



Fisheries Biologist

ROLE OVERVIEW

A Fisheries Biologist is an in-house expert on the operation and management of fisheries and habitat.

Fishery biologists are life scientists specializing in the study of aquatic life, specifically fish, in man-made or naturally occurring areas stocked with fish. These areas can include stocked rivers, ponds, lakes, streams, ocean, fish hatcheries, and fish farms. Fishery biologists use a variety of knowledge-based methods and research tools and instruments to measure the health levels of fish and the surrounding ecosystem. They typically work in an outdoor setting, evaluating and researching specific sites or species; however, laboratory experimentation and data analysis are often required.

Fishery biologists may have clerical functions such as preparing reports or other documentation on their findings and/or recommendations. They may work alongside other biologists with similar or overlapping areas of expertise, such as aquatic plant specialists, aquatic mammal specialists or other scientists whose field of study involves aquatic ecosystems. Fishery biologists may also work alongside the employees of a fish farm or fish hatchery, where their job would be to ensure the health and well-being of the stock animals.

STRATA LEVEL: 3B – Technical Specialist

Also Known as:

- Wildlife Biologist
- Fisheries Specialist
- Marine Fisheries Biologist
- Fisheries Consultant

Education and Experience:

- Minimum of a bachelor's degree in biology, aquatic sciences, resource management ecological restoration, or related discipline.
- Preferably a masters or doctoral degree in biology, aquatic sciences, resource management ecological restoration, or related discipline.
- Registered or eligible to register as a Professional Biologist (In Alberta and British Columbia)
- At least 5 years of related practical experience

Associated NOC(s):

- **2121.1** – Biologists



TECHNICAL



Scientific Research Projects

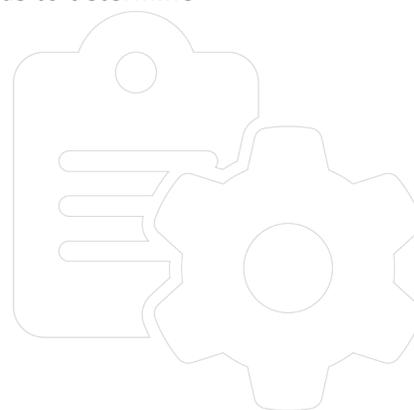
Designs and implements research projects that follow the scientific methods using empirical and/or measurable observation in their research to improve, correct or increase knowledge in a field of study to solve specific problems.

- Identify and define the project purpose, scope, and objectives to plan project resourcing, risks, and techniques to effectively manage project throughout lifecycle.
- Identify appropriate formats and system to capture and store scientific data to conform with relevant standards.
- Contributes to study design for fisheries programs to address the impacts of departmental initiatives, plans and activities.
- Collects and analyzes biological and physical data to understand the ecological relationships within an environment.
- Researches the environmental effects of water and land use areas to determine the impacts of departmental initiatives, plans and activities.
- Presents hypothesis, findings, and conclusions of scientific research to publish results in scientific journals or other forms of dissemination.
- Oversees requests for proposals to submit proposals to obtain project funding.

Data Analysis

Applies recognized statistical tools and techniques to interpret and analyze data for the purposes of uncovering trends, patterns, and opportunities to enable strategic decision making.

- Applies advanced quantitative data analysis techniques and methods to determine characteristics, trends, and impacts.
- Applies advanced qualitative data analysis techniques and methods to determine characteristics, trends, and impacts.
- Compares results with primary data to make recommendations to decision makers.
- Prepares technical and research reports on observations, findings, and/or impacts to communicate conclusions to stakeholders, industry, government, or the public.



Database Administration

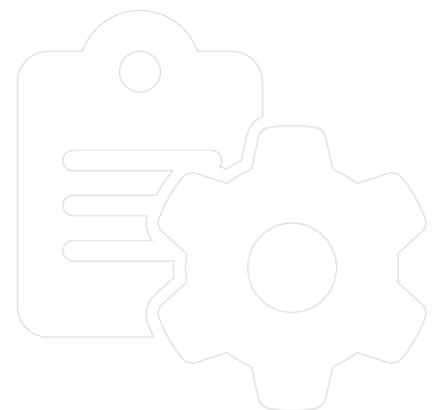
Organize and maintain databases to ensure that information is available and accessible to the organization to facilitate analysis, research, and decision making.

