Literature Cited

Allen, K.R. 1969. Limitations on production in salmonid populations in streams. Pages 3-18 in Symposium on salmon and trout in streams (F.R. MacMillan Lectures in Fisheries). University of British Columbia, Vancouver, British Columbia, Canada.

Baldes, R.J. and R.E. Vincent. 1969. Physical parameters of microhabitats occupied by brown trout in an experimental flume. Transactions of the American Fisheries Society 98:230-238.

Behnke, R.J. 1987. Catch and release: the last word. Pages 291–298 in R.A. Barnhart and T.D. Roelofs, editors. Catch-and-release fishing—a decade of experience. California Cooperative Fishery Research Unit, Humbolt State University, Arcata.

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates, and fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington D.C.

Bocheneck, E.A. 1981. Age, growth, and feeding habits of the land-locked alewife, *Alosa pseudoharengus*, in two New Jersey lakes. Master's thesis. East Stroudsburg University, East Stroudsburg, Pennsylvania.

Brown, E.H., Jr. 1972. Population biology of alewives, *Alosa pseudoharengus*, in Lake Michigan, 1949-1970. Journal of the Fisheries Research Board of Canada. 29:477-500.

Brown, G.W. and J.T. Krygier. 1970. Effects of clearcutting on stream temperature. Water Resources Research 6:1131-1139.

Brown, G.W. and R.J. Brazier. 1972. Controlling thermal pollution in small streams. United States Environmental Protection Agency, EPA-R2-72-083, Washington, D.C., USA.

Brown, K.K., J.T. Boswell, and J.R. Gaw. 1983. Anadromous Salmonids in the Delaware River: A Feasibility Study. Report of Normandeau Associates Incorporated to NJ Division of Fish, Game, and Wildlife, Trenton, NJ.

Bush, R.M., E.B. Welch, and B.W. Mar. 1974. Potential effects of thermal discharges on aquatic systems. Environmental Science and Technology 8:561-568.

Carline, R.F., T. Beard, Jr., and B.A. Hollender. 1991. Response of wild brown trout to elimination of stocking and no-harvest regulations. North American Journal of Fisheries Management 11:11253-266.

Chapman, D.W. and R.L. Demory. 1963. Seasonal changes in the food ingested by aquatic insect larvae and nymphs in two Oregon streams. Ecology 44:140-146.

Chapman, D.W. and T.C. Bjornn. 1969. Distribution of salmonids in streams with special reference to food and feeding. Pages 153-176 in Symposium on salmon and trout in streams (H.R. MacMillan Lectures in Fisheries). University of British Columbia, Vancouver, British Columbia, Canada.

Corbett, E.S., J.A. Lynch, and W.E. Sooper. 1978. Timber harvesting practices and water quality in the eastern United States. Journal of Forestry: 484-488.

Corning, R.V. 1969. Water fluctuation, a detrimental influence on trout streams. Proceedings of the Annual Conference Southeastern Association of Game and Fish Commissioners 23:431-454.

Crowder, L.B. and F.P. Binkowski. 1983. Foraging behaviors and the interaction of alwife, *Alosa pseudoharengus*, and bloater, *Coregonus hoyi*. Env. Biol. Fish. 8:105-113.

Cummins, K.W. 1975. The use of macroinvertebrate benthos in evaluating environmental damage. Pages 130-14 in R.K. Sharma, J.D. Buffington and J.T. McFadden, editors. Proceedings of the Nuclear Regulatory Commission workshop on the biological significance of environmental impacts. United States Nuclear Regulatory Commission, NR-CONF-003, Washington, D.C. USA.

Daye, P.G. and E.T. Garside. 1975. Lethal limits of pH for brook trout *Salvelinus fontinalis* (Mitchill). Canada Journal of Zoology 53:639-641.

EBTJV Conservation Strategies Work Group. 2005. Conserving the eastern brook trout: An overview of status, threats, and trends. Report submitted to the Eastern Brook Trout Joint Venture, International Association of Fish and Wildlife Agencies, Washington, D. C.

Edwards, E.A. 1983. Habitat suitability index models: Longnose sucker. U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.35. 21pp.

Ferguson, M.S. and R.A. Hayford. 1941. The life history and control of an eye fluke. Progressive Fish-Culturist (54):1-13.

