The goal of my research project in France is to better understand the physiological role of a specific protein involved in the oyster’s response to ocean acidification (elevated pCO2). Through my previous work in proteomics, I have identified proteins that are critical to the oyster’s response to ocean acidification. In France I will work with researchers to develop assays to measure the expression of at least one of these biomarkers, specifically mitogen-activated protein kinase kinase, at the gene (qPCR, in-situ) and protein (Western Blot, immunohistochemistry) levels. We will then use these approaches on oysters at different developmental stages and under a variety of environments. Ifremer has a wide range of samples available for this type of work. We will gain not only a better understanding of the physiology of this ecologically and economically important species, but we will develop well characterized biomarkers for future ecological research. My research methods to date have focused on the system level response to ocean acidification and the project in France will provide an opportunity to gain a better understanding of invertebrate physiology at the molecular level.