



# The Argyle Aquaculture Development Area (ADA)

## **Pilot Project Overview**

An overview of the process and decision making

**July 2024**

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# Executive Summary

The Aquaculture Development Area (ADA) Pilot Project in Lobster Bay and Pubnico Harbour, Nova Scotia, is a comprehensive and proactive approach to aquaculture development. Led by the Nova Scotia Department of Fisheries and Aquaculture (the Department) in collaboration with the Municipality of the District of Argyle (the Municipality), this project aimed to identify and designate marine areas for shellfish and marine plant aquaculture.

Through integrated stakeholder engagement, data collection, and analysis, an ADA is a strategically pre-assessed marine area identified for potential aquaculture development. It is identified using a proactive planning approach, rooted in marine spatial planning principles. This collaborative effort ensures the optimum use of marine resources, considers fisheries activities in the study areas, addresses oceanographic and biophysical characteristics, and accommodates other uses of public waters. By engaging stakeholders and the public upfront, this approach raises awareness and allows for feedback and advice to be integrated proactively, and thereby streamlining the licensing process.

The initial areas of analysis for the Argyle ADA encompassed over 23,000 hectares which was narrowed down through extensive consultation and data analysis. Through stakeholder re-engagement and data refinement, 784 hectares spanning 53 areas were identified and designated by Governor-in-Council in April 2024.

An ADA planning approach serves as a precursor to licence applications. Licence applications within an ADA still require regulatory approval. An ADA is a planning process that helps to pre-assess data and information to proactively identify possible aquaculture sites. Through this approach the department considers all eight factors that must be considered when making a decision about a marine aquaculture site under the [Aquaculture Licence and Lease Regulations](#). These eight factors include: marine resource use, economic contribution, fishery activities, oceanographic characteristics, other marine users, public navigation rights, wild salmon sustainability and existing aquaculture sites.

Upon approval of an ADA, the administration of licences can begin. The process includes:

- periodic Calls for Proposals;
- proposal submission with a specified timeline;
- proposal review by the Department and ADA Proposal Assessment Panel;
- proposal decision and notification to successful proponent;
- application submission within the prescribed 90-day timeframe;
- application review and 30-day public comment period;
- and if approved, issuance of licence and lease.

As part of this process, a number of measures are in place for ongoing monitoring, engagement, evaluation and refinement. The Department has committed to establishing a Community Liaison Committee to maintain effective communication and address community concerns for established farming operations. An aquaculture carrying capacity model called Farming in Natural Systems (FINS) is currently under development to help support future decisions within the ADA. Continuous monitoring and evaluation aim to incorporate both current and innovative methods to ensure sustainable development within the ADA.

# Introduction

The Department of Fisheries and Aquaculture is the lead regulatory authority for aquaculture in Nova Scotia. The industry is regulated and managed in accordance with the [Fisheries and Coastal Resources Act](#) (the Act) and associated [Aquaculture Licence and Lease Regulations](#) and [Aquaculture Management Regulations](#) .

The regulatory framework for aquaculture that supports the creation of an ADA was first introduced in the Act in 1996. During significant updates to the aquaculture regulations in 2015, specific regulations were added regarding ADA's and how applications for licences and leases would be managed. The changes to the legislation and regulations that were made in 2015 were based largely on an independent report titled '[A New Regulatory Framework for Low-Impact/High-Value Aquaculture in Nova Scotia](#)' (Doelle, 2014).

The Department and the Municipality signed a Memorandum of Understanding (MOU) in 2019, for ADA exploration in Lobster Bay and Pubnico Harbour. Under the MOU, the Department was responsible for engaging with provincial and federal partners, and consultation with the Mi'kmaq of Nova Scotia. The Municipality was responsible for local stakeholder engagement, which included fishers, local oyster farmers, the tourism industry, environmental groups, and the public.

## Aquaculture Development Factors in Nova Scotia

Aquaculture development in Nova Scotia is guided by eight regulated factors described in section 3 of the Aquaculture Licence and Lease Regulations. Information provided to the Department related to these eight factors must be considered when making decisions on applications within the ADA.

These factors are:

1. the optimum use of marine resources;
2. the contribution of the proposed operation to community and Provincial economic development;
3. fishery activities in public waters surrounding the proposed aquaculture operations;
4. the oceanographic and biophysical characteristics of the public waters surrounding the proposed aquacultural operation;
5. the other users of the public waters surrounding the proposed aquacultural operation;
6. the public right of navigation;
7. the sustainability of wild salmon;
8. the number and productivity of other aquaculture sites in public waters surrounding the proposed aquacultural operation.

## Definition of an ADA

An ADA is a predetermined marine area assessed for aquaculture development. An ADA identifies marine areas with aquaculture potential. The ADA is a subset of marine space that has been pre-assessed within a larger marine area, called the area of analysis (AoA or study area).

Establishment of a study area provides a boundary for consultation, engagement, and analysis. It also allows for the identification of the sources of influence that impact the study area, including the responsible authorities, institutions, and organizations.

