Most people associate bacteria with food poisoning, unsanitary conditions and disease, or those unpleasant pink dots on forgotten food at the back of the fridge. We also tend to think a disease is caused by a single species that invades its host and overcomes its defences. Professor Gibb will discuss how far we have come from the view that disease is caused by ‘bad air’ that spontaneously generates ‘germs’. Thanks to DNA technologies, microbiologists are emerging from the world of culture plates and microscopes. We can now talk about microbial ecologists who use these new technologies to study microbial ‘landscapes’, and in so doing have discovered the incredible biodiversity and function of bacteria in even the most inhospitable environments. This relatively new field of research is providing exciting insights into how bacteria form ‘cities’ that communicate and respond to changes in the environment, and how they act as early warning sentinels of change. Professor Gibb will also draw on research to reveal how bacteria are helping us to understand our local environment, with a particular focus on Darwin Harbour.
Professor Karen Gibb is an environmental microbiologist with 28 years’ research experience. She leads the Environmental Chemistry and Microbiology Unit (ECMU), which is a research and commercial unit at Charles Darwin University. Professor Gibb and her team investigate the source of contaminants and interpret changes in marine, estuarine and aquatic environments. ECMU’s research has supported important improvements in the methodologies and policies that underpin the sustainable management of marine, estuarine and aquatic systems across Northern Australia. Government now mandates some of the methodologies developed by ECMU for environmental monitoring. Professor Gibb has published 120 journal articles, and in 2006 she was awarded, with two colleagues, the Northern Territory Research and Innovation Tropical Knowledge Award for Research.