

DRAFT
BOWIE SEAMOUNT



MARINE PROTECTED AREA
MANAGEMENT PLAN

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Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada 

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Pacific Region Fisheries Management Plans
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Oceans Act
<http://laws.justice.gc.ca/en/O-2.4/>

Fisheries Act
<http://laws.justice.gc.ca/en/F-14/index.html>

Coasting Trade Act
<http://laws.justice.gc.ca/en/C-33.3/>

1. Introduction

The purpose of this management plan is to specify guidelines for the ongoing operational management of the Bowie Seamount Marine Protected Area (MPA). New regulations that support the management plan specify the geographic area designated as the MPA and its minimum protection standards. The management plan, together with the regulations were implemented upon the designation of the Bowie Seamount MPA.

2. Background

With the passing of Canada's *Oceans Act*, Fisheries and Oceans Canada has committed to developing a new approach to managing our oceans. The *Oceans Act* was put into force in 1997 and outlines marine jurisdiction, provisions for establishing an Oceans Management Strategy (OMS), and the consolidation of federal responsibilities for Canada's oceans. The OMS enables Fisheries and Oceans Canada to develop Integrated Coastal Zone Management, Marine Environmental Quality, and Marine Protected Area (MPA) programs based on the principles of sustainable development, integrated management of activities, and the precautionary approach (a commitment to err on the side of caution). Under section 35(1) of the *Oceans Act*:

'A marine protected area is an area of the sea [within Canadian waters] and has been designated under this section for the special protection for one or more of the following reasons:

- a) the conservation and protection of commercial and non-commercial fishery resources, including marine mammals and their habitats;*
- b) the conservation and protection of endangered or threatened marine species, and their habitats;*
- c) the conservation and protection of unique habitats;*
- d) the conservation and protection of marine areas of high biodiversity or biological productivity; and*
- e) the conservation and protection of any other marine resource or habitat as is necessary to fulfil the mandate of the Minister.'*

In the Pacific Region, an Oceans Directorate has been established to co-ordinate and facilitate the Department's fulfilment of the provisions put forth in the *Oceans Act*. For more information refer to the *Oceans Act* S.C. 1996, c.31. More information regarding the implementation of the *Oceans Act* can be obtained online or through any Fisheries and Oceans Canada office.

In December of 1998, the Minister announced the Bowie Seamount Area and the Endeavour Hydrothermal Vents as pilot Marine Protected Areas. Bowie Seamount was selected as an MPA pilot under the *Oceans Act*, section 35(1), for the following reasons:

- rich biological productivity due to the surrounding oceanographic interactions;
- potential role as a biological oasis supporting unique plant and animal communities;
- potential role as a staging area for migrating marine mammals and seabirds;
- proximity to the sea surface, rising to within ~25 metres of the surface from a depth of more than 3000 metres;
- vulnerability to human pressures and activities;
- opportunities for educational outreach and increasing public awareness; and,
- significant research and on-going monitoring opportunities.

Following this announcement various projects have been initiated to build awareness of the MPA program and to collect background information and provide recommendations with respect to the Bowie Seamount MPA including:

- An Ecosystem Overview contract carried out by AXYS Environmental Consultants Limited to collect and present all environmental, social, and economic information related to Bowie (Fisheries and Oceans Canada 1999).
- Establishment of an advisory team, consisting of representation from Fisheries and Oceans, other government agencies, First Nations, commercial fishing, commercial shipping, environmental non-government organisations, and academic science sectors. The membership of the team evolved throughout the process as stakeholder input was received, but their role was consistently to provide advice to Fisheries and Oceans regarding the development of the proposed MPA, and the consultation process.
- A workshop held in Vancouver, BC, for evaluation of the ecosystem overview, and for stakeholder consultation – the results of which were summarised in an Ecosystem Overview Workshop Summary document (Fisheries and Oceans Canada 2000).
- Creation of a Bowie Seamount Educational Media Kit – which includes a set of two CD's containing digitised underwater video footage, brochures on the Seamount and a video containing the uncut footage taken during the August 2000 CCGS John P. Tully Expedition combined with the footage from the National Geographic Expedition in 1995.
- Development of a management plan and proposed regulations based on stakeholder input, largely as a result of comments received during the stakeholder workshop.

3. Description

The Bowie Seamount is the southernmost seamount of the Kodiak-Bowie chain, which stretches from the Aleutian Trench off Kodiak Island to an area just west of the Queen Charlotte Islands. Bowie Seamount is located in Canadian waters 180 km west of the Queen Charlotte Islands in the Northeast Pacific Ocean at 53° 18'N, 135°39'W. (Fisheries and Oceans Canada 1999)

Bowie is one of the shallowest seamounts in the Northeast Pacific. Although the base of the Seamount lies 3100m below the surface, its peak penetrates to within 25 m of the surface. The Seamount summit includes two distinct terraces at depths of 220-250m and 65-100m. In total, Bowie Seamount measures about 24 km wide and 55 km long. Bowie is relatively young in geological terms, and is believed to have formed less than one million years ago as an active volcanic island during the last ice age. Preliminary oceanographic studies indicate that Bowie Seamount is a biologically rich and productive marine area due to its summit rising steeply from deep oceanic water. This shallow-water area located far from the coast represents a unique habitat in B.C. waters and a rare habitat in the N.E. Pacific. (Fisheries and Oceans Canada 1999)

Globally, oceanographic phenomena are thought to be responsible for enhancing the biological productivity and colonising the ecosystems of shallow seamounts like Bowie. Species can be found on shallow seamounts in conditions they normally would not exist. Other mobile organisms, such as fish, marine mammals, and seabirds, are also thought to be attracted to the area as they transit along migratory or feeding routes. The Bowie Seamount is frequented by species of global concern, however, their relationship with the ecosystem is not yet known. (Fisheries and Oceans Canada 1999)

