

Буккальные паразиты морских рыб



Алёшина Н.М.

*Не каждому дается шанс стать в
этой жизни паразитом.*

Михаил Мамчич

Изоподы – паразиты рыб



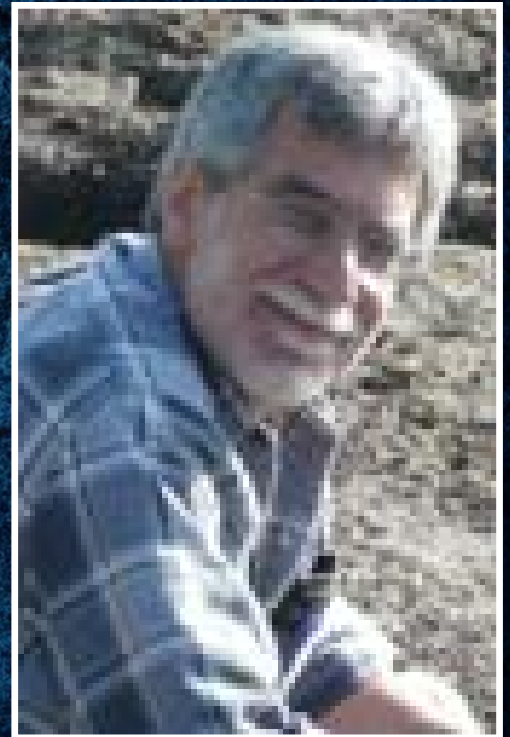
Ученые — исследователи изопод



William Elford Leach



Otto Fabricius



Richard C. Brusca

Филогения и систематика

Isopoda



Cymothoida



Oniscidea

Valvifera



Филогения и систематика



Limnoriidea

Isopoda



Phreatoicidea



Asellota

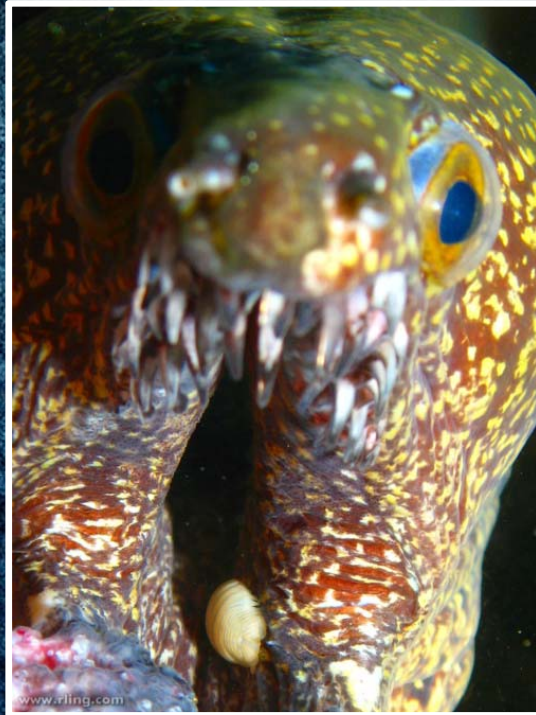


Sphaeromatidea

Филогения и систематика



Anilocra



Lironeca(livoneca)



Ceratothoa



Cymothoa



Nerocila

Локация паразита



ХОЗЯИН

Table 1. Relationship of distribution (given in numbers of biogeographic provinces inhabited) to numbers of host fish species

