SOUTHERN CALIFORNIA ASSOCIATION OF MARINE INVERTEBRATE TAXONOMISTS

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A specimen of *Henricia* sp collected from an abandoned B'08 trawl station (CSD), 141m.

This Issue

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6 May 2024, B'23 Trawl Invertebrate Photo Voucher Verification

Attendance: Brent Haggin, Amber Von Tungeln, Don Cadien, Wayne Dosset (LACSD); Mary Wicksten (TAMU); Erin Oderlin, Greg Lyon, Jennifer Smolenski (CLAEMD); Maiko Kasuya, Andrew Davenport, Wendy Enright, Coulson Lantz, Adam Webb (CSD); Jim Mann (ABC); Ben Ferraro (OCSD).

UPCOMING MEETINGS

Visit the SCAMIT website at: www.scamit.org for the most current meetings announcements.

During the voucher review, it was noted that several specimens of *Doryteuthis opalescens* (S. S. Berry, 1911) continued to be labeled under the former name *Loligo opalescens* S.S. Berry, 1911. A photo voucher originally identified as *Adelogorgia phyllosclera* Bayer, 1958, was determined to be *Chromoplexaura marki* (Kükenthal, 1913). Specimens of *Henricia* were retained at genus level in accordance with a prior SCAMIT decision. However, members suggested revisiting Jewett et al 2015, Sea Stars of the Aleutian Islands, for potential clarification.

10 June 2024, Cnidarians, LACSD, Lead - Jennifer Smolenski

Attendance: Amber Von Tungeln, Don Cadien, Wayne Dosset, Brent Haggin, Karla Gutierrez Burgos (LACSD); Wendy Enright, Zoë Scott (CSD); Erin Oderlin, Danielle Ayala (CLAEMD); Ben Ferraro (OCSD); Mary Wicksten (TAMU); Megan Lilly (DCE).

SCAMIT business items included the cancellation of the July meeting, confirmation that mollusk FIDs will be hosted at OCSD in August, and a reminder for members to submit annual dues.

Jennifer presented Octocorallia Part I, focusing on Malacalcyonacea and recent systematic changes affecting the SLRC. Having assumed the role of cnidarian lead for the SLRC, her initial objective was to address updates from Edition 13 to 14 following McFadden (2022). However, B'23 trawls revealed issues with soft corals requiring taxonomic reconciliation.

The presentation reviewed the former Alcyonacea concept, octocoral diagnostic characters (including eightfold polyp symmetry), and major morphological forms such as sea fans, sea whips, encrusting species, blue corals, and sea pens. Taxonomic updates were outlined, including the elevation of Octocorallia to Class rank and the reassignment of Anthozoa to Subphylum. Changes at the Order and Family levels were also discussed. A glossary of terms from the Atlas was provided, followed by species-level slides with diagnostic notes and imagery.

Counting conventions were clarified, emphasizing that colonies—not individual polyps—should be enumerated. It was noted that some of Hochberg's provisional taxa remain unpublished and originate from handouts distributed at a 1978 cnidarian conference in Santa Barbara.

Jennifer proposed a potential synonymy between *Stolonifera* gen. 1 sp. B and *Cryptophyton jedsmithi* Williams, 2013, citing nearly identical descriptions. Don Cadien agreed to provide the original Hochberg handout to facilitate further investigation.

Subsequent discussion addressed diagnostic distinctions among gorgonians and plexaurids, followed by species-specific reviews. Beth Horvath requested that members collect physical samples of "red sea fans" whenever possible, as laboratory examination is required for definitive identification. Galls observed on *Eugorgia* and related taxa were attributed to burrowing parasitic barnacles.

Molecular evidence suggests that *Leptogorgia chilensis* Verrill, 1868, as reported from the northeastern Pacific is likely misidentified. Beth Horvath is actively working toward describing this taxon, which appears to represent an undescribed Southern California Bight endemic. Additional notes included Don Cadien's observation that *Muricea* species tolerate anthropogenic pollution and are often present in impacted habitats.

Further taxonomic issues were discussed, including SCAMIT records of *Heterogorgia tortuosa* Verrill, 1868**,** which do not represent that species, and the possibility that SCAMIT *Swiftia* specimens may instead belong to *Callistephanus*, pending sclerite examination. Ongoing communication between Jennifer Smolenski and Beth Horvath indicates that *Thesea* sp. B likely comprises two distinct taxa. Molecular analyses are planned to resolve whether one group represents *Thesea* and the other *Filigella* (Bayer, 1954). No consistent biogeographic or environmental pattern has yet been identified.