Gray, J.R. and J.M Eddington. 1969. Effect of woodland clearance on stream temperature. Journal of Fisheries Research Board of Canada 26:399-403.

Greeley, J.R. 1932. The spawning habits of brook, brown, and rainbow trout and the problem of egg predators. Transactions of the American Fisheries Society 62:239-248.

Greene, G.F. 1950. Land use and trout streams. Journal of Soil and Water Conservation 5:125-126.

Havey, K. A. and K. Warner. 1970. The landlocked salmon (*Salmo salar*). It's life history and management in Maine. Sport Fishing Institute, Washington, and Maine Dept. Inland Fisheries and Game, Augusta, Maine. 129 p.

Hudy, M., T. M. Thieling, N. Gillespie, and E. P. Smith. 2005. Distribution, status, and threats to brook trout within the eastern United States. Report submitted to the Eastern Brook Trout Joint Venture, International Association of Fish and Wildlife Agencies, Washington, D. C.

Janssen, J. 1976. Feeding models and prey size selection in alewife, *Alosa pseudoharengus*. J. Fish. Res. Board Can. 33:1972-1975.

Janssen, J. 1978. Feeding-behavior repertoire of the alwife, *Alosa pseudoharengus*, and ciscos, *Coregonus hoyi* and *C. artedii*. J. Fish. Res. Board Can. 35:249-253.

Kalleberg, H. 1958. Observations in a stream tank of territoriality and competition in juvenile salmon and trout *Salmo salar* L and *S. trutta* L. Institute of Freshwater Research, Drottningholm 39:55-98.

Karr, J.R. and O.T. Gorman. 1975. Effects of land treatment on the aquatic environment. Pages 120-15 in Non-point source pollution seminar. United States Environmental Protection Agency, EPA 905/9-5-75-007, Chicago, Illinois, USA.

Karr, J.R. and I.J. Scholsser. 1977. Impact of nearstream vegetation and stream morphology on water quality and stream biota. United States Environmental Protection Agency, EPA 600/3-77-097. Athens, Georgia, USA.

Kendall, R. 1929. The fishes of Cranberry Lake region. Roosevelt Wildlife Bulletin 5:219-311.

Kurtenbach, J. 1994. Index of biotic integrity study - New Jersey – Passaic, Wallkill, Delaware, and Raritan drainages, summer (1990-1993): U.S. Environmental Protection Agency, 32pp. Plus appendices.

Larkin, P.A. 1956. Interspecific competition and population control in freshwater fish. Journal of the Fisheries Research Board of Canada 13:327-342.

Le Cren, E.D. 1965. Some factors regulating the size of population of freshwater fish. Mitt. Int'l. Verein. Limnol. 13:88-105.

Leim, A. H. and W. B. Scott. 1966. Fishes of the Atlantic coast of Canada. Fisheries Research Board of Canada Bull.155. Pages 107-110.

Lewis, S.L. 1969. Physical factors influencing fish populations in pools of a trout stream. Transactions of the American Fisheries Society 98:14-19.

Linduska, J.P. 1942. Bottom types as a factor influencing the local distribution of mayfly nymphs. Canadian Entomologist 74:26-30.

Lotrich, V.A. 1973. Growth, production, and community composition of fishes inhabiting a first, second, and third order stream of eastern Kentucky. Ecological Monographs 43:377-397.

Marcus, M.D., W.A. Hubert, and S.H. Anderson. 1984. Habitat suitability index models: Lake trout (Exclusive of the Great Lakes). U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.84. 12 pp.

McAfee, W.R. 1966. Rainbow trouot. Pages 192-215 in A. Calhoun, editor. Inland fisheries management. California Department of Fish and Game, Sacramento, California, USA.

McMahon, T.E. 1982. Habitat suitability index models: Creek chub. U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.4. 23pp.

Menendez, R. 1976. Chronic effects of reduced pH on brook trout *Salvelinus fontinalis*. Journal of the Fisheries Research Board of Canada 33:118-123.

Minshall, G.W. 1968. Community dynamics in a woodland spring brook. Hydrobiologica 32:305-339.

Mongillo, P.E. 1984. A summary of salmonid hooking mortality. Washington Department of Game, Fisheries Management Division, Olympia.