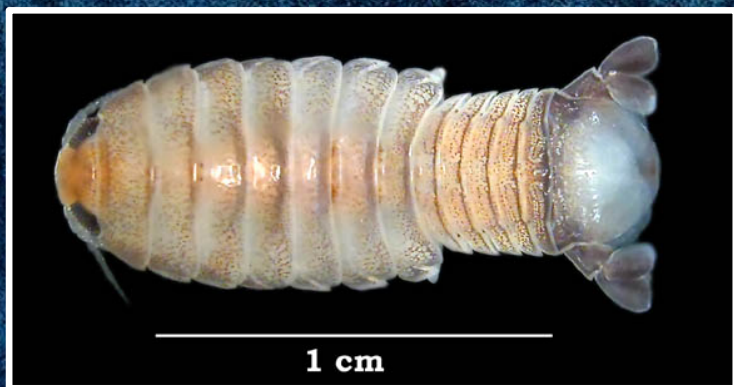
Species	No. of biogeographic provinces inhabited	No. of host species utilized
<i>Ceratothoa gaudichaudii</i>	6	11
<i>Lironeca vulgaris</i>	5	30
<i>Nerocila acuminata</i> (E. Pacific only)	4	40
<i>Lironeca convexa</i>	4	3
<i>Lironeca californica</i>	3	7
<i>Cymochoa exigua</i>	3	6
<i>Lironeca bowmani</i>	3	1
<i>Ceratothoa gilberti</i>	1	2
<i>Lironeca menzeisi</i>	1	1

По R. C. Brusca

ХОЗЯИН



Nerocila acuminata



lironeca vulgaris



Nerocila armata

Размножение. Циклы развития.



Male (left) and female (right)
of *R. verrucosa*



Ventral view of matured female



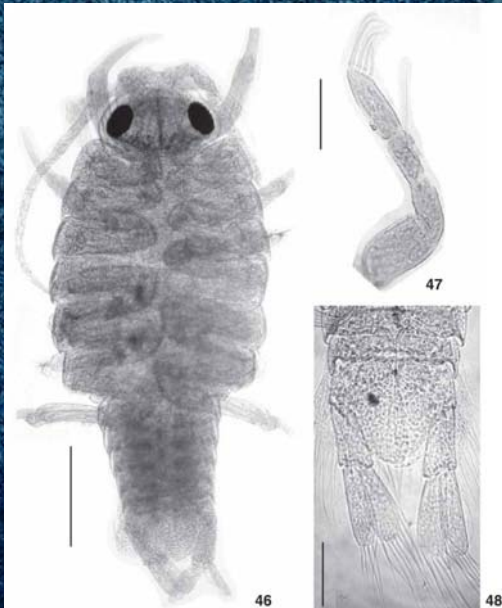
Eggs, larvae, adult male (smaller) and
adult female



Adult ovigerous females (three on the left
side) and ready to release larvae (far right).

of *Ceratothoa eostroides*

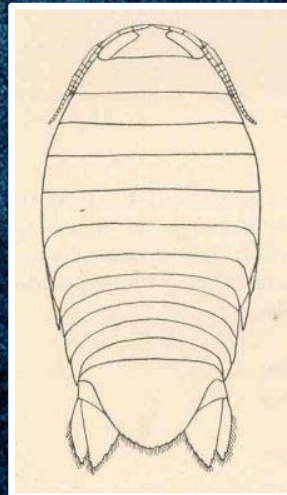
Размножение. Циклы развития.



Cymothoa spinipalpa sp. nov., manca stage: (46) entire, dorsal (47) mandibular palp; (48) pleotelson and uropods.



Cirolanid



Aegiidae



Cymothoa spinipalpa developmental stages. (6) Eggs. (7) Early developed manca. (8,9) Manca stage showing Pleotelson (p) and Uropod (u).

Кровь



Figure 1. Mouth parts of *Cymothoa indica*.



Figure 10. Mouth parts of *Joryma brachysoma*.



Figure 2. *Sphyaena jello* on *Cymothoa indica*.

Species	Host
<i>Cymothoa indica</i> (Cymothoidae)	Нет специфичности
<i>Joryma brachysoma</i> (Cymothoidae)	Алозы (Сельдевые)

Слизь



Figure 9. Mouth parts of *Ryukyua circularis*.



Figure 4. *Strongylura leiura* on *M. renardi*.



Figure 11. Mouth parts of *Joryma hilsae*.