The Bowie Seamount was first surveyed for instrumentation in March 1969 by the Defence Research Establishment Pacific (DREP) (Scrimger & Halliday 1971). During August of 1969, oceanographic features were surveyed and biological observations conducted by the Pacific Environment Institute as a cooperative study with the DREP (Herlinveaux 1971). Since then, the Pacific Biological Station has conducted four research surveys with the most recent taking place in August 2000. Starting in 1983, commercial fishing for sablefish (*Anoplopoma fimbria*) and rockfish (*Sebastes sp.*) have been permitted at Bowie Seamount. The National Geographic Society conducted diving activities in the area in 1996, compiling a library of video and still images of the seamount (Curtsinger 1996). Further information regarding activities in the Bowie Seamount area can be found in the Ecosystem Overview for the area (Fisheries and Oceans Canada, 1999).

Recent research by Fisheries and Oceans Canada at the Bowie Seamount area examined the genetic population structure of Yelloweye Rockfish (*Sebastes ruberrimus*) (Yamanaka et. al. 2000) and the development of visual survey methods to estimate abundance of benthic rockfishes. Although the genetic studies found that Bowie Yelloweye Rockfish were not genetically distinct from coastal stocks, it did find that the populations of rockfish on the seamount exhibit characteristics of a relatively lightly fished stock compared to those along the coast. Evidence of fishing pressure in the age distributions of yelloweye rockfish stocks suggests that fisheries management should be conducted on a small local scale. Development of direct survey methods for benthic rockfishes is continuing and will incorporate the assessment of habitat. Data collected in a collaborative seafloor survey with the US National Oceanographic and Atmospheric Administration (NOAA) will be used to determine habitat areas and will contribute to the assessment of rockfish biomass on the top 180 m of the seamount.

4. Overarching Goal of the MPA

As an MPA, the Bowie Seamount Area contributes towards the protection and conservation of a representative shallow seamount ecosystem in the Northeast Pacific Ocean, with its dynamic marine ecosystem, unique habitat, specialised biota, regionally-valued commercial fisheries resources, high biodiversity and biological productivity.

At present, the broad objectives defined in the *Oceans Act* Section 35(1) pertaining to the Bowie Seamount MPA are provided below:

- ***The conservation and protection of unique habitats of the area (Oceans Act, Section 35(1)(c)).***
- ***The conservation and protection of the area as a marine area of high biodiversity and biological productivity (consistent with Oceans Act, Section 35(1)(d)).***
- ***The conservation and protection of commercial and non-commercial fisheries of the area (Oceans Act, Section 35(1)(a)).***

5. Management Objectives and Actions

Management Objective 1: Conserve and Protect the Unique Habitat, Biological Productivity and Diversity, and the Commercial and Non-commercial Fishery Resources in the Bowie Seamount Area.

This Management Objective supports the three *Oceans Act*, section 35(1) objectives, which pertain to the Bowie Seamount MPA as outlined in Section 4. Specifically, the goals of this Management Objective are to:

- a) protect and conserve the ecological integrity of the area within the MPA.

Current and Potential Activities

Current and potential activities that may threaten the unique habitat, biological productivity and diversity, and/or the commercial and non-commercial fishery resources in the area are provided below:

Fishing activities:

- Deployment and/or loss of fishing gear may have detrimental effects on the habitat.
- Removal of animals may result in impacts to species interactions and diversity.

Research activities:

- Sampling of biological or geological features may result in impacts to the habitat and ecosystem.
- Moored monitoring devices and/or lost research equipment could affect the habitat within the area.

Shipping activities:

- Potential oil, chemical, and cargo spills.

Non-renewable resource exploration and extraction activities:

- Potential removal of materials for exploration and/or extraction may result in impacts to the habitat and ecosystem.

Recreation and tourism activities:

- Tourism and recreation activities such as SCUBA diving and submarine adventure tours could result in effects to the habitat and/or ecosystem in the area.

Current Management

Currently, the commercial Sablefish fishery is the only active fishing activity occurring at the Bowie Seamount. The Bowie Seamount area lies within the offshore seamount management area for the sablefish fishery. Fishing gear used for commercial sablefish in the offshore seamounts management area is limited to the use of traps and hook and line. Information concerning the management of the offshore seamount fishery can be found within the Integrated Fishery Management Plan for Sablefish (Fisheries and Oceans Canada 2001). Some hook and line fishing for rockfish has taken place as part of Fisheries and Oceans Canada research. This fishing activity is managed through *Fisheries Act* scientific permits.

A Tanker Exclusion Zone (TEZ) was established in 1988 to keep tankers sufficiently offshore, should a tanker become disabled, so assistance could be rendered before

running aground (Canadian Coast Guard 1988). Although the TEZ does not exclude traffic from transiting over Bowie, through consultations with the major oil tanker companies operating routes potentially transiting the Bowie area, it has been found that laden oil tankers transit well seaward from the Bowie Seamount.

There are currently no management plans in place for non-renewable resource exploration and extraction or recreation and tourism in the Bowie Seamount area. At present, there is no active interest in mineral or oil and gas exploration within the MPA. Recreation and tourism activities potentially occur, but currently to a negligible extent. It is conceivable, considering Bowie Seamount's natural features, that recreation and tourism activities could develop in the area.

Management Actions

In order to meet the objective outlined above, the Bowie Seamount Marine Protected Area includes a harvest refugia (no-take zone). The Management Objective is primarily achieved through the regulatory designation of the area as a Marine Protected Area under the *Oceans Act*, section 35(1).

