NORTH VANCOUVER ISLAND MARINE PLAN

Public Draft April 2014

MEMORANDUM TO READER:

RE: MARINE PLAN CONTEXT AND PUBLIC REVIEW OPPORTUNITIES

DATE: April 4, 2014

FROM:

Allan Lidstone, Director, Resource Management Objectives
Provincial Ministry of Forests, Lands, and Natural Resource Operations

R. Mervyn Child, Executive Director
Nanwakolas Council

On behalf of the Marine Working Group for the Marine Planning Partnership for the North Pacific Coast, this joint memorandum is issued to present the North Vancouver Island Draft Marine Plan for public review and comments.

The draft plan was prepared by the Nanwakolas Council and the Government of British Columbia, as represented by the Ministry of Forests, Lands and Natural Resource Operations, and reflects substantive input from the North Vancouver Island Marine Plan Advisory Committee (MPAC).

The draft plan outlines the vision, objectives and strategies for management of marine uses and activities within the plan area. These include marine protection, economic and community development, and various uses falling under the jurisdiction and management of the provincial government and/or the Nanwakolas Council member First Nations. Examples are tenures for log handling, aquaculture sites, energy

development, and commercial recreation and tourism. The plan establishes zones to provide more detailed direction on recommended uses and activities.

This draft plan is focused on the marine areas and uses where, as between Government of British Columbia and Canada, the government of British Columbia has legal jurisdiction and regulatory authority, namely the foreshore (i.e., the intertidal zone), coastal "inland waters" on the outer coast, and the lands covered by these waters.

This draft plan is not intended to address management of uses and activities that the province considers to be federal government jurisdiction. However, where there is overlap or shared jurisdiction, ecosystem-based management priorities or marine spatial planning priorities, these topics are discussed. The intent is that issues requiring federal government involvement would be subject to consultations with the federal government.

Federal government departments will have an opportunity to provide input on activities and uses not covered in this plan through other marine planning processes.

The Government of Canada has had limited involvement in the development of this draft plan and the draft plan does not purport to represent the interests or mandate of the Government of Canada or its individual departments.

The plan does not cover upland areas that are generally addressed through land use plans. It does, however, consider the uses, plans, zones, local zoning & by-laws, tenures and legal designations that are in place on the land adjacent to marine areas and the seabed.

While the draft plan has benefitted from significant input from the stakeholder advisory committee, we are now seeking broader public input and support prior to formal endorsement.

The review includes a series of public meetings and opportunities to provide comments online and by email. The formal public review period ends on May 15, 2014.

To learn more about the draft marine plan and how to provide comments, please go to: www.mappocean.org.

LETTER OF SUPPORT – PROVINCE OF BRITISH COLUMBIA

To be added

LETTER OF SUPPORT – NANWAKOLAS COUNCIL

To be added

ACKNOWLEDGEMENTS

The North Vancouver Island Marine Plan (the Plan) has been prepared under the leadership of a joint Technical Team. The Technical Team was co-led led by the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) and the Nanwakolas Council. The Technical Team consisted: of Matthew Justice (co-chair) and Bill Zinovich (MFLNRO); John Bones (co-chair), Scott Harris, and Greg Johnson (Nanwakolas Council); and Jillian Tamblyn (Technical Planner) and Josie Byington (Administration).

The Plan also reflects the advice and input of a Marine Planning Advisory Committee (MPAC) consisting of members representing individual sectors of marine interest or specific areas of expertise. The Technical Team wishes to thank all MPAC members for their time and contributions to the Plan document. The Technical Team also acknowledges the valuable input provided by members of the general public, who submitted comments through public open houses and through the MaPP website.

The Plan is one of four sub-regional marine spatial plans and one regional initiative identified as outcomes of the Marine Planning Partnership for the North Pacific Coast (MaPP). MaPP is a partnership between the Province of B.C., represented by the Ministry of Forests, Lands and Natural Resource Operations, and the Coastal First Nations, the North Coast – Skeena First Nations Stewardship Society and the Nanwakolas Council, collectively representing 18 member First Nations. The advice of MaPP planning staff and contractors from other sub-regions is also appreciated, including Jo Smith (Science Coordinator), Fiona Kilburn (Administration), and Charles Short and Steve Diggon (Marine Coordination Team).

The Nanwakolas Council and the Provincial government wish to acknowledge the financial support of the Gordon and Betty Moore Foundation, as held and disbursed through Tides Canada.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

GLOSSARY OF TERMS, ACRONYMS AND ABBREVIATIONS

Abandoned, derelict and problem vessels and structures – Vessels and structures deserted by the owner on foreshore and other marine areas, and usually in a state of disrepair such that assistance is required to remove the object.

Adaptive management - A systematic process for continually improving management policies and practices by learning from the outcomes of previously employed policies and practices.

Anadromous – Fish that are born and reared in freshwater, move to the ocean to grow and mature, and return to freshwater to reproduce.

Biodiversity – **Biological diversity.** The full range of variety and variability within and among living organisms and the ecological complexes in which they occur; the diversity they encompass at the ecosystem, community, species and genetic levels; and the interaction of these components.