Species

Host

Ryukyua circularis

Сардины
(Сельдевые)

Joryma hilsae
(Cymothoidae)

Алозы
(Сельдевые)

Monothoa renardi

Мыскулы



Figure 8. Mouth parts of *Nerocila sundaica*.

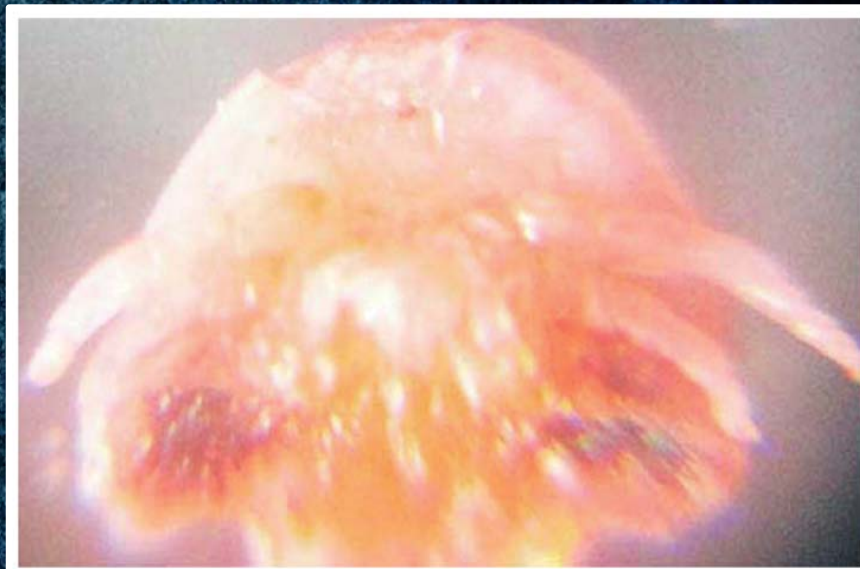


Figure 7. Mouth parts of *Nerocila phaeopleura*.