Within the boundaries of the Marine Protected Area, regulations prohibit activities such as non-renewable resource exploration and extraction, dredging, dumping, and other activities that damage, disturb, or alter the habitat within the area. Activities such as research, fishing, recreation and tourism may be permitted, if it is deemed that they would not result in damage, disturbance or alteration of the habitat within the area.

Within the harvest refugia boundaries, in addition to the regulations discussed for the MPA, regulations prohibit activities involving the extraction of commercial and non-commercial fishery resources from the area. Research may be permitted in the area, as deemed necessary to fulfil the objectives of the Marine Protected Area.

The Bowie Seamount Marine Protected Area boundaries delineate a four sided polygon shape encompassing 575 square nautical miles and is the area of seabed and overlying water column bounded by a line drawn from a point at 54°07'N and 135°0'W, from there south to a point at 53°0'N, 135°0'W, from there west to a point at 53°0'N, 137°0'W, from there north to a point at 53°47'N and 137°0'W, and from there north-east to the point of beginning. This boundary will best achieve an ecosystem approach by including the connected deeper seamounts, Hodgkins and Davidson.

[Three options are being proposed for the harvest refugia, as shown in the visual approximations in **Appendix A**. Consultations with interested parties will seek to identify one of these options for designating the Bowie Seamount as a Marine Protected Area, and subsequently the co-ordinates and a legal version of the chart will be developed for incorporating into the regulations.]

Matters involving national security will supersede the regulations and management plan for the MPA.

Evaluation of Management Actions:

The Bowie Seamount MPA Management Committee (see Section 6) will guide the evaluation of these Management Actions.

- Access authorisation requests (Management Objective 3) will be reviewed, including the number of requests deemed consistent/inconsistent with the management plan, and the number of requests granted/refused.
- Reports resulting from compliance monitoring (Management Objective 3) will be reviewed, including the number of vessels of interest observed within the MPA and the number of prosecutions.
- Research and Marine Environmental Quality programs outlined in this management plan (Management Objectives 2 and 3 respectively) will be employed by the Management Committee to evaluate the Marine Environmental Quality within the area against the objectives of the MPA.
- See Section 8 for further information on the evaluation process for the management plan.

Management Objective 2: Develop and Implement a Research and Outreach Strategy.

This Management Objective supports the three *Oceans Act*, section 35(1) objectives, which pertain to the Bowie Seamount MPA as outlined in Section 4. Specifically, the goals of this Management Objective are to:

- a) enhance our knowledge on the structure, function and variability of the shallow temperate seamount ecosystem;
- b) further our understanding of the Bowie Seamount Area ecosystem and its interaction between other oceanic and nearshore ecosystems;
- c) further our understanding of the biological community and its interaction with the physical environment that characterise the area.
- d) develop our understanding of the relationship between commercially and non-commercially fished species and their ecosystem;
- e) contribute to our understanding of the biology and population dynamics of commercially and non-commercially fished species;
- f) develop our knowledge on the local effects to commercially and non-commercially fished species of establishing harvest refugia; and
- g) develop our knowledge on the use of harvest refugia as a fisheries and marine resource management tool.

Current and Potential Activities

Current and potential activities that can be integrated into a research and education strategy include:

- Currently, a variety of domestic and foreign vessels transit the area to conduct scientific research.
- Currently, information resources are available through a number of organisations in a variety of formats that could be compiled for increased utility towards research and outreach initiatives in the area.
- Potential exists for more involved education and outreach programs.

Current Management

There are currently no management plans in place specifically addressing research or outreach in the Bowie Seamount area. Fisheries and Oceans Canada manages commercial and experimental fisheries on offshore seamounts (see Management Objective 1), and conducts research as part of the regional requirements for stock assessments. However, limited resources restrict the level of research carried out in the area. As a result, there is still a lot to be learned with respect to the ecology of seamounts.

Beyond outreach and education activities related to MPA development for the area, there is limited engagement with the general public with respect to the Bowie Seamount area. The Bowie Seamount has been featured in a National Geographic magazine article (Curtsinger 1996) and in a CD-ROM "Oasis: on the edge of the abyss", an interactive education resource developed by the Université du Québec à Montréal, although its primary focus is on hydrothermal vent ecosystems. There are no known co-ordinated education and outreach initiatives focusing on seamounts.

Management Actions

The following management actions will be employed and guided by the Management Committee to fulfil this Management Objective:

1) Direct and Support Research

Multidisciplinary scientific research will be encouraged to better understand the ecological, cultural, and resource management aspects of seamounts. Some potential research priorities are listed below:

- i. Ecological Research
 - research seeking to better understand the relationships between the flora, fauna, and physical environment of the MPA
 - research seeking to better understand the oceanography of the MPA
 - research seeking to better understand the geomorphology of the MPA
- ii. Resource Management Research
 - research seeking to develop ecosystem based resource management practices towards developing more sustainable fisheries
- iii. Cultural Research
 - research projects involving the identification of the relationship between First Nations peoples and the MPA

2) Develop Outreach and Education Programs

To achieve full realisation of the Management Plan, an outreach strategy will be developed and implemented focusing towards financial granting agencies (e.g. Natural Science and Engineering Research Council of Canada, 'NSERC', and the US National Science Foundation, 'NSF', program) and researchers who may or do conduct studies in the Bowie Seamount area. The strategy will be directed towards

building co-operation with researchers and funding agencies involved in the Bowie Seamount area.

Consistent with the objectives for Marine Protected Areas prescribed in the *Oceans Act*, education and outreach will be maintained as a priority throughout the management of the MPA. To this end, projects will be encouraged to engage Canadian schools, educators, and the general public in activities taking place in the MPA. This may include first hand and virtual involvement by people from a broad variety of backgrounds. Some potential projects are listed below:

- development of lesson modules for delivery by educators formally in the classroom environment;
- development of interactive online information sources with material pertaining to the MPA; and
- development of display materials, videos, or other information resources of an education and outreach nature.

