

Amphipoda of the Northeast Pacific (Equator to Aleutians, intertidal to abyss): IV.
Cheluroidea - a review. Donald B. Cadien, LACSD
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Preface

The purpose of this review is to bring together information on all of the species reported to occur in the NEP fauna. It is not a straight path to the identification of your unknown animal. It is a resource guide to assist you in making the required identification in full knowledge of what the possibilities are. Never forget that there are other, as yet unreported species from the coverage area; some described, some new to science. The natural world is wonderfully diverse, and we have just scratched its surface.

Introduction to the Cheluroidea

The cheluroids are a small superfamily, containing only the Family Cheluridae with three genera and a few species. They are highly specialized ecologically. The cladistic analysis of Myers and Lowry (2003) found that this superfamily and the Chevalioidea could be united without increasing the tree length. They chose to keep the two separate, however, based on the ecological differences between them.

Diagnosis of the Cheluroidea

“Head lateral cephalic lobe weakly extended; eye situated proximal to lobe; anteroventral margin weakly recessed and weakly excavate. Mandible palp 3-articulate, article 3 asymmetrical, distally rounded, with setae extending along most of posteriodistal margin. Labium outer plate weakly excavate. Gnathopod 1 not enlarged either in males or females; coxa 1 as large as coxa 2. Gnathopod 2 merus not enlarged. Pereopod 5 carpus small, lunate. Pereopods 5-7 without accessory spines on anterior margin. Urosomite 1-3 coalesced. Uropods 1 and 2 without dense array of robust setae. Uropod 3 outer ramus with vestigial apical setae. Telson without hooks or denticles.” (Myers and Lowry 2003).

Ecological Commentary



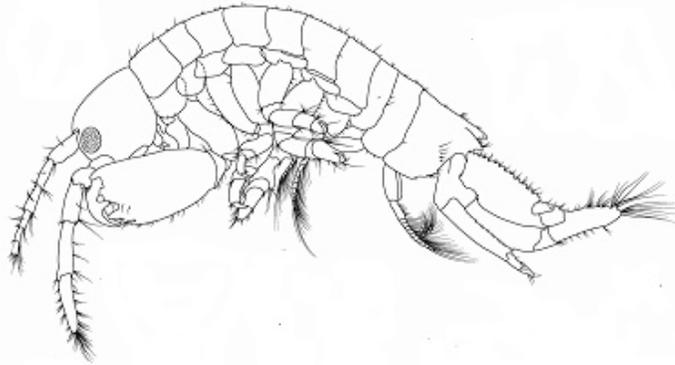
Male *Chelura terebrans*; females would have much shorter uropod 3. A smaller specimen, of unknown sex, visible at the lower right (from nature22.com/estran22)

Cheluroids are wood borers. They not only use these borings as refuges, but also consume the wood that they rasp free from the substrate. They, along with the isopod gribbles (Limnoriidae) are considered pests in harbors, and their activities cause considerable damage to wooden pilings, docks, and other immersed wooden structure (J. L. Barnard 1955, Ray 1959). The general biology of *Chelura terebrans* was summarized by Kühne & Becker (1964).

NEP Cheluroidea from McLaughlin et al. (2005) * = Taxa on SCAMIT Ed. 9 list (Cadien & Lovell 2014). Valid taxa are **bolded**, synonyms not.

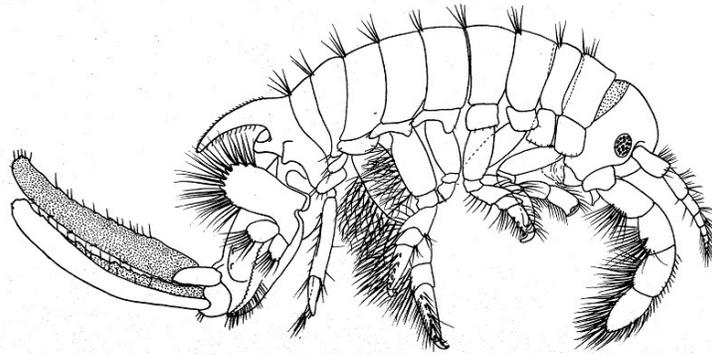
Family Cheluridae

***Chelura terebrans** Phillipi 1839 – Mediterranean, North East and West Atlantic, NEP, West Africa, Australia, and New Zealand; intertidal to shallow subtidal, in floating or submerged wood



Tropichelura insulae, known from the central and western Pacific, but not from the Northeast Pacific (from Coleman & Renz 2009)

Family Cheluridae – Of the three genera of Cheluridae, *Chelura*, *Tropichelura*, and *Nippochelura* (J. L. Barnard 1959), only *Chelura* is known to occur in the NEP (J. L. Barnard 1950). *Nippochelura* is known from the NWP, and *Tropichelura* is known from the world tropics, but not yet from the Pacific coast of Central America. Both *Chelura* and *Nippochelura* are monotypic genera, while *Tropichelura* has two member species (J. L. Barnard and Karaman 1991). Descriptions of *Chelura terebrans* are available both in J. L. Barnard (1950, 1959), and in J. L. Barnard and Karaman (1991), among others. The species was apparently not present in Californian waters during the borer investigations of 1921 (J. L. Barnard 1950) and was apparently an anthropogenic introduction to our waters subsequent to the 1920s. *Tropichelura gomezi*, which is widely distributed in the Caribbean/Gulf of Mexico area (Ortiz 1976, Thomas 1979, Diaz & Martin 2003), may eventually transit the Isthmus of Panama, and occur on the Pacific end of the Panama Canal.