Species

Nerocila phaeopleura

Nerocila sundaica

Host

Дорабы, Сельдевые

Ротовая полость



Rhexanella verrucosa



Ceratothoa oestroides



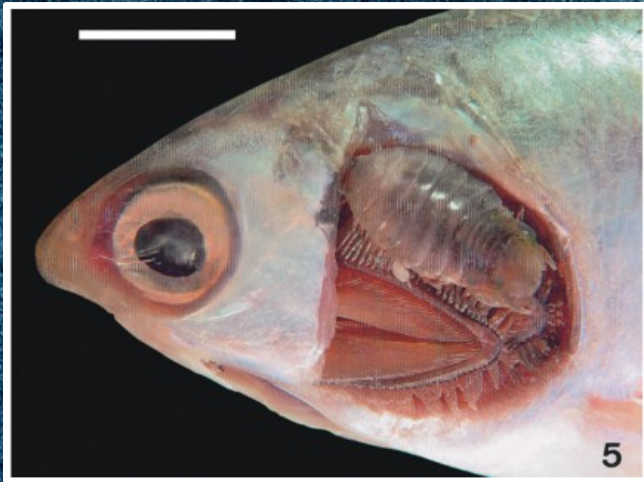
Lobothorax typus



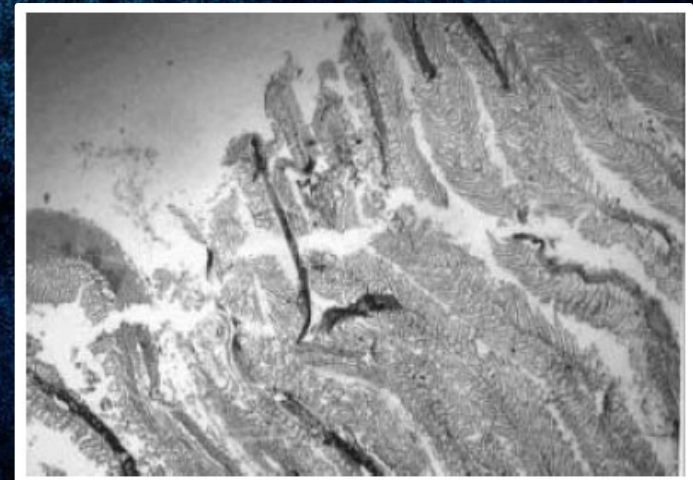
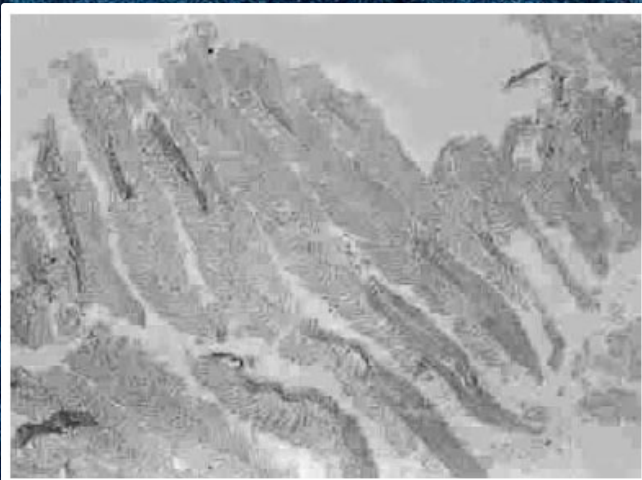
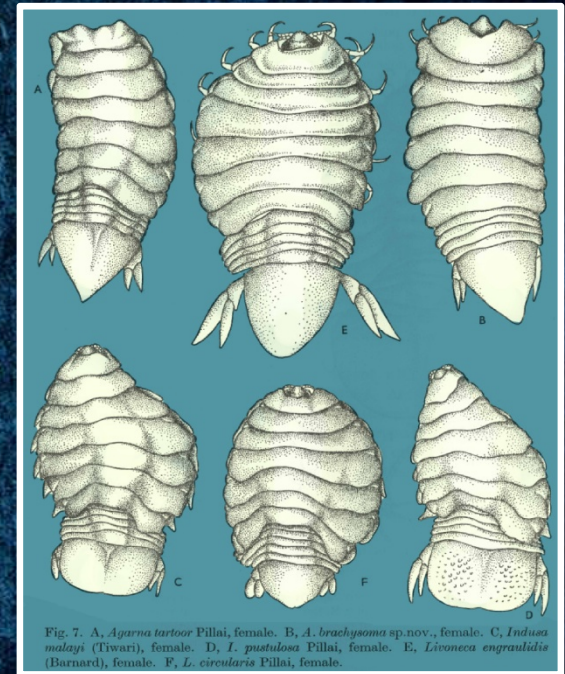
Ceratothoa imbricata



Жабры



Lironeca desterroensis



Yoryma brachysoma

Поверхность тела



Anilocra gigantea



Anilocra capensis



Livoneca sp.

