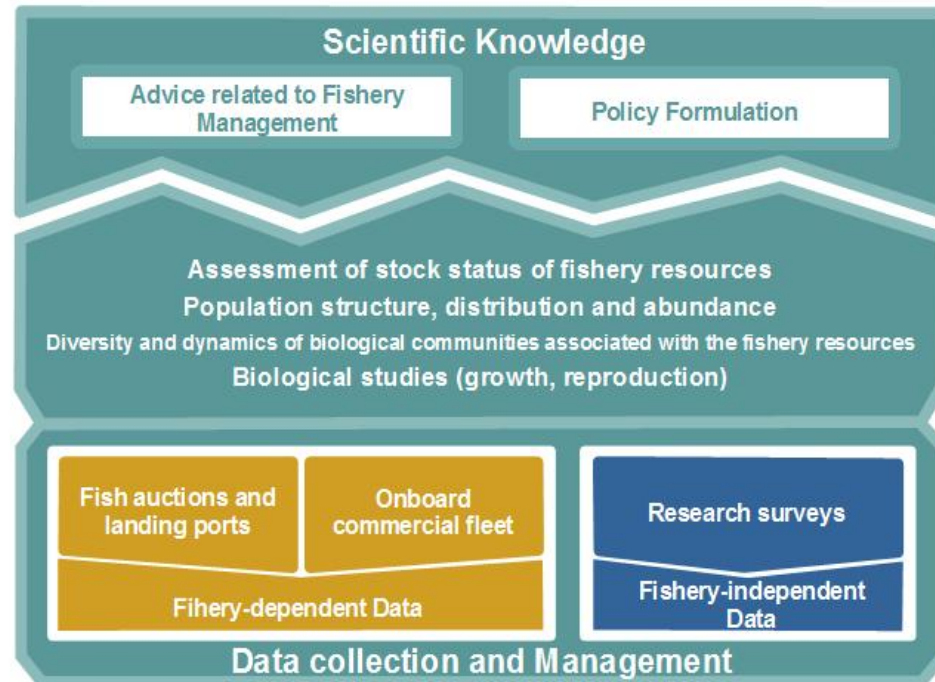
The first sampling programs of the commercial fleet landings in Portugal were implemented in the early eighties. During the nineties, already with access to European funding, several projects were devoted to the collection of biological fishery data, some of which with an international scope. These projects improved data collection and favoured the development of fisheries analysis and stock assessment methodologies.

Experience gained during the nineties supported the standardization of data collection methodologies for scientific advice within the Common Fisheries Policy (CFP). As a result, the Community framework for the collection and management of essential data was established in 2002, and is currently designated by the acronym of DCF (*Data Collection Framework*).

The data collected under the DCF also serve the obligations advocated by the Marine Strategy Framework Directive (MSFD). The regulatory review of the DCF runs since 2012, and its full implementation is expected during the period 2017-2020.

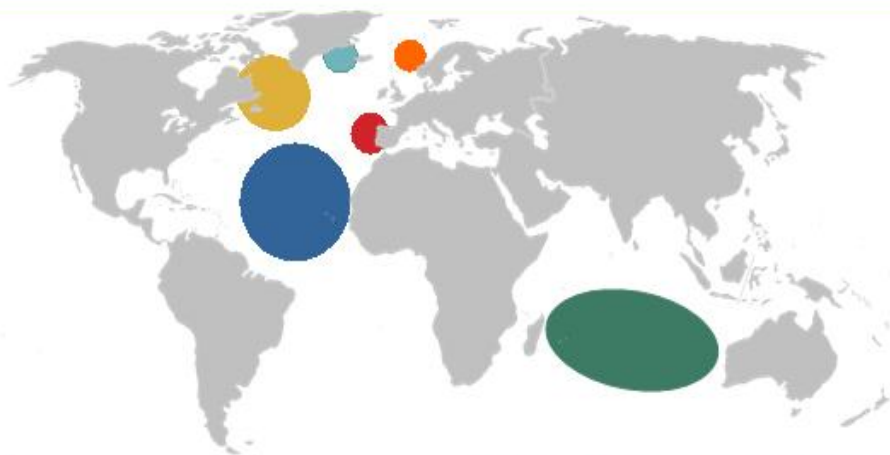
The National Programme for Biological Sampling (PNAB) is integrated in the National Data Collection Programme (PNRD) and is an obligation under the Data Collection Framework (DCF). Since 2002 it assures a set of **collection** activities, **management** and **use** of biological data collected from the commercial fleet registered in mainland Portugal (fishery-dependent data) and from several at-sea research surveys (fishery-independent data).

