

Recent records of lancelets from Singapore

Subjects: Lancelet, *Branchiostoma belcheri* (Cephalochordata: Leptocardii: Branchiostomidae), Fig. 1;
Lancelet, *Epigonichthys cultellus* (Cephalochordata: Leptocardii: Branchiostomidae), Figs. 2 & 3.

Subjects identified by: Lee Yen-ling & Zhao Wan Ting.

Location, date and time: Singapore Strait

Branchiostoma belcheri – on two occasions:

1. Between Pulau Semakau and Pulau Jong; obtained by dredge, starting at 1°12.543'N 103°47.241'E, ending at 1°12.416'N 103°47.303'E, from approximate depth of 16.5 m; 28 August 2012; 0946 to 0951 hrs. See Fig. 1.
2. West of Tuas; obtained by Van Veen Grab Sampler from approximate depth of 6.3m; 4 August 2016; 1433 hrs. Specimen not illustrated.

Epigonichthys cultellus - Selat Tanjong Hakim between Sisters Islands and the southwest of Saint John's Island, on two sampling occasions:

1. Obtained by dredge, starting at 1°12.716'N 103°50.731'E, ending at 1°12.716'N 103°50.731'E, from depth of approximately 33 m; 18 April 2016; 1005 to 1007 hrs. See Fig. 2.
2. Obtained by Ponar grab, at 1°12.694'N 103°50.542'E, from around 32 m depth; 27 May 2016; 0934 hrs. See Fig. 3.

Habitat: Marine. Adults of both species were found on the substrate with coarse sand, broken shells and low silt content, at depths of under 40 m.

Observers: Contributors.

Observations: Two examples each of *Branchiostoma belcheri* and of *Epigonichthys cultellus* were collected. The animals were obtained by dredge and Ponar grab, and Van Veen Grab Sampler from the substrate during subtidal surveys at various localities in the Singapore Strait. Only the second *B. belcheri* individual was still alive upon collection. It was observed to have a light brown body and a complete row of white gonads. For most of the time, it remained motionless at the bottom of a sample jar, and occasionally swimming upwards with rapid lateral undulations before settling down again. For the other specimens that were already dead upon collection, we have observed that they were colourless and transparent, and most of the gonads were missing.

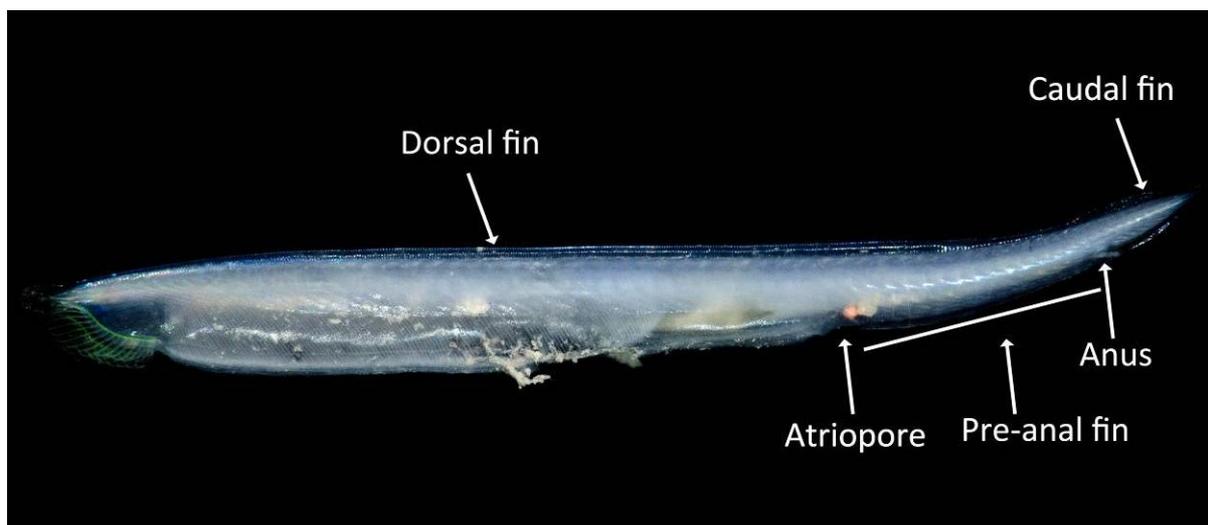


Fig. 1. Individual 1 of *Branchiostoma belcheri* before preservation with parts of body labelled. Head points to the left. Photograph by Rene Ong