National Academy of Sciences, National Academy of Engineering. 1973. Freshwater aquatic life. Pages 106-213 in Water quality criteria 1972. United States Environmental Protection Agency, Ecological Research Series, EPA-R3-73-033, Washington, D.C., USA.

Needham, P.R. 1934. Quantitative studies of stream bottom foods. Transactions of the American Fisheries Society 64:238-247.

Neill, R.M. 1938. The food and feeding of brown trout *Salmo trutta* in relation to the organic environment. Transactions of the Royal Society of Edinbourgh 59:481-520.

New Jersey Division of Fish and Wildlife. 1991. Fish disease and parasite investigations, final report, Job I-3, F-35-R,. New Jersey Division of Fish and Wildlife, Trenton, New Jersey.

New Jersey Division of Fish and Wildlife. 1991. New Jersey fish health management plan. Jersey Division of Fish and Wildlife, Trenton, New Jersey.

Newman, M.A. 1956. Social behavior and interspecific competition in two trout species. Physiology and Zoology 29:64-80.

Noble, R.L. and T.W. Jones. 1999. Managing fisheries with regulations. Pages 455–477 in C. C. Kohler and W. A. Hubert, editors. Inland fisheries management in North America, 2nd edition. American Fisheries Society, Bethesda, Maryland.

Orth D.J. and R.J. White. 1999. Stream Habitat Management. Pages 249-284 in Kohler, C.C. and W.A. Hubert, editors. Inland fisheries management in North America, 2nd edition. American Fisheries Society, Bethesda, Maryland.

Palmer, E. 1938. Diplostomiasis, a hatchery disease of fresh-water fishes new to North America. Progressive Fish Culturist (45): 41-47.

Pardue, E. 1983. Habitat suitability index models: Alewife and blueback herring. U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.58. 22pp.

Post, J.R., C. Mushens, A. Paul, and M. Sullivan. 2003. Assessment of alternative harvest regulations for sustaining recreational fisheries: model development and application to bull trout. North American Journal of Fisheries Management 23:22-34.

Powers, E.B. 1929. Fresh water studies. I. The relative temperature, oxygen content, alkali reserve, the carbon dioxide tension, and pH of the waters of certain mountain streams at different altitudes in the Smoky Mountain National Park. Ecology 10(1): 97-111.

Pyle, A.B. 1957. Preliminary report of the studies on the ability to trout to withstand various acidities in New Jersey streams. Miscellaneous Report No. 20, Bureau of Freshwater Fisheries, New Jersey Department of Environmental Protection, Trenton, New Jersey, USA.

Pyle, A.B and R, Soldwedel. 1971. Flatbrook trout study trout. Miscellaneous Report No. 33, Bureau of Freshwater Fisheries, New Jersey Department of Environmental Protection, Trenton, New Jersey, USA.

Raleigh, R.F. 1982. Habitat suitability index models: Brook trout. U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.24. 42pp.

Raleigh, R.F., T. Hickman R.C. Solomon, and P,C. Nelson. 1984. Habitat suitability index models: Rainbow trout. U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.60. 64pp.

Raleigh, R.F., L.D. Zuckerman, and P,C. Nelson. 1984. Habitat suitability index models and instream flow suitability curves: brown trout. U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.71. 71pp.

Ricker, W.E. 1932. Studies of speckled trout (*Salvelinus fontinalis*) in Ontario. University of Toronto Stud. Biol. Ser. 36, Publ. Ontario Fish. Res. Lab. 44:67-110.

Saunders, J.W. and M.W. Smith. 1962. Physical alteration of stream habitat to improve brook trout production. Transactions of the American Fisheries Society 91:185-188.

Schill, D.J. 1996. Hooking mortality of bait-caught rainbow trout in an Idaho stream and a hatchery: implications for special regulation management. North American Journal of Fisheries Management 16:348-356.

Schisler, G.J. and E.P. Bergersen. 1996. Postrelease hooking mortality of rainbow trout caught on scented artificial baits. North American Journal of Fisheries Management 16:570-578.

Scott, W.B., and E.J. Crossman. 1973. Freshwater Fishes of Canada. Fisheries Research Board of Canada Bulletin 184.

Shetter, D.S., O.H. Clark, and A.S. Hazzard. 1946. The effects of deflectors in a section of a Michigan trout stream. Transactions of the American Fisheries Society 76:248-278.

