

QUALIFICATIONS

BSc, Bacteriology, South Dakota State University, 1965

MSc, Bacteriology, South Dakota State University, 1967

PhD, Microbiology/Oceanography, Oregon State University, 1970-71

Post-Doctoral Fellow, Oregon State University, 1970-71

Post-Doctoral Fellow, Cawthron Institute, 1971-73

Post-Doctoral Fellow, Woods Hole Oceanographic Institute, 1974-77



PROFESSIONAL AFFILIATIONS

American Society for Limnology & Oceanography

American Society for Microbiology

NZ Marine Sciences Society

ROLE AT CAWTHRON

Manager of a research investigation of land catchment effects on coastal and estuarine ecosystems. Marine and Freshwater scientist with particular expertise on water quality, benthic microbial processes, nutrient dynamics and primary production.

SPECIAL INTERESTS & ACHIEVEMENTS

Paul's primary field of interest is the microbial ecology of aquatic habitats and the effects of nutrient enrichment on microbial processes. His research has focused on the collection of benchmark data (physical, chemical, biological) for development of methods for environmental quality assessment.

Published works include classification of the state of enrichment of New Zealand lakes according to microbial characteristics, studies of phytoplankton and benthic microalgal production and ecology in coastal environments and estimates of autotrophic and heterotrophic processes on intertidal flats. Results of the latter project have been used to identify the comparative state of enrichment of a variety of natural and disturbed intertidal habitats and to develop a National protocol for the assessment and monitoring of estuarine health.

As part of the Motueka Integrated Catchment management Programme (2000-2010), Paul's research investigated the effects of land use activities on the coastal marine environment and biological resources of Tasman Bay. Through this work he expanded the size of the catchment to include the area affected by land runoff and developed the river plume ecosystem approach as a major step towards integrated coastal management.

Consulting contracts have included numerous site evaluations for marine farm developments and a wide

range of coastal impact assessments (e.g. of large-scale herbicide spraying of invading *Spartina* grass in salt marsh habitats, marine farming, wastewater outfalls, land disposal of sewage sludge, log harvesting/sedimentation, harbour maintenance activities, and ferry wake disturbances).

Research and consulting experience has been extended to the presentation of expert evidence at environmental planning tribunals and consent hearings and external peer review services for ecological investigations.

Paul's knowledge transfer record includes 40 publications in refereed scientific journals and >120 reports to clients.

SELECTED PUBLICATIONS

Gillespie P, Forrest R, Peak B, Basher L, Clement D, Dunmore R. Spatial delineation of the depositional footprint of the Motueka River outwelling plume in Tasman Bay, New Zealand: Submitted to NZJMFR special issue 2011.

Forrest BM, Gillespie PA, Cornelisen CD, Rogers KM 2007. Multiple indicators reveal river plume influence on sediments and benthos in a New Zealand coastal embayment. NZJMFR 41: 13-24.

Tuckey BJ; Gibbs MT; Knight BR; Gillespie PA 2005. Tidal circulation in Tasman and Golden Bays: implications for plume behaviour. NZJMFR. 40: 305-324.

Christensen PB; Glud RN; Daalgaard T; Gillespie P 2003. Impacts of longline mussel farming on oxygen and nitrogen dynamics and biological communities of coastal sediments. Aquaculture 218: 567-588.

Gillespie PA; Maxwell PD; Rhodes LL 2000. Microphytobenthic communities of subtidal locations in New Zealand: taxonomy, biomass and food web implications. NZJMFR. 34: 41-53.