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## **New Zealand Diastylidae and Gynodiastylidae (Crustacea: Cumacea)**

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## Abstract

Recent work in the collections at the New Zealand National Institute of Water and Atmospheric Research collections in Wellington has yielded 14 new diastylid species in five genera, *Colurostylis whitireia* n. sp., *Diastylis acanthoelachys* n. sp., *D. adaioacanthus* n. sp., *D. curtain* n. sp., *D. dasy* n. sp., *D. enodis* n. sp., *D. homoacanthus* n. sp., *D. implanus* n. sp., *D. spinacellulosus* n. sp., *Diastylopsis aspratilis* n. sp., *D. bicarina* n. sp., *Leptostylis wisniewskiae* n. sp., *L. zealandensis* n. sp., *Makrokylindrus semiechinata* n. sp. and a single new gynodiastylid species, *Gynodiastylis chathamensis* n. sp. *Makrokylindrus* is recorded from New Zealand waters for the first time. Keys to all diastylid and gynodiastylid species from New Zealand waters are included, as well as an updated global key to *Diastylopsis*.

**Key words:** Diastylidae, Gynodiastylidae, New Zealand, key

## Introduction

The cumacean fauna of New Zealand has been studied by few taxonomists, with significant early work by Calman (1908, 1911, 1917) followed by the Jones (1963) treatise on New Zealand Cumacea, which covered all 32 species known from New Zealand at that time. After Jones there was a long hiatus, with occasional species descriptions bringing the number of species known to 39, until recent collections from the Chatham Rise and Challenger Plateau areas made many new taxa available for study. The resulting works on the Bodotriidae, Ceratocumatidae and Nannastacidae (Gerken 2012, 2013) increased the number of species known to 57. With the 15 new species described herein, the known New Zealand cumacean fauna is more than doubled since Jones' work, to 72 species.

The previously known diastylid fauna of New Zealand consists of 14 species distributed among *Colurostylis*, *Diastylis*, *Diastylopsis* and *Leptostylis*. The genus *Colurostylis* is endemic to New Zealand. With the addition of the new species *C. whitireia* n. sp., there are five species known, all from shallow nearshore waters. The new species *C. whitireia* is extremely unusual within the Cumacea in that the antennule is reduced to two peduncle articles in both the male and female. The genus *Diastylis* is worldwide in distribution, with more than 100 species assigned to it. Within New Zealand, there were three previously described species of *Diastylis*, and the eight new species described herein increases that to 11 species. The genus *Diastylopsis* currently includes 10 species, most from Australia and New Zealand, and with the addition of the two new species described herein, the genus increases to 12 species. The genus *Leptostylis* has worldwide distribution primarily in temperate to cold waters, with about 40 species known. One species of *Leptostylis* recorded from Australia and New Zealand is now known as *Austroleptostylis recalvastra* (Hale, 1945). Two new species of *Leptostylis* are described herein, bringing the total of *Leptostylis* and *Austroleptostylis* in New Zealand waters to three species, which is more than the two species known from Australian waters.

The previously known gynodiastylid fauna of New Zealand consists of three species of *Gynodiastylis*, two species of *Axiogynodiastylis* and one *Litogynodiastylis*. The addition of the new *Gynodiastylis* increases the known gynodiastylid fauna of New Zealand to seven species, much less diverse in both genera and species than the Australian gynodiastylid fauna, with approximately 85 species in 13 genera. The gynodiastylid fauna has a center of diversity in the waters around Australia, with limited diversity known from the Arabian Gulf, Japan, New Zealand, South Africa and the Southern Ocean. *Gynodiastylis* is the most broadly distributed genus, known from all regions where there are records of the Gynodiastylidae.

## Material and methods

Samples were sorted from within the invertebrate collections at National Institute of Water and Atmospheric Research, Wellington, New Zealand (NIWA). Samples were collected by Brenke epibenthic sled, and preservation was either in formalin with subsequent transfer into ethanol, or directly in ethanol. Where the preservation is known, it is listed in the specimen database at NIWA.

Specimens were temporarily mounted in a mixture of 95% glycerin/ 5% EtOH, and illustrated using *camera lucida* on a dissecting microscope and a compound microscope. Some specimens were temporarily stained using a dilute solution of Chlorazole Black dissolved in ethanol. Body length is measured from the tip of the pseudorostral lobes to the posterior border of pleonite 6. The term preparatory female indicates a female with small external