5. NOVEL COATINGS

5.1 FIBRE COATINGS

Flocking is a process for making smooth surface into fibrous ones using an adhesive and electrostatically-charged fibres (Phillippi *et al*., 2001). The fibres are attached vertically and create a three-dimensional surface. Forsberg (1994) reported that larvae of mussels did not grow on fibre-flocked surfaces and barnacles appeared to be deterred from settling. Gyllenhammer (1997) found that flocked surfaces had a lower abundance of barnacles and green algae than untreated surfaces.

Fibre characteristics were also found to be important in determining the effectiveness of flocking. Gyllenhammer (1997) found that fibres longer than 1 mm were more effective at controlling hydroid and barnacle fouling, while shorter fibres were more effective against mussels, tunicates, and brown and red algae.

Flocking can be done to most surfaces and with a variety of adhesives (Müller, 1995; Phillippi *et al.,* 2001). PVC and nylon nets have been flocked for study and antifouling paint has been used as an adhesive for the flock fibres (Phillippi, 1999).

5.2 ELECTROMAGNETIC COATINGS

A different approach to fouling control has been achieved through the use of an electrically conductive paint that is insulated from the substrate by non-conductive coatings (Hare, 2000). Minor differences in potential are electrically introduced between the hull and the coating. This leads to the electrolytical generation of either chlorine or hypochlorous ions. The conductive paint alternates as either the cathode or the anode of a cell on the hull, depending on the polarity of the current. Marine growth is inhibited when the hypochlorous ion concentration in the lamella zone next to the coating is above 0.1 ppm (Nishi *et al*., 1992).