A major update was announced: *Thesea* sp. A (formerly applied by some members to *Heterogorgia tortuosa*) has been confirmed as *Eugorgia ljubenkovia* Horvath, 2019, based on material provided to Beth by John Ljubenkov. This change will be incorporated into Edition 15. If specimens labeled *Thesea* sp. A are located, the name will become a synonym of *E. ljubenkovia*. Otherwise, *Thesea* sp. A will be treated as *incertae sedis* and removed from the List. SCAMIT usage of *Heterogorgia tortuosa* will also be synonymized accordingly.

Following lunch, members reviewed identification and counting conventions for both trawl and infaunal samples. Fouling hydroids were discussed in detail. Don Cadien reiterated that hydroids lacking evidence of attachment to the benthos should not be counted, as most represent detached, drifting material. However, specimens attached to pebbles or small rocks may be considered part of the benthic community and counted.

12 August 2024, Mollusks B'23 FIDs, OCSD

Attendance: Amber Von Tungeln, Don Cadien, Wayne Dosset, Brent Haggin (LACSD); Ben Ferraro, Rose Cardoza, Rob Gamber (OCSD); Wendy Enright (CSD); Greg Lyon (CLAEMD); Alison Fisher (SFPUC); Mary Wicksten (TAMU); Megan Lilly (DCE); Amanda Martinez; Danielle Alvarez.

The meeting opened with Brent Haggin announcing the next WSM meeting in Portland, OR, November 2024, and reminding members to upload provisional species sheets to SCAMIT's provisional species database. Updates from the SLRC were noted, and the next SCAMIT meeting, scheduled for September 9, 2024, will focus on other phyla FIDs, led by Wendy Enright at OCSD.

Wendy shared highlights from the recent WSM in Pasadena, emphasizing saccoglossan heterobranchs, estuarine systems, and invasive land snails. She noted the next annual meeting will be a combo meeting with the WSM and the Mexican Malacological Society in April 2025. This meeting will include a First Nations guided field trip to an otherwise restricted island.

Publication Date: January 2026

Agency Updates:

- LACSD reported near-complete B'23 IDs, ready for re-identifications.
- CSD and DCE anticipate QC readiness by March 2025.
- CLAEMD is ahead of schedule, targeting October–November completion.

Taxonomic Discussion:

Aplacophora – *Aphelochaeta* IDs continue to follow SCAMIT publications, relying primarily on spicule morphology. Don Cadien noted that *Falcidens* is a growth stage of *Chaetoderma*, making radula analysis unnecessary. Juvenile spicule color and refraction differences were discussed, with Greg Lyon noting that patterns remain consistent despite color changes. Wendy raised concerns about distinguishing *C. longus* from *C. marinelli* in juveniles; Don confirmed *C. longus* remains valid. Preservation effects on body regionation were addressed; Don emphasized standardization in handling protocols.

Polyplacophora – Rare in Bight samples. Greg Lyon reported occasional *Leptochiton* in routine sampling. Don suggested additional finds could occur in Channel Island collections.

Gastropoda – Enumeration conventions were reviewed. Wendy raised a question about counting protocols. Don and Greg emphasized counting discrete individuals using anterior structures or opercula. Smooth *Odostomia* were left at sp., while sculptured species may be identified, cautiously, following Dall & Bartsch (1909). Pending revisions to *Turbonilla* and *Odostomia* genera will follow Pat LaFollette's ongoing work.

Nudibranchia – Trawl-collected specimens are generally easier to ID than benthic forms which have been subjected to screening and preservation. Greg reported *Cerberilla mosslandica* McDonald & Nybakken 1975, with radulae matching references. Radula preparation and bleach handling were reviewed, with Don emphasizing careful monitoring rather than prolonged soaking.

Ovulidae – Mary Wicksten asked about aperture width and mantle color. Don explained these traits are polymorphic and host-dependent, recommending literature guidance. Tony noted *Simnia barbarensis* (Dall, 1892), is typically associated with the sea pen *Acanthoptilum*, while Greg observed specimens on *Thesea*, potentially *loebekkiana*, and was asked to provide live photographs.

Bivalvia & Scaphopoda – Juvenile hinge morphology remains stable, and bleach use should be monitored. Wendy suggested drying scaphopod shells to visualize sculpturing. Don and Tony confirmed optional radula extraction is useful. References included Pilsbry & Sharp, 1897 and SCAMIT Toolbox guidance.

Cyclocardia ventricosa/gouldii complex – Juveniles are reported as subfamily sp. complex, with size thresholds to be defined in Edition 15.

