ATTACHMENT #2

RECEIVED
SEP 0 8 2023
DISTRICT OF NORTH COWICHAN

7030 Trans-Canada Highway
Duncan, BC V9L 6A1 Canada
www.northcowichan.ca
T 250.746.3100
F 250.746.3133

GRANT APPLICATION

(PLEASE PRINT)

Name of Organization	CERCA
Address of Organization	1069 Khenipsen Rd. Duncan B.C V9L 5L3
Full Mailing Address	Same as above
Telephone Number & Email	250-748-4878 cerca@shaw.ca
Contact Person/Title	Dr. Goetz Schuerholz, Chair

Primary purpose of organization: Cowichan Estuary Restoration.

Category under which greatest portion of services fall:

☐ Social Service ☐ Sports ☐ Cultural ☐ Economic Development ☒ Other Environment Protection

Services available to all members of community: ☒ Yes ☐ No

If *no*, please list criteria for receiving your service:

Total Number of people that used your service last year: n/a

Approximate number of your clients that reside in North Cowichan: n/a

(Please note that North Cowichan includes the communities of Chemainus, Crofton, Maple Bay, and the Duncan area north of the Cowichan River, and outside the one square mile Duncan core.)

Amount of grant requested: $ 2,900.00

Describe how the grant will be used: *(e.g. special projects, operations, maintenance, etc.)*

CERCA has been awarded a Mitacs 2-year Post. Doc. Fellowship in 2022 for the second phase of CERCA's Microplastics Project which includes sediment- and bio-sampling of the Cowichan-Koksilah estuary and tributaries. The samples are processed at Simon Fraser University's laboratory facilities to identify microplastics loads, how microplastics enter the food chain, and microplastics origin. Special attention of this research is placed on samples from the Cowichan River.

In order to be considered for a Municipal grant, please ensure that you enclose the following: the most recent financial statement, and the proposed operating budget.

Other Information: Have you obtained a previous grant from the Municipality? ☐ Yes ☒ No

Or have you applied to another local government for funding? ☒ Yes ☐ No

If *yes*, please list: CVRD for $2,800.00

Applicant's signature: [signature] **Date:** Sept. 8, 2023

In order to be eligible for consideration for a 2024 grant-in-aid, this application and all requested supporting materials must be received no later than October 15th, 2023.

Please submit in person at 7030 Trans Canada Hwy or email to finance@northcowichan.ca

Print Form

Note: Personal information is collected by the Municipality of North Cowichan under the authority of section 26(c) of the Freedom of Information and Protection of Privacy Act for the purpose of processing and administering grant-in-aid applications. Should you have any questions about the collection of this personal information, please contact the Deputy Director of Corporate Services, (250) 746-3100; 7030 Trans-Canada Highway, Duncan, BC V9L 6A1.

CERCA
Cowichan Estuary Restoration
& Conservation Association

CERCA
Cowichan Estuary Restoration
& Conservation Association
1069 Khenipsen Road
Duncan, BC V9L 5L3

15th of September 2023

Municipality of North Cowichan

Re.: **Grant Application**

Dear Madam/Sir,

Please find attached the completed form of CERCA's grant application. The requested grant of $2,900 will cover part of CERCA's 2024 budget shortfall of its Microplastics Project Phase II implemented in cooperation with Scientists from Simon Fraser University and UBC.

CERCA has been awarded a Mitacs 2-year Post.Doc. Fellowship in 2022 for the second Phase of CERCA's Microplastics Project which includes sediment- and bio-sampling of the Cowichan-Koksilah estuary and tributaries. The samples are processed at Simon Fraser University's laboratory facilities to identify microplastics loads, how microplastics enter the food chain, and microplastics origin. Special attention of this research is placed on samples from the Cowichan River.