ADA planning is a proactive approach to aquaculture development in Nova Scotia that augments the traditional licence and lease application processes. The ADA pilot project applied standard practices of marine spatial planning (MSP). Marine spatial planning is an open process which considers the ‘when and where’ of human activities in marine regions while accounting for ecological, economic and social goals (Ehlers, Charles and Fanny, Douvere, 2009). The Argyle ADA pilot project in Lobster Bay and Pubnico Harbour was a planning process that included consultation, engagement, and information collection in support of identification of marine areas for potential aquaculture development. The primary objective was to merge consultation and engagement efforts, with data collection and analysis, to make a recommendation to Governor-in-Council to designate Nova Scotia’s first ADA for shellfish and marine plant aquaculture. The designation of an ADA does not circumvent the aquaculture licensing and leasing process or the requirement for any approvals issued by other regulatory agencies associated with a licenced aquaculture site.

## ADA Objectives

The ADA pilot project was undertaken by the Department and the Municipality with the following objectives:

### 1. **Identify suitable and specific locations for aquaculture development**

By designating specific areas for potential aquaculture development, information gathered through the ADA process helps to reduce barriers and streamline the application process. This can also reduce costs and financial risks associated with starting an aquaculture operation.

### 2. **Enabling sector growth**

ADAs aim to ensure sustainable development of aquaculture activities, attract investment, and enhance employment opportunities for coastal and regional economies. By creating a supportive environment for aquaculture, ADAs can reduce the cost of regulation, planning, and decision-making.

### 3. **Reduce the potential for conflict**

ADAs optimize the use of coastal waters by ensuring that activities occur where it can maximize value without negatively impacting other activities. This optimization helps to balance the use of marine space among the various stakeholders.

## The ADA Planning Approach to Aquaculture Development

The ADA Pilot Project in Lobster Bay and Pubnico Harbour follows an ADA planning process led by the Department in partnership with the Municipality. This pilot project includes four phases, two phases before designation of the ADA, and two following designation.

Phase one (I) of the ADA work-plan sets clear goals, defined roles and responsibilities, and sets the study area. The initial Argyle ADA study area encompassed over 23,000 hectares (see Appendix 1 - Figure. 1). Selection of the study area was based on Municipal land boundaries, water depths, and exposure.

Phase two (II) involved consultation, engagement, exploration, and decision making. This included active engagement with stakeholders including federal and provincial regulators, consultation with the Mi'kmaq of Nova Scotia, the public and local stakeholders. The planning team dedicated significant effort to ensure thorough data collection and notification and stakeholder participation. Phase I and II are complete and spanned four and a half years, concluding with a decision by Governor-in-Council to designate the Argyle ADA.

Phase three (III) and Phase four (IV) of the ADA pilot project are underway. Activity in both phases is described below and will be updated as the pilot project progresses.

## Phase I: Goals, Roles and Responsibilities

Three committees were formed as part of the framework for the Argyle ADA pilot project: a Steering Committee, Data Committee, and Stakeholder Committee.

Phases I and II were guided by the Steering Committee which was formed in Winter of 2020. The Steering Committee met 17 times during Phase I and II. The objective of the Steering Committee was to coordinate the activities of the Data and Stakeholder Committees and to facilitate the exchange of information between the Department, the Municipality and other government entities involved in the project. Steering Committee membership is described in Table 1.

The organizations represented included the Department, the Centre for Marine Applied Research (CMAR), Fisheries and Oceans Canada (DFO), and the Municipality.

Table 1. Steering Committee members by organization

Organization	Name	Title
The Department	Bruce Hancock	Executive Director, Aquaculture
	Carla Buchan	Director of Aquaculture
	Nathaniel Feindel	Manager, Aquaculture Development
	Matthew King	Aquaculture Planning & GIS Officer
CMAR	Gregor Reid	Director
	Leah Lewis McCrea	Research Manager
	Margo Coughlin	Information Strategist
DFO	Jason Naug	Planner, Biologist
Municipality	Alain Muise	Chief Administrative Officer
	Charlene LeBlanc	Community Development Officer (stepped down in Spring 2022)
	Alix d'Entremont	GIS Technician

A Data Committee was established with responsibility for data collection, analysis and management. They met 12 times over an 18-month period beginning in Summer of 2020. The Data Committee reported findings to the Steering Committee. Data Committee membership is described in Table 2.

Table 2. Data Committee members by organization

Organization	Name	Title
The Department	Nathaniel Feindel	Manager of Aquaculture Development
	Matthew King	Aquaculture Planning & GIS Officer
	Dave Cook	Aquaculture Development Biologist
CMAR	Gregor Reid	Director
	Leah Lewis McCrea	Research Manager
	James Cunningham	Research Assistant
	Ryan Horricks	Research Scientist
	Danielle Dempsey	Coastal Monitoring Program, Principal Specialist
DFO	Jason Naug	Planner, Biologist
	Scott Coffen-Smout	Marine Planning & Conservation
Municipality	Charlene LeBlanc	Community Development Officer (stepped down in Spring 2022)
	Alix d'Entremont	GIS Technician
Dalhousie University	Ramon Filgueria	Associate Professor

Effective stakeholder engagement ensures comprehensive and inclusive participation to support planning success. The Municipality established a Stakeholder Committee, with members from marine industries, conservation, tourism, economic development groups, and local interested stakeholders. The objective of the Stakeholder Committee was to facilitate discussion and information exchange with stakeholder engagement and report findings to the Steering Committee. Results from engagements were compiled and reported and can be found on the [Municipality's website](#).

## Phase II: Department-led Consultation and Engagement

Consultation with the Mi'kmaq was conducted by the Department. This included coordination with the Office of L'nu Affairs to ensure proper consultation procedures. The method of dialogue included emails, phone calls, official letters, virtual meetings, and face-to-face engagements. This process began in late 2020 and concluded in the Spring 2024.

