



**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

Bid Receiving/Réception des soumissions

Procurement Hub | Centre d'approvisionnement
Fisheries and Oceans Canada | Pêches et Océans Canada
301 Bishop Drive | 301 promenade Bishop
Fredericton, NB E3C 2M6

Email - courriel: DFOtenders-soumissionsMPO@dfo-mpo.gc.ca

REQUEST FOR PROPOSAL

DEMANDE DE PROPOSITION

Proposal to: Fisheries and Oceans Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods and services listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux : Pêches et Océans Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux appendices ci-jointes, les biens et les services énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments: - Commentaries :



Title – Sujet Developing Scientific Methods		Date August 20, 2019
Solicitation No. – N° de l'invitation F5211-190243		
Client Reference No. - No. de référence du client F5238-21930		
Solicitation Closes – L'invitation prend fin At / à : 14:00 ADT(Atlantic Daylight Time)/ HAA (heure avancée de l'Atlantique) On / le : September 9, 2019		
F.O.B. – F.A.B Destination	GST – TPS See herein — Voir ci-inclus	Duty – Droits See herein — Voir ci-inclus
Destination of Goods and Services – Destinations des biens et services See herein — Voir ci-inclus		
Instructions See herein — Voir ci-inclus		
Address Inquiries to – Adresser toute demande de renseignements à Michael Peters – Senior Contracting Officer Email – courriel: DFOtenders-soumissionsMPO@dfo-mpo.gc.ca		
Delivery Required – Livraison exigée See herein — Voir ci-inclus	Delivery Offered – Livraison proposée	
Vendor Name, Address and Representative – Nom du vendeur, adresse et représentant du fournisseur/de l'entrepreneur:		
Telephone No. – No. de téléphone	Facsimile No. – No. de télécopieur	
Name and title of person authorized to sign on behalf of Vendor (type or print) – Nom et titre de la personne autorisée à signer au nom du fournisseur (taper ou écrire en caractères d'imprimerie)		
Signature	Date	



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PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement associated with this bid solicitation.

1.2 Statement of Work

The work to be performed is in accordance with the Statement of Work at Annex A.

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.4 Trade Agreements

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA).

1.5 Procurement Ombudsman

The Office of the Procurement Ombudsman (OPO) was established by the Government of Canada to provide an independent avenue for suppliers to raise complaints regarding the award of contracts under \$25,000 for goods and under \$100,000 for services. You have the option of raising issues or concerns regarding the solicitation, or the award resulting from it, with the OPO by contacting them by telephone at 1-866-734-5169 or by e-mail at opo-boa@opo-boa.gc.ca. You can also obtain more information on the OPO services available to you at their website at www.opo-boa.gc.ca.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Revision to Departmental Name: As this solicitation is issued by Fisheries and Oceans Canada (DFO), any reference to Public Works and Government Services Canada or PWGSC or its Minister contained in any term, condition or clause of this solicitation, including any individual SACC clauses incorporated by reference, will be interpreted as reference to DFO or its Minister.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The [2003](#) (2019-03-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.



2.2 Submission of Bids

Bids must be submitted only to Fisheries and Oceans Canada (DFO) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile to DFO will not be accepted.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than five (5) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Nova Scotia.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.



PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound/saved sections as follows:

Section I: Technical Bid (one soft copy in PDF format)

Section II: Financial Bid (one soft copy in PDF format)

Section III: Certifications (one soft copy in PDF format)

The maximum size per email (including attachments) is limited to 10MB. If the limit is exceeded, your email might not be received by DFO. It is suggested that you compress the email size or send multiple emails to ensure delivery. Bidders are responsible to send their proposal and to allow enough time for DFO to receive the proposal by the closing period indicated in the RFP.

For bids transmitted by email, DFO will not be responsible for any failure attributable to the transmission or receipt of the email bid. DFO will send a confirmation email to the Bidders when the submission is received.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

Please see Annex C for details

4.1.1.2 Point Rated Technical Criteria

Please see Annex C for details



4.1.2 Financial Evaluation

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price

4.2 Basis of Selection – Highest Combined Rating of Technical Merit and Price

1. To be declared responsive, a bid must:
 - (a) comply with all the requirements of the bid solicitation;
 - (b) meet all mandatory criteria; and
 - (c) obtain the required minimum of 25 points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 120 (one hundred and twenty) points
2. Bids not meeting (a)(b) or (c) will be declared non-responsive.
3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70% for the technical merit and 30% for the price.
4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70%.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.

Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by an 70/30 ratio of technical merit and price, respectively. The total available point equals 30 and the lowest evaluated price is \$75.00 per hour (75).

Basis of Selection - Highest Combined Rating Technical Merit (70%) and Price (30%)				
		Bidder 1	Bidder 2	Bidder 3
Overall Technical Score		27/30	18/30	24/30
Bid Evaluated Price		\$120.00	\$90.00	\$75.00
Calculations	Technical Merit Score	27/30 x 70 = 63	18/30 x 70 = 42	24/30 x 70 = 56
	Pricing Score	75/120 x 30 = 18.75	75/90 x 30 = 25	75/75 x 30 = 30
Combined Rating		81.75	67	86
Overall Rating		2 nd	3 rd	1 st



PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Additional Certifications Precedent to Contract Award

5.2.2.1 Contractor's Representative

The Contractor's Representative for the Contract is:

Name: _____
 Title: _____
 Address: _____
 Telephone: _____
 Facsimile: _____
 E-mail: _____



5.2.2.2 Supplementary Contractor Information

Pursuant to paragraph 221 (1)(d) of the Income Tax Act, payments made by departments and agencies under applicable services contracts (including contracts involving a mix of goods and services) must be reported on a T4-A supplementary slip.

To enable the Department of Fisheries and Oceans to comply with this requirement, the Contractor hereby agrees to provide the following information which it certifies to be correct, complete, and fully discloses the identification of this Contractor:

- a) The legal name of the entity or individual, as applicable (the name associated with the Social Insurance Number (SIN) or Business Number (BN), as well as the address and the postal code:

- b) The status of the contractor (individual, unincorporated business, corporation or partnership:

- c) For individuals and unincorporated businesses, the contractor's SIN and, if applicable, the BN, or if applicable, the Goods and Services Tax (GST)/Harmonized Sales Tax (HST) number:

- d) For corporations, the BN, or if this is not available, the GST/HST number. If there is no BN or GST/HST number, the T2 Corporation Tax number must be shown:

5.2.2.3 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the *Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.



"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c. C-17, the [Defence Services Pension Continuation Act](#), 1970, c. D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c. R-10, and the [Royal Canadian Mounted Police Superannuation Act](#), R.S., 1985, c. R-11, the [Members of Parliament Retiring Allowances Act](#), R.S. 1985, c. M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c. C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension?

Yes () No ()

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive?

Yes () No ()

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.



The following certification signed by the contractor or an authorized officer:

"I certify that I have examined the information provided above and that it is correct and complete"

Signature

Print Name of Signatory

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

There is no security requirement applicable to the Contract.

6.2 Statement of Work

The Work to be performed is in accordance with the Statement of Work at Annex "A".

6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

[2010B](#) (2018-06-21), General Conditions - Professional Services (Medium Complexity) apply to and form part of the Contract.

6.3.2 Supplemental General Conditions

[4007](#) (2010-08-16), Canada to Own Intellectual Property Rights in Foreground Information apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to March 31, 2020 inclusive.



6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Michael Peters
 Title: Senior Contracting Officer
 Department: Fisheries and Oceans Canada
 Directorate: Material and Procurement Services
 Address: 301 Bishop Drive, Fredericton NB, E3C 2M6

 Telephone: (506) 429-2359
 Facsimile: (506) 452-3676
 E-mail address: DFOtenders-soumissionsMPO@dfo-mpo.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

6.5.2 Project Authority (To be named at contract award)

The Project Authority for the Contract is:

Name: _____
 Title: _____
 Organization: _____
 Address: _____

 Telephone: _____
 Facsimile: _____
 E-mail address: _____

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Contractor's Representative (To be named at contract award)

Name: _____
 Title: _____
 Organization: _____
 Address: _____

 Telephone: _____
 Facsimile: _____
 E-mail address: _____



6.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

6.7 Payment

6.7.1 Basis of Payment

6.7.1.1 The Contractor will be paid in accordance with Annex B – Basis of Payment

6.7.1.2 All prices and amounts of money in the Contract are exclusive of the Goods and Services Tax (GST) or Harmonized Sales Tax (HST), whichever is applicable, unless otherwise indicated. GST or HST, to the extent applicable, will be incorporated into all invoices and progress claims for goods supplied or work performed and will be paid by Her Majesty. The Contractor agrees to remit to Canada Revenue Agency any GST or HST paid or due.