Capability mapping - The mapping or modeling of biological and physical environmental variables that, when measured, provide spatially-explicit and quantitative information for the survival and reproduction of a species or population.

Cetacean – An order of marine mammals commonly known as whales, dolphins, and porpoises.

Community – (1.) An incorporated or unincorporated, First Nations or non-First Nations settlement including its residents, infrastructure and supporting services and businesses. **(2.)** In ecology, a group of interdependent organisms living together in the same area.

Community knowledge - Knowledge or expertise held by communities, characterized by common or communal ownership, for example, a fishing community.

Conservancy – Crown land, designated under the *Park Act* or the *Protected Areas of British Columbia Act* to maintain biological diversity, natural environments, First Nations' social, ceremonial and cultural resources, and recreational values. Conservancies were more recently developed as a result of the Coast Land Use Decision.

Conservation - The maintenance or sustainable use of the Earth's resources in order to maintain ecosystem, species and genetic diversity and the evolutionary and other processes that shape them. In the context of the International Union for the Conservation of Nature definition of a marine protected area, conservation refers to the in situ maintenance of ecosystems and natural and semi-natural habitats and of viable populations of species in their natural surroundings.

Consultation - (1.) Legal requirement, pursuant to section 35(1) of the *Constitution Act,* 1982, for provincial and federal government agencies to consult with First Nations regarding applications for land use that may adversely affect the Aboriginal Rights (including Aboriginal Title) in a First Nation's traditional territory. **(2.)** An exchange or dialogue between decision making body and groups or individuals potentially affected by an action or decision, to seek information, advice or opinions.

Cultural Resources - A broad term that encompasses areas, activities, sites, objects, and resources of cultural value to First Nations.

Cumulative effects (CE) - The combined effects of individual actions or decisions on an ecosystem from past, present and foreseeable future actions. The effects are usually measureable and occur regardless of what any agency or person may undertake on the other actions. Cumulative effects are the changes to environmental, social and economic values caused by a combined effect of present, past, and reasonably foreseeable actions or events in the environment .

Cumulative effects assessment (CEA) - An assessment of the incremental effects of an action on environmental, social, and economic values when the effects are combined with those from other past, existing and future actions.

Direct effect - An effect in which the cause-effect relationship has no intermediary effects.

Ecological reserve – An area selected to preserve representative and special natural ecosystems, plant and animal species, features and phenomena. Scientific research and educational purposes are the principal uses of ecological reserves.

Ecological resilience - Ability of a system to undergo, absorb and respond to change and disturbance while maintaining its functions and controls.

Ecosystem - The system of interactive relationships among organisms (e.g., energy transfer), and between organisms and their physical environment (e.g., habitat) in a given geographical unit.

Ecosystem services - The benefits people obtain from ecosystems, including provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefits.

Effect - Any response by an environmental or social component to an action's impact. Under the *Canadian Environmental Assessment Act*, "environmental effect" means, in respect of a project, "(a) any change that the project may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance and (b) any change to the project that may be caused by the environment, whether any such change occurs within or outside of Canada".

Endangered species - Species that are threatened with immediate extinction or extirpation if the factors threatening them continue to operate. Included are species whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Extirpate – Eliminate a species or subspecies from a particular area, but not from its entire range.

First Nations Marine Resource Use - Harvest of marine resources by First Nations, including marine resources harvested for food, social and ceremonial purposes (FSC).

Food chain - Transformation of food energy from the sun to plants and to other animals in a series (one-dimensional interpretation).

Food web - A method for describing the feeding interactions in a community.

Foreshore (Intertidal area) - That land in tidal areas lying between the high tide and the mean low tide and that land in non-tidal areas that is alternatively covered by water and exposed with the normal rise and fall of the level of the body of water, i.e., that land between the ordinary high and low water mark.

Heritage Resources – Objects, sites, and values related to non-aboriginal history and culture in BC.

Indicators - A measureable attribute or variable that is used to assess the condition of something of interest, for example species, habitats, culture or economics. Indicators, in the context of marine planning, are often used as variables to model or indicate changes in complex environmental and/or social systems.

Indigenous peoples' and community conserved territories and areas (ICCAs) - Natural and/or modified ecosystems containing biodiversity and cultural values and ecological services, conserved by Indigenous peoples and local communities, through customary

laws or other means. ICCAs have been implemented for economic, cultural, spiritual and aesthetic purposes in different parts of the world but are not a legal designation in Canada at this time.

Indirect effect - An effect in which the cause-effect relationship has intermediary effects. As an interaction with another action's effects is required to have a cumulative effect (hence, creating intermediary effects), cumulative effects may be considered as indirect.

Integrated Multi-trophic Aquaculture - Cultivating, in proximity, species from different trophic levels, and complementary ecosystem functions, in a way that allows one species' uneaten feed and wastes/nutrients/by-products to be recaptured and converted into fertilizer, feed and energy for the other crops, and to take advantage of synergistic interactions between species.

International Union for Conservation of Nature (IUCN)

Intertidal - see foreshore.

Local – Confined to or immediately adjacent to a geographical area found within the Plan Area.

