



Ref. No. FR27  
File No. FSC 04/03

## RECOMMENDATION

### *NEREIA LOPHOCLADIA* – MARINE BROWN ALGA

The Fisheries Scientific Committee, established under Part 7A of the *Fisheries Management Act 1994* (the Act), has made a recommendation to list the marine brown alga, *Nereia lophocladia* as a VULNERABLE SPECIES in Schedule 5 of the Act.

The listing of Vulnerable Species is provided for by Part 7A, Division 2 of the Act.

The Fisheries Scientific Committee has found that:

1. The marine brown alga, *Nereia lophocladia* J. Agardh (1897) of the family Sporochneaceae, Order Sporochnales, Division Heterokontophyta, has not been known by any other name.
2. *Nereia lophocladia* has been collected from only two localities, the type and only southern Australian collection from Port Phillip Heads in the late 1800s, and the north and south sides of Muttonbird Island at Coffs Harbour, northern New South Wales from 1980 until the present. The species has not since been collected from southern Australia despite concerted efforts over 50 years by phycological experts, and is thus endemic to New South Wales.
3. *Nereia lophocladia* is one of four species in the genus *Nereia*: the others being *Nereia filiformis* (J. Agardh) Zanardini from the Mediterranean, *Nereia intricata* Yamada from Japan and Hawaii, and *Nereia tropica* Taylor from the Galapagos Islands. Two undescribed species have since been discovered, one from Norfolk Island and one from New Caledonia. Phylogenetically *Nereia* is basal to the entire order Sporochnales and *Nereia lophocladia* is the most basal extant member of the genus.
4. *Nereia lophocladia* displays a heteromorphic alternation of generations in which both stages of the life history are influenced by the same environmental factors and are thought to have limited dispersal capabilities.
5. *Nereia lophocladia* exists only as the population at Coffs Harbour and has not increased in extent since its discovery in 1980. This population covers an area of some 10-20 sq m at Muttonbird Island on either side of the man-made breakwall/marina that joins the island to the mainland. Plants grow on rock at the sand/rock interface on the seabed in about 5-7 m depths on the immediate northern side of the island and in the harbour itself next to the breakwall.

6. *Nereia lophocladia* grows within the confines of the Solitary Islands Marine Park. The north side of Muttonbird Island was designated as a Refuge Zone, but has since been rezoned as a Habitat Protection Zone that decreases the protection level of this area. The south (harbour) side of Muttonbird Island has no zoning and is not within the Solitary Islands Marine Park.
7. Physical disturbance by the building of the breakwall separating the Coffs Harbour Marina from the ocean and the harbour has possibly reduced the numbers of plants. Anecdotal evidence over 25 years of recreational diving suggests that an increase in the numbers of the sea-urchin, *Centrostephanus rodgersii* has threatened the macroalgal beds on the north side of Muttonbird Island with large scale grazing pressure.
8. Current threats to this very small population include the reduction in the level of protection within the Marine Park, ongoing harbour activities and other anthropogenic impacts. *In situ*, the species is brilliantly iridescent and could be targeted for illegal aquarium collection.
9. In light of the above, the Fisheries Scientific Committee has determined that *Nereia lophocladia* is eligible for listing as a VULNERABLE SPECIES in Schedule 5 of the *Fisheries management Act 1994*, and accordingly that the Schedule be amended by inclusion of this species.

Dr Patricia Dixon

Chair  
Fisheries Scientific Committee