Concurrently, the Department engaged Aquaculture Network Partners, which are federal and provincial government departments and agencies that provide input on aquaculture licence and lease applications (Appendix 2). With this approach information that is normally assessed after application submission was assessed prior to the designation of the ADA. This process began in Spring of 2020 and continued through the designation of the ADA.



## Preliminary Data Collection & Decision Support Tool

The ADA planning process involved data acquisition and assessment of ecological data, biological data, human activities, and oceanographic conditions. This included existing data sets and the collection of new datasets. Initially, the Data Committee identified more than 120 types of information (Table 3). Over a nine-month period, the Municipality and the Department engaged with local stakeholders and network partners, who provided valuable insight in refining the list of appropriate data sets and information.

A decision support tool was used to help select the best areas for aquaculture within the study area. Decision support tools use interactive software, maps, models, communication modules, and other components to resolve complex problems (Center of Ocean Solutions, 2011). Creating a decision support tool aids in making informed decisions about site selection and provides a tangible outcome for ongoing engagement with stakeholders. While the decision support tool is not intended as a decision-making tool, it does:

- save, time, energy and resources;
- guide users through challenging decision-making steps, allowing for efficient transitions from data analysis to final decisions;
- enable repeated analyses easily and reduce redundancy by building on the work of others;
- help users explore a broader range of alternatives;
- document decisions regarding inputs and parameters; and
- enhance understanding of planning requirements and limitations across multiple sectors in the planning process.

Table 3. Information collected and considered during the ADA Pilot Project

<b>Environmental Information</b>	<b>Social &amp; Cultural Information</b>
<b>Water Quality</b>	<b>Accessibility</b>
<b>Tidal/River</b>	<b>Regulatory</b>
<b>Wind/Wave</b>	<b>Recreation</b>
<b>Exposure</b>	<b>Economics</b>
<b>Bathymetry</b>	
<b>Pollution</b>	
<b>Living Features</b>	
<b>Climate Change</b>	
<b>Geology</b>	
<b>Weather</b>	

Data and information gathered during this stage was used to identify social, cultural, environmental, and economic characteristics and to assess potential conflicts. This is shown in Appendix 3 – Figure 2.

The Data Committee refined the initial list to 20 critical data layers for decision support tool inputs to help identify potential locations, as detailed in Table 4. Data selection was based on the following parameters:

- relevance of the data to the study area;
- relevance of the data to the eight regulated factors;
- level of detail provided within the data, from very detailed to broader overviews;
- ability to share data across different departments;
- coverage of multiple information sources by some data sets; and
- engagements insight, to help refine and enhance the data.

Table 4. Information included in the ADA decision support tool

<b>Decision Support Tool Inputs</b>	<b>Source</b>
<b>Wave height</b>	<b>Dynamic Systems Analysis Ltd.</b>
<b>Bathymetry</b>	<b>Canadian Hydrographic Service and Department Sonar</b>
<b>Lobster fishing activity</b>	<b>Eagleview</b>
<b>Special and significant wetlands</b>	<b>Nova Scotia Environment and Climate Change</b>
<b>Vessel track lines</b>	<b>Fisheries and Oceans Canada and MarineCadastre.gov</b>
<b>Parks and protected areas</b>	<b>Nova Scotia Environment and Climate Change</b>
<b>Port facilities</b>	<b>Natural Resources Canada</b>
<b>Small craft harbours</b>	<b>Fisheries and Oceans Canada</b>
<b>Boat launches</b>	<b>Nova Scotia Department of Fisheries and Aquaculture</b>
<b>Agricultural lands</b>	<b>Nova Scotia Department of Agriculture</b>
<b>Beaches</b>	<b>Municipality of the District of Argyle</b>
<b>Existing leases, licences, easements, powerlines (i.e. underwater cables)</b>	<b>Canadian Hydrographic Service, Nova Scotia Department of Natural Resources and Renewables</b>
<b>Bird colonies</b>	<b>Canadian Wildlife Service</b>
<b>Submerged archaeological sites</b>	<b>Nova Scotia Department of Communities, Culture, Tourism and Heritage</b>
<b>Canada Shellfish Sanitation Program Shellfish Classification</b>	<b>Environment and Climate Change Canada</b>
<b>Derelict vessels</b>	<b>Canadian Hydrographic Service, Nova Scotia Department of Natural Resources and Renewables</b>
<b>Private water lots</b>	<b>Fisheries and Oceans Canada and Canada Coast Guard Service</b>
<b>Anchorage points</b>	<b>Nova Scotia Geomatics Centre</b>
<b>Existing aquaculture leases</b>	<b>Nova Scotia Department of Fisheries and Aquaculture</b>
<b>Roseate tern protected area</b>	<b>Canadian Wildlife Service</b>

The Data Committee used the Environmental Systems Research Institute’s (Esri) geospatial software packages to create the decision support tool using a weighted overlay method. In this approach, each data layer is weighted for relative importance (compared to other layers), with all weights totalling 100%. Within each layer, locations were ranked based on proximity to important features or activities. Subsequently, data layers are merged to create a colour map, with the colour

scheme indicating suitable to least suitable locations for shellfish and marine plant aquaculture. See Appendix 4-Figure 3 for results of the decision support tool analysis.

## Preliminary Identification of the ADA

Based on decision support tool outputs, the Data Committee identified 976 hectares of potential space for shellfish and marine plant aquaculture development within the study area. These areas consisted of 62 distinct locations, varying in size from 1.5 hectares to 90 hectares (Appendix 5-Figure 4).