3) Develop an Information Centre.

For the co-ordination of information related to the Bowie Seamount MPA, a resource library will be developed. This resource library would be made available for researchers, educators, public outreach specialists, funding agencies, persons intending to conduct activities within the area, and the general public. Information compiled will include up-to-date research on the area, information on shallow seamounts in general, legislative and regulatory information, and other information deemed relevant to the MPA.

Evaluation of Management Actions:

The Bowie Seamount MPA Management Committee (see Section 6) will conduct evaluation of these Management Actions.

- Access authorisation requests and project proposals involving research activities will be reviewed. These projects will be further assessed for their ability to address the research requirements identified for the MPA, as established by the Management Committee and Fisheries and Oceans Canada.
- The success of the public access library will be measured in terms of the amount of information requested and obtained for inclusion in the collection, and also in terms of the amount of requests filled from the public and members of research programs etc.
- The number of people/organisations reached with education and outreach programs will be monitored.
- Involvement of Canadian participants in outreach programs will also be monitored.
- See Section 8 for further information on the evaluation process for the management plan.

Management Objective 3: Monitor Compliance and the State of the Ecosystem.

This Management Objective supports the three *Oceans Act*, section 35(1) objectives, which pertain to the Bowie Seamount MPA as outlined in Section 4. Specifically, the goals of this Management Objective are to:

- a) establish a process of monitoring and evaluation is maintained to measure progress toward management goals and facilitate modifications;
- b) identify and assess impacts of activities on the habitat and ecosystem within the MPA; and
- c) monitor the health of the habitat and ecosystem within the MPA.

Current and Potential Activities

Current and potential activities that may require monitoring for compliance and for identification and assessment of their effects on the habitat and ecosystem of the area include:

- research activities;
- fishing activities;
- shipping; and
- occasional HMC naval vessels transit through the area.

Current and potential activities that may be employed for monitoring activities in the area include:

- patrols conducted by Fisheries and Oceans Canada; and
- sovereignty patrols conducted by the Department of National Defence.

Current Management

Fisheries and Oceans Canada, the Department of Foreign Affairs and International Trade (DFAIT), and the Department of National Defence manage monitoring processes within Canadian waters relevant to this Management Objective.

DFAIT, as a provision of the *Coasting Trade Act*, currently administers a foreign vessel clearance request process for vessels planning to carry out activities within Canadian waters:

- Requests from foreign vessels are routed through diplomatic channels to DFAIT.
- DFAIT requests comments from relevant government departments/agencies in the appropriate region(s), i.e. whether the request should be granted or not (Fisheries and Oceans Canada is included on all requests).
- The foreign vessel request process is general to all of Canada's waters (EEZ) and covers foreign vessels only.
- Should the request be granted, foreign vessels conducting work in Canadian waters are required to reserve a berth for a Canadian observer and must submit a post-cruise report.
- As an interim management measure, foreign vessel clearance requests received by DFO for the Bowie Seamount area are currently vetted through the Oceans Directorate and the Bowie Seamount Advisory Team to review the requests for consistency with the management plan.

Fisheries and Oceans Canada conducts monitoring activities in the Pacific Region for assurance of compliance with Acts relating to environmental, fisheries, immigration, transport, and other activities out to the 200nm EEZ. This includes aerial surveillance as well as routine patrols by Canadian Coast Guard. Among these, Fisheries and Oceans Canada is responsible for administering the *Fisheries Act*, which among other things:

- Provides for prosecution of offences involving damage to fish and fish habitat. Although there are no known cases involving prosecution under the *Fisheries Act* at Bowie Seamount area, it is enforceable as Bowie Seamount lies within Canada's Exclusive Economic Zone.
- Contains provisions for issuing scientific permits. These provisions have been used in the area for sablefish and rockfish harvesting for commercial and research ventures.

For more information, refer to the *Fisheries Act* R.S.C. 1985, c. F-14.

The Department of National Defence conducts monitoring activities in Canada's waters during routine operations, exercises, and sovereignty patrols. The department uses aircraft, surface vessels, and submersibles.

Management Actions

The following management actions will be employed and guided by the Management Committee to fulfil this Management Objective:

1) Develop and Implement an Access Authorisation Process

All parties wishing to undertake activities within the Marine Protected Area will be required to obtain permission, through existing processes, to conduct activities in the MPA. Foreign vessels are and will continue to be required to obtain permission through the Department of Foreign Affairs and International Trade foreign vessel clearance request process under the *Coasting Trade Act*. The *Fisheries Act* provision for issuing scientific permits can be used to manage domestic vessel activities in the MPA. Access authorisation requests will be vetted through the Management Committee (see Section 6).

Authorisation to conduct activities within the Bowie Seamount MPA is required for all parties (government and non-government) both from within Canada and from outside. Matters involving national security will supersede the regulations and Management Plan for the MPA. The authorisation process will be built into existing regulatory processes and will involve the Bowie Seamount Management Committee in the review process. The Management Committee will review proposals submitted by parties who wish to carry out activities in the MPA. Fisheries and Oceans Canada will review advice from the Management Committee in order to determine whether or not access will be granted. Proposals must include, at minimum, the following information:

- Principal Investigator or Program Operator (if non-research)
- funding sources

- rationale for the cruise
- kinds of activities planned (including anticipated number and type of samples to be collected; equipment to be left in the area, etc.)
- specific location of activities
- duration and approximate dates of the program
- name of the vessel (if available)
- number of cruise participants
- names of any Canadian participants
- planned dissemination of results

Beyond monitoring compliance with the regulations and objectives of the MPA, this process will enable Fisheries and Oceans Canada and the Management Committee to better co-ordinate activities in the area thus maximising benefits while minimising deleterious impacts to the ecosystem. Currently, this authorisation process is largely accomplished in conjunction with the foreign vessel clearance request process through the Department of Foreign Affairs and International Trade. Review of these requests by Fisheries and Oceans Canada will continue. These foreign vessel clearance requests will also be vetted through the Management Committee. See section 6, Governance Structure.