The main objective of PNAB is therefore to support scientific advice related with the CFP.



Data collection and Management

Where are the Scientific Observers of PNAB deployed?



Northeast Atlantic, ICES Division IXa
600 annual visits to fishing ports
115 annual short-term boarding trips

Regulatory area of the Northeast Atlantic Fisheries Organization (NAFO)
4 annual long-term boarding trips

Eastern Arctic, ICES Subareas I,II
3 annual long-term boarding trips

Iceland, Greenland and Irminger Sea, ICES Subareas V, XII e XIV
1 annual long-term boarding trip

Convention area of the International Commission for the Conservation of Atlantic Tunas (ICCAT)
6 annual medium and long-term boarding trips

Convention area of the Indian Ocean Tuna Commission (IOTC)
2 annual long-term boarding trips

The PNAB component of the commercial fishery data collection aims to know the catch composition and to estimate the length distribution of the retained and discarded species.



Northwest Coast

Viana do Castelo
Póvoa do Varzim
Matosinhos*
Aveiro*
Figueira da Foz

Southwest Coast

Nazaré
Peniche*
Costa da Caparica
Sesimbra
Setúbal
Sines



South Coast

Sagres
Lagos
Portimão
Quarteira
Olhão*
Fuzeta
Vila Real de St.º António

*ports where there are Activity Centres of IPMA

Data collection and Management

Research Surveys



IPMA ensures the annual accomplishment of several at-sea scientific research surveys since the late 1970's.

These surveys, conducted aboard national research vessels, have the main objective of estimating indices of abundance and biomass of the main species occurring in the Portuguese mainland coast; the species length and age composition; the species spatial distribution; indicators of the effect of fishing on the ecosystem; and also the collection of environmental parameters.

The time series of research surveys are an important source of scientific information to monitor stock status (CFP) and the ecosystem (MSFD). Since several fishery resources are from stocks shared by several Member States and as several countries conduct counterpart surveys, all surveys are **coordinated internationally** by working groups of the International Council for the Exploration of the Sea (ICES).

Other than research surveys in the Portuguese mainland coast (ICES Division IXa), IPMA participates in international research surveys coordinated by the IEO (Spanish Institute of Oceanography) which cover an important fishing ground in the regulatory area of NAFO - the Flemish Cap. The survey aims to estimate the indices of abundance and biomass of the main species caught in the area of the Northwest Atlantic.

Pelagic Surveys

Periodicity and Seasonality
Annual, between March & April

Duration
30 days

Geographic Area
Continental Portuguese Coast and Gulf of Cadiz (ICES Division IXa)

Objectives:

- Estimate indices of abundance and biomass small pelagic fish
- Collect environmental parameters
- Estimate indicators of fishery effects on marine ecosystems

Crustaceans Survey

Periodicity and Seasonality
Annual, in June

Duration
20 days

Geographic Area
Continental Portuguese Coast of Alentejo & Algarve (ICES FU 28-29)

Objectives:

- Estimate indices of abundance and the population structure of the main Crustacean species and accompanying fauna
- Collect environmental parameters
- Estimate indicators of fishery effects on marine ecosystems
- Contribute to biodiversity studies and estimation of marine litter (MSFD)

