IDENTIFICATION

SCIENTIFIC NAME
Sardina pilchardus

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

COMMON NAMES
Atlantic-Iberian sardine, Atlanto-Iberian sardine, Iberian sardine, sardinha (Portuguese)

STOCK IDENTIFICATION
Several studies have been conducted to understand European pilchard stock structure widely distributed in the Northeast and Eastern Central Atlantic, and the Mediterranean and Black Sea (e.g. Spanakis et al., 1989; Tinti et al., 2002; Kasapidis et al., 2004; Atarhouch et al., 2006; Chlaida et al., 2006; Silva et al., 2006; Laurent et al., 2007; Chlaida et al., 2009; Antonakakis et al., 2011). However further research is needed considering uncertainties (Kasapidis et al., 2012; ICES, 2014b). Thus here we consider the following assessment units along the European pilchard distribution:

By the International Council for the Exploration of the Sea (ICES):
- Iberian (ICES Divisions VIIIc and IXa) and
- Bay of Biscay, Southern Celtic Seas and English Channel (ICES Divisions VIIIa,b,d and Subarea VII)

By the General Fisheries Commission for the Mediterranean (GFCM; FAO) of the 8 stock assessment units assumed (FAO, 2009; Kasapidis et al., 2012; GFCM, 2014) these 2 are already covered in profiles:
- Northern Adriatic Sea (GSA 17) and
- Northern Alboran Sea (GSA 01)

By the Fishery Committee for the Eastern Central Atlantic (FAO, 2013a,b):
- NW Africa central (zones A+B; 32ºN – 26ºN) and
- NW Africa southern (zone C; 26ºN – the southern extent of the species distribution).

In Spain, vessels target anchovy, mackerel, sardine, and horse mackerel; in summer, part of the fleet switches to tuna fishing (ICES, 2013a) Most catch is taken by purse-seiners. Sardine catches are highest in the second half of the year and catches are concentrated to southern Galician and Cantabrian waters.

ASSESSMENT

Strengths
The stock is assessed with an analytical age-based model and a benchmark assessment was conducted in 2012. Fishing effort and catch limitations have been in place for over a decade (ICES, 2008b). Impacts on PET species and benthic habitats are deemed low. A new management plan, with a harvest control rule, has recently been reportedly adopted and has been found to be provisionally precautionary (ICES, 2015a). In 2013, overall catches (46,000 tons) represented 83% of those recommended by scientists (55,000 tons).

Weaknesses
The biomass of age 1 and older fish has decreased since 2006 and is currently around the historic low. Recruitment has been below the long-term average since 2005. Fishing mortality since 2009 has been above the average of the last two decades prior to 2009 (ICES, 2014). No international annual TAC is set by management authorities and this has led the most recent catch to significantly exceed scientifically recommended limits (ICES, 2014a). The extent of mixing with sardine stocks to the north is unknown. The main uncertainties in the assessment relate to the discrepant signals about the stock trends provided by the daily egg production method (DEPM) and the comparability of Portuguese and Spanish acoustic surveys, on survey and fishery selection patterns, and on the weighting of the different data sources in the assessment (ICES, 2014a). The level of discards and slippage is not completely known.

SCORES

Management Quality:

<table>
<thead>
<tr>
<th>Management Strategy</th>
<th>Managers Compliance</th>
<th>Fishers Compliance</th>
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<tbody>
<tr>
<td>≥ 8</td>
<td>≥ 6 ≥ 8 &lt; 8</td>
<td>≥ 8</td>
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Stock Health:

<table>
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<tr>
<th>Current Health</th>
<th>Future Health</th>
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<tr>
<td>&lt; 6</td>
<td>5.5</td>
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FIPS
10 related FPs

MSC
No related MSC fisheries

RECOMMENDATIONS

1. Support a decrease in fishing mortality.
2. Ensure that catches follow scientifically recommended limits.
3. Explore stock dynamics at low biomass levels further and translate findings into precautionary criteria to improve the proposed management plan.

RETAILERS & SUPPLY CHAIN
1. Refer to the FishSource profile and encourage the formation of a Fisheries Improvement Project.
2. Attend or host a trade association representative at the Southern Western Waters Regional Advisory Council meetings.