Fig. 2. Lateral view of Individual 1 of *Epigonichtys cultellus* before preservation. Head points to the left. Photograph by Lee Yen-Ling

Meristic and descriptive characters of the four specimens are shown below. Characters of *Branchiostoma malayanum* originally described from Singapore (Webb, 1956) are listed for comparison:

Character	<i>B. belcheri</i> Individual 1 Fig. 1	<i>B. belcheri</i> Individual 2	<i>E. cultellus</i> Individual 1 Fig. 2	<i>E. cultellus</i> Individual 2 Fig. 3	<i>B. malayanum</i>
Total length	23 mm	34 mm	11 mm	23 mm	42-45 mm
Length of postatrioporal region versus preatrioporal region	0.46	0.38	0.44	0.33	0.53-0.60
Body depth in mid-atrial region against height of dorsal fin	6.8x	8x	12x	7.5x	10x
Height versus breadth of tallest dorsal fin chambers	3x	4x	4x	4.5x	2x
Number of dorsal fin chambers	339	305	217	252	191-194
Number of preanal fin chambers	78	85	16	19	49-55
Caudal fin	Top fin inflated beginning at anus and continues along 8 myotomes; bottom fin much less inflated.	Top fin more inflated than bottom fin.	Bottom fin most inflated slightly anterior to anus; top fin less inflated.	Bottom fin most inflated slightly anterior to anus; top fin less inflated.	Bottom fin most inflated slightly anterior to anus; top fin less inflated. **
Number of myotomes anterior to atriopore	38	36	30	30	28-29
Number of myotomes between atriopore and anus	15	16	10	10	15-16
Number of myotomes posterior to anus	10	16	9	8	8
Total myotomes	63	68	49	48	51-52

** Based on illustration in Webb, 1956.



Fig. 3. Lateral view of Individual 2 of *Epigonichthys cultellus* before preservation. Head points to the right. Note the presence of some segmented gonads. Photograph by Rene Ong

Remarks: Lancelets are fish-like animals that have no true skeleton. They filter-feed from the water column and tend to conceal themselves in the substrate, half-buried in the sediment (Zimmer, 2000). Although they are not easy to spot, lancelets have been harvested commercially as food for humans elsewhere (Boschung and Shaw, 1988). Two species are previously known from Singapore: *Branchiostoma belcheri* (Gray) and *Branchiostoma malayanum* Webb.

Branchiostoma belcheri was recorded from Singapore near the old Singapore Harbour (Bedford, 1900). The second and last record was from Bedok in 1953 (Webb, 1956). It was suspected to be locally extinct following reclamation threats to its intertidal sandy habitat (Ng & Wee, 1994).

Branchiostoma malayanum was originally described from Singapore by Webb (1956), but has not been found in local waters since then. It is difficult to determine if the species is extinct locally, as it may have been missed in surveys due to its small and translucent appearance, and possible seasonality in abundance (Bedford, 1990; Webb, 1956).

Epigonichthys cultellus Peters, an Indo-west pacific species, is herein reported as a new record for Singapore. The genus *Epigonichthys* is recognised by the presence of a single row of gonads to the right of the chorda and its metapleural folds being confluent with the anterior end of the caudal fin. Members of the genus *Branchiostoma* have gonads on both sides of the chorda, and a clean termination of the folds immediately posterior to the atriopore (Poss & Boschung, 1996).

References:

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