Autumn Demersal Survey

Periodicity and Seasonality
Annual, between September & October

Duration
30 days

Geographic Area
Continental Portuguese Coast

Objectives:

- Estimate indices of biomass, abundance and recruitment of the main demersal species
- Collect environmental parameters
- Estimate indicators of fishery effects on marine ecosystems
- Contribute to biodiversity studies and estimation of marine litter (MSFD)

Daily Egg Production Method for Sardine/ Horse mackerel

Periodicity and Seasonality
2 triennial surveys, directed in alternating surveys to sardine and horse mackerel, between January & February

Duration
35 days

Geographic Area
Continental Portuguese Coast, Gulf of Cadiz, West Coast of Galicia (ICES Division IXa)

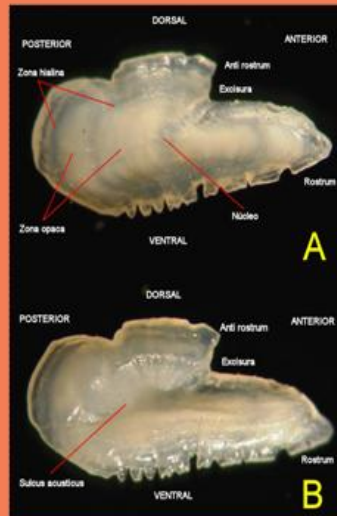
Objectives:

- Estimate spawning biomass of sardine/ horse mackerel
- Collect environmental parameters
- Estimate indicators of fishery effects on marine ecosystems

Study Areas and Key Fishery Resources



Annually, PNAB collects biological information from approximately 250 species of fish and marine invertebrates of the Portuguese mainland coast (ICES Division IXa), 15 species which occur in the NAFO regulatory area, Eastern Arctic and Iceland, 65 species occurring in the ICCAT Convention area and 50 species captured in the IOTC area.



There is a set of stocks on which PNAB collects information for the estimation of biological parameters age, maturation, fecundity, sex ratio. This information is collected from the commercial fleet and through research surveys.

In the domain of **growth studies**, age determination from calcified structures (otoliths, *illicia*, vertebrae, spines, etc.) stands out, providing length-age keys and the estimation of growth parameters for stock assessment.

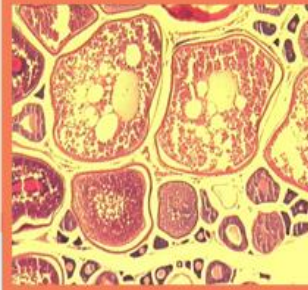
Northeast Atlantic

Management unit (*Stock*)

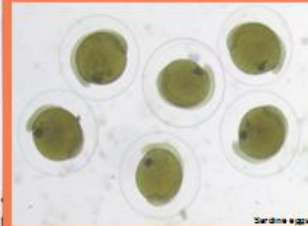
Sardine (<i>Sardina pilchardus</i>)	ICES VIIIc, IXa
Common octopus (<i>Octopus vulgaris</i>)	ICES VIIIc, IXa
Horse-mackerel (<i>Trachurus trachurus</i>)	ICES IXa
Black scabbardfish (<i>Aphanopus carbo</i>)	ICES VIII, IX
Deep-water rose shrimp (<i>Parapenaeus longirostris</i>)	ICES IXa
Hake (<i>Merluccius merluccius</i>)	ICES VIIIc, IXa
Common cuttlefish (<i>Sepia officinalis</i>)	Northeast Atlantic
Norway pout (<i>Trisopterus</i> spp.)	Northeast Atlantic
Norway lobster (<i>Nephrops norvegicus</i>)	ICES FU 28-29
Atlantic chub mackerel (<i>Scomber colias</i>)	ICES VIII, IX
Common sole (<i>Solea solea</i>)	ICES VIIIc, IXa
European conger (<i>Conger conger</i>)	Northeast Atlantic (except ICES X)
Blue whiting (<i>Micromesistius poutassou</i>)	ICES I-IX, XII, XIV
White anglerfish (<i>Lophius piscatorius</i>)	ICES VIIIc, IXa
Black-bellied anglerfish (<i>Lophius budegassa</i>)	ICES VIIIc, IXa
Atlantic mackerel (<i>Scomber scombrus</i>)	Northeast Atlantic
European squid (<i>Loligo vulgar</i>)	ICES VIIIc, IXa
Other species of ray (Rajidae)	ICES VIII, IXa
Thornback ray (<i>Raja clavata</i>)	ICES IXa
European anchovy (<i>Engraulis encrasicolus</i>)	ICES IXa
Blond ray (<i>Raja brachyura</i>)	ICES IXa
Cuckoo ray (<i>Leucoraja naevus</i>)	ICES IXa
Spotted ray (<i>Raja montagui</i>)	ICES IXa
Four-spot-megrim (<i>Lepidorhombus boscii</i>)	ICES VIIIc, IXa
Megrim (<i>Lepidorhombus whiffiagonis</i>)	ICES VIIIc, IXa
European eel (<i>Anguilla anguilla</i>)	Northeast Atlantic