The Department and the Municipality undertook an additional two years of engagements with the public and stakeholders, with the goal to share findings and solicit additional feedback. This engagement described the use of a decision support tool, its advantages and limitations, the selection criteria (provided in part by the stakeholders themselves), and the rationale. Stakeholders were asked to provide feedback on the proposed areas based on their use of the marine space.

## Additional Federal and Provincial Engagement

A key component of re-engaging with federal and provincial partners during the ADA planning process was to ensure the pilot project did not circumvent any federal and provincial approvals relating to aquaculture development. Additional discussions with federal and provincial departments focused on submerged archaeology, bird activity, fish and fish habitat, and the public right of navigation. These conversations prompted additional data collection and research on the benthic environment, archaeological assessments, eelgrass and depth thresholds for aquaculture infrastructure.

The Nova Scotia Department of Natural Resources and Renewables conducted a bird survey within the area of interest, providing insight into avian patterns and habitats, especially those species that are at risk. The Department worked further with the Nova Scotia's Department of Communities, Culture, Tourism and Heritage to assess potential risks to submerged archeological resources, with DFO to discuss mitigation measures for protecting eelgrass, and with Transport Canada regarding the right to navigation.

## Aquaculture Sector Engagement

The collaborative approach to the Argyle ADA Pilot Project ensured that the selection process was informed by real-world industry experience, while enhancing the overall effectiveness and feasibility of a proposed ADA in the study area. These industry engagements aimed to gather insights on the selection of potential spaces accounting for the practicalities of shellfish and marine plant production. The aquaculture sector was engaged through the Stakeholder Committee chaired by the Municipality and feedback from industry representatives via the Aquaculture Association of Nova Scotia.

Feedback covered topics such as where previous aquaculture farms had not performed well, additional spaces worth considering for development, and parameters for different species to farm. Discussions also addressed questions the aquaculture sector had about the application process within an ADA.

As a result of industry feedback, the Department collected more detailed bathymetry information, confirming that some locations have sufficient water depth to support aquaculture development, while others were previously deemed suitable were now considered unsuitable.

## Local Stakeholder Engagement

Local engagement was led by the Municipality and utilized several different methods, including traditional media, social media and public open houses. The engagements included fishers, local oyster farmers, the tourism industry, environmental groups, and the public. The Municipality spent 1400 hours on the ADA pilot project, engaging approximately 120 individuals. Discussions covered the proposal process, concerns about lobster fishing impacts, fishing impacts, as well as environmental, property value, noise, and marine traffic issues. For detailed information on the Municipality's engagement methods, discussions, and outcomes, please refer to the [Municipality's website](#).

The Department included the feedback gathered by the Municipality in their decision-making processes such as proximity to boatyards, small craft harbours, and lobster fishing. Some areas were removed or adjusted to better accommodate these concerns.

A critical factor in decision-making is the public right of navigation. To address navigation concerns, the planning team integrated corridors in some areas, reduced area size or removed some locations altogether.

Transport Canada has permitting procedures in place for decisions on aquaculture infrastructure in the water. An authorization from Transport Canada is required for all approved aquaculture leases in Nova Scotia. If authorizations for aquaculture operations are issued, Transport Canada will include any requirements or restrictions deemed necessary for navigation.

## ADA Selection & Submission to Governor-in-Council

After four years of extensive engagements, data collection and analysis, 784 hectares of marine space spanning 53 separate areas were identified as part of the ADA Pilot Project (see Appendix 6-Figure 5). This process ensured that all known social, culture, economic and environmental factors that are relevant to the legislation were considered in the planning approach. The Argyle ADA was approved by the Governor-in-Council on April 12, 2024 (OIC # 2024 – 147).

## Phase III: Administration of the ADA

The ADA pilot project is currently in Phase III. This phase includes the Call for Proposals and application process. These are administrative processes that are regulated by the Aquaculture Licence and Lease Regulations. Under these regulations, decisions on proposals and applications are made by the Department's Aquaculture Administrator. Phase III involves six general steps:

1. The Department issues a Call for Proposal for select marine areas within the designated ADA.
2. Proponents respond to the Call by submitting proposals for a specific location(s) within the ADA to the Department by the specified deadline.

3. Proposals are reviewed by the Department and the ADA Proposal Assessment Panel.
4. A decision on the successful proponent is made by the Aquaculture Administrator and proponents are invited to submit an application for a specified location within the ADA.
5. Applications are submitted within a prescribed 90-day timeframe.
6. The submitted applications are reviewed by the Department and a 30-day public comment period is conducted.

Proposals and subsequent applications are evaluated based on the eight factors to consider for decision making on aquaculture development described on Page 1. If an application is approved by the Administrator, the licence holder must have an [Farm Management Plan](#) approved by the Department prior to beginning operations. The Farm Management Plan must include information on fish health management, environmental monitoring, and farm operations that meet the requirements of the Aquaculture Management Regulations with the goal of ensuring sustainable and responsible aquaculture practices.

Calls for Proposals will take place in phases over many years and the Department will work with the Municipality to evaluate the progression of the ADA and adjust as needed. A Call for Proposals will typically range from one to three months. After the submission deadline, the Department will review the proposals for completeness. Those deemed complete will be forwarded to the ADA Proposal Assessment Panel for further review. The ADA Proposal Assessment Panel is comprised of members of the Department, Municipality, and the Aquaculture Association of Nova Scotia.