Патологии, вызываемые личинками



Ceratomyxa oestroides

Cymothoa exigua

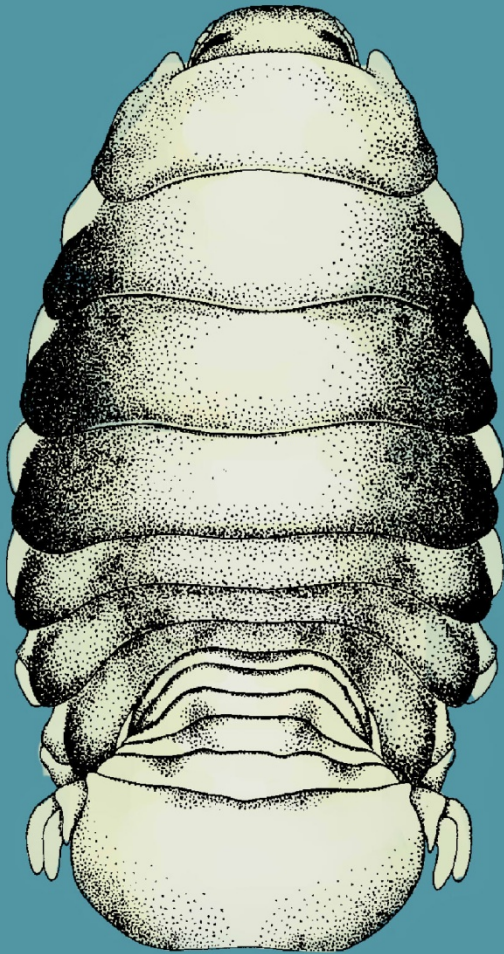
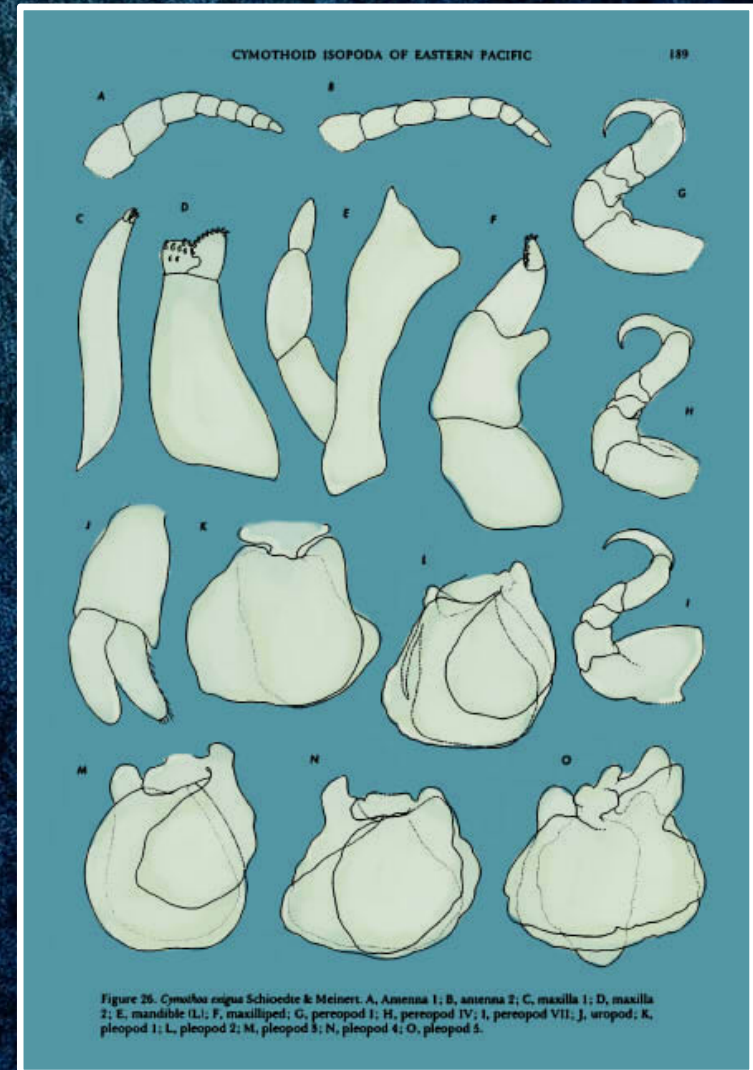


Figure 25. *Cymothoa exigua* Schioedte & Meinert (Female).