Cephalopoda – No notable changes were reported.

Edition 15 Implications

- *Falcidens* → *Chaetoderma* confirmed.
- *Chaetoderma longus* retained as valid.
- Ontogenetic variation and preservation effects for Aplacophora, Gastropoda, Nudibranchia, Bivalvia, and Scaphopoda documented.
- Provisional species tracked but not yet formally added to the SCAMIT list.
- Cyclocardia and Ovulidae reporting guidelines incorporated.
- Methodological guidance included for radula prep, bleach handling, and spicule/hinge examination.

Follow-Up Assignments:

- **Tony:** Track provisional species and coordinate database submissions.
- **Greg:** Provide live photos of potential *Simnia loebekkiana* on *Thesea*.
- **Don:** Provide literature citations for Ovulidae and clarification of ontogenetic effects.

Please see the attached AI generated table summarizing the mollusca taxonomy changes and notes for Edition 15.

ARTHROPOD PERSONALS PART 6 - BY DB CADIEN

The next installment of Don's Arthropod personals is attached. Enjoy!

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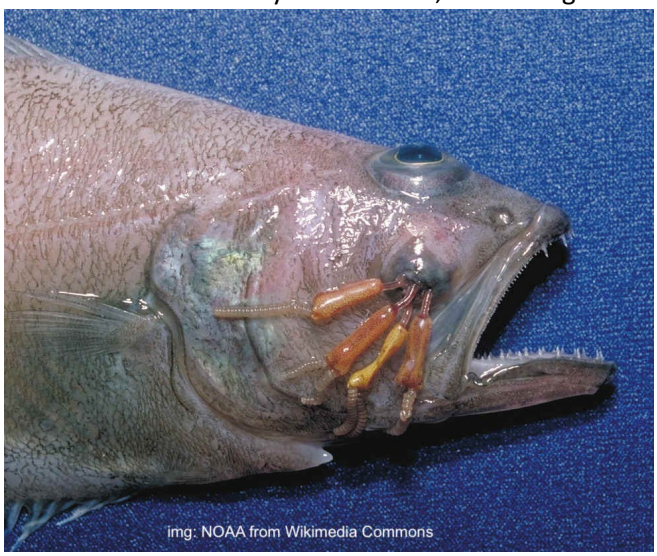
SCAMIT Edition 15 – Mollusks B’23 FIDs

Taxonomic Changes Summary (Rapid Reference)

Taxon / Group	Change Type	Action / Note	Responsible / Source
Falcidens → *Chaetoderma*	Taxonomic clarification	Treat as growth stage; radula examination unnecessary	Don Cadien
Chaetoderma longus	Status confirmation	Retain as valid species; no synonymy recognized at present	Don Cadien
Aplacophora (general)	ID guidance	Spicule patterns consistent; colors vary with age; juveniles must be interpreted cautiously	Wendy Enright / Don Cadien
Polyplacophora	Editorial note	Rare in Bight samples; more common in Channel Islands	Wendy Enright / Greg Lyon / Don Cadien
Gastropoda (general)	Enumeration guidance	Count based on anterior/operculum; avoid double-counting	Wendy Enright / Don Cadien / Greg Lyon
Odostomia (smooth forms)	Interim ID	Leave at *sp.*; do not formalize personal provisionals	Wendy Enright / Tony
Odostomia / Turbonilla (genera)	Research pending	Global genus-level revisions deferred until Pat LaFollette completes work	Don Cadien / Tony
Nudibranchia (trawl)	Method guidance	Radula extraction ≥4 mm; monitor bleach; rinse in water then ethanol	Greg Lyon / Wendy Enright / Don Cadien
Bivalvia (juveniles)	Method guidance	Hinge morphology stable; brief bleach use only; rinse immediately	Tony
Scaphopoda (Dentalids)	Method guidance	Dry shells to aid sculpturing visibility; radula extraction optional; references: Pilsbry & Sharp, SCAMIT Toolbox	Wendy Enright / Don Cadien / Megan Lilly
Ovulidae	Research pending	Aperture width & mantle color polymorphic; host-dependent; await monograph	Mary Wicksten / Don Cadien / Tony
Cyclocardia ventricosa/gouldii complex	Editorial policy	Use *subfamily sp. complex* for juveniles; size threshold TBD; add note in Ed15	Greg Lyon / Tony

Arthropod Personals – Seeking Sugar Daddy!
Pt. 6 – Do You Have Eyes for Me? dbcadien, WWRF, Los Angeles County Sanitation Districts 22 December 23

