

## MASTS – PECRE Final report: Dr April Blakeslee/Anna Kintner

Host Institutions:

Long Island University – Dr April Blakeslee, host

University of St Andrews – Anna Kintner, host

### Background

Our exchange aimed to complete sampling and prepare phylogeny-identifying genetic sequences of the plankton-dispersed hydrozoan *Obelia geniculata*. PECRE provided for two years of sampling, including providing for Ms Kintner and Dr Blakeslee to spend one month in Scotland conducting field collection of *Obelia* hydroids throughout the northern West Highlands, Orkney, and Shetland, and to carry out an abundance survey of hydroids in Shetland waters. These samples were then carried back to Dr Blakeslee's home institution of Long Island University, where the hydroids were prepared and a representative genome region sequenced for population genetics and dispersal analysis. Dr Blakeslee was afforded the opportunity to apply her expertise in invasive species dispersal to new population genetics questions, and to learn required sampling protocols. The second part of the exchange, at Long Island University, gave Ms Kintner the benefits of Dr Blakeslee's experience and laboratory resources in preparing and sequencing the hydroids sampled in Scotland. Finally, the exchange allowed for further *Obelia* sampling in New England waters, south of Rhode Island's Narragansett Bay to Mount Desert Island in Maine, and including Shoals Marine Lab in southern Maine.

### Interaction with MASTS community

Dr Blakeslee gave a talk entitled "Using multiple lines of evidence to track novel species invasions" at the University of St Andrews, which was simultaneously webcast to other MASTS institutions. The talk encompassed molecular methods, endoparasite loads, and traditional field monitoring methods as a means of tracking dispersal of invasive species in North America, including European green crabs, Asian shore crabs, and littorine snails. A workshop in intertidal parasitology was also scheduled, but was cancelled due to low subscription during the university off-season. She also assisted in field work conducted in conjunction with the North Atlantic Fisheries College in Shetland. While at Long Island University, Ms Kintner gave a talk entitled "Jellyfish and you: what to expect when you're expecting cnidarians", covering her PhD research on hydrozoan bloom prediction as well as a more general review of the state of research in broad-interest cnidarian ecology.

### Outputs completed and expected

90% of planned genetic sequencing has now been completed; the remaining 10% will include samples collected in North America after the conclusion of Ms Kintner's residence at Long Island University. These have been sent to Dr Blakeslee for preparation and sequencing in the near future. Ms Kintner is currently engaged in organizing and analysing the resulting sequences. These are to be developed into a comparative phylogeny demonstrating gene flow between shallow-water *Obelia geniculata* individuals along the west and north coasts of Scotland, as well as homogeneity in the North Atlantic population when compared individuals in New England waters. Since the medusa stage of *Obelia* sp. hydrozoa has been shown to be harmful to salmon aquaculture in dense blooms, this information will help in marine spatial planning of salmon aquaculture. We have also completed data collection for an abundance survey of *Obelia geniculata* colonies in Shetland, covering varying geography; statistical analyses for this is also underway.

**Future plans enabled by PECRE**

Dr Blakeslee hopes to continue collaborating with the MASTS community in the future, and has already engaged with members in Shetland to undertake phylogeography questions regarding dispersal of sea otters from Scandinavia to northern Scotland. Ms Kintner hopes to expand on the research produced in this exchange to develop her profile and network in both Scotland and the USA, particularly as salmon aquaculture gains a greater industry importance in the Gulf of Maine.

**Award Expenditure (GBP):**

Travel (including flights, ferries, car mileage): 4325

Accommodation: 860

Subsistence: 490

Misc. (e.g. sample postage, visit to Shoals Marine Laboratory): 695

**Total: £6370**