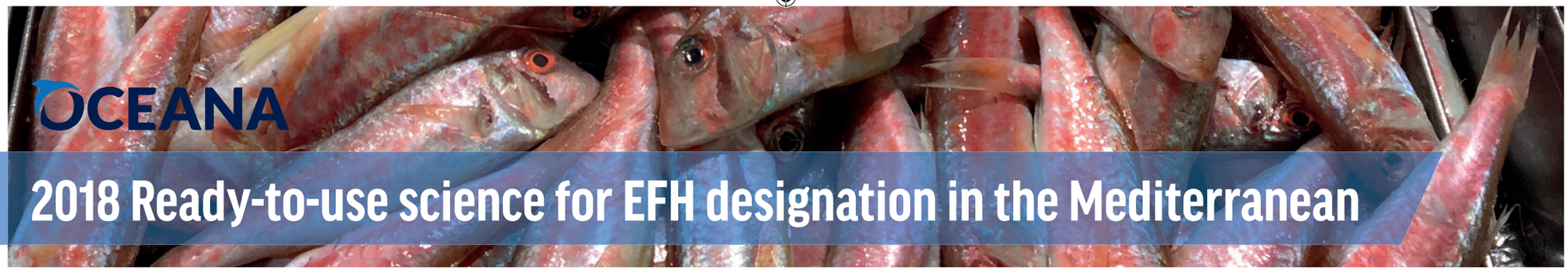
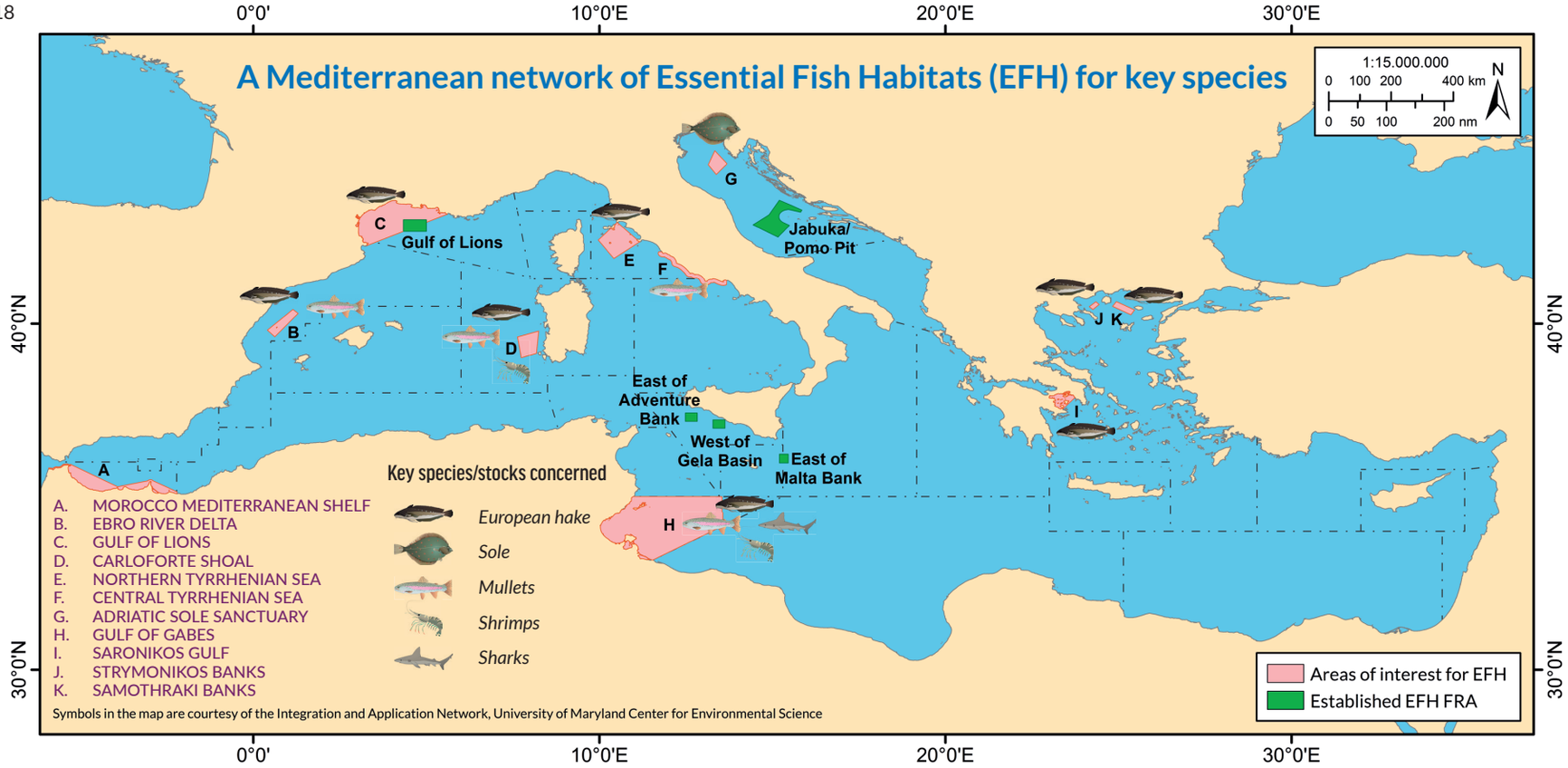


