

WATER INTAKES/DISCHARGES

Facilities that require substantial intake and discharge of water, especially heated and chemically-treated discharge water, are generally not suited for construction and operation in estuarine and near-shore marine environments. Major adverse impacts may be caused by impingement of organisms on intake screens, entrainment of organisms in heat-exchange systems or discharge plumes, and through the discharge of toxic materials in discharge waters. Additional guidelines for Sewage Treatment and Disposal, and Mariculture/Agri-culture may also apply. Projects that must be sited in the coastal zone and utilize estuarine and marine waters are subject to the following guidelines:

- a. Once-through cooling systems should not be designed for areas such as estuaries, inlets or small coastal embayments.
- b. Intakes should be designed to minimize impingement. Velocity caps that reduce horizontal intake/discharge currents should be employed. Past studies have shown that intake velocities that do not exceed $\frac{1}{2}$ feet per second across intake screens allow adequate protection for fishery resources. Because of this, some resource agencies have recommended this velocity restriction be incorporated into the Corps of Engineers permit conditions on past permit applications.
- c. Discharge temperatures (both heated and cooled effluent) should not exceed State Water Quality Standards for the receiving water body.
- d. The use of construction materials that may release toxic substances into receiving waters should be avoided. The use of biocides (e.g. chlorine) to prevent fouling should be avoided where possible and least damaging antifouling alternatives should be implemented.
- e. Intake screen mesh should be sized to minimize entrainment of most larval and post-larval marine fishery organisms. Past studies have shown that 0.5 mm screens across intakes allow adequate protection for fishery resources. Because of this, some resource agencies have recommended this mesh size be incorporated into the Corps of Engineers permit conditions on past permit applications.
- f. To prevent scouring at the discharge point, discharge velocities should not exceed $\frac{1}{2}$ feet per second. Discharge sites should be located to avoid adverse impacts to sensitive areas such as emergent marshes and seagrasses.