- Uses appropriate software to maintain organized and up to date information logs.
- Collates information from a range of sources to produce a single comprehensive dataset.
- Contributes to the development of scientific databases to maintain and update information.
- Contributes to developing protocols for database management to ensure regulatory compliance.
- Applies query programming knowledge to access and manage scientific data.
- Stores and archives fisheries population data to create searchable repositories to maintain transparent record keeping.

Project Team Management

Oversees a team of professionals to execute a project on time and budget, meeting project's objectives.

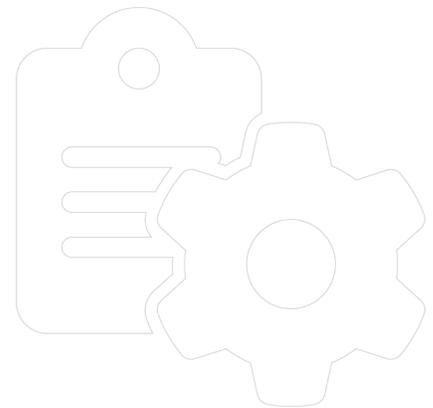
- Provides direction and supervision towards project planning, implementation, and monitoring for the technical aspects of a project.
- Provides direction and supervision to junior technicians and technologists to ensure project scope, milestones, and timeline are clearly understood.
- Manage tasks according to approved scope of work to deliver quality reports on schedule and within budget.
- Contributes to the development of detailed work plans and tasks for field crews to ensure work is effectively allocated to achieve desired goals in an appropriate time frame.



Stakeholder Relations Management

Working in partnerships with all necessary partners, the project is to be development to ensure the project addresses stakeholder requirements and concerns. identify stakeholder concerns and requirements to execute a achieve a holistic project, process, or program.

- Consult with relevant stakeholders to identify any issues with existing or proposed work to inform decision making.
- Explain opportunities for the protection or improvement of marine areas to relevant stakeholders to communicate organizational project plans.
- Identify potential issues with current or proposed marine use to develop and evaluate potential solutions.
- Record and monitor consultation outcomes to communicate results and actions with relevant stakeholders throughout the project's lifespan.



PERSONAL AND PROFESSIONAL



Communication

Positively directs outcomes by communicating results in relation to project's goals and objectives to capture interest and gain support for immediate action.

- Provide technical guidance to clients and staff to ensure clients are connected to a subject matter expert when necessary.
- Prepares comprehensive reports that clearly identify project objectives, scope, research findings, alternatives, and recommendations to create a defensible assessment report.
- Actively listens to team members to address concerns and integrate ideas, values, and new information where appropriate.
- Actively participates in or leads inter/intra-departmental teams to generate ideas and solutions, solve problems, and improve overall organizational performance.
- Verbally conveys complex technical information accurately, clearly, and effectively to communicate technical operations and results.

Problem Solving

Identifies problems and uses logic, judgement, and evidence to evaluate alternative scenarios and recommend solutions to achieve a desired goal.

- Considers the impact to the organization and environment when analyzing specific project objectives and goals.
- Analyzes operational data to evaluate operations, understand trends, and potential areas of concern to take appropriate action where required.
- Considers all pieces of information when attempting to solve problems to produce a cognizant and comprehensive solution.
- Takes an unbiased stance to interpreting new information to solve a problem in an object manner.



Collaboration

Engages in professional collaborative efforts with other members of the team, including sharing information and expertise, utilizing input from others, and recognizing others' contributions to work towards a common goal.

- Provides operational and technical expertise to ensure harmonious and efficient operations.
- Shares relevant and useful knowledge, experience, or expertise to aid team members accomplish their objective more efficiently or effectively.
- Works cooperatively with multiple stakeholders, demonstrating a willingness to consider alternative approaches, ideas, or insights.
- Provides team members with constructive feedback and perspective to aid in the completion of a task or goal.
- Liaises with intra-departmental teams to establish priorities and provide technical support.
- Develops and maintains effective working relations with stakeholders, individuals, agencies, and the public to encourage cooperative partnerships or facilitate information findings and interpretations.



LEGAL, REGULATORY, AND POLICY



Regulatory Compliance

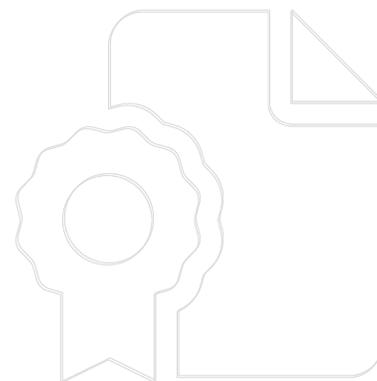
Adheres to specific regulations, codes, and legislation within a defined jurisdiction to ensure the health and safety of others.