Should access to the MPA be authorised, parties carrying out activities in the MPA are asked to comply with the Marine Environmental Quality protocols as described in Management Action 3 within this Management Objective.

2) Monitor Compliance

Fisheries and Oceans Canada will work with existing monitoring programs to conduct routine monitoring. Should this routine monitoring identify a vessel of interest, more directed enforcement activities may be conducted. Upon making arrangements within the existing monitoring programs, Fisheries and Oceans Canada would request reports from the organising agency for any missions that include coverage of the MPA. The report would include, at minimum:

For the monitoring aircraft/vessel:

- Commanding Officer's name
- List of relevant crew members (i.e. crew members directly involved in the monitoring activities, including bridge crew and observers for vessels and all flight crew for aircraft)
- Name and/or registration number
- Length of monitoring coverage of the MPA (indicating duration of time spent within visual range and radar range)

Vessel of interest:

- Location of the vessel
- Date and time contact established
- Type(s) of activity(ies) observed
- Name

- Side number
- Nationality

Reports from these monitoring programs may also be used to report sightings of scientifically significant observations, towards the implementation of Management Objective 2. In particular, this could include sightings of marine mammals within the MPA.

3) Develop and Implement a Marine Environmental Quality Strategy

Marine Environmental Quality protocols and indicators will be developed and implemented to minimise anthropogenic impacts on the seamount. The following approaches will be implemented:

- All sampling activities will require proper documentation of the removal. Removal of substrate by way of submersible will further require before and after images of sample sites, properly documented. All sampling documentation must be submitted with cruise reports.
- Submersible and dive operations (for research, education, or tourism) will be required to record and document complete, continuous videotapes of the entire period on the sea floor. Tapes will be archived and remain available should Fisheries and Oceans Canada deem it necessary to obtain copies for auditing purposes.
- All persons/organisations conducting activities in the area will be required to submit cruise reports, which clearly account for all time spent at sea and which describe the activities and procedures undertaken. These reports must be submitted within two months of all programs. This protocol is consistent with current provisions under the foreign vessel clearance request process administered by the Department of Foreign Affairs and International Trade (DFAIT).
- Vessels carrying out activities in the area will be required to reserve a berth for an observer, which is consistent with current provisions under the foreign vessel clearance request process administered by the DFAIT.

Evaluation of Management Actions:

The Bowie Seamount MPA Management Committee will conduct evaluation of these Management Actions.

- Access authorisation requests (Management Objective 3) processed will be reviewed, including the number of requests deemed consistent/inconsistent with the management plan, and the number of requests granted/refused.
- A process for identifying the extent of domestic vessels carrying out activities in the area not captured within the foreign vessel clearance request process will be developed and implemented to continually assess the adequacy of this management action.
- Access authorisation requests and MEQ documentation/cruise reports submitted will be reviewed for completeness and consistency with regulations and the management plan.

- The number of activities involving routine or spot monitoring of the area will be reviewed as well as the number of infractions issued for activities contravening regulations.
- Information regarding vessels of interest identified will be used to assess the requirements for compliance enforcement in the area.
- See Section 8 for further information on the evaluation process for the management plan.

6. Governance Structure

The overall management of the Marine Protected Area, and the activities undertaken therein, is to be executed through a Management Committee. Ultimate decision making responsibility lies with Fisheries and Oceans Canada, as mandated by legislation. The management committee will be composed of a cross-section of stakeholders and federal government agencies and will be tasked with providing advice to Fisheries and Oceans Canada toward the management of the MPA, based on the Management Principles outlined in **Appendix B**. Use of such a management structure will allow Fisheries and Oceans Canada to strengthen relationships forged thus far with stakeholders and government agencies and enable the application of strategies not otherwise supported by existing regulations.

Responsibilities of the Management Committee include:

- Provide input towards the development of programs, processes, and priorities in support of the Management Objectives for the MPA.
- Identify and evaluate emergent or critical issues involving the use of resources found within the MPA and serve as a liaison from non-governmental sectors to Fisheries and Oceans Canada managers regarding the impact of Bowie Seamount Management.
- Review proposed plans for research and other activities within the MPA and to provide timely advice to Fisheries and Oceans Canada managers regarding the appropriateness of the activities and any recommended conditions regarding them.
- Identify educational opportunities that could potentially increase public knowledge and understanding of the MPA.
- Provide advice to Fisheries and Oceans Canada on the development and evaluation of the Management Plan for the MPA.
- Participate in scheduled, open, public meetings, to provide input on all of the above issues.
- Meet annually (or as required) to review applications for research and other activities within the Marine Protected Area and to review progress made by government regarding other aspects of the management of the area and of information derived from it.

Members of the Management Committee will consist of representation from each of the following:

- Fisheries and Oceans Canada (2 members);
- First Nations (1 member);
- Natural Resources Canada (1 member);
- Environment Canada (1 member);
- Department of National Defence (1 member);

- Canadian Academic Science (1 member);
- Canadian Private Sector – commercial fishing industry (1 member);
- Public Education/Outreach (1 member); and
- Environmental Non-Government Organisations (1 member).

Members will be appointed to Management Committee positions on the basis of:

- Commitment to the vision, purpose, principles, and objectives of the MPA;
- Contributing to balanced representation of the diverse geography and range of interests in the area.
- Skills, knowledge, and experience relating to the management/activities in the MPA; and
- Base of support within the community they represented.