The ADA Proposal Assessment Panel evaluates the proposals based on established criteria and provides recommendations to the Aquaculture Administrator for a final decision. If a proposal is selected, the proponent is then required to submit an application within a prescribed 90-day period. During this period, the applicant must also submit a Notice of Works to Transport Canada for their review and decision.

After an application for a specific area within the ADA is submitted to the Department, the Aquaculture Administrator issues a 30-day public comment period, inviting members of the public to submit comments related to the eight factors for decision related to aquaculture development. Decisions on applications are made by the Aquaculture Administrator.

The first Call for Proposals for six Argyle ADA Pilot Project sites was made on April 15, 2024, with the deadline for submissions being June 15, 2024. No other Calls for Proposals are planned at this time.

## Phase IV: Monitoring, Engagement, Evaluation and Refinement

Phase IV of the ADA planning approach focuses on ongoing monitoring, engagement, evaluation and refinement of the ADA, as necessary to ensure it is meeting project and regulatory outcomes. Evaluation of ADA performance will include economic contributions, compatibility with other marine uses and impacts to the environment. In doing so, the Department will use a combination of legislative, economic and environmental monitoring methods. One important environmental aspect is to demonstrate that the surrounding environment can support the cumulative impacts from all the identified ADA sites. This will be done by using a modeling tool called Farming in Natural Systems (FINS) which is a state-of-the-art carrying capacity model for finfish and shellfish

aquaculture. More information on the FINS project can be found here ([Centre for Marine Applied Research | Aquaculture Carrying Capacity Model for Nova Scotia \(cmar.ca\)](https://cmar.ca)).

In addition to legislative, economic and environmental monitoring methods, a Community Liaison Committee will be established within the ADA. The purpose of the Community Liaison Committee is to facilitate effective communication and collaboration between licence and lease holders, different levels of government, the local communities and stakeholders. The Community Liaison Committee will serve as a key platform for exchanging information, addressing concerns, and fostering community engagement. Furthermore, the Department and project partners may establish research projects as part of ongoing monitoring of an ADA.

## Conclusion

Aquaculture development in Nova Scotia is guided by eight regulated factors in the decision-making process. Through extensive engagement and data analysis, the ADA planning approach addresses these factors systematically. This process aimed to foster an environment for effective engagement, created in partnership between the Department and project partner, the Municipality.

A unique element of the ADA planning approach is the proactive involvement of the community, federal and provincial governments, and the Mi'kmaq of Nova Scotia. This collaborative effort ensures the optimum use of marine resources, considered fisheries activities in the study areas, addresses oceanographic and biophysical characteristics, and accommodates other uses of public waters. By engaging stakeholders upfront, this approach raised awareness and allowed for feedback and advice to be integrated proactively, thereby streamlining the Call for Proposal process.

Engagement, applied research, and adaptive management practices will continue after licences are issued, ensuring that aquaculture operations thrive and coexist harmoniously with the communities in which they are established.

# Appendices



Appendix 1. Area of analysis (study area) for the proposed Argyle Aquaculture Development Area -



Figure 1. This map shows the study area covering 23,000 hectares. This area was chosen based on local government land boundaries, water depths, and exposure to natural elements.



## Appendix 2. Aquaculture Network Partners involved in the ADA Pilot Project

Federal and Provincial Departments & Agencies involved with the ADA Pilot Project:	Area of Advice
<a href="#">Nova Scotia Communities, Culture, Tourism and Heritage</a>	Areas of historical significance.
<a href="#">Nova Scotia Office of L'nu Affairs</a>	Potential impacts on Mi'kmaq Rights.
<a href="#">Nova Scotia Environment and Climate Change</a>	Water withdrawal; on-site sewage; petroleum storage.
<a href="#">Nova Scotia Department of Public Works</a>	Roads and bridges.
<a href="#">Nova Scotia Department of Natural Resources and Renewables</a>	Wildlife; Crown Land; Parks; mineral exploration, marine renewable energy areas (e.g. tidal).
<a href="#">Nova Scotia Department of Agriculture</a>	Marshlands and agricultural activities.
<a href="#">Fisheries and Oceans Canada (DFO)</a>	Impacts to fish and fish habitat; Small Craft Harbours.
<a href="#">Canadian Food Inspection Agency (CFIA)</a>	Food Safety; Disease Management; Shellfish classifications.
<a href="#">Environment and Climate Change Canada – Canadian Wildlife Service</a>	Migratory Wildlife.
<a href="#">Environment and Climate Change Canada – Marine Water Quality Monitoring Program</a>	Water Quality Monitoring.
<a href="#">Transport Canada</a>	Navigation and Federal Harbours.