6.7.1.3 Any payment by Her Majesty under this contract is subject to there being an appropriation for the fiscal year in which the payment is to be made.

6.7.2 Limitation of Expenditure

1. Canada's total liability to the Contractor under the Contract must not exceed \$ _____ (*insert the amount at contract award*). Customs duties are included and Applicable Taxes are extra.
2. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:
 - a. when it is 75% committed, or
 - b. four months before the contract expiry date, or
 - c. as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work, whichever comes first.
3. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.



6.7.3 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

Milestone No.	Deliverable	Days	Firm Amount	Due Date
1	Workshop I in accordance with Annex A.	3	\$	October 2019
2	Workshop II in accordance with Annex A	2	\$	January 2020
3	Workshop III/CSAS Report in accordance with Annex A	3	\$	March 2020

6.7.4 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. MasterCard Acquisition Card;
- b. Direct Deposit (Domestic and International);

6.8 Invoicing Instructions

6.8.1 Payments will be made provided that:

6.8.1.1 The invoice(s) must be emailed to DFO Accounts Payable, at the email address indicated below:

Email: DFO.invoicing-facturation.MPO@canada.ca
CC: AP Coder (inserted at contract award)

6.9 Certifications and Additional Information

6.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.



6.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ (*insert the name of the province or territory as specified by the Bidder in its bid, if applicable*).

6.11 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) 4007 (2010-08-16), Canada to Own Intellectual Property Rights in Foreground Information apply to and form part of the Contract.
- (c) 2010B (2018-06-21), General Conditions - Professional Services (Medium Complexity) apply to and form part of the Contract;
- (d) Annex A, Statement of Work;
- (e) Annex B, Basis of Payment;
- (f) the Contractor's bid dated _____ (*insert date at contract award*)

6.12 Procurement Ombudsman

6.12.1 The Contractor confirms that it has read the Code of Conduct for Procurement and agrees to be bound by its terms.

6.12.2 The office of the Procurement Ombudsman (OPO) was established by the Government of Canada to provide an independent avenue for suppliers to raise complaints regarding the award of contracts under \$25,000.00 for Goods and under \$100,000.00 for Services. You have the option of raising issues or concerns regarding the solicitation, or the award resulting from it,. With the OPO by contacting them by telephone at 1-866-734-5169 or by e-mail at opo-boa@opo-boa.gc.ca. You can also obtain more information on OPO services available to you on their website at www.opo-boa.gc.ca.

6.12.3 For further information, the Contractor may refer to the following PWGSC site:

<http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>

6.13 Insurance G1005C (2016-01-28)

The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.



ANNEX "A" STATEMENT OF WORK

1.0 Scope

1.1 Title

Development of scientific methods for management of Southwest Nova Scotia / Bay of Fundy Atlantic herring fisheries

1.2 Introduction

Fisheries and Oceans Canada (DFO) will be proceeding with a modeling assessment framework for the Southwest Nova Scotia / Bay of Fundy (SWNS/BoF) spawning component of Atlantic herring in Northwest Atlantic Fisheries Organization (NAFO) management unit 4VWX using a Management Strategy Evaluation (MSE) approach. A review of the data inputs was presented at the February, 2019 Canadian Science Advisory Secretariat (CSAS) SWNS/BoF Herring Data Inputs Framework meeting. A report containing a review and recommendations for further data summaries and analysis was delivered to DFO by Landmark Fisheries Research (Landmark). The Landmark report identified that the data inputs are of sufficient quality to fit a statistical catch-at-age population assessment model.

The scope of this project will be to develop an MSE framework to identify a management procedure that meets the conservation and fishery objectives of the SWNS/BoF Atlantic herring fishery.