Arthropod parasites are often heavily physically modified for a single host. Copepods, in particular, seem to be able to twist themselves (evolutionarily speaking) into myriad forms to pursue specific hosts. We routinely encounter a case of this extreme body modification in the copepod parasite of the eyes of the Pacific Sanddab, *Citharichthys sordidus*. This symbiont is not looking for a partner, but for a victim: someone to take care of them at whatever cost. The copepod is not uncommon in POTW trawl catches (Hogue and Paris 2002), affecting up to almost 2% of the host species caught off Palos Verdes (Perkins and Gartman 1997). While finding the host specificity of the parasite very strong, these authors also reported misplaced specimens of the copepod in Longfin Sanddab, Pink Seaperch, and Bay Goby. Unverified records of this copepod on California Tonguefish, Gulf Sanddab, and California Skate also exist. Outside the southern California Bight area other species may also be occasionally affected (Blaylock et al 2005, Cañete et al 2013)). Unlike many symbiotic relationships with other organisms, those between this parasitic copepod and its host are profoundly one-sided: all benefit accrues to the parasite and nothing but damage and possibly death to the host. In most cases the presence of the parasite is evident on the host: with the egg-sacks of the mature female copepod protruding from the host eye. The parasite itself remains embedded in the eye of the host, continuing to feed on eye tissues and fluids.



There are other variants of the usual situation: one eye with one parasite, including one parasite in each eye, several parasites in one or both eyes, or empty host eye-sockets from which the eye has presumably been lost due to parasitic infection (all illustrated by Perkins and Gartman 1997). The fish in the photo above has four parasites in one eye, which is becoming necrotic and ready to be lost by the host. Eyes are at risk for other attacks as well. Although the commensal shown below is only on the host eye, and is not causing internal damage to the structure, having a sizeable leech attached to your eyeball is not likely to appeal to any bottom fish. As many basal suckers in Piscicolid leeches are equipped with hooks, the illustrated instance is probably also causing damage to the eye of the unwilling host fish.

Flatfish with marine leech attached to eyeball

First we must determine what the current valid status is of this parasitic copepod. Different references place it in different families. WoRMS places the genus in the family Penellidae, with the subfamily Laernaeocerinae treated as a synonym of Penellidae (WoRMS 2023). The genus *Cardiodectes* is also placed in Penellidae.

How does the copepod parasite get into the eye in the first place? The copepod species was established based on the morphology of the adult female, and prior to Kabata (1969) the developmental stages of the parasite were not known. He described six larval stages, and the first is what invades the eye. How the parasite finds the host is as yet undemonstrated, but the Stage 1 larva, under 1mm long, attacks and punctures the surface of the eye, entering though the cornea (Kabata 1969). Once within the eye itself it rapidly grows through the remaining stages. As the actual copepodid stages of *Phrixocephalus* are not known, they are assumed to be similar to those exhibited by the related *Cardiodectes* (see Ho 1966). He demonstrated five larval stages: copepodid, chalimus larva I, chalimus larva II, chalimus larvae III, and free-swimming adult form. In the *Cardiodectes* examined all of the pre-adult stages are associated with an intermediate host pelagic snail, *Janthina*. If *Phrixocephalus* also develops in this fashion, the intermediate host is unknown. In any case, the copepodid and chalimus stages are not likely to be associated with the host fish, and the eye entry to be performed by the females of the free-swimming adult (Kabata's stage 1). Sexuality is first expressed in the Chalimus II larva, with males and females developing differently from that point. Free-swimming adult females are longer and more slender than their male counterparts (Ho 1966). Huys (2014) illustrates the complete developmental schema for a different *Cardiodectes*, a fish ectoparasite whose intermediate host is a pteropod (see following figure).

Once inside the host eye, the female begins to feed on the tissues and fluids it contains, growing rapidly and using the nutrients supplied by the fish to generate eggs. The egg strings are deployed through the entry wound, and dangle from the exterior of the eye (see photo above). There are a number of different species of *Phrixocephalus* known from different portions of the world (WoRMS 2023), but only *P. cincinnatus* is known from the West Coast of North America. Wilson (1908), in describing the new genus, listed *Citharichthys* as the nominal host (as did Perkins and Gartman 1997). Later both Kabata (1969) and Blaylock et al 2005 treated the arrow-tooth flounder as the definitive host. Both seem to serve as primary hosts: *Citharichthys* in the south and *Atherestes* in the north.