Smith, C.L. 1985. The inland fishes of New York State. New York State Department of Environmental Conservation.

Smith, L.L. and J.B. Moyle. 1944. A biological survey and fisheries management for the streams of the Lake Superior north shore watershed. Minnesota Department of Conservation Technical Bulletin 1.

Soldwedel, R.H. 1979. Interim report – classification of New Jersey trout waters. New Jersey Division of Fish, Game, and Shellfisheries.

Soldwedel, R.H. and A.B. Pyle. 1977. Evaluation of the Mulhockaway Creek natural trout fishing area. New Jersey Division of Fish, Game, and Shellfisheries. Miscellaneous Report 42, Trenton.

Stauffer, T.R., K.L. Dickson, J.Cairns, and D.S. Cherry. 1976. The potential and realized influences of temperature on the distribution of fishes in the New River, Glen Lyn, Virginia, Wildlife Monographs Number 50.

Swift, L.W. and J.E. Messer. 1971. Forest cuttings raise temperatures of small streams in the Appalachians. Journal of Soil and Water Conservation. 26:111-116.

Tarzwell, C.M. 1937. Experimental evidence of the value of trout stream improvement in Michigan. Transactions of the North American Wildlife Conference 66:177-187.

Tarzwell, C.M. 1938. Evaluation of the methods and results of stream improvement in the southwest. Transactions of the North American Wildlife Conference 3:339-364.

Tebo, L.B. 1955. Effects of siltation, resulting from improper logging, on the bottom fauna of a small trout stream in the southern Appalachians. Progressive Fish Culturalist 17:64-70.

Thoesen, J.C., editor. 1994. Procedures for the detection and identification of certain finfish and shellfish pathogens. 4th edition. Fish Health Section, American Fisheries Society. Bethesda, Maryland.

Trial, J.G., J.G. Stanley, M. Batcheller, G. Gebhart, O.E. Maughan, and P.C. Nelson. 1983. Habitat suitability information: Blacknose dace. U.S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.41. 28pp.

Versar Incorporated. 1991. Introduction of Pacific Salmonids into the Delaware River Watershed. Report to U.S. Fish and Wildlife Service and New Jersey Division of Fish, Game, and Wildlife, Trenton, NJ.

Versar Incorporated. 1992. Notice of Withdrawal of Pacific Salmonid Stocking Proposal for the Delaware River Basin. Report to New Jersey Division of Fish, Game, and Wildlife, Trenton, NJ.

Webster, D.A. and G. Eiriksdottir. 1976. Upwelling water as a factor in influencing choice of spawning sites by brook trout *Salvelinus fontinalis*. Transactions of the American Fisheries Society 105:416-421.

White, H.C. 1930. Some observations on the eastern brook trout *Salvelinus fontinalis* of PrinceEdward Island. Transactions of the American Fisheries Society 60:101-108.

White, R.J. and O.M. Brynildson. 1967. Guidelines for management of trout stream habitat in Wisconsin, Wisconsin Department of Natural Resources Technical Bulletin 39.

Wickham, G.M., 1967. Physical microhabitat of trout. Master's thesis. Colorado State University, Fort Collins, Colorado, USA.

Wilson, J.N. 1957. Effects of turbidity and silt on aquatic life. Pages 235-239 in C.M. Tarzwell, editor. Biological problems in water pollution. Department of Health, Education, and Welfare, Cincinnati, Ohio, USA.

This Page Intentionally Left Blank

Glossary

anadromous Characterizes the life cycle of a fish that spawns in freshwater and spends a significant portion of its adult life in the ocean. Examples are salmon and steelhead trout.

angler A person who fishes with hook and line as a hobby or sport.

angler-hour One hour of fishing by a single angler.

angler trip A visit by an angler to a fishing site or area. Depending on the purposes of the data, an angler trip can be defined as hours of fishing at the site in one day, a 24-h day, the number of days in the vicinity of the site, or the number of days away from home.

artificial lures refers to the man-made, non-natural objects used to attract game fish and entice them into biting.

biodiversity Biological diversity. The natural variety of plants and animals that includes 1) genetic diversity, 2) species diversity, 3) ecosystem diversity, and 4) landscape diversity. Optimum biodiversity is that which occurs naturally in an undisturbed system. The key words are "natural and undisturbed." It concerns biological integrity within a system and not necessarily a large variety of species. Managers should be concerned with the loss of natural biodiversity rather than absolute numbers of species.

