European pilchard NW Africa southern

**SCIENTIFIC NAME**
Sardina pilchardus

**SPECIES NAME(S)**
European pilchard, Sardine, European sardine

**STOCK IDENTIFICATION**
Many studies have investigated the stock structure of the European pilchard (or commonly, "sardine") population widely distributed in the northwest and Eastern Central Atlantic, and the Mediterranean and Black Sea. (e.g. Spanakis et al. 1989; Yonekura et al. 2003; Kasapidis et al. 2006; Chlaida et al. 2009; Chlaida et al. 2012). However, some uncertainty remains. (Kasapidis et al. 2012) and further research into regional stock subunits is needed. (ICES 2014a; ICES 2015b) The West African European pilchard profiles presented on FishSource reflect two assessment units delineated by the FAO Working Groups on Small Pelagic Fish in Northwestern Africa, (FAO 2015b) one in zones "A + B" (Central) and another in zone "C" (Southern). The recent work of (Duchêne et al. 2017) 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 southwards between Cap Blanc at 26ºN through the southern limit of the species extent; while the Central stock unit reflects an entirely Moroccan population from Cap Blanc north to Cap Bonbirthday at 32ºN.

In addition to the Western African stocks, FishSource considers the following assessment units throughout the species' distribution:

- Eastern (ICES Divisions 8.c and 9.a) and Bay of Biscay, Southern Celtic Seas and English Channel (ICES Divisions 8.a,b,d and Subarea 7).

**General Fisheries Commission for the Mediterranean (GFCM) and FAO (GFCM and FAO 2016; GFCM, FAO) stock assessment units - of the 8 stock assessment units assumed (Kasapidis et al. 2012; ICES 2015b), these 2 are already covered in profiles:

- Northern Adriatic Sea (ICES 2015b) and Northern Adriatic Sea (ICES 2015).

**Fishery**
European pilchard, Sardina pilchardus, and round and Madeiran sardinella. The stock is regularly surveyed; in 2017, however, only the Russian and Moroccan acoustic surveys were conducted.

**STOCK HEALTH**

**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, within both the INRH and the FAO, found the stock to be in 2017 to be in relatively good health with respect to biomass reference points.

**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 Common horse mackerel, and round and Madeiran sardinella.
- Stock assessment advice by the FAO is not released in a timely manner and the connection between stock assessments, advice, and harvest limits is 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 interactions are 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 persistant, but are poorly documented in the region; complex foreign fishing arrangements add ambiguity.
- The stock structure remains somewhat uncertain.
- The management plan and TAC are not species-specific, and there is no harvest control rule.
- Catch underscoring may occur in some sectors.

**SCORES**

**Management Quality:**

<table>
<thead>
<tr>
<th>Management Strategy</th>
<th>Manages Compliance</th>
<th>Fishers Compliance</th>
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<tbody>
<tr>
<td>≥ 6</td>
<td>≥ 6</td>
<td>&lt; 6 or &gt; 6</td>
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**Stock Health:**

<table>
<thead>
<tr>
<th>Current Health</th>
<th>Future Health</th>
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<tbody>
<tr>
<td>≥ 5</td>
<td>≥ 6</td>
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**FIPS**
no related FIPs

**MSC**
no 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.