To the extent possible, prospective participants will determine the composition of the Management Committee and will be representative of sectors directly affected. Generally, committee members will be involved in aquatic resource use or management and be knowledgeable about the MPA. Together the committee members will reflect the appropriate diversity of interests relevant to the committee's task, have a broad base of support, and share a commitment to working together. Using these criteria as a departure point, the Board will consult with communities and stakeholders and invite them to:

- Assess the appropriateness of their participation;
- Identify their desired level of involvement
- Reach agreement on who needs to be involved; and
- Help reconcile the challenges of inclusiveness and effectiveness.

A chair for the committee will be selected from and by the non-governmental members of the committee. Members will remain on the committee for three years.

7. Post Designation – Ongoing Management

Funding for the management of the MPA will be derived from existing operational funding from Fisheries and Oceans Canada. Commitment from the department is anticipated to lever significant funds from other organisations for specific projects, e.g. research, contributing towards the objectives of the MPA.

8. Evaluation

Informally, the management plan for the MPA will undergo continuous evaluation against the objectives of the MPA. An initial evaluation of the management plan will also take place within the first year of implementation. Formal evaluation potentially involving modifications to the management plan is anticipated to occur on 5-year cycles.

The Management Committee will provide input and guidance towards the development of programs, processes, and priorities for the evaluation of the MPA against its objectives. The primary tools for this evaluation should be drawn primarily from the results of initiatives developed to the support Management Objectives of the Bowie Seamount MPA Management Plan.

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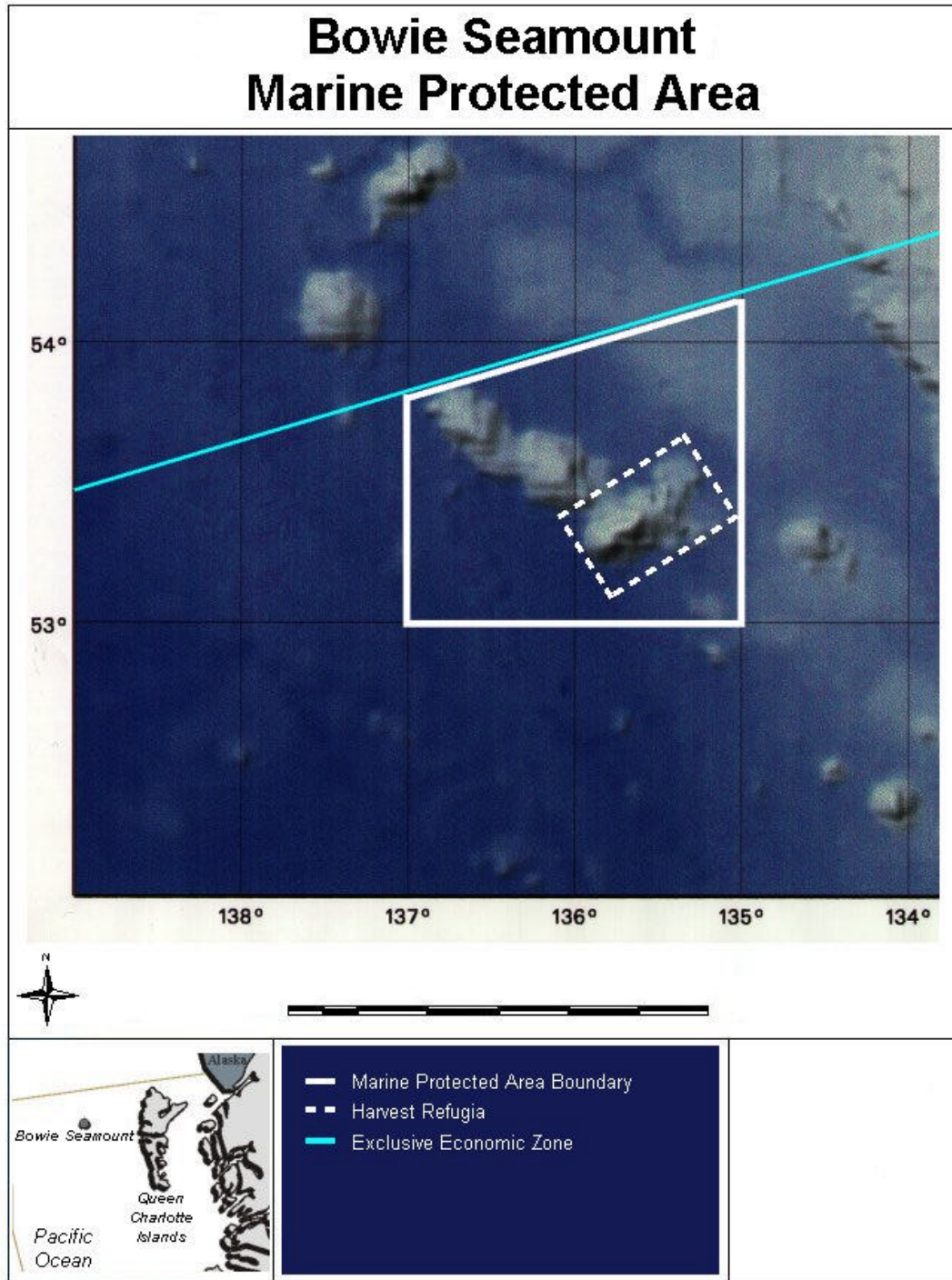
Appendix A: Chart of Bowie Seamount Marine Protected Area

Chart showing the location of the Bowie Seamount area in relation to Canada's Pacific Coast and the [proposed] Bowie Seamount Marine Protected Area. The chart also displays the boundary of Canada's Exclusive Economic Zone (EEZ). Also shown is the harvest refugia.

