



# Abundance and distribution of ophiuroids off Helgoland, German Bight (North Sea)



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Ophiuroids significantly influence benthic communities by means of bioturbation, processing of organic matter, and as links in local food chains (Summers & Nybakken, 2000). Their occurrence is related to various factors such as depth, hydrodynamics and temperature. The sediment structure in particular, determines the spatial distribution of single species reflecting their lifestyle and feeding behaviour.

In total nine species have been recorded for the German Bight by different authors (after Gerdes 1976, mod.). However, little is known about the species preferences for different substrata.

Therefore, the aim of the the present study is to give an overview of the current spectrum of ophiuroids off Helgoland, as well as of their abundances and distribution on different substrata.

|                       | 1871 | 1894 | 1911 | 1923/24 | 1927 | 1939 | 1950 | 1953-70 | 1968/69 | 1969 | 1970 | 1975 | 1975/76 | 2003 |
|-----------------------|------|------|------|---------|------|------|------|---------|---------|------|------|------|---------|------|
| <b>Common species</b> |      |      |      |         |      |      |      |         |         |      |      |      |         |      |
| <i>A. filiformis</i>  | -    | +    | -    | +       | -    | +    | +    | +       | -       | +    | -    | -    | +       | +    |
| <i>A. squamata</i>    | +    | +    | +    | -       | +    | +    | +    | +       | -       | +    | -    | -    | +       | +    |
| <i>O. fragilis</i>    | +    | +    | +    | -       | +    | +    | +    | +       | -       | +    | -    | -    | +       | +    |
| <i>O. albida</i>      | -    | +    | +    | +       | +    | +    | +    | +       | -       | +    | -    | -    | +       | +    |
| <i>O. ophiura</i>     | +    | +    | +    | +       | -    | -    | -    | +       | +       | +    | +    | +    | +       | +    |
| <b>Rare species</b>   |      |      |      |         |      |      |      |         |         |      |      |      |         |      |
| <i>A. brachiata</i>   | -    | -    | -    | -       | -    | -    | -    | -       | -       | -    | -    | -    | -       | +    |
| <i>A. chiajei</i>     | -    | -    | +    | +       | -    | -    | -    | -       | -       | -    | -    | -    | -       | -    |
| <i>O. affinis</i>     | -    | -    | -    | -       | -    | -    | -    | -       | -       | -    | -    | -    | -       | -    |
| <i>O. sarsi</i>       | -    | -    | +    | -       | -    | -    | -    | -       | -       | -    | -    | -    | -       | -    |

Dredge (D) and sediment samples (G) were taken at eight stations around Helgoland. Abundance and distribution of ophiuroids from the grab samples regarding sediment characteristics, were recorded. Sediment was characterized according to grain size.



1 *Amphiuira filiformis* (Müller, 1776)



2 *Acrocniida brachiata* (Montagu, 1804)



3 *Amphipholis squamata* (Delle Chiaje, 1829)



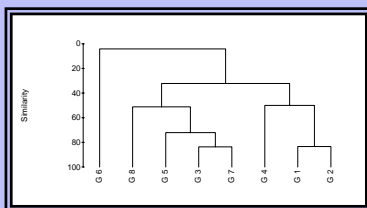
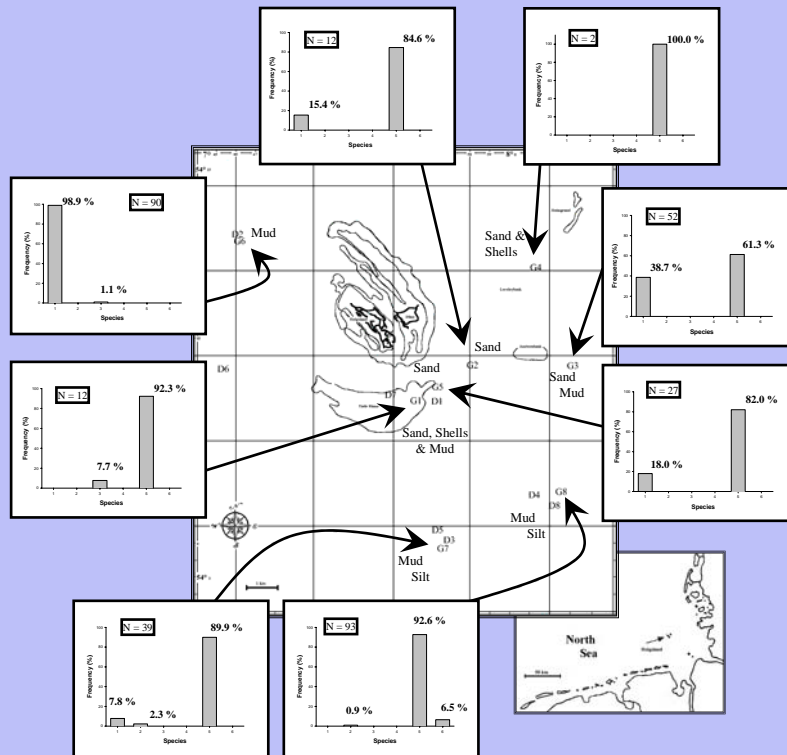
4 *Ophiotrix fragilis* (Abildgaard, 1789)



5 *Ophiura albida* Forbes, 1839



6 *Ophiura ophiura* (Linnaeus, 1758)



Six of nine species previously recorded for the German Bight, were confirmed in this investigation. All ophiuroids classified as "common", as well as one "rare" species were found.

The lack of *A. chiajei*, *O. affinis* and *O. sarsi* reflects the species' scarce occurrence in the German Bight. Ten individuals of *O. fragilis* were found in dredge D7. This might be due to the broad absence of hard bottom in the German Bight.

With respect to sediment preference, *O. albida* appeared to be rather generalistic, while other species showed trends towards certain substrata characteristics.

Due to the difficulties in recording distributional patterns of patchy populations, further experimental work will focus on active habitat selection due to grain size, along with possible competition of epibenthic brittlestars.

#### References

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