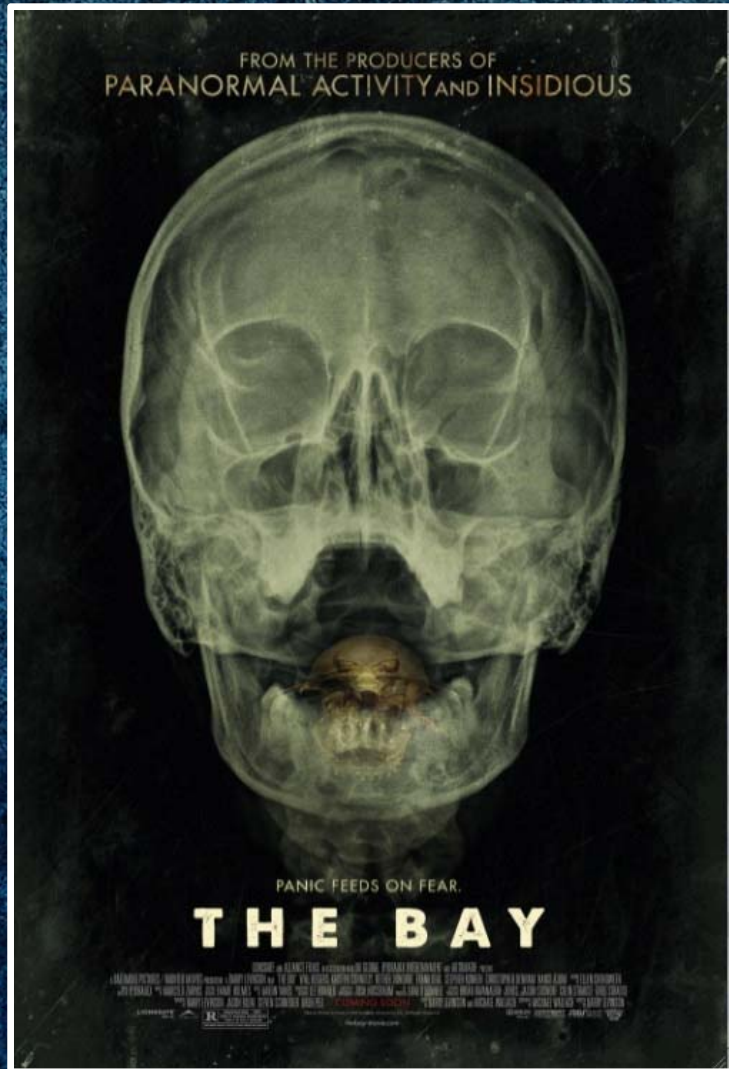


Cymothoa exigua



Красное море, побережье Йемена

Cymothoa exigua



Cymothoa exigua

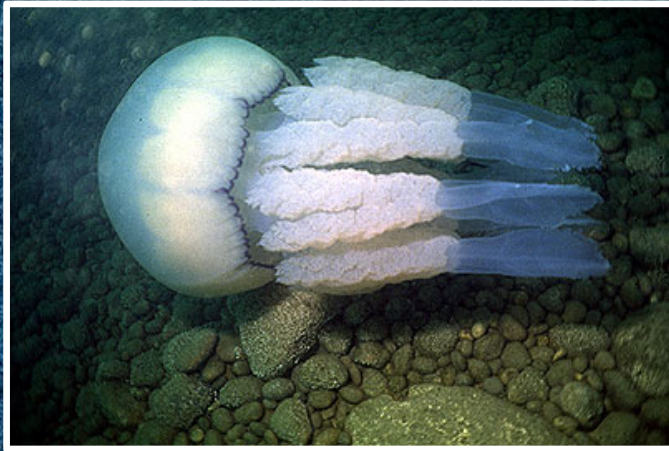


*«It even has a personality, I've
Nicknamed him Cleetis P.
However, instead of parasiti-
-ing my life. It up-graded me.*

*Replaced that uncouth tongue
Somewhat enlightened me.
Above the soloists - no longer
"I" or "me"; but "us" and "we"...»*