Species managed by TAC & quotas

Study Areas and Key Fishery Resources



Reproduction studies include macroscopic and microscopic determination of the degree of ripeness, the determination of age and/or length at sexual maturation, the estimation of maturity ogives, histological analysis of fertility and determination of the spawning fraction for the Daily Egg Production Method (DEPM) applied to pelagic fish (sardine and horse mackerel).



Studies of the initial life stages of the species of pelagic fish include the definition and characterization of spawning areas and the estimation of egg production rates.



Northeast Atlantic (NAFO)

Management unit
(Stock)

Redfish (<i>Sebastes</i> spp.)	NAFO 3LN
Redfish (<i>Sebastes</i> spp.)	NAFO 3M
Redfish (<i>Sebastes</i> spp.)	NAFO 3O
Cod (<i>Gadus morhua</i>)	NAFO 2J3KL
Cod (<i>Gadus morhua</i>)	NAFO 3NO
Cod (<i>Gadus morhua</i>)	NAFO 3M
Greenland halibut (<i>Reinhardtius hippoglossoides</i>)	NAFO 3LMNO
American plaice (<i>Hippoglossoides platessoides</i>)	NAFO 3M
American plaice (<i>Hippoglossoides platessoides</i>)	NAFO 3LNO

Iceland, Greenland and Irminger Sea

Management unit
(Stock)

Deep-sea redfish (<i>Sebastes mentella</i>)	ICES V, XII e XIV, NAFO SA 1, 2
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Species managed by TAC & quotas

Eastern Arctic

Management unit
(Stock)

Cod (<i>Gadus morhua</i>)	ICES I, II
Deep-sea redfish (<i>Sebastes mentella</i>)	ICES I, II

ICCAT

Management unit
(Stock)

Swordfish (<i>Xiphias gladius</i>)	North Atlantic, South Atlantic
Blue shark (<i>Prionace glauca</i>)	North Atlantic, South Atlantic
Shortfin mako shark (<i>Isurus oxyrinchus</i>)	North Atlantic, South Atlantic

IOTC

Management unit
(Stock)

Swordfish (<i>Xiphias gladius</i>)	Indian, Indian SO
Blue shark (<i>Prionace glauca</i>)	Indian
Shortfin mako shark (<i>Isurus oxyrinchus</i>)	Indian

