

Two additions to the UK marine fauna: *Desdemona ornata* Banse, 1957 (Polychaeta, Sabellidae) and *Grandidierella japonica* Stephensen, 1938 (Amphipoda, Gammaridea).

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Surveys of intertidal sites in Southampton Water (Figure 1) in 1997/98 produced numerous specimens of a fabriciin sabellid polychaete and of a gammaridean amphipod, neither of which could be assigned to recognised UK species. The sabellid was found to agree with the description of *Desdemona ornata* Banse, 1957, whilst the amphipod was identified as *Grandidierella japonica* Stephensen, 1938.

Desdemona ornata Banse, 1957

D. ornata is a small sabellid, 2-4 mm long, and it has been found in Southampton Water with two native species, *Manayunkia aestuarina* (Bourne, 1883) and *Fabricia sabella* (Ehrenburg, 1837). The most conspicuous feature by which *D. ornata* can be recognised is the markings towards the base of each radicle (Figure 2), which, in formalin preserved specimens, appear reddish-brown in colour. It also differs from *M. aestuarina* and *F. sabella* in having seven to nine abdominal chaetigers, as opposed to three in each of the two native species. A full description of *D. ornata* in English is given by Day (1967).

The first record for this species in the UK

appears to be from surveys at Bury (Southampton Water) in August 1997, where the maximum density was 300 m⁻². *D. ornata* appears to thrive at moderately organically enriched sites, with high densities recorded at two sites downstream from a sewage discharge at Bury on Southampton Water. The maximum density recorded at Bury was 3500 m⁻² in December 1997. In September 1998, a mid-upper shore site at Dibden had a density of 12000 m⁻², whilst at the same site *M. aestuarina* occurred at a density of 1000 m⁻² and *F. sabella* at 1600 m⁻².

Apart from the records from Southampton Water, the only other UK record we are aware of is a single specimen from the Kingsbridge estuary (south Devon) in November 1998. *D. ornata* is essentially a littoral species in Southampton Water, with only a single specimen having been found sublittorally. A brief check of the literature has shown that the species has been recorded from Australia (Hartmann-Schroder 1982) as well as South Africa. In view of the attention which has been given to the fauna of Southampton Water in the past, it seems safe to assume that *D. ornata* is a recent arrival, as its presence is unlikely to have gone unnoticed.

Grandidierella japonica Stephensen, 1938
There is some disagreement over the family to which the genus *Grandidierella* belongs, reflecting difficulties in defining some gammaridean families (see Chapman & Dorman 1975; Barnard & Thomas 1987). For the purposes of this note, suffice it to say that the genus is most likely to be confused with genera of the Aoridae, as treated by Lincoln (1979).

G. japonica is a moderate sized species, reaching a length of 8mm, excluding the antennae, and it shows a marked sexual dimorphism, particularly in the size and shape of gnathopod 1. In Southampton Water it often occurs with native aorids, particularly *Aora gracilis* (Bate, 1857). In overall appearance and in the details of the male gnathopod 1, *G. japonica* is most similar to species of *Microdeutopus* Costa,

1953, and could easily be mistaken for a member of that genus by the non-specialist. It is, however, distinguishable from all UK aorids as it has uniramous 3rd uropods (Figure 3a). Figure 3b shows the typical appearance of a male *G. japonica* in preserved samples, with antennae and pereopods 5, 6 and 7 missing, and figure 3c shows the detail of the head and gnathopod 1 of a male. A full description is given by Chapman & Dorman (1975).

The first record of *G. japonica* in the UK was from surveys at Dibden, Southampton Water in July 1997, where the maximum density recorded was approximately 100 m⁻². At other sites in the area which had been monitored approximately monthly since February 1997, the first records were generally in October 1997. Most of the surveys in Southampton Water have been of littoral sites, but the single sublittoral grab sampling survey, in September 1998, showed that *G. japonica* has also colonised shallow sublittoral sites (0.5-3m below chart datum) in the Dibden/Weston Shelf area. It reached a maximum density of 130 m⁻² sublitorally, compared with 1500 m⁻² intertidally at this time. No specimens were collected from the dredged channel (10-12m below chart datum).

The highest densities were recorded at Dibden littoral sites in January 1998, with a maximum of 5800 m⁻², making it one of the most abundant amphipods. The only species to be recorded at higher densities at Dibden in January 1998 was *A. gracilis* (maximum 11400 m⁻²). These two species appear to have very similar habitat requirements, although the absence of *A. gracilis* from more estuarine sites in Southampton Water (eg. Eling and Bury) suggests that *G. japonica* has a greater tolerance of fluctuating salinities.

G. japonica has successfully colonised many sites in Southampton Water, and the only littoral sites at which it has not

been recorded are near Hythe. These mudflats are contaminated with oil and metals (especially copper) and are often anaerobic with a high sulphide content. It seems likely that *G. japonica* is sensitive to one or more of these pollutants, whilst other data suggest that it may be favoured by moderate organic enrichment from sewage discharges.

In California *G. japonica* was first recorded in 1966, and was thought to have been introduced from Japan with oyster spat (Chapman & Dorman 1975). It has been used for assessing the toxicity of sediments (Nipper et al 1989), and a 10 day toxicity test using this species has been published by the American Society for Testing and Materials (ASTM 1999). It is therefore possible that this species could also be used in a similar way in the UK, as it should be relatively easy to keep in the laboratory.