The tasks will include the following:

- A. Lead a series of workshops and meetings to engage managers and stakeholders in the process of identifying key uncertainties in the SWNS/BoF herring fishery, identifying objectives for management, designing management procedures (MPs), identifying performance metrics for evaluating MPs and identifying exceptional circumstances;
- B. Participate in the peer-review process of the population assessment model (e.g., statistical catch-at-age model);
- C. Develop an operating model framework that represents the key uncertainties in the SWNS/BoF herring populations and fisheries;
- D. Develop and evaluate model-based and empirical (data-based) management procedures for the SWNS/BoF herring fishery that aim to meet conservation and fishery objectives.
- E. Prepare a CSAS report containing the results of the modeling framework, attend the CSAS meeting, and lead a workshop to present the results to managers and stakeholders;
- F. Provide an online tool for visualizing and evaluating management procedure performance against the OMs and relative to the established management objectives;
- G. Provide all software that is include in the deliverables.

1.4 Objectives of the Requirement

The contractor must collaborate with DFO science, management, and fishery stakeholders in the process of designing a robust management system for SWNS/BoF herring in line with the Sustainable Fisheries Framework and emerging requirements under Bill C-68. Workshops and meetings will be held to identify specific conservation and fishery objectives and performance indicators, potential MPs, and key uncertainties to be used in the evaluation. The final model basis of the operating model framework will be peer-reviewed prior to proceeding with the development of an operating model framework. The operating model framework will involve developing a simulation model capable of representing key uncertainties in the SWNS/BoF management system and will be used to evaluate performance of proposed harvest MPs. The objective of this process is to identify MPs that meet the conservation and fishery objectives for this fishery.



1.5 Background, Assumptions and Specific Scope of the Requirement

Conclusions from the last framework assessment for the SWNS/BoF herring stock component in 2011 were that an assessment framework using a population assessment model for providing advice on current stock status and projections under alternative levels of harvest could not be developed. Science advice has not been based on a population assessment model for more than a decade. Science advice is based primarily on a stock status indicator developed from an acoustic survey of spawning stock biomass. The recommendations from the previous assessment framework meeting included developing a population assessment model and to explore the MSE approach.

In April 2019, Landmark Fisheries Research evaluated the quality of the data for the SWNS/BoF herring stock and concluded that the data were of sufficient quality to develop a statistical catch-at-age model assuming either a single large homogeneous stock or three distinct spawning stocks.

This project requires scientific expertise in the fields of fisheries science, simulation modelling, development of tools for quantitative analyses of fisheries data, and implementation and development of management strategy evaluation tools. Also required is experience facilitating meetings with diverse fishery stakeholders. Contractor expertise must extend to knowledge of DFO Sustainable Fisheries Framework policies and implications for harvest decision rules. Proficiencies with DFO data collection programs (fisheries, surveys) for herring stocks and pelagic ecosystem surveys are required.

Time frame for completion: It is the intent of DFO for the full extent of this contract to be carried out by March 31st, 2020. Stakeholder engagement will begin late summer 2019 and draft deliverables due March 31st, 2020.

Relevant documents:

DFO. 2011. Proceedings of the Maritimes Region Science Advisory Process on the Assessment Framework for Southwest Nova Scotia/Bay of Fundy Herring; 24-28 January 2011. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2011/031: iv + 28p.

DFO. 2015. 2015 Assessment of 4VWX Herring. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2015/040.

Landmark Fisheries Research. 2019. Assessment data quality for the South-West Nova Scotia & Bay of Fundy spawning components of Atlantic Herring (*Clupea harengus*) in NAFO area 4X.

2.0 Requirements

2.1 Tasks, Activities, Deliverables and Milestones

Tasks and Activities

- A. Lead a workshop (Workshop I, October 2019) to engage managers and stakeholders in the process of designing and evaluating management procedures for SWNS/BoF herring. The objectives of this task will be to:
 - i. Clarify the roles of stock assessment models, surveys, harvest control rules, and biological reference points in herring fishery management.
 - ii. Guide workshop participants through a series of simulation and discussion exercises that provide concrete experience with evaluating management procedures (MP) for other fisheries.



