

**UNITED STATES NATIONAL MUSEUM
BULLETIN 258, GAMMARIDEAN
AMPHIPODA OF THE ROCKY
INTERIDAL OF CALIFORNIA:
MONTEREY BAY TO LA JOLLA**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649155880

United States National Museum Bulletin 258, Gammaridean Amphipoda of the Rocky Interidal of California: Monterey Bay to La Jolla by J. Laurens Barnard

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

J. LAURENS BARNARD

**UNITED STATES NATIONAL MUSEUM
BULLETIN 258, GAMMARIDEAN
AMPHIPODA OF THE ROCKY
INTERIDAL OF CALIFORNIA:
MONTEREY BAY TO LA JOLLA**

SMITHSONIAN
INSTITUTION

MUSEUM
OF
NATURAL
HISTORY

Gammaridean Amphipoda
of the Rocky Intertidal
of California:
Monterey Bay to La Jolla

J. LAURENS BARNARD



SMITHSONIAN INSTITUTION PRESS
WASHINGTON, D.C.

1969

Publications of the United States National Museum

The scientific publications of the United States National Museum include two series, *Proceedings of the United States National Museum* and *United States National Museum Bulletin*.

In these series are published original articles and monographs dealing with the collections and work of the Museum and setting forth newly acquired facts in the fields of anthropology, biology, geology, history, and technology. Copies of each publication are distributed to libraries and scientific organizations and to specialists and others interested in the various subjects.

The *Proceedings*, begun in 1878, are intended for the publication, in separate form, of shorter papers. These are gathered in volumes, octavo in size, with the publication date of each paper recorded in the table of contents of the volume.

In the *Bulletin* series, the first of which was issued in 1875, appear longer, separate publications consisting of monographs (occasionally in several parts) and volumes in which are collected works on related subjects. *Bulletins* are either octavo or quarto in size, depending on the needs of the presentation. Since 1902, papers relating to the botanical collections of the Museum have been published in the *Bulletin* series under the heading *Contributions from the United States National Herbarium*.

This work forms number 258 of the *Bulletin* series.

FRANK A. TAYLOR

Director, United States National Museum

Abstract

A survey of intertidal gammaridean Amphipoda of the southern half of California is based on 360+ quantitative and non-quantitative samples taken primarily in the *Phyllospadix*-pelvetiid zone below mean low water. The samples were collected at 7 rocky intertidal sites from Monterey Bay to La Jolla. The coastal region embraces portions of both warm- and cold-temperate environments and as a result the distributional limits of many northern and southern species were expected to occur in the region. The logic of this supposition is shown by the analysis of 139 species, 39 of which occur primarily north and 30 primarily south of Pt. Conception. Of the remainder, 31 occur on both sides of the point in equal density and the distributions of 39 are poorly known. About 20 additional species occur in the intertidal zone only as strays from deeper water.

A checklist of 155+ species from the Californian intertidal is presented. Nineteen species and 4 genera are described for the first time.

About 20 species of Amphipoda are numerically dominant in the intertidal zone, 2-4 of each occurring dominantly in each of several habitats, such as the *Phyllospadix*-pelvetiid zone, kelp holdfasts, articulated corallines, sponges and tunicates, and phragmatopomid masses. Localities impoverished of flora owing to heavy surf or sand scouring are dominated by different species of Amphipoda than those localities having dense floral stands. *Lysianassa macromerus* is believed to be an indicator of sedimentary inundation while *Oligochinus lighti* and *Parallorchestes ochotensis* are believed to be indicators of heavy surf conditions. Most of the dominant Amphipoda belong to diverse, rather than to monotypic genera.

Domiciliary Amphipoda comprise more than a third of the species of the Californian fauna but their tubes apparently are so fragile that they never form the bulk of intertidal fouling organisms. In contrast, amphipodan tubes often dominate pilings in protected harbors.

The *Phyllospadix*-pelvetiid zone is shown to support 72 species throughout the coastal region but a maximum of 47 occurs at any one locality (Cayucos). Internixture of northern and southern species is very strong at Cayucos, adjacent to Pt. Conception.

Kelp stipes of the intertidal zone are poorly populated with Amphipoda, except those of *Egregia* having numerous individuals of

Hyale rubra frequens and *Amphitoeus litoralis*. Holdfasts of kelps in intertidal zones are small but heavily populated with Amphipoda, most of which are identical with those of the *Phyllospadix*-pelvetiid zone. Kelp holdfasts from subintertidal depths have a different amphipodan fauna from those of intertidal zones. More than 35 species of Amphipoda have been found in one holdfast of *Macrocystis pyrifera* in 3 m. of water. The largest Amphipoda of Californian coastal shallows, *Cymadusa uncinata*, inhabit the largest kelps. Articulated coralline algae are densely populated with a poorly diversified amphipodan fauna and few Amphipoda are restricted to that substrate. In contrast, more than a dozen species of Amphipoda inhabit sponges and tunicates obligatorily. Interstitial rock nestlers and intertidal sedimentary burrowers occurring under rocks also are very scarce.

Those taxonomic problems of particular interest concern the identifications and nomenclature of various species of *Hyale*, *Lysianassa*, *Elasmopus*, and *Ischyrocerus*.

Contents

	Page
Abstract	v
Introduction	1
Literature	1
Materials and Methods	4
The Collecting Localities	6
The Amphipodan Fauna	9
Geographic Relationships of Californian Amphipoda	24
Acknowledgments	31
Tables	32
Appendix I (Appendix to Tables)	51
Appendix II (Checklist of Californian Intertidal Amphipoda)	66
Systematics	77
Acanthonotozomatidae	77
<i>Panoploea</i> (?) <i>hedgpethi</i> , new species	77
Ampeliscidae	81
<i>Ampelisca lobata</i> Holmes	81
<i>Ampelisca pugetica</i> Stimpson	81
<i>Ampelisca schellenbergi</i> Shoemaker	81
Amphilochidae	82
<i>Amphilochus litoralis</i> Stout	82
<i>Amphilochus neapolitanus</i> Della Valle	82
<i>Amphilochus picadurus</i> J. L. Barnard	82
<i>Gitanopsis vilordes</i> J. L. Barnard	83
Ampithoidae	83
<i>Ampithoe humeralis</i> Stimpson	83
<i>Ampithoe lacertosa</i> Bate	83
<i>Ampithoe lindbergi</i> Gurjanova	83
<i>Ampithoe</i> cf. <i>mea</i> Gurjanova	84
<i>Ampithoe plumulosa</i> Shoemaker	84
<i>Ampithoe pollex</i> Kunkel	84
<i>Ampithoe simulans</i> Alderman	85
<i>Ampithoe ?lea</i> J. L. Barnard	85
Note on <i>Ampithoe corallina</i> Stout (1913)	85
<i>Cymadusa uncinata</i> (Stout)	86
<i>Pleonexes aptos</i> , new species	86
Anamixidae	89
<i>Anamixis linsleyi</i> J. L. Barnard	89
Aoridae	89
<i>Aoroides columbiae</i> Walker	89
<i>Lembos concavus</i> Stout	90
<i>Lembos ?macromanus</i> (Shoemaker)	90
<i>Microdeutopus schmitti</i> Shoemaker	91
<i>Neomegamphopus</i> Shoemaker	91
<i>Neomegamphopus roosevelti</i> Shoemaker	92