



Delta Mosquito & Vector Control District

Job Description:

Biologist

DEFINITION

Under the general direction of the Scientific Program Manager, the Biologist conducts a variety of field and laboratory procedures to support the District's vector and vector-borne disease surveillance programs and completes other related tasks that support the District mission as required.

POSITION STATUS

Full-time, FLSA exempt, probationary position.

PAYSCALE

Five-step pay scale: \$86,154.48 to \$107,693.10 annual salary. Health, vision, and dental insurance. Paid District holidays. Vacation and sick leave accrual.

DISTINGUISHING CHARACTERISTICS

The Biologist position differs from the lower class of Laboratory Technician II in that the Biologist must obtain and maintain the California Department of Public Health Vector Control Technician certification in Categories A, B, C, and D. Biologists are qualified to perform laboratory operations including vector surveillance, vector-borne pathogen surveillance, insecticide resistance monitoring, insectary tasks, and fish hatchery tasks. Additionally, Biologists assist in purchasing laboratory supplies, inventory, preparing reports, maintaining laboratory equipment and facilities, and are encouraged to actively participate in Mosquito and Vector Control Association (MVCAC) and publishing in peer-reviewed journals.

ESSENTIAL FUNCTIONS

Under the general direction of the Scientific Program Manager (SPM), the Biologist carries out assignments as trained, the details of which have been planned and organized by supervisory staff. Work is performed in accordance with established methods and safety protocols. Work assignments support the District's vector and vector-borne disease surveillance and control programs. Biologists are required to practice effective time-management skills to successfully complete assigned tasks independently or cooperatively with others.

Biologists carry out surveillance and control activities for mosquitoes and other vectors such as ticks, fleas, and kissing bugs. The Biologist prepares, sets, and collects vector surveillance traps throughout the District as well as cleans, maintains, and repairs traps as needed. Biologists process daily trap catches including sorting, identifying, tallying, and preparing vector specimens and other biological materials for in-house laboratory diagnosis and/or shipment for further analysis.

The Biologist tests mosquitoes, vertebrates, and other biological materials for the presence of vector-borne pathogens, such as West Nile virus, using established protocols. Biologists collect animal and bird carcasses that are potentially infected with vector-borne pathogens and prepare samples for analysis. They test and evaluate new technology as needed.

The Biologist maintains a healthy, stocked mosquitofish hatchery by cleaning fish tanks, testing water quality, adjusting water quality parameters, feeding fish stock, and carrying out other tasks as required. Biologists distribute mosquitofish to homeowners and vector control technicians.

Biologists process field larvae samples, maintain susceptible mosquito colonies, and monitors for insecticide resistance. The Biologist carries out routine insecticide resistance studies and efficacy studies including CDC bottle bioassays, larvicide assays, and field cage trials. They may assist operations in control activities including equipment calibration and application of a variety of insecticides.

Biologists use computers, mobile data collection devices, and paper to accurately record daily activities relating to surveillance, specimen collection, safety inspections, and other laboratory activities. Biologists are required to maintain detailed and accurate records of routine activities, experimental procedures, and results. They compile and analyze data, write reports, and publish. Biologists assist the SPM in maintaining inventories, planning laboratory activities, training seasonal workers, and laboratory purchases.

Biologists must safely drive motor vehicles on public and private roads as well as operate hand and power equipment and other tools. They use a combination of mobile mapping applications, such as Google or Apple maps, and paper maps to safely navigate throughout the District. The individual is expected to maintain a clean and safe work vehicle and to maintain associated equipment appropriately. Mechanical issues with their assigned motor vehicle or other equipment are promptly reported.

Biologists assist in maintaining a clean and organized workplace, which includes disinfecting work counters, sweeping, mopping, taking out trash, organizing, and other necessary activities. They participate in routine equipment and facility maintenance including calibrations, inspections, and minor repairs.

The Biologist works throughout the District including on public, residential, agricultural, and commercial properties in a variety of conditions. When Biologists interact with members of the public, they must do so in a calm, courteous, and professional manner. Biologists may assist with public outreach activities to increase awareness of the District's mission, vector-borne diseases, and vector control.

Biologists attend training sessions and read a variety of written material to keep informed of regulations, policies, and procedures. They notify the SPM of progress and problems, requesting consultation as required, and are responsible for following all protocols and guidelines provided. Biologists stay up to date on vector control issues, research, technology, and techniques. Biologists participate in the annual training of seasonal employees.

The individual must follow all safety policies and wear appropriate protective equipment as required by Federal, State, Local, and District policies and regulations. Physical labor such as cleaning fish tanks, walking over rough terrain, as well as loading and carrying surveillance equipment and supplies to work vehicles, trap locations, and storage areas is necessary. Appropriate personal protective equipment is supplied for all activities.

Other duties that support the District's goals may be assigned.

PROBATIONARY PERIOD

A twelve (12) month probationary period is required.

QUALIFICATIONS

Any combination of experience and education that provides the desired knowledge and abilities. Candidates with previous vector control related field, laboratory, or research experience preferred.

Education:

- Master of Science degree in biology, entomology, parasitology, ecology, public health, microbiology, environmental sciences or other closely related fields OR
- Bachelor of Science degree in biology, entomology, parasitology, ecology, public health, microbiology, environmental sciences or other closely related fields AND two (2) years experience in vector control or a related field.