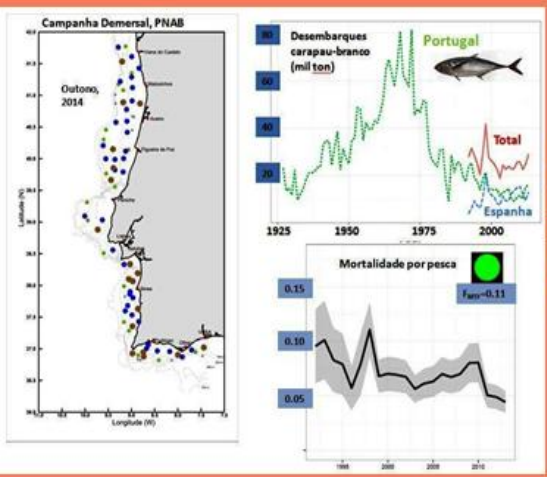
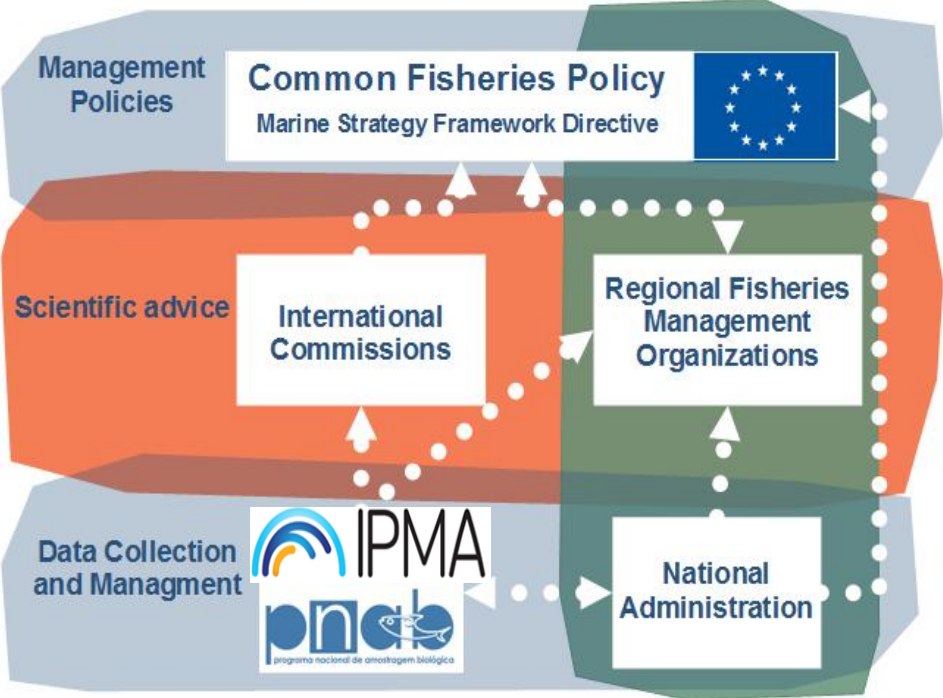
Species managed by TAC & quotas

Stock status of Fishery Resources

Scientific Advice



The **ultimate goal of PNAB** is the production of knowledge and its use in scientific analyses that form the basis of management advice for the sustainable exploitation of all commercial species. PNAB also **contributes** to the objectives of the MSFD which aims to achieve a good environmental status by 2020.



Scientific information on the stock status and recommendations for sustainable levels of exploitation, result from modelling and simulation studies of the dynamics of stocks using data collected periodically by PNAB.



Useful links

Data Collection Framework (DCF) http://datacollection.jrc.ec.europa.eu/	
Common Fisheries policy (CFP) http://ec.europa.eu/fisheries/reform/index_pt.htm	
Marine Strategy Framework Directive (MSFD) http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/	
Direcção-Geral de Recursos Naturais, Segurança e Serviços Marítimos http://www.dgrm.min-agricultura.pt/	
The International Council for the Exploration of the Sea (ICES) http://www.ices.dk/	
Northwest Atlantic Fisheries Organization (NAFO) http://www.nafo.int/	
North East Atlantic Fisheries Commission (NEAFC) http://www.neafc.org/	
International Commission for the Conservation of Atlantic Tunas (ICCAT) https://www.iccat.int/	
Indian Ocean Tuna Commission (IOTC) www.iotc.org/	

All data collected by PNAB are protected by law, they are confidential and are only used for technical and scientific purposes.

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