- Demonstrate knowledge of provincial and federal aquatic legislation and regulatory agencies.
- Provide oversight on provincial and federal regulatory requirements associated with working in and around water and wildlife habitats.
- Applies for licenses to collect fish for scientific purposes.
- Consults with different government agencies to secure regulatory approvals and permits.
- Prepares permit and/or regulatory approval applications to obtain project approvals from agencies.

Health and Safety Procedure

Abides by and advocates specific workplace safe operating procedures and occupational health and safety requirements within a defined jurisdiction to ensure the health and safety of others.

- Establishes safeguards and best practices within a project team to align with organizational health and safety plan to ensure the safety of all team members.
- Leads routine safety meetings with project team members to ensure all parties are aware of potential risks and hazards.
- Participates in safe workplace training as required to ensure an up to date understanding of health and safety best practices.
- Adheres to appropriate health and safety procedures in all aspects of work to ensure zero-incidents.
- Use appropriate personal and protective equipment while sampling fish populations to maintain hygiene and biosecurity while collecting data from fish populations.
- Use appropriate personal and protective equipment while conducting field and laboratory work to maintain hygiene and biosecurity.
- Sterilize equipment following use to mitigate biosecurity risks.



ENVIRONMENTAL



Fish Sampling

Captures or observes fish to sample the population(s) for the purposes of obtaining information about the characteristics of fish populations or communities, in relation to the habitats they occupy.

- Considers habitat, species, and environmental conditions to determine sampling method(s) and gear to assess fish populations.
- Applies appropriate survey methods obtain a quantitative measurement of a habitat's characteristics.
- Uses low intensity qualitative surveys or alternative survey methods to calculate the distribution of fish and relative abundance of aquatic populations.
- Calibrates and adjusts electrofishing equipment to effectively create electric fields for the purposes of sampling fish populations.
- Selects an appropriate method to attempt to reduce sampling error introduced by size-related differences in efficacy.
- Monitor, record, and chart dynamic environmental parameters that may impact aquatic ecosystems and/or organisms to ensure accuracy and reproducibility.

Fish Habitat Assessment

Conducts quantitative assessments of fish habitats, comparing against baseline conditions, to assess factors that limit fish production in an area.

- Collate existing information from maps, photographs, fish distribution, habitat use to establish a baseline for the area of study.
- Determine the quality and quantity of fish habitats by fish species and life stage to ascertain which species are at risk.
- Identify potential at risk species and stocks as targets for habitat restoration efforts.
- Measure and assess fish passage/stream crossing structures to support fish populations and inform decision makers.
- Identify and quantify fish habitat disturbance indicators to provide sufficient information to identify and prioritize restoration options.
- Conduct a quantitative stream pebble count to evaluate sediment processes in streams to assess erosion rates, stream characters, sediment supplies, and other parameters.



- Evaluate fish habitat conditions in relation to potential impairment or limitations of supporting fish populations.
- Recommend preliminary fish habitat restoration strategies or mitigative measure to improve a habitat ecological characteristic.

Fish Habitat Restoration

Performs restorative or mitigative efforts in a specific location to improve the ecological habitat for aquatic populations.

- Considers habitat, species, and environmental conditions to determine fish habitat restoration measures.
- Identify and apply stream hydrology or river engineering principles to assess stream resources and establish proper restorative efforts.
- Lead the development of a comprehensive and defensible strategy for restoring fish habitats.
- Identify and contrast physical design considerations and project selection criteria for determining in-channel restoration techniques, in-stream habitat offset, and compensation/mitigation projects.
- Evaluates and monitors the construction and installation of instream, off-channel, or streambank restoration techniques and structure to ensure restoration project is completed successfully.

Fish Mortality Incidents

Responds to fish-kill incidents to determine the cause of mortality and take appropriate actions to reduce and prevent future fish deaths.

- Monitor a fish-kill incident to determine the nature and likely cause of fish stress or death and to report the incident to an appropriate authority.
- Prepare, maintain, and deploy equipment to respond to fish kill incident to control and minimize the impact of the fish-kill incident.
- Prepare holding units to receive and maintain the condition of live fish captured from the fish-kill incident.
- Adheres to legal, environmental, and organizational requirements to dispose of dead fish and waste.