Loxiwe – Refers to foreshore areas that were artificially modified in the past by First Nations, through the mounding of rocks to trap sediment and create beds for growing of clams. These areas are considered cultural sites by First Nations and still utilized for food gathering purposes.

Marine Protected Area (MPA) - A clearly defined geographic space, recognized, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

Marine Spatial Planning - A public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that usually have been specified through a political process**.**

Mitigation - A means of reducing the significance of adverse effects.

Monitoring - Involves routinely observing or measuring something and recording the data consistently in order to compare changes before and after an action is implemented and establish trends over time.

Nearshore - The sub-tidal area below the low tide mark (i.e., below zero tide), generally extending to the 20 metre depth.

Pelagic - Referring to the ocean water column and the organisms living therein.

Precautionary approach - Erring on the side of caution.

Protection - Any regulatory or other provision to reduce the risk of negative impact of human activities on an area.

Refugia – Habitat that organisms retreat to, persist in and can potentially expand from, under changing environmental conditions.

Resilience - *see Ecological Resilience*

Restoration - Restoration focuses on establishing appropriate composition, structure, pattern, and ecological processes necessary to make terrestrial and aquatic ecosystems sustainable, resilient, and healthy under current and future conditions (US Forest Service, 2010). In simpler terms, restoration attempts to make up for what was lost as a result of impacts on ecological systems. "Restoration" is considered broadly here, as encompassing a continuum of degrees or stages of restoration, covering the various terms in different statutes and other legal mechanisms, e.g., "restoration", "rehabilitation", "remediation", and "reclamation".

SARA – Federal *Species At Risk Act (S.C. 2002, c. 29).*

Seabed - The ground under the sea; the ocean floor.

Stakeholders - Individuals or groups of people with particular interests in an issue or area. In the ocean management context, stakeholders may include: oil and gas developers, fishermen, subsistence harvesters, hotel owners, port developers, aquaculture farmers, environmental groups, government authorities and others.

Suitability or Suitability mapping - The mapping or modeling of species or activity viability based on ecological capability combined with social, economic, resources use, infrastructure, marketing and/or cultural parameters.

Sustainable use - Applicable only to renewable resources, and refers to using them at rates within their capacity for renewal. Minerals, oil, gas, and coal are effectively non-renewable and thus cannot be used sustainably. However the length of time that these non-renewable resources are available can be extended by recycling materials, using less of a resource to make a product, and switching to renewable substitutes.

Threshold - A limit of tolerance of a valued ecosystem component (VEC) to an effect that, if exceeded, results in an adverse response by that VEC.

Traditional knowledge - Knowledge gained from generations of living and working within a family, community or culture.

Trophic - An adjective relating to feeding and nutrition.

Wildlife Management Area - an area of land designated under section 4(2) of the Wildlife Act for the benefit of regionally to internationally significant fish and wildlife species or their habitats. Conservation and management of fish, wildlife and their habitats is the priority in a WMA but other compatible land uses may be accommodated.

Zoning - The process of designating spatial area(s) using defined geographic coordinates, with each zone type or category having a distinct objective or purpose, description, management recommendation or direction, name and/or identifier.