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- iii. Define measurable fishery management/rebuilding objectives, including options for the limit reference point, target reference point, and catch objectives for SWNS/BoF herring.
 - iv. Discuss and define the key uncertainties for the fishery.
 - v. Choose a subset of uncertainties to be addressed via operating models (OM) given available data, time, and modelling resources (e.g., contractor time).
 - vi. Develop candidate MPs for evaluation in Part C and D.
- B. Develop a population assessment model that characterizes the population dynamics of the inshore SWNS/BoF spawning components of 4VWX herring based on available survey and catch data for spawning groups on German Bank, Scots Bay, and Trinity Ledge. This population assessment model will be peer-reviewed through the CSAS process (December 2019).
- C. Develop an operating model framework based on the peer-reviewed population assessment model. A meeting will be held in early 2020 to discuss the preliminary results of the modeling framework. The operating models are expected to address the key uncertainties identified with stakeholders via Workshop I (Part A), which may include:
- i. Stock composition and population dynamics of SWNS/BoF herring spawning components;
 - ii. Fishery fleet composition, timing, and selectivity;
 - iii. Surveys and timing represented as separate fleets;
 - iv. Natural mortality at age and maturity at age;
 - v. Stock recruit relationship.
- D. Conduct harvest strategy simulations to show the trade-offs between stock conservation and future fishery yield for a range of alternative management approaches. Harvest strategy simulations will account for the transition to a model-based management approach that could change perceptions of stock status and affect harvest opportunities for the fishery. Harvest strategy simulations will include:
- i. generic harvest algorithms that can be adapted based on DFO- and/or stakeholder-defined conservation strategies, as well as preferences for management information (e.g., model-based vs. data-based decision criteria);
 - ii. if decided in Workshop I (Part A.vi), a population assessment model for use in closed-loop simulations of model-based management procedure performance over the selected operating models;
 - iii. simulations of performance of the management procedures and assessments against alternative operating models (also in consultation with DFO and stakeholders); and
 - iv. tabular and graphical summaries of performance characteristics for each MP-OM combination.
- E. Lead a 2-day workshop (Workshop II, January 2020) to present and discuss preliminary simulation results with managers and stakeholders.
- F. Revise, as determined via Workshop II, OMs, MPs, objectives, and presentations. Submit draft CSAS report.
- G. Optional: Delivery of open source code for the assessment model and MSE simulation testing.
- H. Lead 3 day final MSE workshop (Workshop III, March, 2020) to assist in choosing a SWNS/BoF MP. Provide 1 day training for chosen MP in conjunction with Workshop III.



- I. Submit CSAS Report March 31, 2020 for scientific review.

Deliverables

The deliverables of this contract are the following:

1. Presentation material (e.g. MS PowerPoint slide) for the workshop to be circulated to participants.
2. A written CSAS-style document report that includes:
 - a. overview of the rationale for stock assessment modeling approach;
 - b. overview of the population assessment model approach;
 - c. population assessment model specifications (i.e., equations for population dynamics, statistical functions, and numerical procedures, where appropriate);
 - d. baseline assessment results and uncertainty for SWNS/BoF herring stock status relative to the limit reference point, as well as other key quantities identified by the Scientific Authority or his alternate;
 - e. evaluation of historical estimation performance (i.e., retrospective analysis) and future forecasting performance (i.e., prospective analysis);
 - f. simulation self-test results for the catch-at-age model against pseudo data;
 - g. model sensitivity analyses to input parameter assumptions;
 - h. conclusions and recommendations for future assessment research;
 - i. graphical and tabular outputs of estimated biomass, status, recruitment, fishing mortality and other results (as required by the Scientific Authority).
3. An R package and GUI for post-simulation analysis and one day of training on this package to use for:
 - a. viewing each simulation replicate for each simulated year; and
 - b. computing and comparing performance statistics across simulations.
4. R and/or TMB code needed to execute the agreed management procedure and one day of training on this software. There may be a need to test both model-based and empirical management procedures for generating annual TACs. If a model-based MP is chosen, an R package for running the agreed-upon model-based MP, generating graphics and tables, and one day of training/support for each year that it is used will be provided. If an empirical MP is chosen (i.e., TAC computed directly from survey and catch information without a formal assessment model), then an R package for running that MP, generating graphics and tables, and one day of training/support for each year that it is used will be provided.
5. Optional deliverable: Delivery of open source code for the assessment model and MSE simulation testing
6. Summary reports, tables, and graphics for each operating model used in the MSE process.

