Pseudopentaceros richardsoni
Species Profile

SEAFO
South East Atlantic Fisheries Organisation

UPDATE
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L.J. López-Abellán (IEO) and R. Sarralde (IEO) – 02/2012
L.J. López-Abellán (IEO) 09/2014
**Pseudopentaceros richardsoni species profile**

1. **Taxonomy**

<table>
<thead>
<tr>
<th>Taxonomic Level</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
</tr>
<tr>
<td>Subphylum</td>
<td>Vertebrata</td>
</tr>
<tr>
<td>Superclass</td>
<td>Osteichthyes</td>
</tr>
<tr>
<td>Class</td>
<td>Actinopterygii</td>
</tr>
<tr>
<td>Subclass</td>
<td>Neopterygii</td>
</tr>
<tr>
<td>Infraclass</td>
<td>Teleostei</td>
</tr>
<tr>
<td>Superorder</td>
<td>Acanthopterygii</td>
</tr>
<tr>
<td>Order</td>
<td>Perciformes</td>
</tr>
<tr>
<td>Suborder</td>
<td>Percoidei</td>
</tr>
<tr>
<td>Family</td>
<td>Pentacerotidae</td>
</tr>
<tr>
<td>Genus</td>
<td><em>Pseudopentaceros</em> Bleecker, 1876</td>
</tr>
<tr>
<td>Species</td>
<td><em>Pseudopentaceros Richardson</em> (Smith, 1844)</td>
</tr>
<tr>
<td>Synonyms</td>
<td><em>Pentaceros richardsoni</em></td>
</tr>
<tr>
<td>Common name</td>
<td>Pelagic armourhead (En)</td>
</tr>
<tr>
<td></td>
<td>Southern boardfish (En)</td>
</tr>
<tr>
<td></td>
<td>Tête casquée pélagique (Fr)</td>
</tr>
<tr>
<td></td>
<td>Pez jabali (Sp)</td>
</tr>
<tr>
<td>Species code</td>
<td>EDR <em>Pseudopentaceros richardsoni</em></td>
</tr>
<tr>
<td></td>
<td>EDW <em>Pseudopentaceros spp.</em></td>
</tr>
</tbody>
</table>

2. **Species characteristics**

2.1 **Distribution**

The Pentacerotidae *Pseudopentaceros richardsoni* (Smith, 1844), commonly known as pelagic armourhead or southern boarfish, is a southern circumglobal, benthopelagic species inhabiting the waters over the outer shelf and slope (100-1000 m) between 0 and 1000 meters depth. The species also inhabits seamounts and underwater ridges. Thus, *P. richardsoni* is located in the Southeast Atlantic (Tristan de Cunha, Walvis Ridge and South Africa); the Western Indian Ocean (South Africa and seamounts south of Madagascar) and the South Pacific (southern Australia, New Zealand and Cape Horn (Chile)).

The geographical distribution in the Southeast Atlantic Ocean is roughly represented in figure 1. The area would be located between 20ºS and 40ºS.
2.2 Habitat

Adults inhabit the steep and flat hard bottoms up to 800 metres depth on the seamounts and underwater ridges in the open ocean. Eggs, larvae and juveniles are pelagic.

Northeast Walvis Ridge
Valdivia Bank
Filippov seamount
Vema seamount
Wust seamount

2.3 Biological characteristics

Studies on this species are very scarce and mainly related to distribution and species description (Borets, 1980; Kotlyar, 1882; Hardy, 1983; Heemstra, 1986; Humphreys and Tagami, 1986; Parin, 1992; Mundy and Moser, 1997). Literature is also a little confusing because, initially, only one species (Pentaceros richardsoni) was considered, instead of the three current species. Studies on the other two species distributed in the North Pacific
(Pseudopentaceros pectoralis and Pseudopentaceros wheeleri) have been more frequent.

Sort description of *P. richardsoni* extracted from Hardy (1983): Body strongly laterally compressed; dorsal profile slightly posteroventrally inclined under dorsal spines, rounding under dorsal rays to caudal peduncle; ventral profile posteroventrally inclined from lower jaw to pelvic fin base, flattened along belly to vent, posterodorsally inclined under anal spines and anteriormost anal rays, strongly rounded under posterior anal rays to caudal peduncle; belly strongly keeled between pelvic fin base and vent; snout-vent 1.3-1 in SL; depth at pelvic spine origin 2.2-2.6 in SL; at 1st anal spine 2.3-2.8 in SL; width at base of pelvic spine 7.1-13.8 in SL, at base of pectoral fin 6.0-8.2 in SL. **Colour.** Adult (from colour transparency): steel-blue to greyish-green over most of body; ventral surface paler; dorsal and anal fin webbing slightly darker bluish at distal edge than over remainder; pectoral and caudal fins dark; pelvic fins paler. Juvenile (in alcohol): dorsum dark, variously marbled with pale lines and spots; lower flanks paler, with irregular dark spots; webbing between dorsal and anal spines generally dark brown, with some pale patches, particularly at distal contact of web with succeeding spine; dorsal, anal, pectoral, and caudal fin rays pale; pelvic fins brown, with pale spots and streaks; belly pale.