Male *Chehura terebrans* (from J. L. Barnard 1959)

Description: “**Head** free, not coalesced with peraeonite 1; exposed; as long as deep, or deeper than long; rostrum present or absent, short; eyes present, well developed or obsolescent; not coalesced; 1 pair; not bulging. **Body cylindrical, or subcylindrical; cuticle smooth.**

Antenna 1 shorter than antenna 2; peduncle with sparse robust and slender setae; 3-articulate; peduncular article 1 subequal to article 2, or longer than article 2; antenna 1 article 2 subequal to article 3, or longer than article 3; peduncular articles 1-2 not geniculate; accessory flagellum present, or absent; antenna 1 callynophore absent. Antenna 2 present; medium length; articles not folded in zigzag fashion; without hook-like process; flagellum shorter than peduncle; less than 5-articulate; clavate; calceoli absent.

Mouthparts well developed. Mandible incisor dentate; accessory setal row without distal tuft; molar present, medium, triturative; palp present. Maxilla 1 present; inner plate present, weakly setose apically; palp present, not clavate, 2-articulate. Maxilla 2 inner plate present; outer plate present. Maxilliped inner and outer plates well developed or reduced, palps present, well developed or reduced; inner plates well developed, separate; outer plates present, small; palp 4-articulate, article 3 without rugosities. Labium smooth.

***Peraeon.** Peraeonites 1-7 separate; complete; sternal gills absent; pleurae absent.*

Coxae 1-7 well developed, none fused with peraeonites. Coxae 1-4 longer than broad or as long as broad or broader than long, overlapping or discontinuous, coxae not acuminate. Coxae 1-3 not successively smaller, none vestigial. Coxae 2-4 none immensely broadened.

Gnathopod 1 not sexually dimorphic; subequal to gnathopod 2, or larger (or stouter) than gnathopod 2; smaller than coxa 2, or subequal to coxa 2; gnathopod 1 merus and carpus not rotated; gnathopod 1 carpus/propodus not cantilevered; shorter than propodus, or subequal to propodus; gnathopod 1 slightly produced along posterior margin of propodus, or not produced along posterior margin of propodus; dactylus large. Gnathopod 2 not sexually dimorphic; simple, or parachelate; coxa subequal to but not hidden by coxa 3, or larger than coxa 3; ischium short; merus not fused along posterior margin of carpus or produced away from it; carpus/propodus not cantilevered,

carpus elongate, shorter than propodus or subequal to propodus or longer than propodus, not produced along posterior margin of propodus.

Peraeopods heteropodous (3-4 directed posteriorly, 5-7 directed anteriorly), none prehensile. Peraeopod 3 well developed. Peraeopod 4 well developed. 3-4 not glandular (?); 3-7 without hooded dactyli, 3-7 propodi without distal spurs. Coxa well developed; carpus shorter than propodus, not produced; dactylus well developed. Coxa smaller than coxa 3 or subequal to coxa 3, not acuminate, without posteroventral lobe; carpus not produced. Peraeopods 5-7 with few robust or slender setae; dactyli without slender or robust setae. Peraeopod 5 well developed; shorter than peraeopod 6; coxa smaller than coxa 4, with posterodorsal lobe; basis slightly expanded, subrectangular, without posteroventral lobe; merus/carpus free; carpus weakly expanded, or linear; setae absent. Peraeopod 6 shorter than peraeopod 7; merus/carpus free; dactylus without setae. Peraeopod 7 with 6-7 well developed articles; longer than peraeopod 5; similar in structure to peraeopod 6, or different in structure to peraeopod 6; with 7 articles; basis expanded or slightly expanded, with long dense slender setae or without dense slender setae; dactylus without setae.

Pleon. *Pleonites 1-3 without transverse dorsal serrations, without dorsal carina; without slender or robust dorsal setae. Epimera 1-3 present. Epimeron 1 well developed. Epimeron 2 without setae.*

*Urosome not dorsoventrally flattened; urosomites 1 to 3 coalesced; urosomites 1-2 without transverse dorsal serrations. Uropods 1-2 apices of rami with robust setae, or without robust setae. Uropods 1-3 radically dissimilar in structure and size. Uropod 1 peduncle without long plumose setae, without basofacial robust seta, without ventromedial spur. **Uropod 2** well developed; without ventromedial spur, **with large dorsal flange**; inner ramus subequal to outer ramus. Uropod 3 not sexually dimorphic; peduncle short or elongate; outer ramus longer than peduncle, 1-articulate, without recurved spines. Telson thickened dorsoventrally; entire; longer than broad, or broader than long; apical robust setae absent.” (Lowry and Springthorpe 2001).*

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