Appendix 3: Initial data and information collection (area of analysis)

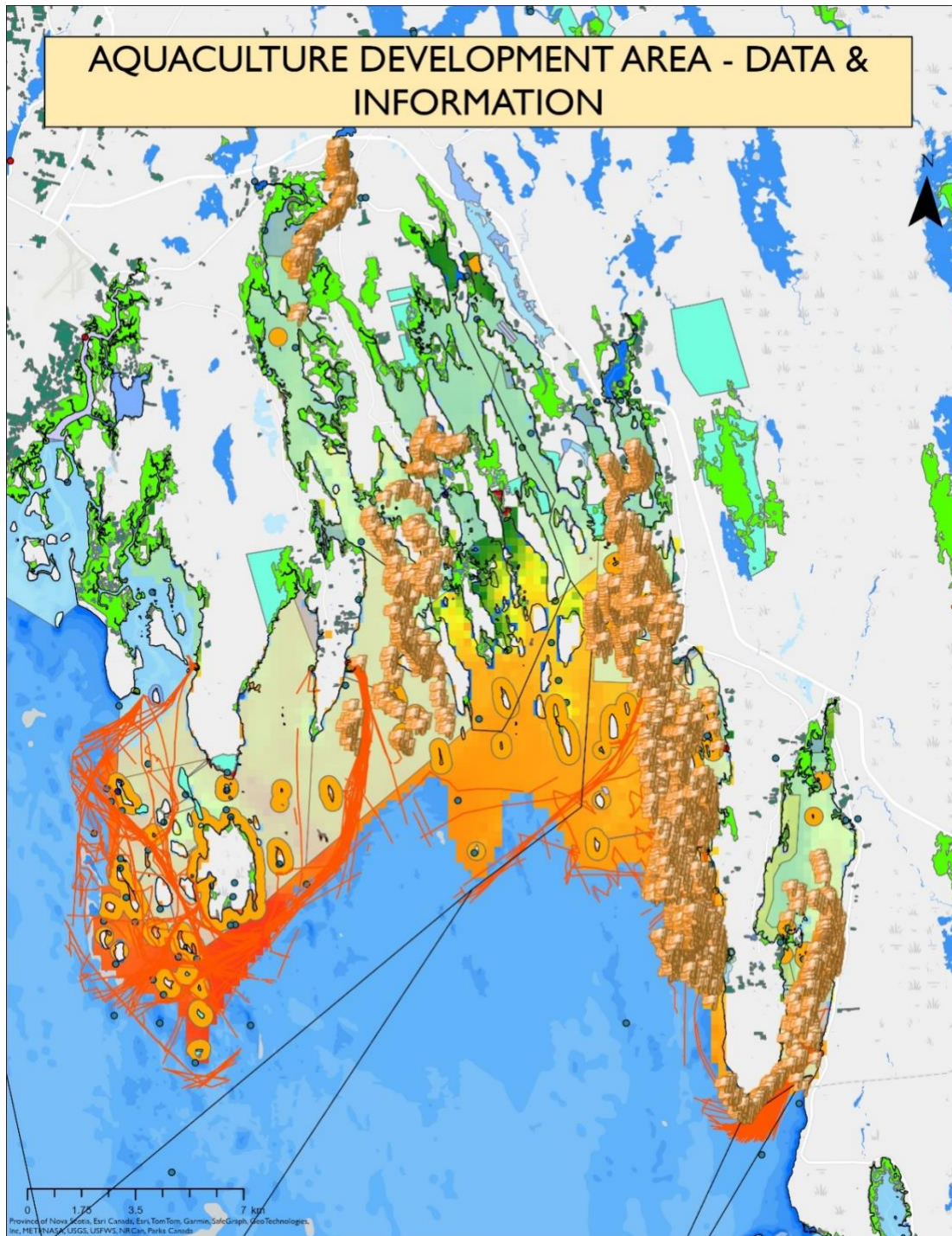


Figure 2. This map shows the data and information collected through engagements with local stakeholders and government network partners and used for analysis in the decision support tool.

