

## State of Maine Procurement Justification Form

This form must accompany all contract requests and sole source requisitions (RQS) over \$5,000 submitted to the Division of Procurement Services.

INSTRUCTIONS: Please provide the requested information in the white spaces below. All responses (except signatures) must be typed; no hand-written forms will be accepted. See the guidance document posted with this form on the Division of Procurement Services website (Forms page) for additional instructions.

### PART I: OVERVIEW

Department Office/Division/Program:		DMR Sea Run Fisheries and Habitat Division			
Department Contract Administrator or Grant Coordinator:					
(If applicable) Department Reference #:					
Amount: (Contract/Amendment/Grant)	\$ 103,626	Advantage CT / RQS #:	CT 13A 20200819000000000570		
CONTRACT	Proposed Start Date:	30 Sept 2020	Proposed End Date:	31 December 2021	
AMENDMENT	Original Start Date:		Effective Date:		
	Previous End Date:		New End Date:		
GRANT	Project Start Date:		Grant Start Date:		
	Project End Date:		Grant End Date:		
Vendor/Provider/Grantee Name, City, State:		University of Maine (hereafter, UMAINE)			
Brief Description of Goods/Services/Grant:		The Kinnison Lab at UMAINE will validate and refine alewife sedDNA technology as an actionable management tool with specified protocols and power. Rreplicate sediment profiles from four lakes with known historical alewife histories will be collected and analyzed. Cores will be dated with <sup>210</sup> Pb and sediments from multiple time periods in each waterbody will be analyzed for Alewife sedDNA. Resulting data, analyses, and recommendations for future Alewife sedDNA survey design will be summarized in a report to the Maine Department of Marine Resources (DMR).			

### PART II: JUSTIFICATION FOR VENDOR SELECTION

Mark an "X" before the justification(s) that applies to this request. (Check all that apply.)

	A. Competitive Process		G. Grant
	B. Amendment		H. State Statute/Agency Directed
X	C. Single Source/Unique Vendor		I. Federal Agency Directed
	D. Proprietary/Copyright/Patents		J. Willing and Qualified
	E. Emergency		K. Client Choice
	F. University Cooperative Project		L. Other Authorization

### PART III: SUPPLEMENTAL INFORMATION

Please respond to ALL of the following:

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### PART III: SUPPLEMENTAL INFORMATION

**1. Provide a more detailed description and explain the need for the goods, services or grant to supplement the response in Part I.**

Alewife (*Alosa pseudoharengus*) is an indigenous diadromous species to Maine that spawns and rears for early life in coastal freshwater lake systems. Widespread installation of dams on most of Maine's coastal rivers and lakes over the past 200+ years eradicated alewife from many lake systems. NRCS, other federal and state agencies, tribes and NGOS are now in the process of promoting and conducting active alewife restoration to Maine lakes and rivers. Knowledge of historical alewife presence in specific lakes could be used to help inform these restorations as well as outreach to the concerned public. Unfortunately, many alewife runs were likely extirpated without being well documented in formal or cultural records, leaving significant uncertainty about the full extent of the species in Maine waters. Until recently, this uncertainty would have presented an insurmountable technical limitation, but new developments in environment DNA research that target historical DNA in lake sediments, or sedDNA, offer an exciting opportunity to assess historical alewife presence going back hundreds to thousands of years. The goal of the proposed project is to validate and refine alewife sedDNA technology as an actionable management tool with specified protocols and power. To achieve this goal, the investigators will collect and analyze replicate sediment profiles from four lakes with known historical alewife histories. Cores will be dated with  $^{210}\text{Pb}$  and sediments from multiple time periods in each waterbody will be analyzed for Alewife sedDNA.

Replicate sediment cores will be collected from four Maine lakes with known and different alewife histories. Sampling of waterbodies with known presence or histories is important to validating any survey tool in order to not only demonstrate its detection efficacy, but to also identify and quantify potential false negatives or false positives. Two cores from each lake will be dated with  $^{210}\text{Pb}$  analysis to establish approximate modern and pre-European periods for temporal sampling and multiple sediment samples will be collected from the modern period and up to three time periods in the pre-European zone. sedDNA from each sample will be extracted and tested for presence of alewife sedDNA and sedDNA of non-native species more recently introduced to these waters (e.g., smallmouth bass, white perch). Replicated sampling at all levels of the survey and analysis hierarchy, from replicate cores, to replicate time points in cores, to replicate samples in time points, and replicate analyses of those samples, provides a means to estimate process-level variability and in turn specify a sampling design with quantifiable statistical power. Testing for contemporary non-native species provides an internal means to assess the potential of downcore contamination of historical Alewife signals by modern lake occupants.

Resulting data, analyses, and recommendations for future Alewife sedDNA survey design will be summarized in a report to the Maine Department of Marine Resources (DMR).

**2. Provide a brief justification for the selected vendor to supplement the response in Part II.**

The Kinnison Lab at UMAINE is currently the sole provider in the state of Maine that has the facilities, equipment, and training to process and analyze ancient eDNA samples required to validate and refine alewife sedDNA technology as an actionable management tool with specified protocols and power.

**3. Explain how the negotiated costs or rates are fair and reasonable; or how the funding was allocated to grantee.**

A proposal was submitted to the Maine DMR and accepted for funding.

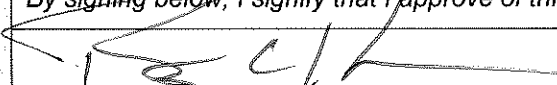
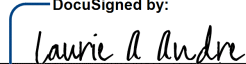
**4. Describe the plan for future competition for the goods or services.**

## State of Maine Procurement Justification Form

### PART III: SUPPLEMENTAL INFORMATION

If in the future, if another vendor becomes available that has the adequate facilities and capabilities to fill this role, each will be evaluated equally.

### PART IV: APPROVALS

<b>Signature of requesting Department's Commissioner (or designee):</b>	<i>By signing below, I signify that I approve of this procurement request.</i>		
			
<b>Printed Name:</b>	Patricia C Delker	<b>Date:</b>	9/9/2020
<b>Signature of DAFS Procurement Official:</b>	DocuSigned by: 		
<b>Printed Name:</b>	81084A22906E4FB... Laurie A Andre	<b>Date:</b>	9/14/2020