*It will be at DFO's sole discretion as to how many phases will be completed by the Contractor. There is no guarantee that all 3 phases will be completed, decision will be based on budgetary restraints.

Meetings

- | | |
|---|-------------------|
| 1. In-person 3-day Workshop I | October 2019 |
| 2. 2-day Peer-review of the Population Assessment Model | December 2019 |
| 3. In-person 2-day Workshop II | January 2020 |
| 4. 3-day CSAS Review Meeting Workshop III | March 2020 |
| 5. Monthly Progress Reports | by phone with DFO |



2.2 Specifications and Standards

As specified in Section 2.1, the work will be considered as completed when the deliverables listed are completed and made available to the Scientific Authority. A written CSAS style report is required in electronic format.

2.3 Technical, Operational, and Organizational Environment

The contractor will be required to demonstrate the ability to perform the tasks listed in section 2.1. This will include demonstrated expertise in the above area and most of the tasks will be performed in the contractor's own premises. Workspace, and computer hardware and software required to fulfil the contract will not be provided. On request, the contractor must be prepared to demonstrate progress in completing analyses, and will solicit and address feedback from the scientific authority. The proposed approach will be discussed with the scientific authority or her delegate at the outset of the project.

2.4 Method and Source of Acceptance

The presentation material for the workshop (e.g., copy of PowerPoint slides) will be provided to the Scientific Authority by email prior to the workshop for distribution to workshop participants. The population assessment model will be presented for peer-review in December 2019. The objective of this review will be to examine all aspects of the population assessment model to ensure any potential issues or concerns are identified prior to using the model in the operating model framework. All products including the operating models and management strategy evaluations will be presented at a CSAS peer-reviewed meeting in March 2020. The objective of this review will be to examine all aspects of the modeling framework and the suitability of the data products for providing science advice in future years.

2.5 Reporting Requirements

The contractor will be required to maintain frequent contact (monthly progress meetings) with the Scientific Authority to provide feedback and suggestions regarding progress. The contractor will be required to attend the meetings outlined in Section 2.1 and deliver a draft report to the Project Authority by March 31, 2020.

2.6 Project Management Control Procedures

The individual identified in the proposal as the Scientific Authority shall:

- i. maintain frequent contact with contractor to gauge progress and to receive updates on progress;
- ii. ensure that the contractor is provided with all the necessary available DFO Science information in timely manner to complete the tasks and conduct the modeling;
- iii. communicate the timing, dates, and location of meetings and the framework assessment meetings.

The Scientific Authority will be supplied with a plan describing the qualifications of the contractor and a brief proposal regarding how the data provided to the contractor will be analysed. The Scientific Authority will be provided with opportunity to comment on these materials. Once per month, the Scientific Authority or his delegate will review project progress through a meeting with the contractor.

A draft of the Final Report will be submitted after the CSAS peer-reviewed meeting in March 2020 and before March 31, 2020. The Scientific Authority or his delegate will have an opportunity to review a draft copy of the final report and will be provided with a 10 working-day review period. The



contractor is expected to address revisions accordingly, and, when differences of opinion exist, discuss these with the Scientific Authority.

2.7 Change Management Procedures

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority

2.8 Ownership of Intellectual Property

The Crown will own IP – The data provided to the contractor are publicly available. The data products (documents and programming scripts (included in the deliverables) described in this contract will remain property of the Crown.

3.0 Other Terms and Conditions of the SOW

3.1 DFO Support

The contractor will have:

- i. access to the Scientific Authority who will coordinate activities and provide available DFO Science information as required;
- ii. access to the Scientific Authority for comments on draft reports;

3.2 Contractor's Obligations

The contractor must provide periodic status updates (email format with or without attachments is suitable) and must provide regular (minimum monthly) opportunities for the Scientific Authority or his delegate at DFO to provide feedback and suggestions regarding progress/directions in the analyses. Content of project updates is expected to include descriptions of the methodology being used and some discussion of the rationale behind those methodology and decisions to apply different analytical tools to the data. The Scientific Authority reserves the right to seek additional internal (within DFO) and/or external opinion/feedback on the analysis, and its results, as it evolves.

