BRIEF COMMUNICATION

First record of the paedomorphic goby Schindleria praematura, Easter Island, South Pacific

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Thirty-five larvae and adults of the paedomorphic goby Schindleria praematura were collected around Easter Island, during November 1999. Mean abundance from the five stations where they were caught (n=26) was 10.2 ± 6.1 individuals 1000 m−3. They occurred only in shallow areas. Oocyte counts ranged from 70 to 110. Otolith examination suggests that adults appear to live no longer than 3 months.

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Key words: Schindleria praematura; Easter Island; paedomorphism; fish larvae; otoliths.

The Schindleriidae is a monogeneric gobioid family of small fishes (<20 mm) that show extreme paedomorphism. Some of the larval characteristics observed in sexually mature individuals include functional pronephros, a transparent body and a largely unossified skeleton (Johnson & Brothers, 1993). Miller (1997) has hypothesized that the primary incentive for such developmental truncation could be the rich trophic resources of coastal waters in conjunction with reduction of risk in the pre-adult life-history.

Schindleria is confined to the Indo-Pacific coral reefs (Watson et al., 1984; Watson, 2000), and it has also been found off southern Japan, in the South China Sea (Ozawa & Matsu, 1979), off southern Africa (Harris & Cyrus, 1996) and at the Salas y Gómez submarine ridge (Belyanina, 1989; Parin et al., 1997).

During an oceanographic expedition (CIMAR-5) to Easter Island (27°10’S; 109°20’W) in November 1999, 10 oblique Bongo net tows (60 cm diameter, 300 micrometer mesh, with flowmeter) down to 100 m or less depending on depth of water, were carried out at stations located within 1 nautical mile (nm) from shore around the island during the day, and repeated at night. Also, four transects perpendicular to the island at each of four stations, were sampled at 3, 7, 12 and 20 nm from shore. Samples were preserved in 10% formalin and 96% ethanol (four stations).

Identification of the species as Schindleria praematura (Schindler) was based on two diagnostic features: (1) 13 segmented caudal rays and (2) the gut extending to about two-thirds of the standard length (LS) (Watson, 2000). Species identification as S. praematura was confirmed (G. Herrera, pers. comm.).

Standard length (mm) and other morphometric measurements (nearest 0.1 mm, Table I) were measured using a dissecting microscope fitted with an eyepiece micrometer. Otoliths from individuals preserved in ethanol were extracted and mounted on a microscope slide with epoxic resin. Otolith rings were counted with the aid of a light microscope attached to a video camera and monitor. The average radius of the otolith was measured using OPTIMAS® (version 6.1; Optimas Corporation, 1996).

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A total of 35 specimens (both larvae and adults) of *S. praematura* were identified in the samples from the nearshore (<1 nm) stations around Easter Island (Fig. 1). This is the first record of this species at Easter Island and constitutes its southern-most location in the south-eastern Pacific Ocean.

Abundance at stations where the fish were caught ranged from 3.5 to 23.3 individuals 1000 m$^{-3}$ with a mean density ($\pm$ s.d.) of 10.2 ($\pm$ 6.1) individuals 1000 m$^{-3}$. There was no significant differences in abundance between day and night catches (Mann–Whitney U test, $P>0.05$). No larvae were collected at the offshore stations located along the transects. The shallow areas where they were collected contrast with previous findings from the nearest locality where they had been reported earlier (Salas y Gomez deep submarine ridge; Belyanina, 1989).

<table>
<thead>
<tr>
<th></th>
<th>Larvae</th>
<th>Juveniles and adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preanal length</td>
<td>60.6–66.0</td>
<td>63.8–72.5</td>
</tr>
<tr>
<td>Head length</td>
<td>13.0–16.0</td>
<td>11.7–15.2</td>
</tr>
<tr>
<td>Eye diameter</td>
<td>3.7–6.5</td>
<td>2.2–3.5</td>
</tr>
<tr>
<td>Snout length</td>
<td>2.8–4.3</td>
<td>2.2–4.2</td>
</tr>
<tr>
<td>Body depth</td>
<td>6.6–8.7</td>
<td>2.2–3.5</td>
</tr>
</tbody>
</table>

Fig. 1. Oceanographic stations around Easter Island sampled in November 1999. Larval abundance as individuals 1000 m$^{-3}$. The bathymetric contours are also shown.
Individual $L_S$ ranged between 1.8–20.9 mm, including pre- and postflexion larvae (<11 mm $L_S$), juveniles and adults (>11 mm $L_S$) (Fig. 2). The largest individuals collected (20.9 mm $L_S$) were close to the maximum size reported for this species (Harris & Cyrus, 1996; Watson, 2000). Seventy to 110 oocytes were counted in ripe females.

The number of otolith rings in the sagitta ranged from 26 to 42 (Table II). It was not possible to clearly read the otoliths of the smallest individuals, because of the narrow thickness of the increments (<1 μm width; Johnson & Brothers, 1993). The small size of the otoliths (Table II) in relation to $L_S$ could indicate that $S. praematura$ is a fast-growing fish (Campana, 1990). The small number of otolith rings in the larger individuals suggests a short lifespan (probably no more than 2 or 3 months), possibly associated with the extreme paedomorphism of the species. Because of the thickness of the increments, their number could have been underestimated especially around the core.

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References