**Table 1.** Growth parameters of *P. richardsoni* from the Southwest Indian Ocean.

<table>
<thead>
<tr>
<th>Area</th>
<th>Sex</th>
<th>k</th>
<th>L∞</th>
<th>t₀</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southwest Indian Ocean (Walters Shoals &amp; Sapmer Seamount)</td>
<td>Both sexes</td>
<td>0.27</td>
<td>65.1</td>
<td>-0.34</td>
<td>López-Abellán et al. (2008) (*)</td>
</tr>
</tbody>
</table>

(∗) Back-calculation

Estimates on length-weight relationship provided by a research experience conducted within the SEAFO CA in 2008 are presented in table 2:

**Table 2.** Parameters of the total length (cm) - total weight (g) relationship (TW=aTL^b) for males, females and all individuals of *Pseudopentaceros richardsoni* in Valdivia Bank (from López-Abellán et al., 2008a).

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>R²</th>
<th>n</th>
<th>TL range (cm)</th>
<th>TW range (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.014</td>
<td>3.091</td>
<td>0.946</td>
<td>48</td>
<td>32.8-47.5</td>
<td>680-2190</td>
</tr>
<tr>
<td>Female</td>
<td>0.006</td>
<td>3.305</td>
<td>0.877</td>
<td>55</td>
<td>37.6-59.3</td>
<td>1004-4525</td>
</tr>
<tr>
<td>All individuals</td>
<td>0.010</td>
<td>3.172</td>
<td>0.959</td>
<td>103</td>
<td>32.8-59.3</td>
<td>680-4525</td>
</tr>
</tbody>
</table>

Other life history data for specimens caught in the Southwest Indian Ocean seamounts (Walters Shoals & Sapmer Seamount) (López-Abellán et al., 2008): Maximum size (72.5 cm TL; female); Maximum age (14 years); Spawning season (October-December; sampling period), as 44% of females were at spawning stage and 48% at post-spawning.

No information is available on fecundity of *P. richardsoni*.

Regarding other species of the same genus from the North Pacific, *Pseudopentaceros wheeleri* spawning period began in early December and peaked during late December through January. In February, spawning had largely been completed and by March all mature females were spent. The hydration process and release of eggs are asynchronous. During spawning, eggs are released in four to six batches and average 20,000 per batch (Humphreys and Tagami, 1986). Borets (1979) reported that fecundity estimates of 30 cm long females from three SE-NHR seamounts ranged from 99,000 to 110,000 eggs. Studies of Yanagimoto and Humphreys (2005) on the reproductive cycle of female *Pseudopentaceros wheeleri* indicate that for this species spawning occurs between November and February.

No information on feeding and feeding periods is available. However, by similarity with other *Pseudopentaceros* species, *P. richardsoni* should feed on zooplankton, nekton and zoobenthos species (e.g. euphausiids, mysids, cephalopods, shrimps and bony fishes).
2.4 Population structure

Figure 2 shows the length frequency distribution of the species from catches taken in waters of Valdivia Bank in 2010-11 fishing season (SEAFO SC, 1011). The distribution is unimodal with a peak at about 43 cm of TL which means that individuals with ages around 4 years old (about 44 cm) are the most representatives in the catches.

![Figure 2: Pseudopentaceros richardsoni: length frequency distribution raised to catches taken on Valdivia Bank in 2010-11 fishing season.](image)

Results from a research survey conducted in the Valdivia Bank (López-Abellán et al., 2008a) provided a male to female sex ratio of 0.87:1; and the sex ratio by size shows that fishes greater than 48 cm TL are all females.

2.5 Behavior and associated species

*Pseudopentaceros richardsoni* is a predator trophic level 3.5 (s.e. 0.37) (Froese and Pauly, 2012 – FishBase). In the Pacific, the slender armorhead is eaten by the sei whales.

No information is available on distribution of juveniles of *P.richardsoni*, although it seems that larvae of *Pseudopentaceros* spp. are dispersed by surface currents away from the seamounts, where early development occur as pelagic near de surface before move to the demersal habitat (Humphreys and Tagami, 1986).

This species recruit and aggregates at the summit of the seamounts after approximately 4 years of pelagic life.

Associated species in the SEAFO CA:

- *Helicolenus mouchezi*
- *Beryx splendens*
- *Beryx decadactylus*
- *Epigonus telescopus*
- *Hyperoglyphe antarctica*
- *Schedophilus velaini*
- *Mora moro*
- *Polyprion americanus*
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2.6 Resilience / productivity

Medium

\( k=0.27; \ t_m=4; \ t_{max}=14 \)

2.7 Intrinsic vulnerability

Moderate vulnerability (44 of 100)

(Froese and Pauly, 2012 – FishBase, based in Cheung et al, 2005; Cheung et al, 2007)

3. Other remarks

Not available.

4. References


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