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Studies on the taxonomy and distribution of  
thaliaceans off North-West Africa

by

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Summary

Studies on the taxonomy and distribution of thaliaceans in the cold water upwelling region off NW Africa have been commenced. At the present stage of the studies, 12 species have been found, *Thal. democratica*, *Dol. gegenbauri* and *Dol. nationalis* clearly dominating. Whereas *Dol. denticulatum* and the salpid species colonise almost exclusively oceanic regions, *Dol. nationalis* and *Dol. gegenbauri* exhibited a more pronounced neritic tendency.

Résumé

On a commencé des études sur la systématique et l'habitat de thaliacées dans la région de force ascensionnelle de l'eau froide devant le nord-ouest d'Afrique. Dans le cadre des études qu'on a faites jusqu'à présent on a mis en évidence 12 espèces parmi lesquelles *Thalia democratica*, *Doliolum nationalis* et *Dolioletta gegenbauri* ont prédominé clairement. *Dolioletta gegenbauri* habite de préférence dans les zones plus froides du plateau continental. *Dol. nationalis* a également une liaison néritique plus étroite. *Dol. denticulaticum* et les 6 espèces de salpides ont habité presque exclusivement dans les zones océaniques.

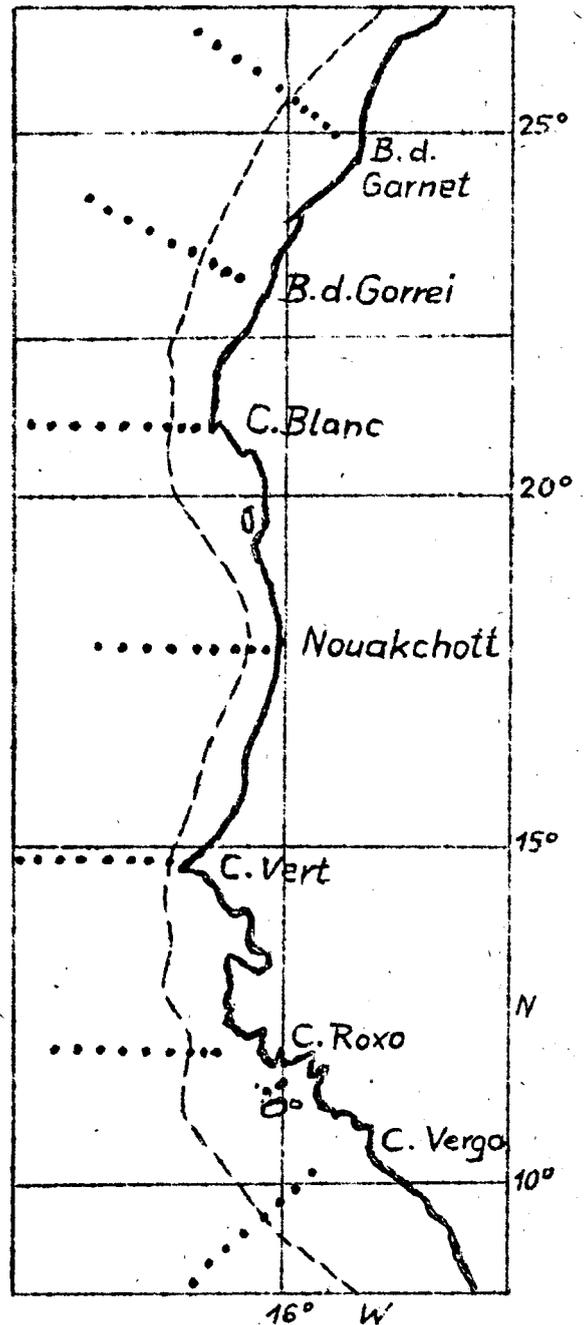
The taxonomy and distribution of thaliaceans off North-West Africa was studied at the Sektion Biologie of the Wilhelm-Pieck Universität Rostock during the analysis of zooplankton samples obtained in the course of long term investigations in the upwelling region off the North West African Coast.