2018 Ready-to-use science for EFH designation in the Mediterranean

December 2018



A. MOROCCO MEDITERRANEAN SHELF. Demersal species of the continental shelf

B. EBRO RIVER DELTA. Nursery area for hake *(Merluccius merluccius)*; Spawning ground for red mullet *(Mullus barbatus)*

C. GULF OF LIONS. Nursery and spawning grounds for hake *(Merluccius merluccius)* and red mullet (*Mullus barbatus*); Sensitive Habitats: *Isidella elongata*, cold water corals, *Callogorgia verticillata*

D. CARLOFORTE SHOAL. Nursery ground for hake *(Merluccius merluccius)*, *Aristeomorpha foliacea*, *Eledone cirrhosa*, *Illex coindetii*, *Parapenaeus longirostris*, *Raja clavata*; Spawning ground for *Aristeomorpha foliacea*, *Aristeus antennatus*, *Eledone cirrhosa*, *Merluccius merluccius*, *Mullus barbatus*, *Parapenaeus longirostris*; Sensitive Habitats: coral gardens (*Callogorgia verticillata* and black corals)

E. NORTHERN TYRRHENIAN SEA. Nursery grounds for hake *(Merluccius merluccius)*, *Eledone cirrhosa*, *Galeus melastomus*, *Parapenaeus longirostris;* Sensitive Habitats: black coral forest (*Parantiphates larix*) off Montecristo Island

F. CENTRAL TYRRHENIAN SEA. Nursery grounds for *Mullus barbatus*

G. ADRIATIC SOLE SANCTUARY. Spawning ground for *Solea solea*

H. GULF OF GABES. Spawning ground for different species of elasmobranch, and possible nurseries of *Merluccius merluccius*, *Mullus barbatus*, *Parapenaeus longirostris*