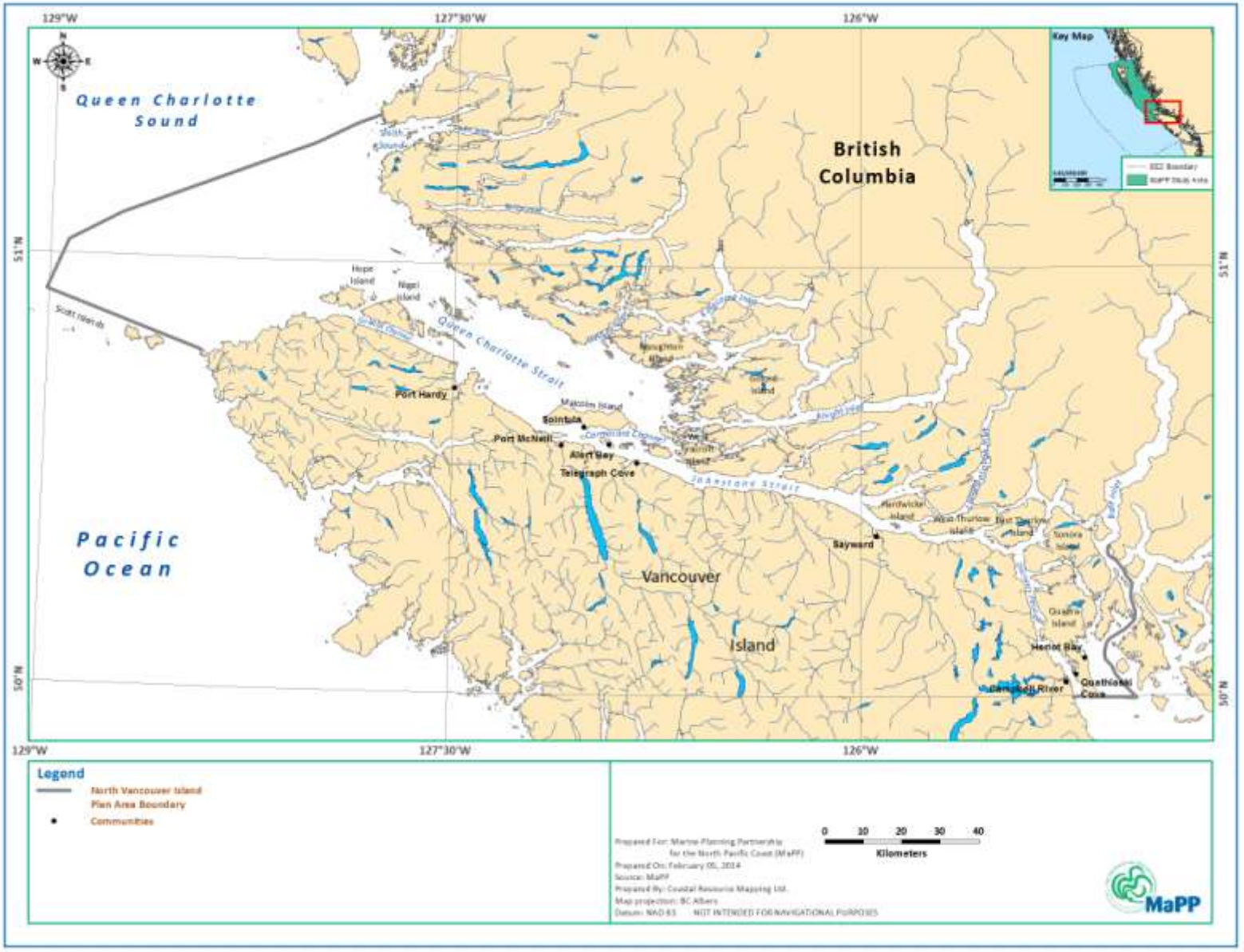
CHAPTER 1: BACKGROUND AND CONTEXT

1.1 Introduction and Purpose

The purpose of the North Vancouver Island (NVI) Marine Plan (the Plan) is to provide spatial and non-spatial recommendations for achieving ecosystem-based marine management that maintains social and cultural well-being, and economic development based on healthy ecosystems within the Plan Area over the long term. The Plan includes recommendations for developing and maintaining resilient marine ecosystems and sustainable economies for NVI communities. The Plan focuses on direction for managing marine areas, uses and activities within provincial government jurisdiction.

1.2 Plan Area Overview

The Plan covers an 8043.79 km^2 marine area of the North Pacific coast of Canada (the Plan Area) following the natural boundary of the coast and includes all submerged lands within and bounded by the black boundary line as shown in **Figure 1**. The Plan Area lies approximately 300 km northwest of Vancouver, British Columbia (BC), and is the most southerly of four sub-regions being planned as part of the Marine Planning Partnership for the North Pacific Coast (MaPP). The Plan Area includes marine and foreshore areas between Vancouver Island and the BC mainland coast, including several major inlets, Queen Charlotte Strait, Johnstone Strait, and portions of Queen Charlotte Sound and Discovery Passage. The northern extent is bounded by the Cape Scott Islands to the west, and Smith Sound/Cape Caution to the east. In the south, the boundary is in the Quadra Island/Bute Inlet area. The incorporated communities are primarily on Vancouver Island, from Port Hardy in the north to Campbell River in the south. The Plan Area is primarily based on the marine territories and areas of interest of the seven participating Nanwakolas member First Nations, and consequently excludes an area on the northwest side of Vancouver Island that is part of the broader MaPP Study Area shown in **Figure 2**.



