

**Finfish and Shellfish Bacteriology Manual:
Techniques and Procedures**

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Iowa State Press (Blackwell Publishing Professional), Ames, IA, USA.
(2004). 288 pages. ISBN 0813819520 US \$49.99

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Despite the fact that several good texts have been published regarding the description and nature of bacterial pathogens in aquatic animals, there remained a need for a comprehensive, yet practical guide devoted to techniques and procedures used for bacterial identification. Diagnosis and detection of fish and shellfish pathogens often requires reliance upon standard microbiological media, tests, and reagents for some bacteria, but more specialized assays are required for many aquatic pathogens. In the latter case, the products necessary for such assays are not commercially available and must be produced in aquatic animal diagnostic facilities from their basic ingredients. Often, therefore, the compositions of differential media and the conduct of certain tests for the primary isolation or detection of specific aquatic pathogens are only available by referencing the general body of published scientific literature. Hence, until now, there has not been a single-source shelf-volume that combines standard microbiological procedures used for routine detection and identification of medically important bacteria with the specialized needs of the fisheries profession. This manual, however, helps to fill that void.

The manual stands as a reference suitable for professional aquatic biologists with backgrounds in microbiology, veterinarians, and students of aquatic animal health. Its strength lies in its coverage of the subject matter regarding culture-based diagnosis and identification of bacteria associated with finfish, bivalves, and lobsters. Sections on

*International Journal of Recirculating Aquaculture 5 (2004) 55-56. All Rights Reserved.
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aseptic collection and shipment of samples, qualitative and quantitative procedures for bacterial isolation, staining techniques, media and standard biological tests used for the cultivation and phenotypic characterization of pathogenic bacteria, and antibiotic sensitivity testing provide sound background for the student or novice practitioner. Particularly beneficial for anyone who is not experienced with aquatic microbial pathogens is the section listing principal organs, media, and appropriate incubation temperatures to be used as the most probable sources of isolation for the specific bacteria.

More experienced professionals will find it helpful and convenient to have the descriptions and interpretations of differential media (e.g., Coomassie Brilliant Blue Agar for *Aeromonas salmonicida*; Rimler-Shotts Agar for *Aeromonas hydrophila*; Cytophaga Agar, Shieh, and TYES for *Flavobacterium* spp.; and *Edwardsiella ictaluri* Agar and various other media for *Renibacterium salmoninarum*) listed in a single source. The major identifying criteria that phenotypically characterize selected bacterial pathogens are also described in tabulated form. Specialized tests, such as the SIF test to detect covert infections, nurse culture techniques for enhanced bacterial growth, and assays for public health indicator organisms in bivalves are documented. Sections covering serology, immunoassay, and non-cultured based molecular assays (e.g., polymerase chain reaction) are also presented, but are not as completely summarized as those for bacterial isolation. In summary, the nature of this manual makes it appropriate for frequent use as a practical laboratory guide.