A global invader or a complex of regionally distributed species?
Clarifying the status of an invasive calcareous tubeworm
_Hydroides dianthus_ (Verrill, 1873) using barcoding

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A calcareous tube worm _Hydroides dianthus_ (Verrill, 1873) is a common fouling invader. Originally described from off Massachusetts, USA, this species has been reported along the East coast of North America down to Florida and Grand Caribbean, and nowadays extends its distribution range to Brazil, China, Europe, Japan, and West Africa (Fig. 1). Unlike most congeners, _H. dianthus_ has tolerance for a wide temperature range occurring from temperate to subtropical waters, which casts doubts on the status of _H. dianthus_.

**Aims**
- to assess whether these populations comprise a single species or a species complex using barcoding gene cytochrome c oxidase subunit I (COI)
- provide insight into the native range and invasive routes of _H. dianthus_

**Results**
- Twenty haplotypes from all 17 localities detected based on COI gene, the highest genetic diversity (nine of ten haplotypes) observed in the Mediterranean (Fig. 1)
- Two clades (A & B) supported by both haplotype network analysis and phylogenetic reconstruction (Fig. 2 & 3)
- High genetic homogeneity present at the continental scales in each clade (Fig. 1)

**Conclusions**
- _Hydroides dianthus_ is a species-complex consisting of two cryptic species with high invasive potential.
- The native range of _H. dianthus sensu stricto_ is the Mediterranean rather than the United States.
- Human-mediated transport plays an important role in _H. dianthus_ dispersal. With increasing shipping activity, _H. dianthus_ is likely to extend its distribution range to new localities such as e.g., south Africa and Australia.
- Further attention should be directed towards the establishment adequate monitoring and mitigation policies on a global scale to reduce further potential introductions of _H. dianthus_.

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