I. SARONIKOS GULF. Nursery ground for *Merluccius merluccius*

J. STRYMONIKOS BANKS. Nursery ground for *Merluccius merluccius*

K. SAMOTHRAKI BANKS. Nursery ground for *Merluccius merluccius*

Scientific catalogue for identification of EFH sites in the Mediterranean

- **PROTOMEDEA** (ongoing project) (Petza et al, 2017). European project with the ultimate goal of designing a Marine Protected Area network in the Eastern Mediterranean also considering the protection of EFH. Identification of EFH is one of the expected outcomes. The project also focuses on achieving the Maximum Sustainable Yield (MSY).
- **Identification and Characterization of Nursery Areas of Red Mullet *Mullus barbatus* in the Central Tyrrhenian Sea** (Criscoli et al, 2017). This research is specifically focused on the identification and characterization of five nursery areas highly persistent through time using spatial interpolation techniques.
- **MANTIS: Marine protected Areas Network Towards Sustainable fisheries in the Central Mediterranean** (Fiorentino et al, 2016). Along this project have been identified permanent nursery areas for several commercial species. This information supported the designation of the FRA in the Strait of Sicily (Recommendation GFCM/40/2016/4).
- **The Seascape of Demersal Fish Nursery Areas in the North Mediterranean Sea, a First Step Towards the Implementation of Spatial Planning for Trawl Fisheries** (Colloca et al, 2015). This study identifies nursery grounds of exploited stocks and analyses the distribution of nursery areas of 11 important commercial species of demersal fish and shellfish in EU Mediterranean waters.
- **Modelling of European hake nurseries in the Mediterranean Sea: an ecological niche approach**. (Druon et al, 2015). This model provides avoidable areas for trawling because the occurrence of nursery areas for hake.
- **MAREA Project. STOCKMED. Stock units: Identification of distinct biological units for different fish and shellfish species and among different GFCM-GSA** (Fiorentino et al, 2014). This project aims to identify stock units for the most relevant demersal and small pelagic species in the Mediterranean to contribute to the improvement of their assessment. Areas with high percentage of females in spawning stage for key targeted species has been also identified and mapped.
- **Mediterranean Sensitive Habitats (MEDISEH)** (Giannoulaki et al, 2013). This European project review and map all existing information on historical and current data of nurseries and spawning grounds of certain small pelagic and demersal species that are included in the EU Data Collection Framework for the Mediterranean and subjected to minimum landing size based on Council Regulation.
- **Setting Priorities for Regional Conservation Planning in the Mediterranean Sea** (Micheli et al, 2013). This paper reviews and integrates different plans with the goal of identifying priority conservation areas that represent the current consensus among different initiatives. The need for spatial prioritization within a comprehensive framework for regional conservation planning is also highlighted.
- Mediterranean Submarine Canyons: Ecology and Governance (Würtz, 2012). This report highlights the importance of submarine canyons as key geological features where sensitive habitat occur and which may act as essential habitats for feeding and spawning for commercial species.
- Persistence and co-occurrence of demersal nurseries in the Strait of Sicily (central Mediterranean): Implications for fishery management (Garofalo et al, 2011). This study investigated the nurseries of seven commercially important demersal species of the northern sector of the Strait of Sicily: red mullet, European hake, horned octopus, deep-water rose shrimp, greater forkbeard, Norway lobster and giant red shrimp. Furthermore, it suggests spatial protection measures that could complement conventional management approach for ensuring the long-term sustainability of these fisheries and stocks conservation.
- SoleMon surveys (Bastardie et al, 2017; Santelli et al, 2017; Scarcella et al, 2011; Domenichetti et al, 2009). It aimed to collect data on distribution and relative abundance, with biological information on commercial fish species in Northern Adriatic, to provide useful data for stock assessment and fishery management with a focus in common sole. One of the main outcomes from this survey is the identification of a spawning ground for Solea solea.
- A conceptual framework for the protection of vulnerable habitats impacted by fishing activities in the Mediterranean high seas (de Juan and Lleonart, 2010). This work aims to compile knowledge on ecologically rich habitats that deserve special protection (including EFH) in the Mediterranean high seas and currently threatened by fishing activities.
- Fisheries conservation management and vulnerable ecosystems in the Mediterranean open seas, including the deep sea (UNEP-MAP-RAC/SPA, 2010). This document identifies faunal assemblages and geological and oceanographic features which can be relevant for fisheries management (e.g. habitat-structuring fauna, complex geological features or oceanographic features.
- Identification of deep-water pink shrimp abundance distribution patterns and nursery grounds in the eastern Mediterranean by means of generalized additive modelling (Politou et al, 2009). Modelling techniques were used to predict abundance of deep-water pink shrimp (Parapenaeus longirostris) with data collected during MEDITS surveys in Greek seas. The most important nursery ground identified was located in the Saronikos Gulf and a secondary in the Thracian Sea. Adult specimens were mainly located in the Saronikos Gulf, the Thracian Sea, the Thermaikos Gulf, the Cretan Sea and the eastern part of the Aegean.
- Identification of hake distribution pattern and nursery grounds in the Hellenic seas by means of generalized additive models (Tserpes et al, 2008). This work analyses time series of hake (Merluccius merluccius) abundance data from "MEDITS" surveys in Greek seas which were modelled to generate density distributions maps. These maps revealed that nursery grounds are restricted in specific regions with the most important of them being in the Saronikos Gulf and its surrounding area.

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