The two-year Mitacs Fellowship requires a $12,000 counterpart contribution by CERCA which was successfully raised for the first year of Phase II (i.e., November 2022 to November 2023). CERCA's fund-raising efforts for the second and most important year which includes processing and analyzing the samples have so far not been very successful, resulting in a budget shortfall of $6,200 to date. Funds for the first of the three installments due by November 2023 will be covered by CERCA's annual operational budget. Funds for the two remaining installments still have to be raised. If the funds cannot be raised to meet CE#RCA's counterpart contribution the fellowship will be cut off and all field and lab work so far will have been conducted in vain. This would be extremely disappointing since year 2 of the Phase II project is expected to provide the much-needed baseline data for future monitoring and the expected management guidelines for Local Governments and other stakeholders to reduce the impacts of microplastics pollution on the fragile estuarine ecosystem and its food chains.

The ecological and economic importance of the Cowichan-Koksilah Estuary has been highlighted by the recent OCP of the Municipality and identified as a priority area for conservation. CERCA's Microplastics Project will substantially contribute to the knowledge base of the estuary, focusing on a stressor to

estuarine bioto that has not been addressed up to date. Since the northern section of the estuary falls under the administrative authority of the Municipality of North Cowichan it would be in the interest of the Municipality to support this project financially. CERCA has received a letter of support for the project from the Municipality in the past, used unsuccessfully for a funding proposal submitted to the Department of Fisheries and Oceans.

For further information on the background, goals, and expected results of the project see attachment.

Against this background, CERCA greatly appreciates the Municipality's positive response to our request.

Respectfully,

Dr.Goetz Schuerholz
Chair CERCA

Attachments:

Grant Application Form
Description of Phase II of CERCA's Microplastics Project
CERCA Year End Balance Sheet from August 31, 2023

PHASE II of CERCA's Microplastics Project

Project Title:

Microplastics ecotoxicological assessment in the foodweb of Cowichan and Comox estuaries, BC, Canada: Implications for shellfish and fish habitat conservation and pollutant management

Introduction

CERCA initiated the Microplastics (MP) project to assess MP presence in and impacts on estuarine life and food chains, to identify sources of MP pollution and estuary potential of MP storage (i.e., acting as "MP sink"), to raise public awareness, and develop recommendations to prevent and/mitigate MP contamination. In 2020, CERCA approached scientists from UBC and the Canadian Wildlife Service dealing with marine pollution to jointly design and implement an MP project for the Cowichan/Koksilah Estuary. This resulted in a completed Phase I in 2021 and an agreement to expand the scope of the project for a follow-up Phase II. This project is part of CERCA's long-term objective to restore the ecological integrity of the Estuary for the benefit of the environment and society. Estuaries are considered the cradle of life offering habitat to over 90% of all edible saltwater fish and crustaceans which depend for a part of their biological cycle on estuaries and near shore habitat. This project is expected to assist CERCA in drawing attention to one of the most vulnerable and threatened ecosystems worldwide, helping to prevent and mitigate adverse anthropogenic impacts and expand the knowledge base on MP contamination affecting the estuarine food web

Background, Rationale, and Objectives

The overall objective of the proposed Phase II of CERCA's Microplastics Project is to create baseline data on MP pollution of the Cowichan Estuary compared to the Comox Estuary. Historically, both targeted estuaries provided livelihood to indigenous people for centuries until the arrival of the white man in Cowichan Bay and the Comox area during the mid-1850s. The systematic and large-scale destruction of both estuaries that followed the new settlements including extensive diking of salt marshes and land alienation, in-filling of inter-tidal areas, and large-scale log storage/transport, are responsible for the decline of salmon populations and wide-spread shellfish closure in both estuaries. This destroyed not only the traditional lifestyle and culture of First Nation/Indigenous people, who formerly depended on the estuaries for their livelihood but also caused a dramatic decline in the fish and traditional shellfish industry. The proposed project is expected to provide baseline data for future monitoring of a new source of pollution compounding existing adverse impacts on estuarine life. The expected results of the project will hopefully assist in reducing MP contamination of estuaries and our oceans at large.