Dev · May 11, 2012

Необычные симбиозы изопод



Rhizostoma



Palaemonidae

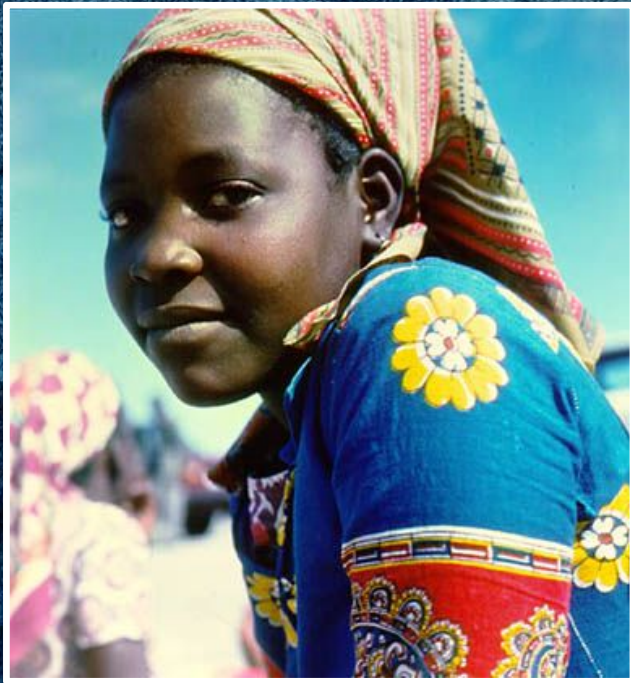


Amphibians



Chondrichthyans

Сумоthoidae и человек

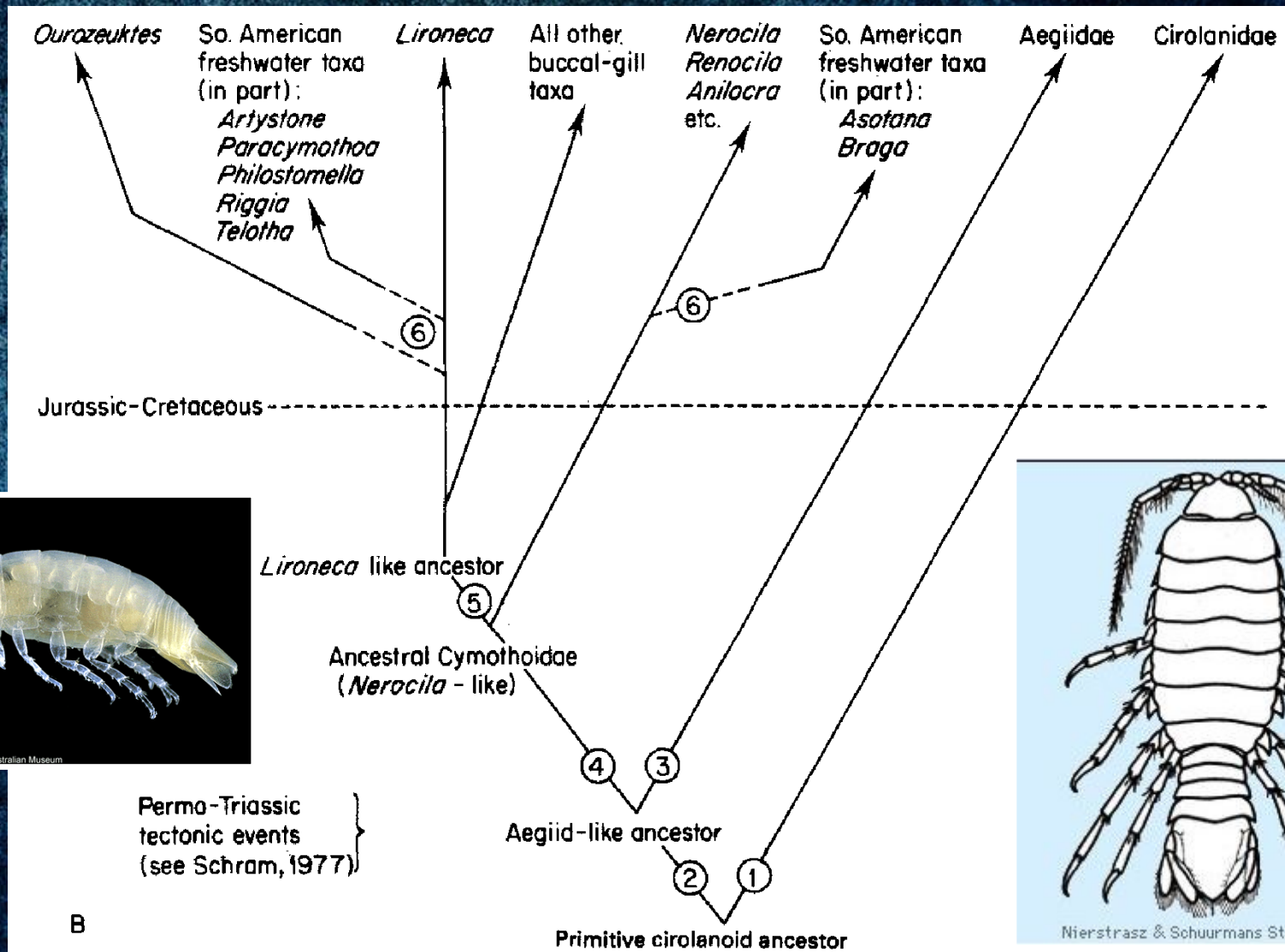


Nerocila orbignyi



Река Конго

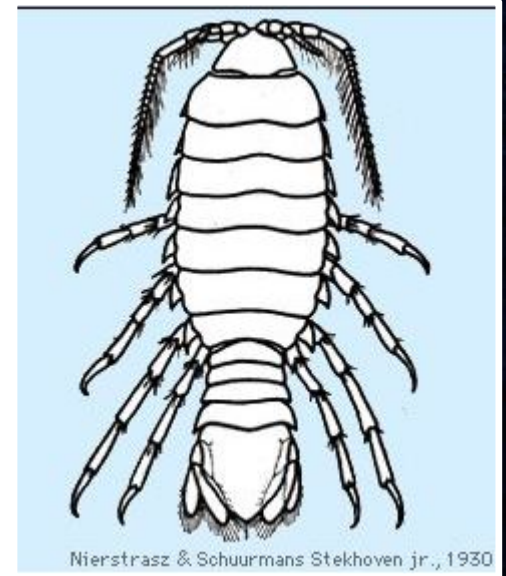
Cymothoidae



Cirolanidae



Photo: R.T. Srinathopon © Australian Museum



Nierstrasz & Schuurmans Stekhoven jr., 1930

Филогения семейства по R. C. Brusca

Список литературы

1. «Study of the functional morphology of mouthparts of parasitic isopods of marine fishes»

Ganapathy Rameshkumar*, Samuthirapandian Ravichandran, Sartaj Ahmad Allayie
Centre of Advanced Study in Marine Biology, Faculty of Marine Sciences, Annamalai University, Parangipettai-608502, Tamil Nadu, India

2. «A monograph on the Isopoda Cymothoidae (Crustacea) of the eastern Pacific»
RICHARD C. BRUSCA .

3. «Parasitic Fauna of Fishes »

Dr. N. Veerappan and Mrs. A. Selvamathi

Centre of Advanced Study in Marine Biology Annamalai University

4. «Effect of isopod parasite, Cymothoa indica on gobiid fish, Oxyurichthys microlepis from Parangipettai coastal waters (South-east coast of India)»

V. Ravi and M. Rajkumar*1

Centre of Advanced Study in Marine Biology, Annamalai University, Parangipettai–608 502, India

5. «Review of the fish-parasitic genus Cymothoa Fabricius, 1793 (Isopoda, Cymothoidae, Crustacea) from the southwestern Indian Ocean, including a new species from South Africa»

KERRY A. HADFIELD, NIEL L. BRUCE & NICO J. SMIT

Спасибо за внимание!