355 *Figure 1: Plan Area Location*

356 *Figure 2: MaPP Study Area Location*

1.3 Marine Planning Partnership (MaPP)

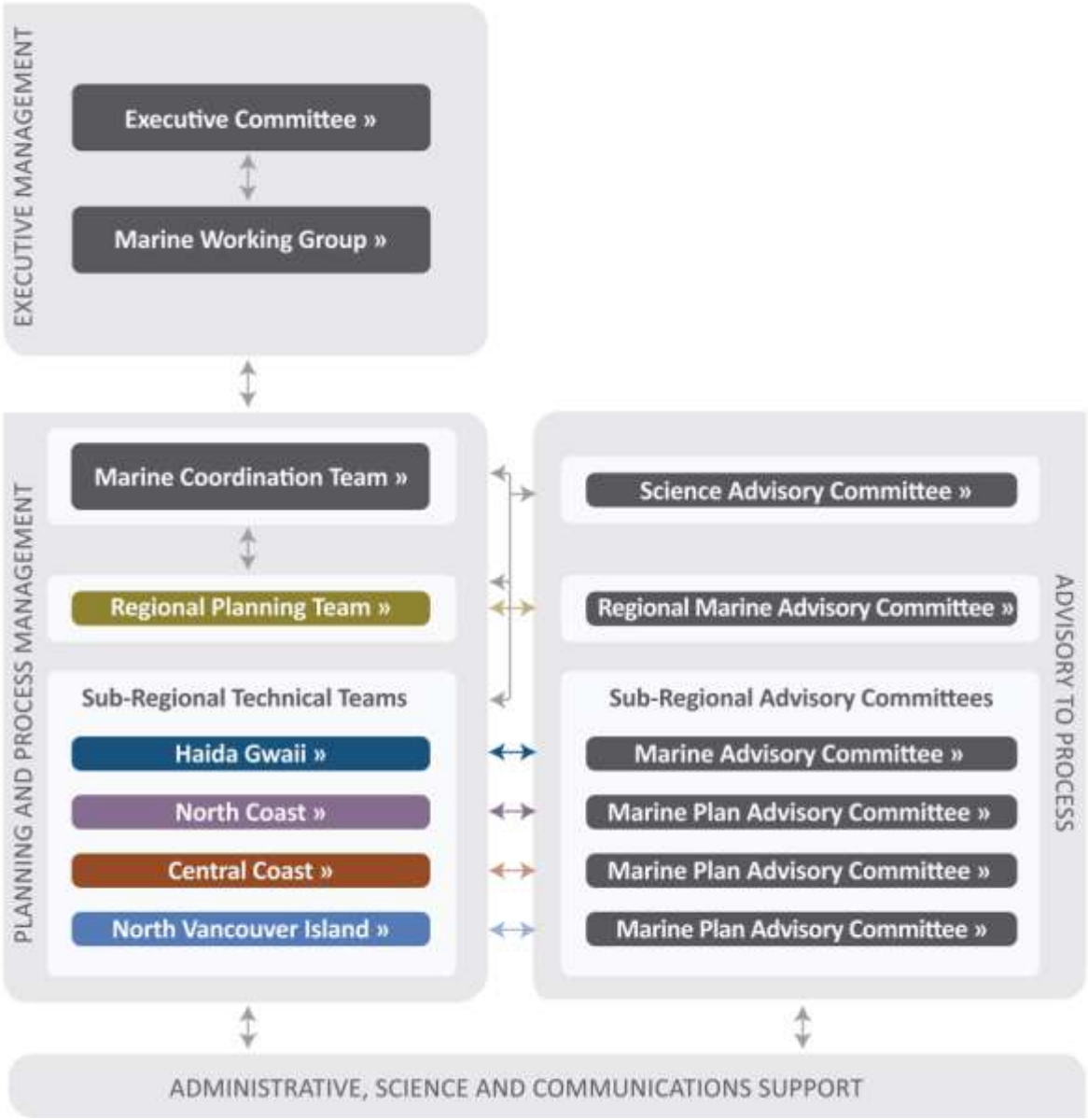
The Plan represents a collaboration between the provincial government and the Nanwakolas Council representing seven participating member First Nations in marine planning: the Mamalilikulla-Qwe'Qwa'Sot'Em, Tlowitsis, Da'naxda'xw Awaetlatla, Gwa'sala-'Nakwaxda'xw, Wei Wai Kum, Kwiakah and K'omoks. The Plan brings together science, technical information, traditional and local knowledge and input from public and stakeholder engagement. The latter was an important component in the collaborative refinement and completion of the Plan. It provides a framework for moving forward in management of marine areas in a way that is transparent and accountable.

The Plan has been prepared as part of the MaPP Initiative, whose partners are the provincial government and eighteen member First Nations, as represented by three First Nations' organizations: the Coastal First Nations-Great Bear Initiative, the North Coast-Skeena First Nations Stewardship Society, and the Nanwakolas Council. The MaPP Initiative commits to development of marine spatial plans at sub-regional levels, which are to include zones, and objectives and strategies on specific marine uses and activities. The four sub-regional plans being prepared under MaPP are Northern Vancouver Island, Haida Gwaii, North Coast, and Central Coast. The MaPP Initiative was formalised in November 2011 through a *Letter of Intent* between the provincial government and First Nations' organizations that established the approach to regional frameworks and sub-regional planning, confirmed the nature of collaboration between the parties, and outlined joint management structures and anticipated outputs for the planning process. **Figure 3** lays out the MaPP organizational structure.

The foundation of the MaPP Initiative is a marine ecosystem-based management (EBM) approach. The MaPP EBM framework is built upon principles of ecological integrity, human wellbeing, and governance and collaborative management. EBM recognises the magnitude of interactions within an ecosystem and places human activities and impacts into the ecosystem management framework. EBM is consistent with First Nations' traditional resource management approaches and with provincial government

direction in resource management. Integrated marine planning is an effective delivery tool for EBM due to its ability to formulate multiple objectives, integrate species management strategies, and incorporate strategies for dealing with uncertainty (**section 4.2**).

The Plan is being prepared in the context of a MaPP Regional Management Plan that will include: a regional protection management network; EBM monitoring; a cumulative effects assessment framework; a regional marine pollution framework; regional governance and collaboration models; regional compliance and enforcement; regional economic strategies; and regional implementation, monitoring and research. NVI Plan strategies may therefore be influenced by (and influence) the work underway in the Regional Management Plan.