## Appendix 4. Decision Support Tool Analysis

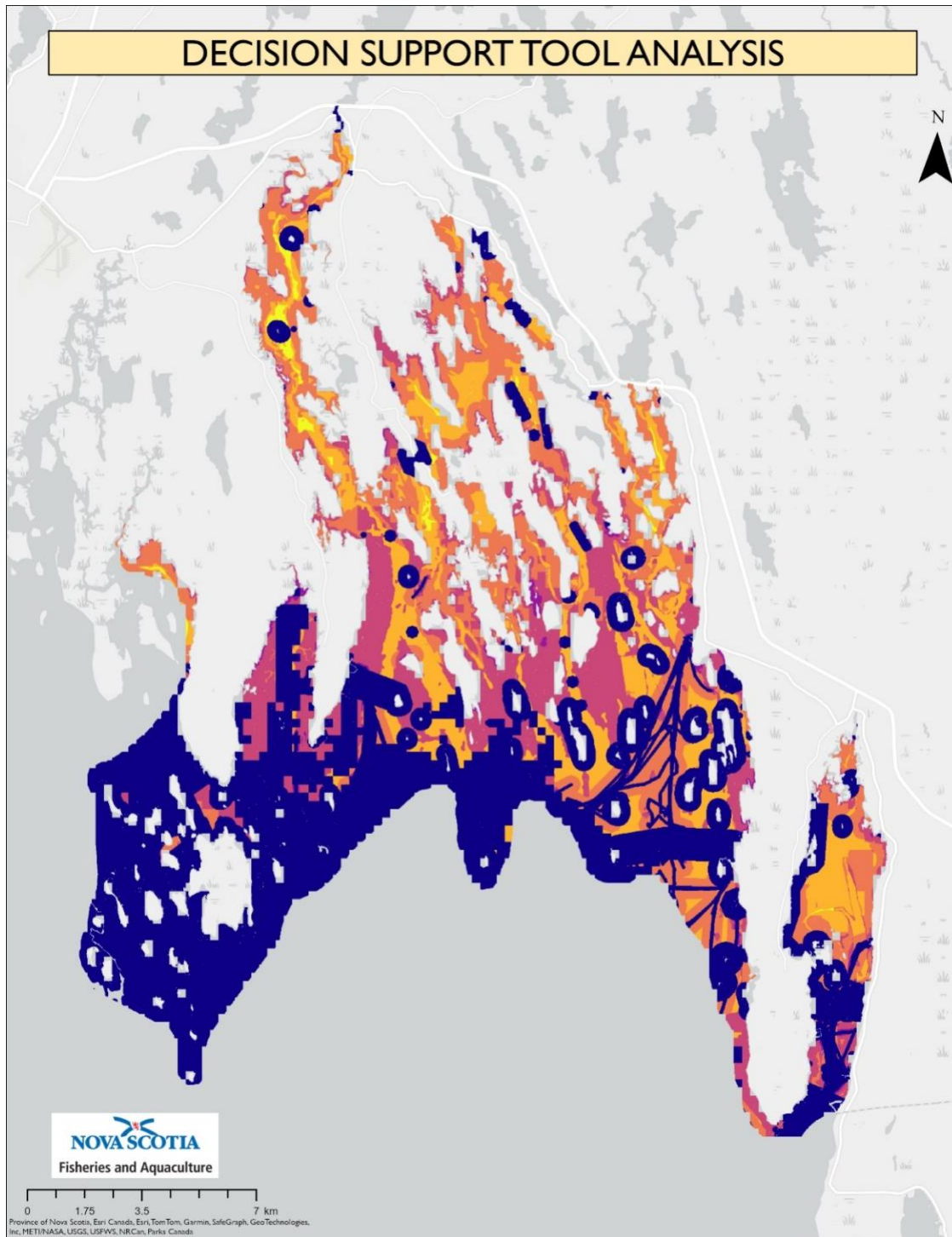


Figure 3. This map shows the results of the Data Committee's analysis using the decision support tool, which helped further identify areas potentially suitable for shellfish and marine plant aquaculture development. The Esri geospatial software package was used to create the tool.



## Appendix 5. Initial ADA selection after Decision Support Tool analysis

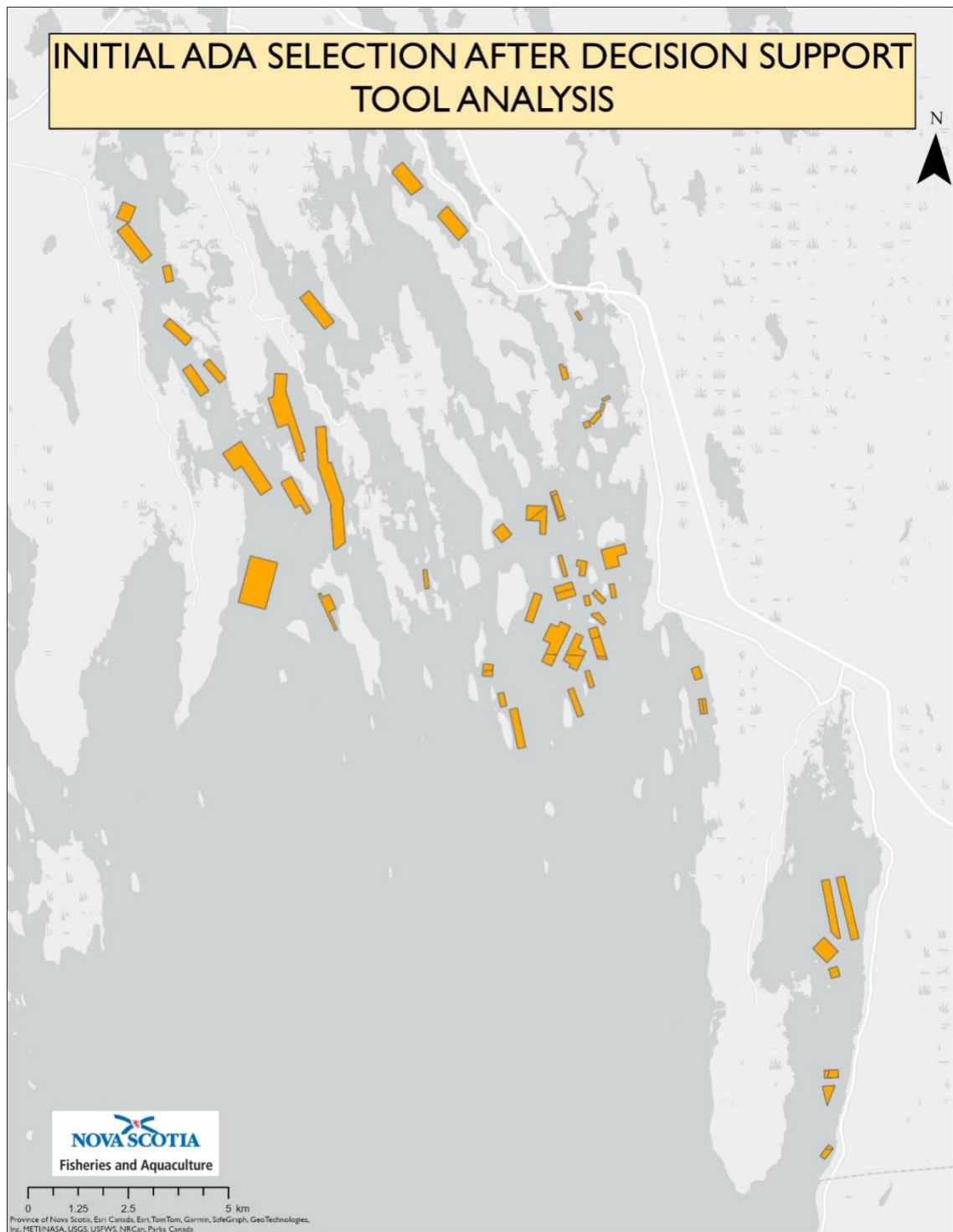


Figure 4. This map shows the initial 976 hectares identified by the Data Committee for potential shellfish and marine plant aquaculture based on stakeholder engagements and data analysis.

