European pilchard
NW Africa southern

IDENTIFICATION

SCIENTIFIC NAME
Sardina pilchardus

RELATED LINKS:
mackerel
European anchovy
fisheries in Morocco, Mauritania, Senegal, and the Gambia that also target

STOCK IDENTIFICATION

Many studies have investigated the structure of the European pilchard (or commonly, "sardine") population widely distributed in the northeast and Eastern Central Atlantic, and the Mediterranean and Black Sea (e.g. (González et al. 1988)(Fink et al. 2002)(Klautsch et al. 2009)(Chicha et al. 2009)(Chica et al. 2012)(Lordon et al. 2015)(Chica et al. 2016)) However, some uncertainty remains (Kasapidis et al. 2012), and further research into regional stock subunits is needed (ICES 2012b). The West African European pilchard profile presented on FishSource reflects two assessment units delineated by the FAO Working Group on Small Pelagic Fish in Northwest Africa, (FAT-2016) one in zones "A + B" (Central) and another in zone "C" (Southern). The recent work of (Zahguli et al. 2018) supports the distinction of these two stock units.

The Southern stock unit, considered here, reflects the population occurring in the waters of Morocco and countries south, between Cap Blanc at 30ºN and the Central stock unit reflects an entirely Moroccan population from Cap Blanc north to Cap Boujdour at 32ºN.

In addition to the West African stocks, FishSource considers the following assessment units throughout the species distribution: The Caspian Sea, the Northern Adriatic Sea, the Iberian, Bay of Biscay, Southern Celtic Seas and Northern Alboran Sea.

General Fisheries Commission for the Mediterranean (GFCM) and FAO (2015) GFCM, FAT-2015 stock assessment units - of the 8 stock assessment units assumed (Kasapidis et al. 2012b), these 2 are already covered in profiles: 
- Northern Adriatic Sea (EAST) and Northern Alboran Sea (GSA17).

The West African stocks are captured in industrial and artisanal small pelagic fisheries in Morocco, Mauritania, Senegal, and the Gambia that also target European anchovy, Engraulis encrasicolus, sardinella Sardinella spp., horse mackerel Trachurus spp. and chub mackerel Scomber japonicus.

RELATED LINES:
- Mauritania Ministry of Fisheries and Maritime Economy (MFME)
- Fishery Committee for the Eastern Central Atlantic (ICECAP)

ASSESSMENT

Strengths

- The stock is regularly surveyed; in 2017, however, only the Russian and Moroccan acoustic surveys were conducted.
- Stock status is regularly assessed by both the FAO and the INRH; the FAO provides annual scientific advice.
- Scientists, with both the INRH and the FAO found the stock in 2017 to be in relatively good health with respect to biomass reference points.
- There is a Sub-Regional Fisheries Commission (Commission Sous-Régionale des Pêches, CSR); that includes Mauritania and Senegal, that has conducted efforts to assess and manage the transboundary small pelagic stocks shared with the countries of the region, jointly with Morocco.
- There is a national small pelagic TAC in Morocco, and catch ceilings for foreign fleets operating under legal agreements in Morocco and Mauritania.
- Monitoring, control and surveillance (MSC) systems throughout the region have undergone improvements in the recent decade.
- Bycatch limits are defined for each of the Moroccan and Mauritanian fisheries.
- Pursuit-seeing and pelagic trawling are not expected to have significant effects on the seafloor ecosystem.
- There is a national fishery management framework in place.
- The TAC for small pelagics for European fleets operating within the Mauritanian EEZ has been consistently compiled with incorrect years.

Weaknesses

- There is some misalignment between the INRH and the FAO regarding the exploited status of the stock; some methods by INRH yield conflicting results.
- Some species in the mixed stock fishery are overexploited - including Atlantic and Gurnee horse mackerel, and mard and Madiran sardinella.
- Stock assessment advice by the FAO is not released in a timely manner; and the connections between stock assessments, advice, and harvest limits are not clear.
- The stock is highly dependent on environmental dynamics, and the degree to which management adapts to these factors with respect to catch limits is unclear.
- Quantification of discarding is limited, particularly in Mauritania.
- ETP interaction is poorly documented, and indicated to be a possible concern based on past studies (sharks, mammals and turtles).
- A variety of IUU fishing activities are indicated to be persistent, but are poorly documented in the region; complex foreign fishing arrangements add ambiguity.
- The stock structure remains somewhat uncertain.
- There is no fishery management plan; no national TAC, and no harvest control rule for sardine or small pelagics in Mauritania.
- Annual acoustic surveys by Mauritania were conducted.
- The non-industrial (e.g. coastal purse seine) fleet in Mauritainia is open access.
- There is no fishery management plan, no national TAC, and no harvest control rule for sardine or small pelagics in Mauritania.
- There is some misalignment between the INRH and the FAO regarding the exploited status of the stock; some methods by INRH yield conflicting results.
- However, a national fishery management framework is in place.
- The TAC for small pelagics for European fleets operating within the Mauritanian EEZ has been consistently complied with incorrect years.

SCORES

Management Quality:

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<th>Management Strategy</th>
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<th>Fishers Compliance</th>
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Stock Health:

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FIPS

MSC

for related MSC fisheries

RECOMMENDATIONS

RETAILERS & SUPPLY CHAIN

- Support the Sub-Regional Fisheries Commission and Morocco in their
efforts to develop a strategic plan for management of the small pelagics fisheries in the region. The management plan should include species specific TACs, joint setting of TACs, and consideration of how environmental variability may affect stocks.

- Work with scientists to understand the uncertainties in the stock assessment and improve the different assessment models and input data (catches, discards, biological data) to reduce the level of uncertainty in the assessment and to work towards resolving the differences between the models.
- Encourage management authorities to release stock assessment results sooner and improve transparency of subsequent management actions, including the setting of catch or effort limits.
- Ask the government/regional authorities to continue to improve catch and discard reporting and to publish fishery compliance information, especially for Mauritania.
- Work with scientists to conduct studies to clarify the stock structure of northwest African pilchard/sardine.
- Press managers to implement a recovery strategy for other target species in the multi-species fishery to ensure that all such species are at least above biologically-based limit reference points or proxies for the point of recruitment impairment, especially for Cunene and Atlantic horse mackerels, and round and Madeiran sardinellas.
- Work with scientists and managers to expand the at–sea observer programme to provide representational coverage of all components of the fishery to better understand catches and discards, as well as interactions with habitats and all types of bycatch.