Note: Commencing on the following page are several scenarios are provided in this draft as options. Through consultation, one scenario will be selected that best meets the objectives of the MPA. All scenarios are designed such that they conserve and protect the habitat of the Seamount chain and immediately adjoining deep-sea environment. The scenarios are not listed in any particular order.

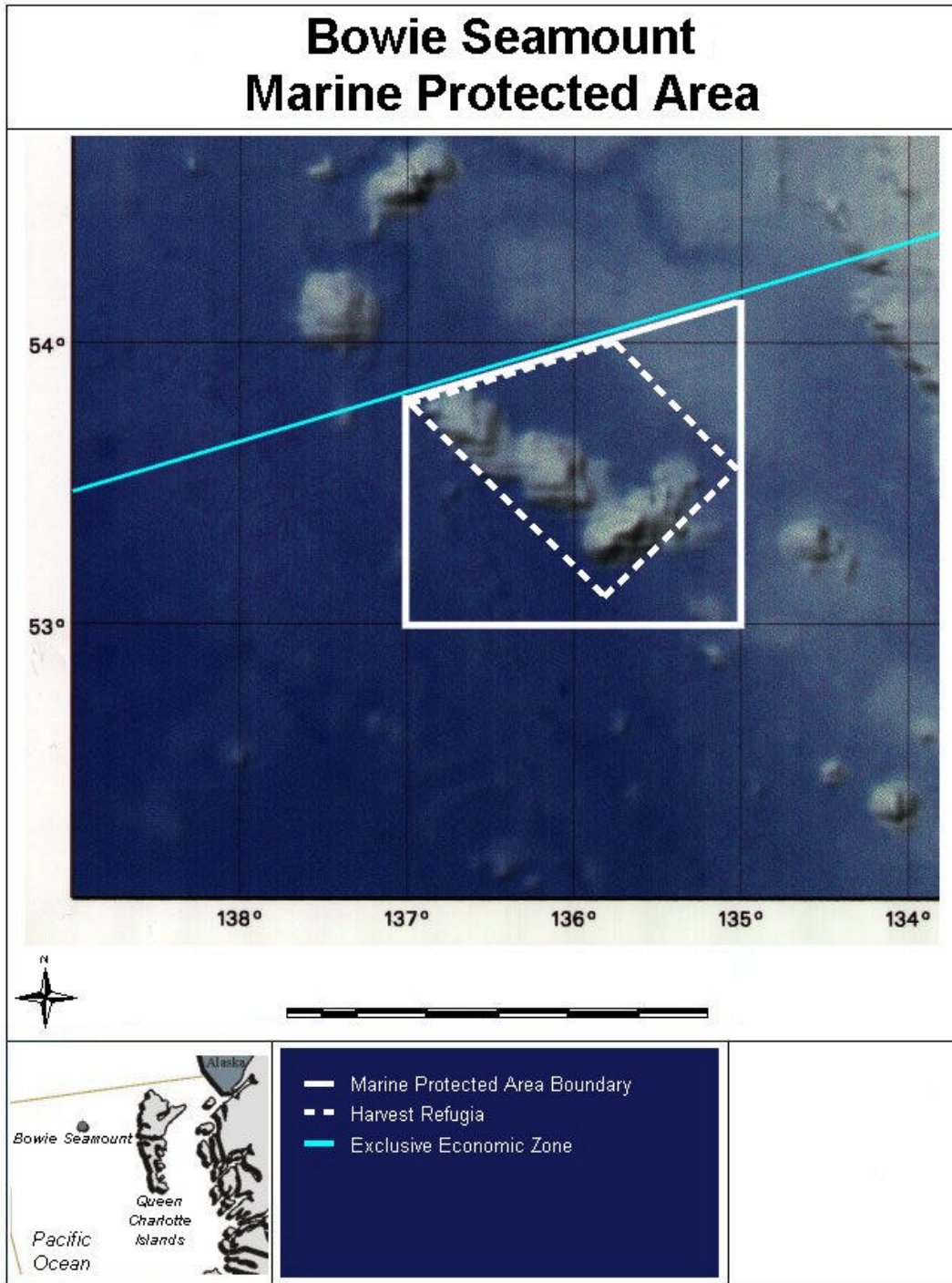
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Option (a): Harvest refugia within a box representation of the 3,000m isobath on Bowie Seamount.