## Appendix 6. Areas selected to be designated as the Argyle ADA

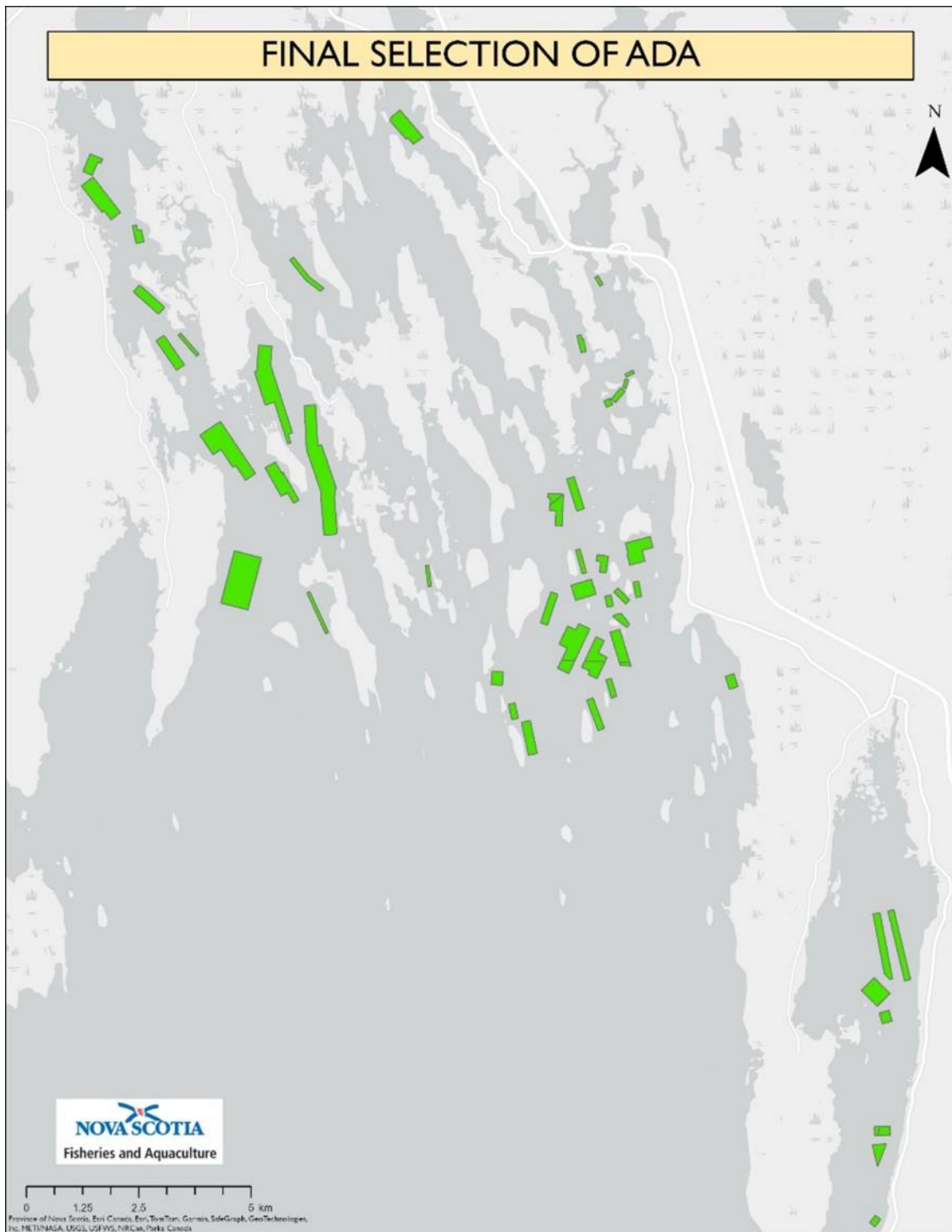


Figure 5. This map shows the final 784 hectares selected for potential shellfish and marine plant aquaculture development areas based on re-engagement with stakeholders, including the public, and further analysis.

## References

Center for Ocean Solutions. 2011. Decision Guide: Selecting Decision Support Tools for Marine Spatial Planning. The Woods Institute for the Environment, Stanford University, California.

Doelle, Meinhard and Lahey, William. 2014. A New Regulatory Framework for Low-Impact/High-Value Aquaculture in Nova Scotia. Retrieved from The Final Report of the Independent Aquaculture Regulatory Review for Nova Scotia:  
[https://novascotia.ca/fish/documents/Aquaculture\\_Regulatory\\_Framework\\_Final\\_04Dec14.pdf](https://novascotia.ca/fish/documents/Aquaculture_Regulatory_Framework_Final_04Dec14.pdf)

Ehler, Charles, and Fanny Douvère. Marine Spatial Planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. Paris: UNESCO. 2009 (English).