

Summary of Duties: A Water Biologist analyses fresh water, wastewater, marine water, and sediments, and reports the significance of results upon the water supply, the wastewater treatment processes, and the marine and inland surface water environment in relation to wastewater discharges; performs biomass and bioassay examination; identifies and quantifies aquatic organisms; may act as leadworker for employees engaged in the performance of routine bacteriological examinations and oceanographic monitoring surveys; and performs related work.

Distinguishing Features: A Water Biologist ordinarily works without technical supervision and is responsible for the discovery and classification of biological conditions which may affect the quality of the water supply or which may contaminate ocean and recreational areas. Work is evaluated in terms of timeliness and accuracy of completed assignments. The professional nature of the duties distinguishes the work of a Water Biologist from that of a Laboratory Technicians. Since this work primarily concerns microscopic life, an employee of this class may be subject to considerable eye strain due to extensive use of microscopes.

Examples of Duties: Collects samples of water or measures on-site characteristics of reservoirs, bays, channels, harbors, open ocean, rivers, streams, and water distribution systems to provide samples for physical, chemical, bacteriological, and/or biological tests; tests for pH, dissolved oxygen, turbidness, and other factors affecting water quality; makes plankton surveys and gathers limnological data at reservoirs or in water receiving wastes by netting plankton samples, collecting depth samples, and taking water temperatures; counts and identifies plankton; collects and examines aquatic plants for variety of growth characteristics, and effects of chemical treatment; observes fish and water fowl in order to determine their condition, numbers, and species present at reservoirs and in waters receiving wastes; measures oceanographic parameters using electronic water quality sensors and water samples; collects sediment samples in order to characterize assemblages of benthic organisms, physical compositions of sediments, and levels of chemical contaminants; collects macroinvertebrates and demersal fish;

Prepares cultures and makes laboratory studies of microscopic organism such as plankton, benthic invertebrates and aquatic plants to determine effects of physical and chemical factors; prepares reports and recommendations relating to efficiency of laboratory techniques to isolate, identify, and preservemicroscpic and macroscopic organisms; performs

microbiological research relating to water quality or wast e
receiving water standards; investigates and develop s
bacteriological testing methods and laboratory media for use i n
determining quality of potable and waste receiving water ;
conducts studies to determine the effects of varying chlorin e

dosages on the water distribution system or water receiving chlorinated wastes; monitors the effect of blending chlorinated and chloraminated water and recommends corrective changes if required; monitors for nitrification in covered storage reservoirs, tanks, and distribution systems; tests construction material to determine its conduciveness to biological growth or leaching of organic compounds; correlates and interprets research results; makes recommendations relating to improvement of water quality or waste receiving water protection;

Makes microscopic studies of water into which sewage or industrial waste is discharged; reports on the type, count, and related factors regarding the biological and bacteriological content of samples; prepares bacterial cultures; makes studies of the effect of chlorination on raw and treated sewage; does research to determine pollution factors;

Makes microscopic tests of digesting and activated sludge; tests for levels of indicator bacteria in all stages of sewage treatment and in waste receiving water to determine conformance to legal standards; makes research studies of bacteria, protozoa, and fungi found in sewage treatment processes; makes laboratory examination of coliforms and other bacteria found in water samples; prepares graphs, statistical studies and reports;

Evaluates the results of tests, examinations, and observations through comparisons of data over time; determines the need for water quality control and the appropriate types of structural, functional or operational changes; may recommend cleaning of tanks and reservoirs, flushing of mains, changes in sources of water supply and chlorine dosages, and other procedures to improve water quality;

May assign and review the work of Laboratory Technicians engaged in routine analyses of fresh water and wastewater; and may occasionally be assigned to other duties for training purposes or to meet technological changes or emergencies.

Qualifications: A good knowledge of the fundamentals of botany and biology, including marine biology, algology limnology, zoology, and bacteriology; a good knowledge of microscopic plant and animal life as found in fresh water, sea water, and wastewater; a good knowledge of the use, parts, and optics of the compound microscope; a good knowledge of the use of field equipment used in making plankton surveys, benthic sediment surveys, and gathering limnological oceanographic data; a good knowledge of laboratory procedures, particularly as related to bacteriological analyses of water and wastewater samples; a good knowledge of statistics and experimental design sufficient to

test hypotheses in the most accurate and economical way possible; a good knowledge of the proper use and care of laboratory equipment including the sterilization of glassware; a good knowledge of sanitary and safety procedures required in a laboratory; a working knowledge of the California Department of Health Services and the Environmental

Protection Agency regulations for bacterial testing at public water supplies; a general knowledge of laws and regulations related to equal employment opportunity and affirmative action; a general knowledge of City personnel rules, policies, and procedures;

Ability to prepare a variety of culture media, dyes, and reagents used in a water or sewage bacteriological laboratory; the ability to make microscopic examinations of a variety of organisms; the ability to keep records and make reports; the ability to assign and review the work of a group of laboratory employees; the ability to communicate clearly and effectively both orally and in writing; the ability to collect samples as required aboard a monitoring vessel at sea under varying weather conditions;

Graduation from a recognized four-year college or university with completion of 24 semester or 36 quarter units in either biology, botany, or zoology is required for Water Biologist. Courses in bacteriology, chemistry, microbiology, and algology are desired, but not required.

Some positions may require a valid California driver's license and a good driving record prior to appointment.

Physical Requirements: Strength to perform average lifting of up to 15 pounds and occasionally over 25 pounds; body agility and equilibrium involved in such activities such as climbing and balancing; back and leg coordination involved in activities such as reaching, handling, crouching and crawling; arm, hand and finger dexterity with at least one hand involved in such activities as reaching, handling, and feeling; good speaking and hearing ability; and good eyesight.

Persons with medical limitations may, with reasonable accommodations, be capable of performing the duties of some of the positions in this class. Such determination must be made on an individual basis in light of the person's limitations, the requirements of the position, and the appointing authority's ability to effect reasonable accommodations to the person's limitations.

As provided in Civil Service Commission Rule 2.5 and Section 4.55 of the Administrative Code, this specification is descriptive, explanatory and not restrictive. It is not intended to declare what the duties and responsibilities of any position shall be.