

Sound production mechanism in the boxfish *Ostracion meleagris* and *Ostracion cubicus*

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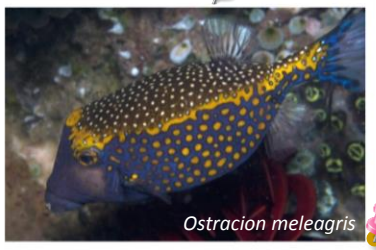
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Boxfish make spawning sounds, « bumps » and « buzz » (Lobel 1996)!

Aim: Description of new sounds and morphology to infer the sonic mechanism.

How? Fish were held by hand and recorded in a tank, specimens were dissected and a histological study was made on sound-producing muscles.

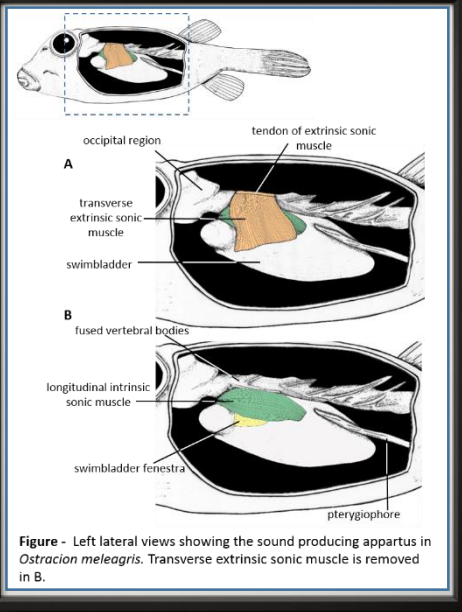


Figure - Left lateral views showing the sound producing apparatus in *Ostracion meleagris*. Transverse extrinsic sonic muscle is removed in B.

10 sounds /fish	Hum N _{fish} = 27	Clock N _{fish} = 23	Hum N _{fish} = 5	Clock N _{fish} = 23
Call duration (s)	46 ± 17		40 ± 8	56 ± 8
Dom frequency (Hz)	146 ± 5	172 ± 5	152 ± 4	189 ± 4
Nbr of Pulses	661 ± 274		425 ± 142	5 ± 1
Pulse period (ms)	65 ± 10	66 ± 11	83 ± 15	
Pulse duration (ms)		45 ± 4		8 ± 2

Calls consist of hums interspersed with irregular clock sounds that had a ten times greater amplitude.

Muscles covering the SWB are fast-contracting muscles

No relationship between fish size and acoustic characteristics

An extrinsic vertical muscle attaches to the vertebral column and the swimbladder. Perpendicularly and below this muscle, a longitudinal intrinsic muscle covers the swimbladder. We suggest that hums and clocks are produced by separate muscles. These results underline the array of messages these fish can produce.

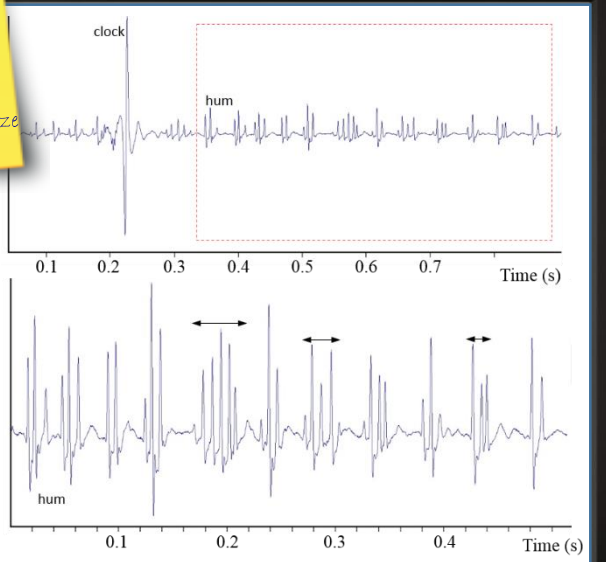


Figure - Oscillograms showing the hums and the clocks at different time scales in *Ostracion meleagris*.

Lobel PS (1996). Spawning sound of the trunkfish, *Ostracion meleagris* (Ostraciidae). Biol Bull 191:308-309.