This paper deals with the qualitative and quantitative aspects of the thaliaceans contained in the samples taken during the

IVth research voyage of the research ship "Alexander von Humboldt" from June 7th to July 9th, 1972. The samples were taken by means of a type II UNESCO standard net (Frazer, 1968), sampling generally taking place consecutively over the depth ranges 0 - 25 m, 25 - 75 m and 75 - 200 m. The net had a mesh size of 200  $\mu$ . The samples were fixed on board with 4 % carbonate-buffered formalin.

With regard to the oceanological situation when the samples were taken, the region covered by the experiments (figure), could be split into three relatively large parts. As a result of the large scale wind and current field, upwelling was centred off Cap Blanc and Nouakchott. To the north, upwelling also took place in a mixed water body containing water from the Canaries current and upwelling water, but this had little effect on production. A few stations off Nouakchott and all stations situated further south were in a region of nutrient-poor tropical water.

As was to be expected on account of the mesh size, the net selected objects preferentially in the size range from 1 to 4 mm. A total of 12 species were found. The doliolids (6 species) accounted for 65.9 % of the thaliaceans, a further 34.1 % being salpids. The dominating species, which accounted for over 71 % of the total number of the thaliaceans, were *Thalia democratica* (30.2 %), *Doliolum nationalis* (23.4 %) and *Dolioletta gegenbauri* (17.9 %).



Doliolidae: *Doliolum nationalis* and *Dolioletta gegenbauri* were dominant throughout the region, the highest abundancies being attained on the shelf off Bahia de Garnet/Bahia de Gorrei (869 ind/m<sup>3</sup> in surface hauls). The large proportions of larvae, Oozoids and trophozoids were also conspicuous in this area. *Dolioletta gegenbauri* proved to be a neritic species and reached its highest abundancies in the shelf region of this relatively cool (17 - 18° C) mixed water body.

	Dominance	Presence	in %
Shelf	41.9	87.5	
Offshore	9.8	61.4	
Offshore (30° W)	0.3	3.8	

*Doliolum nationalis* also reaches its highest abundancies in the shelf region of this mixed water body, the numbers of individuals west of the shelf edge not, however, diminishing so abruptly as in the case of *Dolioletta*. The substantial preponderance of phorozoids particularly along the northern transects was conspicuous in connection with this species. The "short" development cycle described by Braconnot (1970) appears to have taken place here.

*Doliolum denticulatum*, despite its presence of 37.5 % for the region, was certainly widespread, but no substantial abundancies were found at the different stations. This species was found principally in the tropical water body, clear preference being given to the region west of the shelf edge.

*Doliolina mülleri/krohni* was found in the form of few specimens which were generally in a bad state. Nevertheless, these were found along almost all transects both on the shelf and in oceanic waters. Isolated gonozoids of *Dolioletta chuni/mirabilis* were found at three stations in the tropical water body.

Salpids: By far the most frequently found species among the salpids was *Thalia democratica* with a presence of 79.7 % and a dominance of 30.2 %. Although they were distributed both over the shelf and the oceanic regions, the abundancies at the shelf stations reached only low values. The actual habitat of this species, and of salpids in general, is the open ocean. The massed occurrence of *Thalia democratica* was observed at two stations off Cap Vert (tropical surface

water, 25° C). Surface hauls revealed individual densities of 1.619 and 2.429 ind./m<sup>3</sup> respectively.

A few specimens of *Salpa fusiformis* (greg., sol.) and *Salpa maxima* (greg.) were found at various oceanic stations. Low abundancies of *Weelia cylindrica* and *Brooksia rostrata* were found exclusively in the tropical water body. *Ihleia punctata* (greg., sol.) was found in the surface layer at one station on the transect off Cap Vert. They dominated the plankton sample with an individual density of 241 ind./m<sup>3</sup>.

The stations directly in the centre of the upwelling activity were free of thaliaceans or only slightly populated by them. Investigations at a continuous station off Cap Blanc also revealed that thaliaceans were not present or present only in small numbers. In rather older water bodies, however, thaliacean abundancies were found with similar high quantitative and qualitative abundancies as were found at the shelf stations of the two norther transects. Here, the dominance of *Dolioletta gegenbauri* was still more pronounced.