384 *Figure 3: MaPP Organizational Structure*

1.4 Related Planning Initiatives

The Plan Area has also been addressed as part of the Pacific North Coast Integrated Management Area (PNCIMA) planning process, co-led by Fisheries and Oceans Canada under its *Oceans Act* mandate, the provincial government, and First Nations' organizations. The Nanwakolas Council was initially involved in the process, but withdrew in late 2012. The PNCIMA Plan contains broad, high level strategies and objectives for advancing an EBM approach to marine resource management. Relevant components of the PNCIMA Plan are reflected in the Plan.

A number of provincial government plans have been developed in parts of the Plan Area. At the strategic level, the Vancouver Island Land Use Plan (1994), and the Central Coast Land and Resource Management Plan (2009) primarily focused on land use planning. At the sub-regional scale the North Island Straits and Johnstone Bute coastal plans, approved in 2002 and 2004 respectively, provide direction to provincial marine tenure programs. The Central Coast Plan led to a number of implementation agreements with several First Nations, including conservancy agreements. Many of these First Nations are now members of the Nanwakolas Council.

The provincial government revised its planning policy in 2006 to ensure that planning processes and outcomes are jointly developed by BC and interested First Nations' governments. A number of Nanwakolas member Nations are currently participating in the collaborative management of provincially-legislated Conservancies.

Also part of the planning context is the ongoing work towards a Canada-BC Marine Protected Area (MPA) Network Strategy for the Pacific Northern Shelf Bioregion (the MaPP Study Area). Although the Nanwakolas Council and other First Nations' organizations are not currently represented in the leadership of this initiative, the Plan and other MaPP sub-regional plans are intended to contribute to the selection of candidate areas for development of this Bioregional MPA Network.

First Nations' marine plans are an important and underlying component of the Plan. The seven Nanwakolas member First Nations have completed draft marine plans, containing important background information, protocols, and key policies and strategies for marine resource management and marine uses, including spatial zoning designations. See the Nanwakolas web site at www.nanwakolas.com for the mapped locations of the First Nations' marine plans. These plans have been aggregated into the sub-regional Ha-ma-yas Marine Plan, endorsed by the Nanwakolas Chief's Board in October 2012 as the basis for joint technical planning with the provincial government. The Ha-ma-yas Plan summarizes important background information and identifies common policy, protocol, strategies and management direction found in the individual First Nation marine plans.

The Plan also considers local government plans and zoning bylaws, specifically those of the regional districts of Mount Waddington (MWRD) and Strathcona (SRD). These generally relate to public access, protection, aquaculture, commercial and industrial uses (including logging facilities) on and adjacent to the foreshore.

1.5 Relationship to Aboriginal Rights, Title and Treaty

The participation of Nanwakolas member First Nations in the MaPP Initiative and in the joint development of the Plan is based on the position that involvement is without prejudice to their assertion of rights (including title) to the lands, waters, air and resources within their traditional marine territories. The Nanwakolas member First Nations also acknowledge that they may share aboriginal rights and title to certain areas within their traditional territories with neighbouring First Nations, and in such circumstances they do not intend this Plan to speak for the view of the neighbouring First Nations.

The Plan does not therefore create, recognize, define, deny, limit, abrogate or derogate from, or amend aboriginal rights and title, and does not define or limit the jurisdiction of the Nanwakolas member First Nations or the provincial government. The Plan does not limit the scope or nature of treaty negotiations or existing treaties, since all member Nations are engaged in the treaty process.

Nothing in this Plan constitutes an admission of fact or liability. The Plan is not legally binding and does not create legally enforceable rights between Nanwakolas member First Nations and the provincial government. This Plan does not relieve the Crown of any legal obligation to consult under Section 35 (1) of the Constitution Act, 1982 with respect to the grant of specific authorization under federal or provincial legislation, to any resource development proponents to use or dispose of land or resources.

However, the intent of the Plan is to advance reconciliation and relationships between Nanwakolas member First Nations and the provincial government, and to advance collaborative relationships with stakeholders.

1.6 Plan Scope and Jurisdictional Limitations

The Plan outlines the vision, objectives and strategies for management of marine uses and activities (referred to as ecosystem goods and services in contemporary scientific language) and implementation within the Plan Area.

The Plan does not propose specific management objectives for privately owned uplands or crown lands above the natural boundary which is covered by provincial tenures. The Plan does, however, consider the impacts of the land uses, plans, zones, tenures and legal designations in these areas.

The *Constitution Act* (1867) defines the federal-provincial distribution of legislative powers in Canada (also known as the division of powers), including the scope of the power of the federal parliament of Canada and the powers of each individual provincial legislature or assembly. Without formal federal government involvement in the MaPP planning process, this division of power limits the Province from endorsing outcomes that it considers to be the jurisdiction and mandate of the federal government under the *Constitution Act*. However, the Province is able to support and implement components of the Plan where, as between BC and Canada, the Province has some jurisdiction.

Furthermore, a Supreme Court of Canada decision in 1984 (the Strait of Georgia Reference) held that, when British Columbia entered Confederation in 1871, the Province consisted of all British territories, including dry land, coastal straits and submerged lands. Thus as between British Columbia and Canada, British Columbia owns the waters and submerged lands of the Strait of Juan de Fuca, the Strait of Georgia, Johnstone Strait and Queen Charlotte Strait and the waters and submerged lands between major headlands (i.e., bays, estuaries, and fjords).

