review for leases, siting and harvest limitations based upon local water quality and other public health considerations.

State Water Quality Standards

While the CWA gives each state the option of delegated authority for the NPDES permit program, it mandates that all states develop water quality standards consistent with the goals of the Act. Individual state water-quality standards must equal or exceed minimum federal guidelines, and must be reviewed and updated every three years. Surface and ground water standards generally consist of two components — 1) use classifications or designated uses for the particular water body, and 2) associated water quality criteria that define the characteristics or water quality parameters that must be maintained to protect the designated uses. Designated uses are those that the state determines the waters capable of supporting; they may be either existing uses or uses that could be attained in the future.

States employ a variety of classification schemes but generally include categories equivalent to: protection of public water supply; fish, wildlife and aquatic life; primary contact recreation (swimming); secondary contact recreation (boating); agricultural water supply; and industrial water supply. Most states designate water bodies for multiple uses. Water quality criteria are expressed in narrative form and/or as a list of water quality parameters and aesthetic values such as temperature, pH, dissolved oxygen, nitrogen, phosphorous, sedimentation, coliform bacteria, oil and grease, color, turbidity, slicks, odors, surface floating solids, and radioactive and toxic substances.

State water quality standards also contain an "anti-degradation" statement designed to maintain and protect existing uses. Special provisions, however, may be included for protection of waters of exceptionally high quality or those considered to be high priority waters based upon aesthetic, ecological, recreational or other factors. These waters, identified variously as Outstanding Natural Resource (ONR), Outstanding National Resource Waters (ONRW), Waters of Exceptional Recreational or Ecological Significance (ERES), and Areas of Critical Environmental Concern (ACEC), are subject to a state's highest standards of environmental protection. This generally means that any approved discharges must be of equal or better quality than the receiving waters or that all new discharges are prohibited.

Another provision common to many state standards describes the use of mixing zones to dissipate waste heat and other types of pollutants in receiving waters. The size and allowance of mixing zones are based on effluent composition and quality of the receiving waters. Mixing zones also must meet aesthetic criteria, have minimal impact on aquatic communities, allow passage of migrating aquatic species, and not result in toxic accumulations of substances in sediments or food chains. Depending upon the state, certain lakes, streams and other restricted water bodies may be excluded from use. Mixing zones, not normally part of an aquiculture waste management plan, are reviewed on a case-by-case basis and often require a public hearing.

Surface Water Discharges and State/NPDES Permits

All of the northeastern states recognize the EPA guidelines for concentrated aquatic. animal production facilities found in 40 CFR, Section 122.24 for NPDES permit determinations (page 4). All delegated states in the region administer the federal permit as part of their state discharge programs which also can include effluents from aquiculture facilities operating below 40 CFR guidelines. In the northeastern region, the Commonwealth of Pennsylvania views aquiculture effluents as facility wastewater. All other states classify effluents as either an industrial, municipal or commercial waste (see Table 3, page 24). Two states, Pennsylvania and West Virginia, currently do not require a state discharge permit for production below 40 CFR guidelines unless there is evidence of water quality degradation. Other states require mandatory applications and individual review of all proposed discharges and may apply additional criteria under the state's program based upon production level, feed usage, effluent parameters or average discharge volume.

Application and/or annual fees charged by individual states usually are based upon the category or volume of discharge, but also may include factors such as type of activity, condition of the receiving waters and potential environmental impact. NPDES permits issued by the regional EPA offices on behalf of the undelegated states are valid for five years and currently have no fee. The Maine Department of Marine Resources regulates finfish and shellfish aquiculture in tidal waters through a special Memorandum of Understanding (MOU) with the EPA Region I office and the ACOE (see pages 12 and 13). Although aquiculture in Maine tidal waters currently is exempt from the NPDES program, freshwater operations are included under NPDES and are administered by the