3.3 Location of Work, Work site and Delivery Point

The majority of the work is expected to be completed in the contractor's own work premises and using the contractor's own equipment. Whenever possible, phone or WebEx meetings would be used to communicate questions and clarifications between the contractor and the Scientific Authority or his alternate at DFO. The meetings outlined in Section 2.1 would require the contractor to attend in person in Halifax, NS or St. Andrews, NB.

Due to existing workload and deadlines, all personnel assigned to any contract resulting from this contract must be ready to work in close and frequent contact with the Departmental Representative and other departmental personnel.



3.4 Language of Work

The contract, and associated correspondence with the scientific authority, will be conducted in English Advanced for Oral, Comprehension, and Written.

Legend	Oral	Comprehension	Written
Basic	<p>A person speaking at this level can:</p> <ul style="list-style-type: none"> ask and answer simple questions; give simple instructions; and give uncomplicated directions relating to routine work situations. 	<p>A person reading at this level can:</p> <ul style="list-style-type: none"> fully understand very simple texts; grasp the main idea of texts about familiar topics; and read and understand elementary points of information such as dates, numbers, or names from relatively more complex texts to perform routine job-related tasks. 	<p>A person writing at this level can:</p> <ul style="list-style-type: none"> Write isolated words, phrases, simple statements or questions on very familiar topics using words of time, place or person.
Intermediate	<p>A person speaking at this level can:</p> <ul style="list-style-type: none"> sustain a conversation on concrete topics; report on actions taken; give straightforward instructions to employees; and Provide factual descriptions and explanations. 	<p>A person reading at this level can:</p> <ul style="list-style-type: none"> grasp the main idea of most work-related texts; identify specific details; and Distinguish main from subsidiary ideas. 	<p>A person writing at this level can:</p> <ul style="list-style-type: none"> Deal with explicit information on work-related topics since they have sufficient mastery of grammar and vocabulary.
Advanced	<p>A person speaking at this level can:</p> <ul style="list-style-type: none"> support opinions; and understand and express hypothetical and conditional ideas 	<p>A person reading at this level can:</p> <ul style="list-style-type: none"> understand most complex details, inferences and fine points of meaning; and Have a good comprehension of specialized or less familiar material. 	<p>A person writing at this level can:</p> <ul style="list-style-type: none"> Write texts where ideas are developed and presented in a coherent manner.

3.7 Insurance Requirements

Contractor is required to carry Worker's Compensation Insurance appropriate to the nature of the tasks required of this contract for all employees involved in this project.

3.8 Travel and Living

Canada will not be reimbursing accommodations and living expenses incurred associated with the performance of this contract.



4.0 Contract Period

The services of the Contractor will be required for a period of approximately 8 months commencing on contract award. The expected completion date of this project is March 31, 2020.

5.0 Required Resources or Types of Roles to be Performed

The contractor must have at least one senior analyst who may be supported by junior analysts. They would have expertise in statistical catch-at-age model development and MSE. They would be expected to have performed similar work with other forage fish stocks.

6.0 Applicable Documents and Glossary

6.1 Applicable Documents

Landmark Fisheries Research. 2019. Assessment data quality for the South-West Nova Scotia & Bay of Fundy spawning components of Atlantic Herring (*Clupea harengus*) in NAFO area 4X.

6.2 Relevant Terms, Acronyms and Glossaries

CSAS - Canadian Science Advisory Secretariat
DFO - Fisheries and Oceans Canada
GUI - graphical user interface
Landmark - Landmark Fisheries Research
MP - management procedure
MS - Microsoft
MSE - management strategy evaluation
NAFO - Northwest Atlantic Fisheries Organization
OM - operating model
SWNS/BoF - Southwest Nova Scotia / Bay of Fundy
TAC - Total allowable catch
TMB - Template Model Builder



ANNEX "B" BASIS OF PAYMENT

The Contractor will be paid in accordance with the following basis of payment for all professional services, including all associated costs necessary to carry out the required work in accordance with the Contract.

All deliverables are F.O.B. Destination, and Canadian Customs Duty included, and GST/HST extra, where applicable.

Phase No.	Deliverable	Due Date	Payment Value
1	Workshop I in accordance with Annex A.	October 2019	\$
2	Workshop II in accordance with Annex A	January 2020	\$
3	Workshop III/Final CSAS Report in accordance with Annex A	March 2020	\$
Total CAD (exclusive of taxes)			\$

*It will be at DFO's sole discretion as to how many phases will be completed by the Contractor. There is no guarantee that all 3 phases will be completed, decision will be based on budgetary restraints.