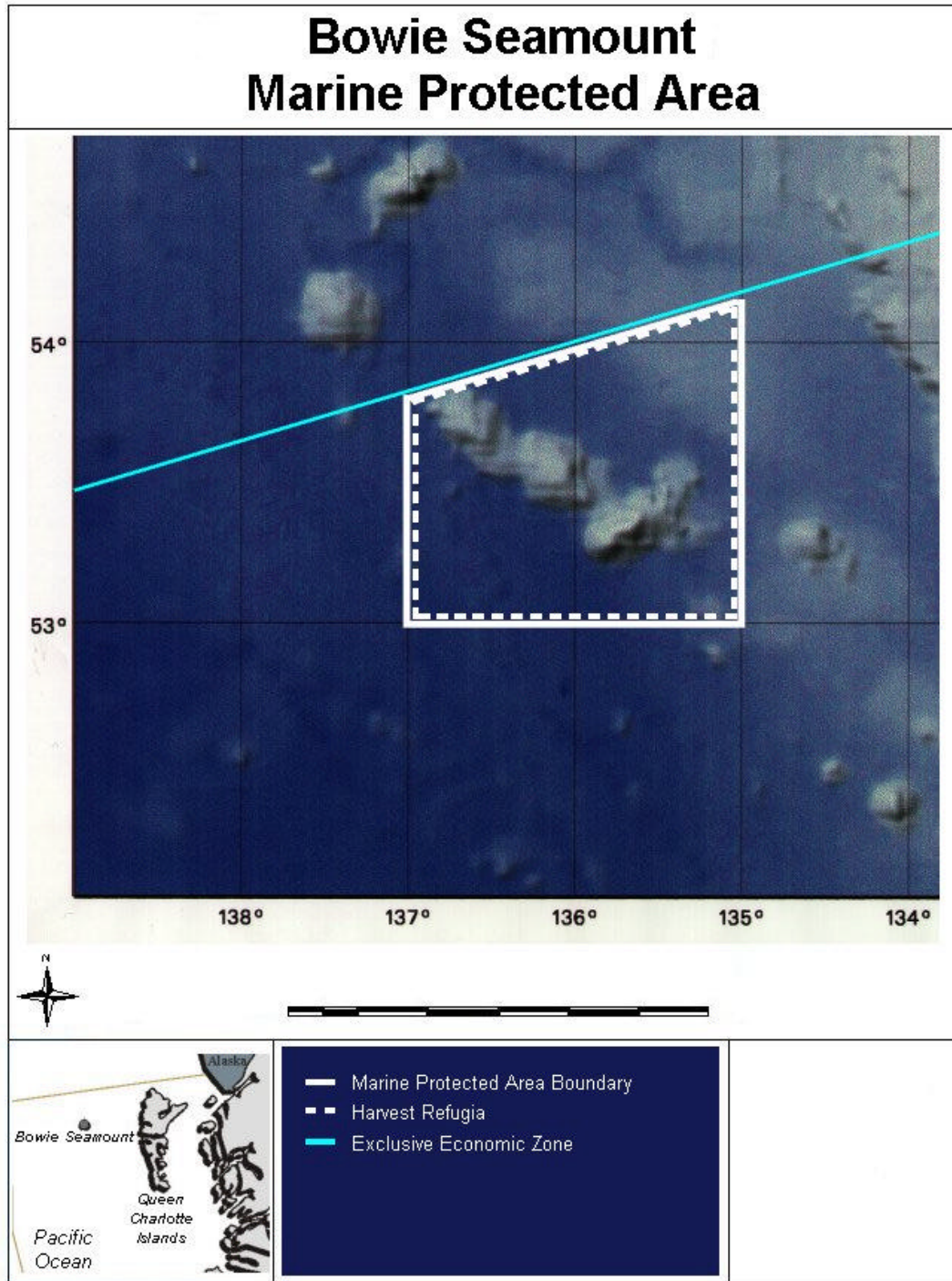
* This graphic is a visual approximation only for consultation purposes. A legal version will be developed when the boundary scenario for the Bowie Seamount MPA is finalised.

Option (b): Harvest refugia within a polygon encompassing all three seamounts within the MPA, (i.e. Bowie, Hodgkins, and Davidson).



* This graphic is a visual approximation only for consultation purposes. A legal version will be developed when the boundary scenario for the Bowie Seamount MPA is finalised.

Option (c): Harvest refugia for the entire MPA (i.e. no zoning of activities).



* This graphic is a visual approximation only for consultation purposes. A legal version will be developed when the boundary scenario for the Bowie Seamount MPA is finalised.

Appendix B: Principles for the Management of the Bowie Seamount Protected Area.

The federal-provincial “Marine Protected Areas: A Strategy for Canada’s Pacific Coast” outlined guiding principles for MPA development. Those principles as they relate to the Bowie Seamount area are discussed below.

Working Together:

While Fisheries and Oceans Canada (DFO) has jurisdictional responsibility, the vision, goals and objectives for the Bowie Seamount area can only be achieved through the co-ordination, co-operation, and partnership with a range of other government agencies, non-government organisations, and individuals. DFO will provide the leadership that fosters this co-ordination, co-operation and partnership.

Co-operation and Co-ordination:

Due to the overlaps and limits to the authority of the lead management agencies, accountability is a particularly important issue. The co-operation and co-ordination between DFO, Planning Team member organisations, Advisory Team member organisations, and other stakeholders, is essential to assure the shared accountability for the protection of the resource.

Precautionary Principle:

All management actions, including the regulation of appropriate uses, will be based on the precautionary principle. The precautionary principle means, "Erring on the side of caution." This principle puts the burden of proof on any individual, organisation or government agency conducting activities within Bowie Seamount MPA to demonstrate that there will be no damage to the marine ecosystem from proposed activity.

Adaptive Planning and Management:

The natural values protected within Bowie Seamount MPA will be subject to external influences, and change over time. As such, the management plans for the area, and the ongoing management actions must be adaptive and responsive to the changing social, environmental and economic conditions.

Open, Informed and Inclusive Decision-Making:

Effective protection of Bowie Seamount values depends on open and informed decision-making. The management planning must be both inclusive and transparent, and supported, to the greatest extent possible, by all affected organisations and individuals.

Fostering Ecosystem-Based Management/Stewardship:

An ecosystem-based approach will be used to manage Bowie Seamount MPA. This means that management upholds the integrity of the natural ecosystem and its key

components, structure, and functions. This approach means that certain human activities may need to be managed or curtailed in order to protect the natural environment.

Managing for Sustainability:

Effective management of the Bowie Seamount area requires focusing on the sustainability of the unique ecosystem. Emphasis will be placed on maintaining viable populations of all species and on the conservation of ecosystem functions and processes while managing a variety of human activities in the area. The most current scientific knowledge will provide the basis for management decisions.

Learning by Doing:

Flexibility has been and will continue to be maintained in the management process to incorporate information relevant to the management of the Bowie Seamount area as it becomes available. This has been facilitated through the participation and co-operation of scientists from government and universities, which will be further encouraged in the development and implementation of a management plan.

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