An Annotated Checklist of the Marine Macroinvertebrates of Alaska

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Objectives:

1) To produce a comprehensive annotated checklist of Alaskan marine macroinvertebrates.
2) Examine the identifications of invertebrates in the AFSC bottom-trawl survey database and establish a confidence level for each taxon identified in the catch for each survey year.

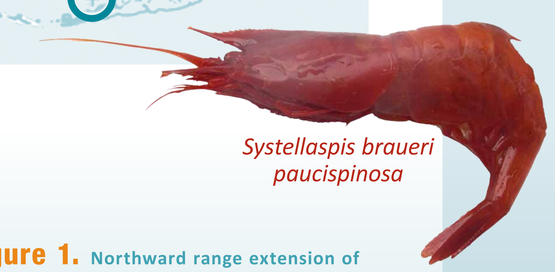
Purpose:

A comprehensive species list of marine invertebrates of Alaska is currently lacking.

The checklist of Austin (1985) treated the marine invertebrates of Southern Alaska to California and since then many new species have been described, many range extensions have been discovered, and considerable changes in higher-level systematics have been made. This list will be an important first step in establishing a baseline for understanding a major but understudied component of the Alaskan marine ecosystem and will provide a foundation for further species-specific research focused on changes in invertebrate distribution, abundance, and biology, to be integrated into large-scale studies of ecosystems. Updated species lists are necessary to reflect the current state of biodiversity knowledge and are thus essential for conservation planning and management. The current status and future directions of Alaskan marine invertebrate biodiversity are briefly discussed. It will also allow an evaluation of the historical AFSC bottom-trawl survey database for levels of confidence in invertebrate identifications over the duration of the survey time series.

Content and area coverage:

The checklist includes the currently accepted scientific name and its significant synonyms, common names, type localities, geographic and depth distributions, a general statement of abundance (e.g., rare, uncommon, common), significance for fish habitat, and general remarks. The area covered includes all of Alaska: Arctic Alaska (Beaufort and eastern Chukchi seas), eastern Bering Sea Shelf, western Aleutian Islands east through the Gulf of Alaska to Southeast Alaska at the Dixon Entrance.



Systellaspis braueri paucispinosa

Figure 1. Northward range extension of boreal species into Arctic waters.

Progress to date:

The checklist is complete and contains over 3,500 species (Table 1). We have also discovered northern range extensions of several caridean shrimps such as the oplophorid *Systellaspis braueri paucispinosa* (Fig 1). The northward range expansion of boreal species into Arctic waters is expected to happen as a result of the warming climate (Vermeij and Roopnarine, 2008), so it is imperative to have accurate baseline information for comparison to future changes to marine biodiversity.

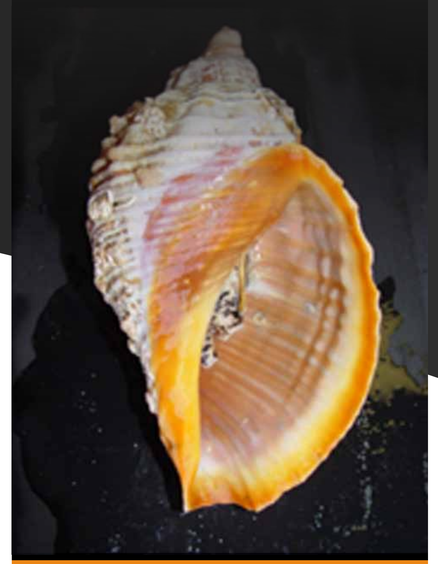


Table 1. Number of species found in Alaskan marine waters.

Taxa	Austin's (1985) checklist	This checklist
Porifera	84	205
Hydrozoa	137	159
Scyphozoa	10	10
Anthozoa	41	117
Ctenophora	6	6
Turbellaria	7	7
Nemertea	43	58
Entoprocta	1	1
Priapulida	1	1
Polychaeta	231	387
Hirudinea	3	6
Echiura	8	13
Sipuncula	8	13
Aplacophora	5	11
Polyplacophora	45	55
Gastropoda	439	616
Bivalvia	195	206
Scaphopoda	10	10
Cephalopoda	27	33
Pycnogonida	17	60
Branchiopoda	2	2
Cirripedia	30	35
Mysida	30	43
Lophogastrida	3	5
Amphipoda	144	501
Isopoda	38	89
Cumacea	18	33
Tanaidacea	24	37
Euphausiacea	13	14
Decapoda	155	201
Brachiopoda	7	8
Bryozoa	89	233
Chaetognatha	5	5
Crinoidea	4	7
Holothuroidea	29	47
Echinoidea	19	25
Asteroidea	66	136
Ophiuroidea	35	68
Hemichordata	1	2
Tunicata	29	91

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Literature cited: Austin, W.C. 1985. An annotated checklist of marine invertebrates in the cold temperate northeast Pacific. Khoyatan Marine Laboratory, Cowichan Bay, British Columbia.

Vermeij, G.J., and P.D. Roopnarine. 2008. The coming Arctic invasion. Science 321:780-781.

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