

Research and Development Performance Progress Report

Performance Progress Report

Grantee:	Alaska Department of Fish and Game Commercial Fisheries Gene Conservation Laboratory
Project Title:	Research & Development: Seaweed genetic diversity analysis
Project Number:	07-79-07901
Period covered by the report:	April 1, 2026 – July 31, 2026
Reporting period end date:	July 27, 2026
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Narrative:

Progress during Q2 2026 has been made by the ADF&G Gene Conservation Laboratory (GCL) on three of six (sub)projects listed in the AMC BBB Project #4 ADF&G Subaward Recipient Revised Statement of Work.

- 1) Data processing and analysis of low-coverage whole genome sequencing (WGS) libraries revealed insight into our extraction method and confirmed broad-scale population structure for sugar kelp. A similar, broad scale analysis of bull and ribbon kelp was completed by Mr. Jalbert (Project Lead) in Q2 2026.
- 2) In Q4 2025 we began DNA extraction of nearly 3000 samples to be used for fine-scale neutral and adaptive population structure and on-farm genetic diversity, which continued during Q2 2026. In Q2 2026, we completed DNA extraction and library preparation for bull, ribbon, and sugar kelp. Additionally, we finalized an invitation to bid with a sequencing provider in Q2 2026. The provider performed quality control on our libraries, sequenced, and returned raw data for ribbon and bull kelp at the end of Q2 2026. Finally, sugar kelp was submitted for sequencing, and data delivery is scheduled for early Q3 2026. Quality control and analysis of ribbon, bull, and sugar kelp data will begin in early Q3 2026, with ribbon already underway.
- 3) Opportunistic kelp tissue sample collection through the ADF&G permitting process and collaboration with kelp farmers and researchers also continued in Q2 2026.
- 4) The high-performance computing cluster (HPC) was brought fully online in Q4 2025 and has been operational for regular use in Q2 2026. In early Q1 2026, Mr. Jalbert held a formal training session for GCL staff to support effective utilization, which was followed by training in Q2 2026 tailored to the needs of the wet laboratory staff. In Q2 2026, we finalized a contract with a consultant (Resource Data) who will assist with various aspects of the computing cluster, such data archiving, and associated network. They begin work on July 30, 2026, and will continue into Q4 2026. Learning how to operate, maintain, and troubleshoot the HPC and its associated network is ongoing, and assistance from the contractor will greatly increase efficiency.
- 5) During Q3 and Q4 2025, we worked on a Scope of Work and associated budget revision, which was finalized in late Q1 2026. Inclusive in that revision is a subcontract with Kelp Ark to help Drs. Marty-Rivera and Nuzhdin complete WGS population genetic analysis of sugar kelp collections they obtained in support of their kelp seed improvement grant and seedbanking initiative. ADF&G contracting forms and instructions were distributed to Kelp Ark for preparation of their contract package, and the contract request was submitted for processing at the end of Q2 2026. We are awaiting additional documents from Kelp Ark and finalization of the contract.