

**Professor Beth Okamura**  
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*Beth's early passion for beach-combing led to a career studying the fascinating 'moss animals', which unexpectedly led to the chance discovery of the source of a devastating fish disease.*



Exploring tidepools and beach debris from an early age inspired me to pursue research on the weird and wonderful creatures that live in aquatic environments. My PhD at the University of California, Berkeley allowed me to investigate the ecology and evolution of tiny invertebrates known as bryozoans or 'moss animals'. These intriguing animals build colonies of varying sizes and shapes that sometimes look a bit like miniature corals, and are common but overlooked residents of the sea floor. My PhD and postdoctoral research focused on the adaptive significance of colony form by assessing how the bryozoans feed on suspended food particles in laboratory flumes. This showed that food gathering rather than protection from biotic enemies may have driven integration within colonies over time.

Following a series of one-year postdoctoral fellowships in Wales, Florida and Nova Scotia I gratefully accepted a longer fixed term position as a Departmental Demonstrator in Invertebrate Zoology at the University of Oxford's Department of Zoology. This enabled me to develop new research on the population biology and dispersal of freshwater organisms and on interactions between colonial hosts and their endoparasites. In a singular example of serendipity and the importance and unpredictability of curiosity-driven research, I discovered that freshwater bryozoans are the long-sought source of a devastating disease of salmon and trout known as proliferative kidney disease (or PKD) by acting as hosts of the myxozoan parasite that causes the disease. This discovery led to identifying factors that may explain why PKD is an emerging disease of wild and farmed salmonid fish and to controversial research on the nature of the highly enigmatic Myxozoa which we now know to be a spectacular radiation of endoparasitic cnidarians (the phylum containing sea anemones and jellyfish) that utilise marine, freshwater and terrestrial hosts.

During the course of this research I was promoted from Lecturer to Professor, based first at the University of Bristol and then at the University of Reading. My move to the Natural History Museum (NHM) in London has provided exciting opportunities for overseas fieldwork (e.g. in Thailand, South



Freshwater bryozoan

Africa, Japan and Borneo) and enables me to pursue my passion for the weird and wonderful by gaining novel insights into global biodiversity patterns of freshwater bryozoans and their myxozoan parasites, and examining organismal responses to environmental change and risks of emerging diseases. As a scientist at the NHM I enjoy freedom and time (80%) to pursue research within broad strategic aims, so the benefits of the IMP scheme for me include promotion to senior levels and peer recognition.