Boundary Water A stream separating New Jersey from an adjoining neighboring state (Delaware River) or a lake shared by New Jersey and an adjoining state (Greenwood Lake). Separate fishing regulations apply to these waters for consistency and to avoid angler confusion.

catchable (catchable-sized) trout Refers primarily to hatchery-produced trout that are stocked at a specific size (or size range) that is considered attractive by anglers for immediate harvest. Spring-stocked catchable trout average 10.5 inches and weigh ½ pound. Fall and winter-stocked catchable trout average 9 inches. In New Jersey catchable trout are used in both put-and-take and put-and-grow managed fisheries.

catch-and-release A management strategy and a method of angling which refers to the immediate release of captured fish back into the water.

catch rate The number or weight of organisms caught per unit of time.

Category One (C1) C1 waters are designated in the NJ Surface Water Quality Standards for the purposes of implementing antidegradation policies, for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, exceptional recreational or water supply significance, or exceptional fisheries resources. Waters classified as FW2-Trout Production waters (FW2-TP) and their tributaries, and FW2 trout maintenance and non-trout waters upstream of FW2-TP waters, may be designated C1.

coldwater fishes A broad term applied to fish species that inhabit waters with relatively temperatures (optimum temperatures generally between 4-15°C (40-60°F). Examples are salmon, trout, chars, and whitefish.

coolwater fishes A broad term applied to fish species that inhabit waters with relatively cool temperatures (optimum temperatures generally between 10 and 21°C (50 and 70°F).

creel Traditionally, the woven basket used to store harvested fish. Now, the fish harvested by an angler.

creel survey An on-site survey designed to estimate fishing effort and fish harvest from a sample of anglers.

cultured trout Trout reared in a hatchery setting.

domesticated trout Strains of hatchery-produced trout that have been reproduced and reared in the hatchery environment for several generations. These strains generally exhibit qualities that are suitable within the fish culture environment, and can withstand the rigors of handling and stocking.

electrofishing The use of electricity to capture fish.

eutrophic Having high concentrations of phosphorus, nitrogen, or other nutrients that result in high algal productivity. Water bodies can be naturally eutrophic. Nutrient increase caused by human activities is called eutrophication.

exotic species A non-native species introduced from a foreign country..

extirpated A native species no longer present, either as a result of natural causes or because of eradication by humans.

fingerling A trout approximately 2 ½ to 4 inches in length and weighing 16 per pound or smaller. This size category is stocked by truck in put-and-grow trout fisheries where trout growth potential is high.

Fish and Game Council An 11 member board empowered with the legal responsibility to adopt NJ's Fish and Game Codes and appoint a Director for the NJ Division of Fish and Wildlife (subject to the Governor's approval).

Fish Code Defines the legal angling methods, season dates, size and catch limits, and trout stocking locations for freshwater fishing in the Garden State. The regulations are annually reviewed, revised, and promulgated through a set legal process.

fishing pressure The amount of fishing taking place over a specified period of time in an area or at a particular site. In recreational fisheries, where fishing pressure is also called fishing effort, pressure usually is measured in angler-hours or angler-trips.

fishing success Normally the number of fish caught per unit of time (catch per unit effort) or harvested per unit time (harvest per unit effort) by an angler or group of anglers.

freestone stream A relatively unfertile stream associated with sandstone, shale, and other non-carbonate rocks. Although the upper reaches may be spring-fed, it is generally fed from runoff and small feeder-type streams and gains water a little at a time. These streams tend to flow off ridges and are fed from a single watershed. The fast moving, unfertile water inhibits the growth of weeds or other rooted vegetation resulting in a "free stone" bottom. Some

freestone streams may dry up in the summer or experience greatly reduced flows. Most of the cold water streams in New Jersey are freestone streams.

FW1 Those fresh waters, as designated in New Jersey's Surface Water Quality Standards N.J.A.C. 7:9B-1.15(h) Table 6, that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any man-made wastewater discharges or increases in runoff from anthropogenic activities. These waters are set aside for posterity because of their clarity, color, scenic setting, other characteristic of aesthetic value, unique ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources(s).