Knowledge of:

- Standard vehicle operation including observing legal and defensive driving practices.
- Reading, writing, and oral communication.
- Time management and working independently as well as cooperatively with others.
- Mobile phone, tablet, and computer operations including applications such as text documents, spreadsheets, and statistical software.
- Basic mathematical operations and statistical analysis.
- General biology, epidemiology, ecology, parasitology, and medical entomology.
- Basic mosquito life cycle and field identification of genus and immature life stages.
- Basic principles and practices of vector and vector-borne disease surveillance and control.
- Principles and methodologies involved in scientific investigations including sampling methods and data collection.
- Molecular diagnostic techniques including RNA/DNA extraction and qRT-PCR.
- Safe use and handling of pesticides and other job related chemicals.
- General laboratory hazards, safety precautions, and procedures.
- Quality assurance and quality control procedures.
- Accurate recordkeeping.

Ability to:

- Plan and carry out required tasks with minimal supervision.
- Understand and follow oral and written instructions including those in text, diagram, or schedule form.
- Establish and maintain good working relationships with the public and fellow employees.
- Make accurate observations and maintain detailed records, field notes, and maps.
- Record data accurately using a mobile device and computer.
- Compile and analyze data for reports and publications.
- Navigate to various locations using a mobile device and/or paper maps.
- Understand Safety Data Sheets and chemical or pesticide label information.
- Complete daily vehicle safety inspection, fuel vehicle, and maintain a clean, organized work vehicle.
- Perform moderate to heavy physical labor frequently in temperatures above 90 degrees Fahrenheit.
- Calculate accurately, measure accurately, and adjust required supplies and equipment.
- Learn how to safely operate a manual transmission vehicle.
- Use personal protective equipment correctly.
- Use microscopes, pipettes, biological safety cabinets, chemical fume hoods, and

- centrifuges.
- Use dichotomous keys to identify specimens.

Licenses, certificates, and other special requirements:

- Possession of a valid California Class C driver’s license with a good driving record during the entire time of employment. Employees are enrolled in the DMV Pull Notice Program.
- Must qualify for insurance coverage by the District’s insurance carrier during employment. No major violations and no more than 3 points in a 12-month period, 5 in a 24-month, or 7 in a 36-month period on driving record. A DMV printout is required.
- Must be at least 18 years old.
- Successful completion of pre-employment physical examination and drug screening paid for by the District.
- Must pass and maintain Category A, B, C, and D of the California Department of Public Health Vector Control Technician Certification exam within 12 months of hire date.

WORKING CONDITIONS & SUPPLEMENTAL INFORMATION

The majority of the work in this position is performed in high humidity and/or temperature environments including the insectary, fish hatchery, and outdoors in varying temperatures and within and around various types of aquatic habitats including polluted water sources. Hazards may include insect bites, chemicals, fumes, dust, hazardous materials, venomous insects, vectors, vector-borne diseases, rough terrain, inclement weather conditions, vicious animals, poisonous plants, and venomous animals. This position requires frequent driving of automatic and/or manual transmission vehicles as well as getting in and out of vehicles frequently.

The following list of mental and physical demands are required to successfully perform the essential job duties of this class:

- Be physically able to perform manual labor, lift weights up to 50 pounds.
- Work under hot and unpleasant weather and environmental conditions, outdoors and indoors.
- Perform repetitive motions such as those associated with mobile device usage and loading/unloading work vehicles.
- Walk long distances and traverse rough, sloping and/or uneven ground such as yards, fields, dirt banks, stream beds, and shallow ponds.
- Be able to swim.
- Be able to tolerate insect bites and stings such as mosquito bites and, bee stings, etc.
- Be able to be vaccinated for various diseases to which the employee may be exposed to in the course of duties. Vaccinations may be required, at District expense, depending on changing exposure risk. The following vaccinations may be required within one year if employment: Covid-19, rabies, hepatitis, and tetanus.

Physical Demands:

Physical Activities	Rarely*	Sometimes*	Often*
Stand			X
Walk			X

Physical Activities	Rarely*	Sometimes*	Often*
Sit		X	
Use hands to manipulate, feel, hold, or handle			X
Reach with hands and arms			X
Climb or balance			X
Stoop, kneel, crouch, bend, or crawl			X
Talk or hear			X
Taste or smell			X
Lift up to 10 pounds			X
Lift up to 25 pounds		X	
Lift up to 50 pounds		X	
Lift up to 100 pounds	X		
Lift over 100 pounds	X		

* Rarely refers to 0-33%, Sometimes is 33-66%, and often is 66-100% of the work day.

Vision Requirements

Close vision (clear vision at 20 inches or less): Identification of species and stage of larval development, driving, and use of a microscope.

Distance vision (clear vision at 20 feet or more): Environmental evaluation, control of vector sources, safety, and driving.

Peripheral vision (ability to observe an area that can be seen up and down or to the left and right while eyes are fixed on a given point): Environmental evaluation, control of mosquito vector source, safety, and driving.

Depth perception (three-dimensional vision, ability to judge distances and spatial relationships): Environmental evaluation, control of mosquito vector source, safety, and driving.

Environmental Working Conditions

Work Environment	Rarely*	Sometimes*	Often*
Wet or humid			X
Near moving mechanical parts		X	
Outdoor weather conditions			X

Fumes of airborne particles		X	
Toxic or caustic chemicals			X
Extreme heat			X
Moderate Noise levels consistent with light traffic			X
Elevated Noise levels consistent with automotive repair shop			X

* Rarely refers to 0-33%, Sometimes is 33-66%, and often is 66-100% of the work day.

The Delta Mosquito and Vector Control District is an Equal Opportunity Employer and does not discriminate on the basis of race, color, creed, ancestry, national origin, gender, marital status, sexual orientation, religion, age, veteran status, or disability.

The Delta Mosquito & Vector Control District reserves the right to modify, delete, augment, or supplement the duties, qualifications, and requirements stated at its sole and absolute discretion.

I, _____, have read and understand the job description for the Biologist position including the essential work functions of this position. I am fully capable of performing all aspects of the Biologist position while employed by the Delta Mosquito and Vector Control District.

Signature

Date