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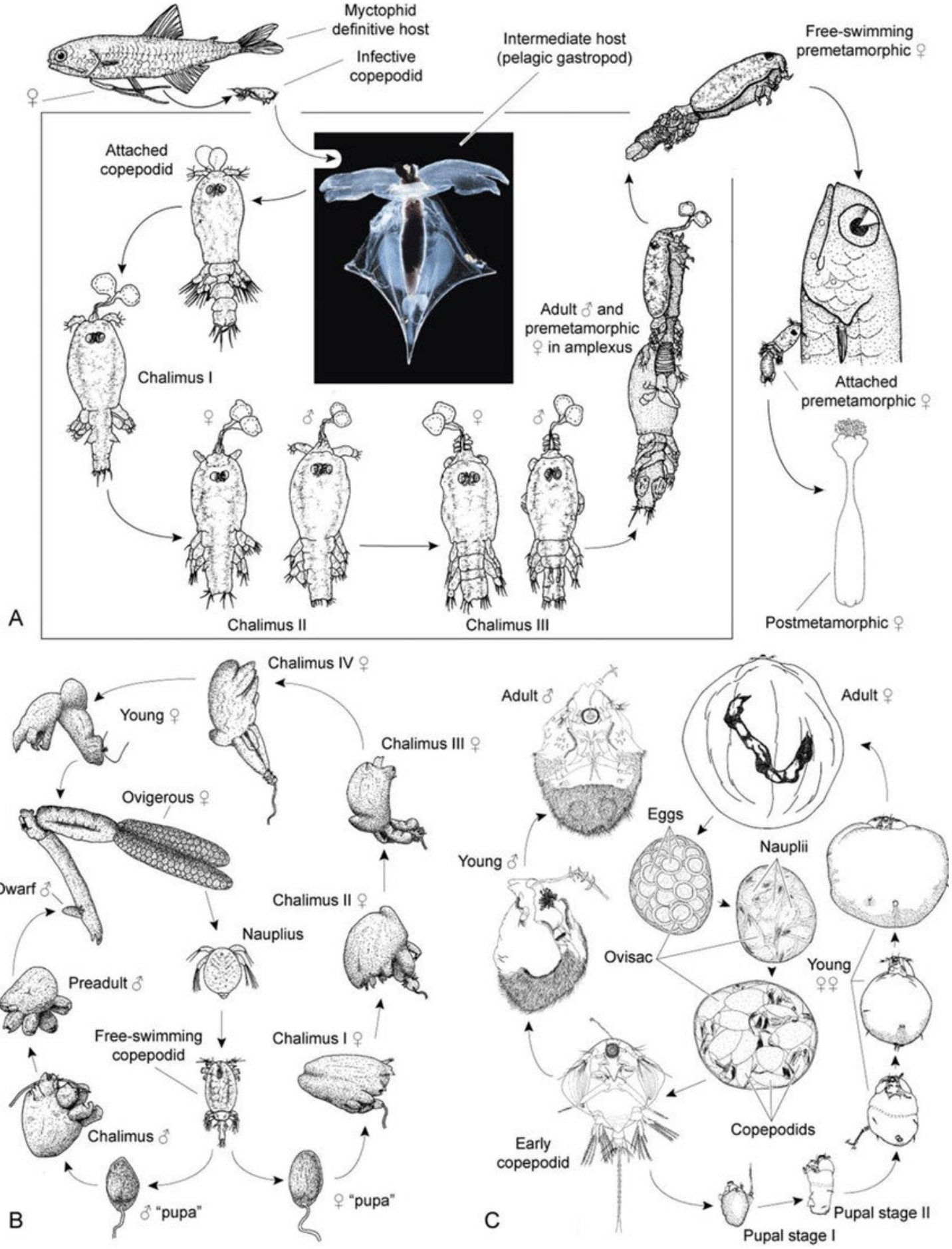
Myctophid definitive host
Infective copepodid
♀
Intermediate host (pelagic gastropod)
Free-swimming premetamorphic ♀
Attached copepodid
Chalimus I
Adult ♂ and premetamorphic ♀ in amplexus
Attached premetamorphic ♀
Chalimus II
Chalimus III
Postmetamorphic ♀
A
Chalimus IV ♀
Young ♀
Chalimus III ♀
Ovigerous ♀
Dwarf ♂
Chalimus II ♀
Nauplius
Preadult ♂
Free-swimming copepodid
Chalimus I ♀
Chalimus ♂
♂ "pupa"
♀ "pupa"
B
Adult ♂
Adult ♀
Eggs
Nauplii
Young ♂
Ovisac
Young ♀♀
Copepodids
Early copepodid
Pupal stage II
Pupal stage I
C