FW2 The general surface water classification applied to those fresh waters that are not designated as FW1 or Pinelands Waters.

groundwater (1) Water located interstitially in the substrate of the earth that is recharged by infiltration and enters streams through seepage and springs. (2) Subsurface water in a zone of saturation, standing in or passing through (groundwater flow) the soil and the underlying strata.

habitat The physical, chemical, and biological features of the environment where an organism lives.

harvest Fish permanently removed from the water by recreational or commercial fishers.

hatchery trout Any wild or native trout hatched and reared in a hatchery environment. This term generally refers to domesticated strains of trout that are reared to a catchable size and used in put-and-take or put-grow-and-take fisheries.

hatchery trout Any wild or native trout hatched and reared in a hatchery environment. However, anglers often use this term exclusively for domesticated strains of trout reared to a

heritage brook trout Descendants from ancestral brook trout (fish that colonized an area after deglaciation), that exist in discrete populations having gene pools that are different from hatchery or hybridized populations by virtue of distinct alleles and allele frequencies selected for by the environmental conditions in which these populations evolved.

holdover trout A trout (typically hatchery-reared and stocked) which has survived through the summer period when water temperatures are at their highest and can negatively impact trout survival.

Holdover Trout Lake A special fishing regulation in New Jersey that is designed to provide for a fishery for quality-sized trout in impoundments capable of supporting trout year round.

hypolimnion Poorly oxygenated and illuminated lower layer or region in a stratified lake that extends from the metalimnion to the bottom and is essentially removed from major surface influences. Water in the hypolimnion is denser and colder than strata higher in the water column.

in-season The seven week trout stocking period immediately following New Jersey's opening day of the trout season in April.

intermittent stream **A s**tream without a continuous flow year round.

limestone stream A stream located in a valley area that flows through a bedrock of limestone or through an area interspersed with limestone deposits. It is characterized by alkalinities of 75 – 150 mg/L or greater, a stable pH of 7.5 – 8.0 year round, low gradient, high abundance of aquatic plants and invertebrate life, and nearly constant ambient water temperatures throughout the year. Few coldwater streams in New Jersey are limestone streams.

macroinvertebrate An invertebrate animal (without backbone) large enough to be seen without magnification and retained by a 0.595 mm (U.S. #30) screen.

minimum length A numerical value (typically in inches) establishing the smallest size at which a fish species may be legally harvested or creeled. The minimum size for a given species may vary between waterbodies, depending upon fisheries management strategies.

mortality The rate of death, expressed as percentage loss, as loss per unit of time, (per day, per year), or as both (e.g., percent loss per day). In fisheries contexts, total mortality is often divided into fishing mortality (mortality caused by human exploitation) and natural mortality (mortality caused by all other factors).

native In the U.S., a species historically occurring in a geographic range previous to the arrival of the first European settlers. The brook trout is the only salmonid species native to New Jersey.

New Jersey Department of Environmental Protection (DEP)

New Jersey Division of Fish and Wildlife (**DFW)**

non-native A species found outside of their historical range. The occurrence of a non-native species may be a result of intentional stocking (sport fish or biological control), unintentional stocking (escape), or a response to habitat/climatic changes. Brown trout, rainbow trout, and lake trout are examples of non-native salmonid species that occur in New Jersey.

nontrout waters Fresh waters that have not been designated in New Jersey's Surface Water Quality Standards N.J.A.C. 7:9B-1.15(b) through (h) as trout production or trout maintenance. These waters are generally not suitable for trout because of their physical, chemical, or biological characteristics, but are suitable for a wide variety of other fish species.

opening day of trout season In New Jersey, the first or second Saturday in April day when all trout stocked waters are open to public angling and trout may be harvested.

perennial stream A stream that has continual flow year round, even during period of no rainfall

plankton Small plants and animals, generally smaller than 2 mm and without strong locomotive ability, that are suspended in the water column and carried by currents or waves that may make daily or seasonal movements in the water column.

population All individuals of the same species within a defined geographic location at a given time.

pre-season The three week period immediately proceeding New Jersey's opening day of trout season in April. The majority of trout-stocked waters are closed to angling during this period.

put-and-take A management technique involving the stocking of cultured, catchable fish in waters where angling demand is high, and where habitat conditions are not suitable to support a satisfactory year round fishery.

put-and-grow A management technique involving the stocking of cultured fish (catchable or sub-catchable) in waters where habitat conditions support growth and survival of juveniles and adults year round, but where reproduction capability is limited or absent.

recreational fishery A fishery in which fish are caught for pleasure, not for sale.

redd Nest excavated in the substrate by fish for spawning where fertilized eggs are deposited and develop until the eggs hatch and larvae emerge from the substrate.

riparian Area adjacent to a stream channel including stream banks.

salmonids Fishes that are members of the taxonomic family *Salmonidae*, that occur in cold-water streams and lakes of North America and Eurasia. Examples include trout, salmon, and chars.