Both *D. omata* and *G. japonica* are evidently adept at travelling considerable distances with the assistance of man, although where each came from to reach Southampton Water is unknown. Whilst they represent interesting additions to the UK marine fauna, and both have shown indications of successful breeding, it remains to be seen whether their presence is transitory or permanent. The aim of the present report is to alert other workers to the possibility of finding these two immigrant species, in Southampton Water or possibly around other major ports.

Acknowledgements:

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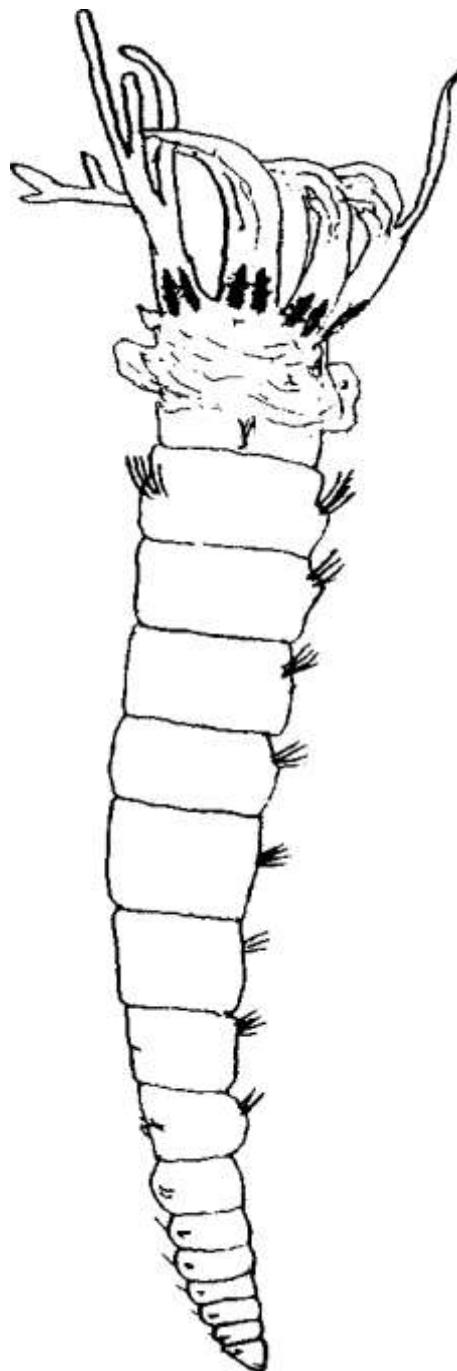


Figure 2. *Desdemona ornata*

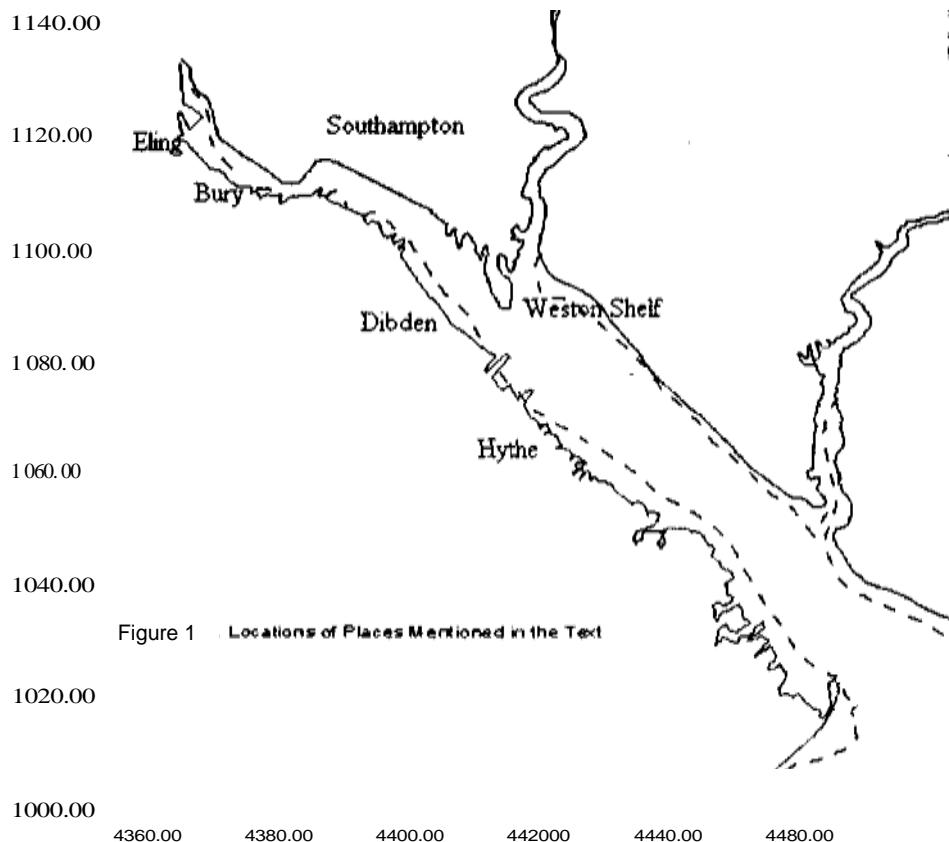


Figure 1. Locations of Places Mentioned in the Text

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