THE COLONIZATION OF BARBADOS COASTAL WATERS BY THE 
COPEPOD OITHONA OCUlATA

BY

FINN SANDER
Bellairs Research Institute of McGill University, St. James, Barbados, W.I.

and

EUNA MOORE
University of the West Indies, Cave Hill Campus, St. Michael, Barbados, W.I.

INTRODUCTION
Cleve (1900) has stated that plankton species endemic to separate geographic 
areas may be transported from these areas by currents to remote regions depending 
upon the hydrographic conditions prevailing en route. Ultimately, if a given zoo-
plankton species is to be permanently established in a new environment it is essen-
tial that such parameters as temperature and salinity do not exceed reasonable 
accommodation limits for any stage in its development. Further, given favourable 
temperature and salinity conditions, it is likely that the newly introduced species 
may exploit the more subtle characteristics in the quality of the sea water to become 
an important numerical contributor to the established zooplankton community. This 
appears to be the case of the once typically Pacific cyclopoid copepod, Oithona 
oculata Farran, 1913, which recently has been reported in the Atlantic off Brazil 
(Björnberg, 1963), Puerto Rico and the Virgin Islands (González & Bowman, 
1965), Jamaica and Grand Bahama (Yeatman, 1976), Grand Cayman (Yeatman, 
pers. comm.) and Barbados (Sander & Moore, 1978; Moore & Sander, 1976). 
It had been collected previously off Christmas Island (Farran, 1913), Samoa 
(Rosendorf, 1917), New South Wales (Dakin & Colefax, 1933, 1940), the 
Nicobar Islands (Sewell, 1947), and the Caroline Islands (Vervoort, 1964) in the 
Indo-Pacific region, and, significantly, south of the Cape of Good Hope (Tanaka, 
1960).
The zooplankton off the coast of Barbados and adjacent offshore regions has 
been subject to continual investigation since 1953. Both visual and quantified 
observations impressed the authors, who have been involved in such studies since 
1967, that Oithona oculata has become increasingly important in the plankton 
inshore. Because of the abundance of material available, it was considered worth-
while to undertake a detailed historical survey in order to expand the present state 
of knowledge concerning the introduction and apparently successful settlement of 
this copepod in Barbados specifically, and the Caribbean region generally.
MATERIALS AND METHODS

The data considered originated from:

A. Reports from previous studies done between 1953 and 1960:
   1. Wickstead (1956). — 196 surface hauls taken 'from the coastal region out to a maximum
      of 14 miles off the western coast of the island of Barbados' during the months of March and
      April, 1953.
   2. Fish (1962). — 21 samples collected at the surface from May, 1957, to March, 1958,
      roughly 2-2.5 miles off the midwestern coast of Barbados.
   3. Lewis & Fish (1969). — 46 surface samples taken at night from September, 1958, to August,
      1960, 5 miles off the west coast of the island.

B. Raw materials of the following collections:
   1. 94 surface and 95 oblique samples (0-400 m) taken at roughly bimonthly intervals between
      August 29, 1967, and December 9, 1969, from a station (A) situated at 13°15'N 59°42'W, about
      9 km offshore on the west coast of Barbados.
   2. 30 samples taken at different times of day and different depths between March 24 and
      April 2, 1968, on a transect between Barbados and Tobago, where the waters of the equatorial
      current flow from the Atlantic Ocean past Barbados into the Caribbean Basin.
   3. 25 surface and 0-400 m samples taken between October 5, 1967, and March 10, 1968, at
      various offshore stations around Barbados.
   4. 184 surface samples taken between July 18, 1969, and March 18, 1976, from a site (B)
      approximately 200 m from shore at 13°11.5'N 59°38.6'W, on the west coast of Barbados.
   5. 54 almost-daily surface samples from the same site (B) taken between October 13 and
      November 22, 1975.
   6. 24 surface samples taken between June 18, 1975, and March 18, 1976, from a site (C)
      approximately 200 m from shore at 13°11'N 59°28'W, on the east coast of Barbados.

Fig. 1. The positions of sampling stations. Those of Wickstead (1956) are not shown.