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Short communication:

OBSERVATION OF *IDIOSEPIUS PYGMAEUS* (CEPHALOPODA, IDIOSEPIIDAE), THE PYGMY SQUID, AT KLONG BANGRONG, PHUKET ISLAND, THAILAND

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ABSTRACT: This report reveals impressions and observations about sampling *Idiosepius pygmaeus* in a selected mangrove area. *Idiosepius pygmaeus* is shown to inhabit the whole tidal range of a small tributary of the Bangrong River, Phuket Island, Thailand. Males are predominantly located in the upper and lower reaches of the tributary. Females are observed in the lower part and at the mouth of the tributary sometimes, mating with-males. Bank vegetation has a greater influence on the presence of specimens, than current speed or sudden weather changes.

INTRODUCTION

Several studies have been published on the geographical distribution (Hylleberg and Nateewathana, 1991), seasonal abundance (Jackson, 1992; Jackson, 1993), behaviour and postures in captivity (Moynihan, 1983) of *Idiosepius pygmaeus*. Less is known about the behaviour of Idiosepiidae in its natural habitat. The following report will describe under which conditions *Idiosepius pygmaeus* may be found and also our impressions and observations during sampling of *Idiosepius pygmaeus* in a selected habitat (Bangrong River, Phuket Island, Thailand). The collection site was restricted to a smaller tributary of Bangrong River (Fig. 1) because of the depth and current speed in the main stream (Kristensen *et al.*, 2000; Holmer *et al.*, 2001).

The tributary is about 0.8 km long, has a mean width of 15 m and a depth of about 3 m. The tributary is lined on both sides by mangroves, mainly *Rhizophora* and *Avicennia*.

MATERIALS AND METHODS

From April to May 2004, 9 females (mean mantle length 12.5 mm) and 46 males (mean mantle length 11.28 mm) of *Idiosepius pygmaeus* were caught in the small tributary of the Bangrong River (8° 02.945´N; 98° 25.030´E). The animals were trapped with dip-nets downstream during falling tide and flood tide. Work on foot during high tide was impossible because of the water depth. At high tide animals were also caught occasionally by boat, but the dense mangrove made this strategy difficult and ineffective.

RESULTS

Recognition of these pygmy squids in their natural habitat is difficult, although their unchangeable eye colour (blue-green with a white ring) simplified their localization. Moreover, during swimming *Idiosepius pygmaeus* produced a clear large bow wave on the surface, which allowed interception.

Males were differently distributed in the tributary (Fig. 1). In the upper part (Area 1), 19 males of *Idiosepius pygmaeus* were caught. Fewer males (total 6) were captured in the middle part (Area 2), while in the lower part (Area 3) and at the mouth of the tributary many specimens (total 21) were found. Females were only observed in the lower part (total 4) and at the mouth of the tributary (total 5), sometimes mating with males. It is unclear why males were only present in low numbers in the middle part of the tributary. Unsuitable food (shrimps and mysids) or different

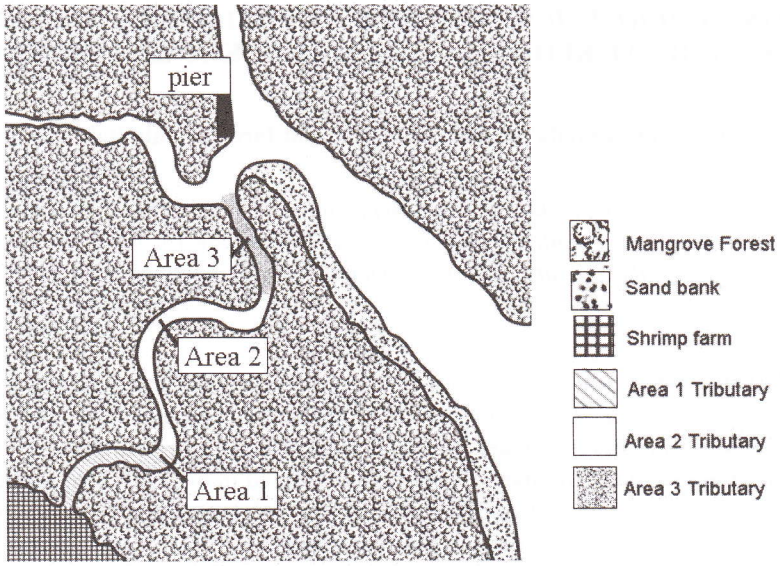

Figure 1. Klong Bangrong with study areas. Scale bar: 500 m

bank vegetation can be excluded as factors because all three sections of the tributary had obviously the same ecological conditions. Males and females retain the same pattern of distribution throughout the complete tidal cycle.

The animals were mainly caught near the mangrove belt (distance 10 cm to 1 m) in zones, characterised by bank vegetation. No specimens were collected at riverbanks with *Avicennia* sp. roots and sand banks. This type of habitat provides poor hiding-places. Most specimens were caught between looping aerial roots of *Rhizophora* sp. and under overhangs (distance to water surface 10–20 cm).

The current speed had no influence on the distribution of *Idiosepius pygmaeus*. Animals were caught both in strong currents (up to 10 km h^{-1}) and in almost stagnant areas. During cloudy or rainy periods and/or "cooler" outdoor temperatures (28–30° C) the animals presumably retreated to deeper water and were no longer visible in the muddy brown water (visibility: 10–20 cm). Short cloudy or rainy periods (up to 30 minutes) and sudden changes in weather had less influence on the catch. At higher temperatures (30–35°C), specimens were located near the surface and could easily be netted.

Idiosepius pygmaeus adapted their camouflage to prevailing light conditions. In bright sunlight they took on a light brown to ochre colour. In dark areas their colour changed to black. Only their eye colour did not change (see above). During changes from clear to shady areas and back, the animals adapted to prevailing light conditions within seconds.

DISCUSSION

Our study describes the occurrence of males and of females in the same distribution indicates that they remain in the Bangrong River throughout the complete tidal cycle. No specimens were caught outside the mouth of the river. Further investigations are planned to find out whether females spawn in mangroves and whether this habitat serves as a nursery area for juvenile stages or hatchlings.

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