Sport Fish Restoration Act A cost sharing program with matching federal funds supplied through the Dingell-Johnson Federal Aid in Sport Fish Restoration Act (P.L. 81-681), and subsequent amendments (Wallop-Breaux), and administered by the U.S. Fish and Wildlife Service.

stakeholders Individuals (or groups) who are affected by, or perceive they are affected by, a fishery resource and its management.

standing crop The total weight of a fish species, or fish community, per unit area at a given time.

stormwater rainwater which flows overland into waterways or is absorbed by the ground and plants

Surface Water Quality Standards (SWQS) Establishes the designated uses to be achieved and specifies the water quality (criteria) necessary to protect New Jersey's surface waters. The SWQS also contain technical and general policies to ensure that the designated uses are adequately protected.

sub-catchable Refers primarily to hatchery-produced trout that are stocked at a size that is generally not considered attractive to anglers for immediate harvest (generally less than seven inches).

sub-legal Refers to a size of fish that can not be legally harvested.

tailwater Flowing water below a dam that is released from an upstream impoundment. Often releases from the hypolimnion in the reservoir provides clear, cold water in the tailwater that can support coldwater sport fisheries.

thermocline Stratum between the epilimnion and hypolimnion that exhibits a marked temperature gradient equal to or exceeding 1°C per meter. Synonymous with mesolimnion or metalimnion.

total length The maximum length of a fish, as measured from the most anterior part of the fish (snout) to the longest caudal fin ray (tail) when the lobes of the caudal fin are compressed.

Trophy Trout Lake A special fishing regulation in New Jersey that is designed to provide for a fishery for quality-sized trout in impoundments capable of supporting trout year round.

Trout Conservation Area In New Jersey, a designated stream section having special fishing regulations that are designed to promote catch-and-release fishing year round or seasonally.

TM See *trout maintenance waters.*

trout maintenance waters Waters designated by New Jersey's Surface Water Quality Standards N.J.A.C. 7:9B-1.15(b) through (g) for the support of trout throughout the year.

TP See *trout production waters.*

trout production waters Waters designated by New Jersey's Surface Water Quality Standards N.J.A.C. 7:9B-1.15(b) through (g) for use by trout spawning or nursery purposes during their first summer.

trout stamp Required in conjunction with a valid New Jersey fishing license for any person between the ages of 16 and 69 who shall take, attempt to take, or kill trout.

trout water This generally refers to anywhere that trout are managed, but is also specifically defined in regulation code as to bodies of water where a trout stamp is required for fishing.

two-story lake Lake with an upper layer of warm water supporting warmwater fishes and a lower (i.e., deeper) layer of cold water supporting coldwater fishes.

USFWS United States Fish and Wildlife Service.

voucher specimens Specimens archived in permanent collections to serve as physical evidence that documents the existence and physical presence of species.

warmwater fishes A broad term applied to fish species that inhabit waters with relatively warm water temperatures (optimum temperatures generally between 15-27°C (60-70°F).

watershed A region or area drained by surface and groundwater flow in rivers, streams, or other surface channels. A smaller watershed can be wholly contained within a larger watershed.

wild trout Includes any trout (native or non-native) that is a product of parents that spawned naturally and has spent its entire life in a natural stream or lake environment. Wild trout may include the offspring of hatchery trout that reproduced in a natural environment.

Wild Trout Stream In New Jersey, a designated stream or stream section having special fishing regulations that are designed to conserve the wild trout population inhabiting the stream.

year-class strength Fisheries term referring to a measure or index of how many individual fish are born in a given year, relative to other years.

young-of-the-year Fish in their first year of life.

zooplankton Planktonic animals that are composed primarily of protozoans and small crustaceans.

This Page Intentionally Left Blank