Phase II builds on the work of CERCA's Phase I Microplastics Project in the Cowichan Estuary Phase I focused on the analysis of geo-referenced sediment samples from the estuary's intertidal zone to determine the presence and nature of MP and to generate baseline data for future monitoring. Phase II includes an expanded sample size in the Cowichan Estuary and samples

taken from the lower Cowichan and Koksilah Rivers as well as samples from the intertidal zone of the Comox Estuay. The samples are expected to provide viable information on the magnitude of microplastic pollution, address the sources and the impact of MPs within estuarine ecosystems, and determine the ecotoxicological risks of microplastics entering estuarine food webs. To address this objective, the two estuaries have been chosen for comparison both suffering from significantly different anthropogenic impacts: the Cowichan Estuary with two major tributaries and a historic and ongoing inter-tidal log transport and storage history, and the Comox/Courtenay Estuary, free of industrial use but with heavily populated shorelines and hinterland.

To meet this overall objective, five interrelated sub-objectives for the Cowichan Comox/Courtenay estuaries have been defined:

I) Determine the types, distribution, and sources of microplastics in the Cowichan Comox/Courtenay estuaries to inform local plastic waste management and policy.

II) Determine the presence/absence, types, and abundance of microplastics within the varnish clams and other Key bivalve species inhabiting the Cowichan/Koksilah and Comox/Courtenay estuaries.

III) Determine the presence/absence, types, and abundance of microplastics within sand lance and Pacific salmon collected from the Cowichan Comox/Courtenay estuaries.

IV) Develop and apply foodweb bioaccumulation models for microplastics in Cowichan Comox/Courtenay estuaries as modeling tools to understand the species-specific bioaccumulation potential and behavior.

Little is known to date about the impact of MP on fish health and habitat from these estuaries. Fish are exposed to MP and susceptible to toxicological health effects of this emerging and ubiquitous pollutant. Assessing MP in culturally, economically, and ecologically important fish species such as Pacific salmon and other key species as part of the regional food webs is of paramount importance.

While questions remain on the impact of MP pollution and associated pollution risks in the estuaries, other marine biotas, and coastal wildlife, a detailed analysis of MP types, size distribution, and bioaccumulation behavior in Pacific salmon, sand lance and other forage fish species, as well as in top predators (i.e., aquatic birds) has yet to be conducted.

Expected Results

The main overall expected result will be the first concerted assessment and inter-site comparison of contaminant data on MP and exposure measured in sediments, varnish clams, sand lance, and Pacific salmon along with foodweb bioaccumulation model projections of MP loads in the foodweb trophic levels and top predators of the Cowichan and Comox estuaries. The primary outputs of this project will be:

- a comprehensive technical report on microplastic trophic dynamics and bioaccumulation in Cowichan and Comox estuaries. We recommend that this be published as a DFO technical report, first;

- a data package that provides a 2023 baseline of microplastic concentration data in the sediments and biota of the Cowichan and Comox estuaries;

Associated expected results are the development and application of predictive trophic transfer and foodweb bioaccumulation models as an ecotoxicological tool to assess MP bioaccumulation in the local foodwebs of the Cowichan and Comox estuaries.

This research aims to contribute baseline data to policy and decision-making, and improve solid waste and wastewater management guidelines along with preventive actions and equitable intervention with the coastal communities in the region.

Dr. Goetz Schuerholz
Chair CERCA

Financial Statement.

Cowichan Estuary Restoration & Conservation Association
Year End Balance Sheet for August 31st, 2023

31-Aug-23	**Current Account Balance:**		
	Chequing	$	5.133.22
	Savings	$	5,771.50
	Total Assets	**$**	**10,904.72**
Expenses for 2022/2023			
	Expenses Admin.	$	5,990.69
	Expenses Projects	$	11,317.38
Income Received for 2022/2023			
	Membership Dues	$	1,466.06
	Donations	$	2,153.75
	Other (interest credit)	$	79.63
	Grants received	$	9,709.91

Projects Ongoing: Micro Plastic Analysis