This Plan therefore focuses on the crown marine areas and uses where legal jurisdiction and regulatory authority, is provincial as opposed to federal, namely the foreshore, coastal "inland waters", and the lands covered by these waters.

Although the federal government has legislative authority over many activities that occur within the water column, federal government departments chose not to participate in the development of this Plan. These departments were provided the opportunity to provide feedback on the Plan.

The Plan does not provide, imply or make the recommendations of matters that the provincial government believes are solely within federal jurisdiction. However, where there is significant overlapping or shared jurisdiction, and where related to EBM and marine spatial planning, these topics are discussed.

CHAPTER 2: THE PLAN AREA

This chapter provides an overview of features of the Plan Area. For more information on individual sections, please see the separate document outlining Current Conditions and Trends for Northern Vancouver Island (2013) at www.mappocean.org (not yet complete).

2.1 Physical and Oceanographic Features

2.1.1 Climate, Landscape and Hydrology

The Plan Area has year-round mild temperatures and plentiful rainfall. Summers are cool and wet, while winters are relatively mild, due to the regulating influence of the ocean. January monthly temperatures are around 3°C, and July temperatures of 13-15°C.

The western portion of the Plan Area is partially within the rain shadow of the Vancouver Island Mountain Range and receives less rain than the eastern mainland portion. Annual precipitation ranges from approximately 2,200 mm per year in the north, decreasing southward to approximately 1,450 mm at Campbell River. A smaller proportion of the annual precipitation falls as snow. Fog is relatively common during the warmer months.

Winds are heaviest in winter months and, in the major straits, they tend to run parallel to shore, from the northwest (summer) and southeast (winter). Queen Charlotte Sound is generally exposed to the full impact of wind and waves action from the open Pacific, while the straits and inlets are more protected. Strong outflow winds occur down the many large inlets.

The coastline is highly indented with many islands and islets within its major passages. Shorelines are mostly rocky, with small pockets of gravel or sand beaches. In most areas the seabed materials are hard surface bedrock, boulders, cobble and gravel.

Sediment beaches and estuaries are found in protected inlets, coves and bays fed by sediment-laden streams, and areas of deposition of eroded glacial sediments with shallow slopes.

The depth of the seabed varies from greater than 200 m in the deep fjord waters of major inlets to the shallower bays and inlets with depths less than 20 m. The majority of passageways are between 50-200 m in depth. Slope of bottom is generally categorized as 5-20 percent, with some exceptions.

Vancouver Island streams tend to flow throughout the year, with peak flows normally occurring during the winter and decreasing steadily through spring and summer. The mainland streams show highest runoff throughout the summer with a slight peak in August.

2.1.2 Water Temperature, Oxygen and Salinity

Ocean temperature is controlled primarily by the Pacific Ocean. Deeper water bodies, such as Queen Charlotte Strait and Georgia Strait have a relatively consistent temperature year round (< 9°C), while the shallower and more sheltered waters surrounding various islands and islets tend to be warmer (9-15°C) and heat up in the summer. In the Plan Area and the broader northeast pacific, there are multi-decade patterns of warm or cold sea surface temperatures. The temperature periods are correlated with increased or decreased ocean productivity, for example, salmon returns are high during cool periods and low in the warm periods.

Oxygenation is at preferred levels for biological productivity in where tidal action mixing occurs such as throughout Queen Charlotte Strait and its entrance, and in the lower reaches of channels and inlets. Waters tend to be more stratified in the southern half of Johnstone Strait, estuaries, and in the upper reaches of major inlets, due to a combination of factors including depth, bottom slopes, and freshwater runoff. Near surface waters are always high in dissolved oxygen due to atmospheric exchange which extends into

mid-water depths wherever wind or tidal mixing is significant. Deep-water oxygen is generally a result of oxygen levels in source waters.

Salinity varies by location, with seasonal fluctuations in inlets due to variations in runoff from freshwater streams. This can result in stratification from the layering of freshwater over saltwater. Outflows from major streams can have strong effects on seawater salinity near their estuaries. The Broughton Archipelago has more estuarine type circulation from many fresh-water inflows. Queen Charlotte Strait exhibits more stable salinity levels due to its proximity to the open ocean and its associated higher currents and mixing, with a slight increase in salinity towards the northern entrance of the Strait. Organisms vary in the salinity level and variations they are adapted to.

2.1.3 Tides and Currents

Currents in the Plan Area are primarily controlled by tidal action, although the North Pacific Gyre contributes to additional flushing in Queen Charlotte Sound. Mean tidal range is approximately 2.8 m, while the average range of large tides is 4.8 m. The maximum value can be higher in areas where narrow channels enhance tidal height and tidal speeds vary throughout the Plan Area.

The flood current moves around the northern tip of Vancouver Island, enters Queen Charlotte Strait from the northwest, and moves southeast. Flood currents in Johnstone Strait flow toward the east, while ebb currents move westward. In Discovery Passage this pattern is changed as flood currents are toward the south and ebb currents towards the north. Winds can also influence surface currents.