ANNEX "C" EVALUATION CRITERIA

MANDATORY REQUIREMENTS:

Proposals will be evaluated in accordance with the mandatory and rated evaluation criteria as detailed herein. Bidders' Proposals must clearly demonstrate that they meet all Mandatory Requirements for the proposal to be considered for further evaluation. Proposals not meeting the mandatory criteria will be excluded from further consideration.

The bidder should include the following table in their proposal, indicating that their proposal meets mandatory criteria, and provide the proposal page number or section that contains information to verify that the criteria has been met. For each project that is cited as experience, the following information must be identified in the proposed resource's resume:

- a) The name of the client organization (to whom the services were provided);
- b) The name, title, telephone number and e-mail address of the Project Authority;
- c) A brief description of the type and scope of services that meets the identified criteria provided by the resource;
- d) The dates and duration of the project (indicating the years/months of engagement and the start and end dates of the work); and

* Bidders discretion of team composition, however the lead resource must meet the mandatory and minimum point rated below

Lead Resource Name: _____				
No.	ITEM	Meets Criteria (√)	Does Not Meet Criteria (√)	Proposal Page# (Bidder to Complete)
M1	The proposed lead resource must have a minimum of 36 months experience analyzing forage fishery data and developing assessment tools for forage fisheries			
M2	The proposed lead resource must have at least seven (7) scientific publications in peer-reviewed journals in one or a combination of the following fields related to stock assessment: population dynamics, fisheries oceanography, and/or management strategy evaluation for commercially-harvested fish stocks.			
M3	The proposed lead resource must have a minimum of 36 months experience conducting closed loop simulations for management strategy evaluation.			
M4	The proposed lead resource must have a minimum of 36 months experience facilitating meetings between multiple stakeholders, fisheries science and fisheries management groups to communicate scientific findings and management procedures.			
M5	The proposed lead resource must have a minimum experience of participation as reviewer or assessment lead for at least one federal government scientific processes such as CSAS or equivalent.			



RATED REQUIREMENTS

Lead Resource Name: _____				
No	Rated Criteria	Max Points	Evaluation Grid	Reference to Résumé Page # (Bidder to Complete)
R1	The proposed lead resource has experience analyzing forage fishery data and developing assessment tools for forage fisheries.	/15	37 to 60 months experience = 5 points 61 to 108 months experience = 10 points 109 months+ experience = 15 points	
R2	The proposed lead resource has scientific publications in peer-reviewed journals in one or a combination of the following studies related to stock assessment: population dynamics, fisheries oceanography, management strategy evaluation for commercially-harvested fish stocks.	/15	8 – 10 publications = 10 points >10 publications = 15 points	
R3	The proposed lead resource has experience conducting closed loop simulations for management strategy evaluation.	/15	37 to 48 months experience = 5 points 49 to 60 months experience = 10 points 61 months+ experience = 15 points	
R4	The proposed lead resource has experience facilitating meetings between multiple stakeholders, fisheries science and fisheries management groups to communicate scientific findings and management procedures.	/15	2 projects = 5 points 3-5 projects = 10 points 6+ projects = 15 points	



R5	The proposed lead resource has experience of participation as reviewer or assessment lead for at least one federal, provincial, or municipal government scientific processes such as CSAS or equivalent	/15	2-3 Processes = 10 points 4+ Processes = 15 points	
R6	The proposed lead resource shows evidence of completing at least two (2) management strategy evaluations, where the chosen management procedure was used by fisheries management for at least one year.	/15	2 MSEs = 5 points 3-5 MSEs = 10 points 6+ MSEs = 15 points	
R7	The proposed lead resource shows evidence of having completed a management strategy evaluation within a 24 month time frame – where the chosen management procedure was then used by fisheries management for at least one year.	/15	1 MSE = 5 points 2 MSEs = 10 points 3+ MSEs = 15 points	
R8	The proposed lead resource will deliver open source code for the stock assessment model and MSE simulations.	/15	No = 0 points Yes = 15 points	

Total points : 120 points max

Pass mark : 25 points