

Hello, and thank you for having me here tonight and allowing me to attend virtually. My name is Phoebe Jekielek. I am currently the Lead Scientist at the Hurricane Island Center for Science and Leadership, am in the process of gaining my PhD in Ecology and Environmental Science at the University of Maine studying the interactions of wild and cultured shellfisheries, and have been working in the wild and cultured scallop industries since 2013. I also established and oversee the management of a 3.2 experimental research aquaculture lease where we grow scallops and kelp using the same systems that are being proposed in this hearing. I am writing and speaking on my own behalf and not representing any of my other professional affiliations here.

Sea scallop aquaculture is identified as the most promising avenue for Maine's economic growth in shellfish aquaculture (Cole, Langston and Davis 2016). In addition to creating jobs and economies, aquaculture provides ecological benefits through the provision of ecosystem services.

Ecosystem services are defined as benefits derived from natural resources (Costanza et al., 1997). In addition to food production, aquaculture provides a variety of ecosystem services including increased nutrient cycling, carbon sequestration and water filtration, habitat provision for other vertebrate and invertebrate species, increasing biodiversity, the maintenance of genetic diversity, and acting to provide larval or adult spillover that may support the maintenance of wild populations (Alleyway et al., 2019). Furthermore, shellfish and algal species do not require feed inputs and actually remove excess nutrients from the system resulting in improved water quality, increased carbon and nitrogen sequestration, increased oxygen production, and the mitigation of ocean acidification (Rice, 2008; Naylor et al., 2021, NOAA 2022). We have seen evidence of these benefits in our own Maine waters and there is a deep commitment from aquaculturists, researchers, managers, and wild harvest industries to collaborate on work to further understand these benefits and also to evaluate the challenges of the growth of aquaculture in Maine.

Aquaculture farms also provide a unique opportunity to conduct research and foster collaboration and engagement across communities. Here in your home waters of Marsh Cove I have been working with Connor and Hannah, in addition to other scallop farms in Penobscot Bay, to collect environmental and biological data to monitor reproduction in wild and cultured scallops to help us better understand how our wild and cultured populations interact and the role scallop aquaculture farms may play in increasing local larval scallop production. This sampling also included plankton sampling which has shown increased plankton diversity at your farm right here in Marsh Cove when compared to a site about 2 miles away from the farm. We are in the process of analyzing all of the data and developing a manuscript for publication to scientific journals, but there is more work to be done and additional studies are taking place this summer.

Aquaculture is not the only answer to all of the economic or ecological challenges we face in our coastal communities in Maine, but it is one tool that can continue to support resilient communities in Maine and is in need of additional research and collaboration to evaluate its potential and its role in Maine's future. I am very happy to discuss this work and collaboration, or anything that you find in this testimony, with any interested parties and to discuss further monitoring or research that the community might be interested in taking place in Marsh Cove. Citations of scientific studies are included in the written testimonial for anyone interested in digging deeper. Thank you for the opportunity to be here today and please do reach out with additional questions or needs.