

BIOFOULING CONTROL



Every year, millions of dollars are lost to the direct effects of biofouling organisms on industrial water systems. Freshwater systems are clogged with infestations of zebra mussels. Barnacles, mussels, and hydroids colonize saltwater pipes and conduits. Water intakes are blocked, small pipes and large conduits become occluded or completely plugged. Pumps are overtaxed. Valves become inoperable. Power plant condensers and other heat exchangers become clogged with debris. Heat transfer surfaces become coated with layers of microfouling organisms and lose their efficiency. These all lead to reduced productivity and a resulting loss of revenue.

Additional millions of dollars are spent combating the challenges presented by biofouling. Facilities are shutdown while macrofouling is removed mechanically from the walls of their systems or debris is cleaned from heat exchangers. Chemicals, both exotic and common, are added to systems to prevent biofouling or to eliminate the growth that is already present. New prevention and treatment technologies continue to be developed and implemented. Some work better than others; some don't work at all. More importantly, what works at one facility, may not work at another.

From our years of experience, the biofouling control experts at TENERA have found that biofouling problems and their solutions tend to be specific to each site or facility. Even when dealing with the same problematic species, optimum control strategies may differ greatly between sites based on the design of the water system, specific modes of operation, geographic location, and local regulatory constraints. Rather than offer a single product or set of

operational changes as “The Solution”, our Biofouling Control Group evaluates the needs of each client and recommends the options that will best serve those needs.

Tenera has developed, implemented, and operated multifaceted biofouling control programs at some of the largest power production facilities on the west coast of the United States. Using an integrated approach, we have combined mechanical cleaning, thermal treatment, chemicals, anti-fouling and foul release coating, and other control technologies into effective biofouling control programs tailored to the specific needs of each site and its surrounding environment.

BIOFOULING CONTROL GROUP SERVICES:

Site Assessment -Tenera’s Biofouling Specialists examine each facility independently and perform site inspections that include biological surveys and an exchange of information with facility staff.

Monitoring - To monitor the status of site-specific problems we can implement side stream monitoring, system simulations, in situ sample collections, and the installation of telemetry and data acquisition systems.

Prevention Technologies - Tenera can implement, where appropriate, chemical inhibition and prevention systems, foul-release coatings, operational and procedural modifications, screenings systems, and personnel training.

Treatment Strategies - Successful programs that we have developed in the past have incorporated heat treatment, mechanical cleaning, chemical treatment, anti-fouling coatings, and a variety of combinations of these techniques.

Debris Management - Our expertise also includes debris screening and removal, inclement weather forecasting and site preparation, equipment evaluation, and debris recycling and disposal options.