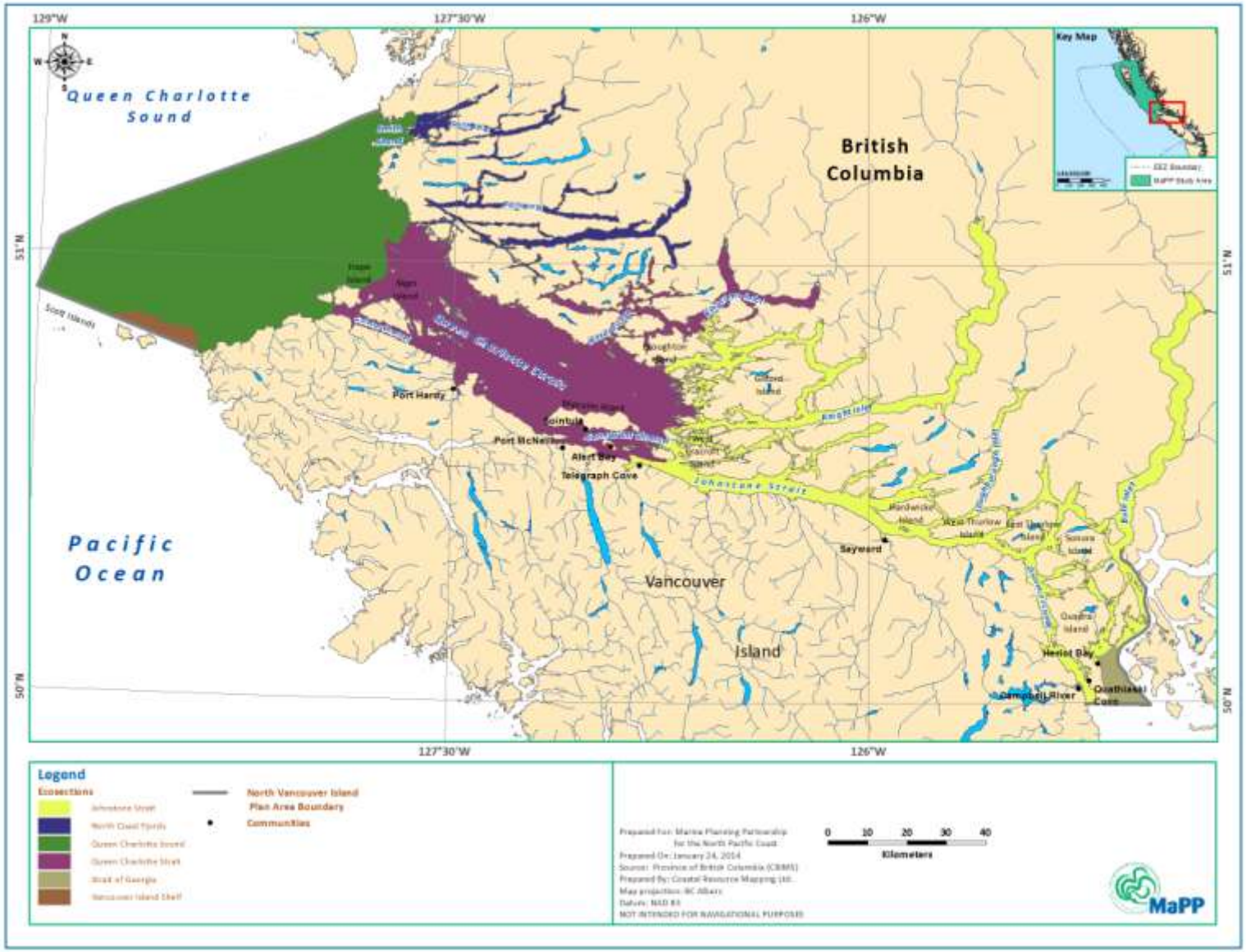
2.2 Marine Habitat and Biological Features

2.2.1 Habitat

According to the BC Marine Ecological Classification System there are six BC marine ecosections in the Plan Area. **Figure 4** shows the distribution of the ecosections, which are described in **Table 1**. The majority of the Plan Area is in three ecosections: Queen Charlotte Sound (40 percent), Queen Charlotte Strait (28 percent) and Johnstone Strait (25 percent). The Queen Charlotte and Johnstone Straits ecosections have a high degree of variability and are transitional environments. North Coast Fjords, Queen Charlotte Sound, and Strait of Georgia, and the Vancouver Island Shelf ecosections are considered to be more homogenous.

511 *Table 1: Description of BC Marine Ecosections in the Plan Area.*

Marine Ecosection	% of Area	Physiographic Features	Oceanographic Features	Biological Features
Vancouver Island Shelf	1	Narrow, gently sloping shelf	Open coast with oceanic wave exposures; northward, coast-hugging buoyancy current due to freshwater influence; seasonal upwelling at outer margin	Highly productive with coastal shelf plankton community; northern limit for hake, sardine, northern anchovy, and Pacific mackerel; productive benthic community; rich fishing grounds for benthic fish and invertebrates
Queen Charlotte Sound	40	Wide, deep shelf characterised by several large banks and inter-bank channels	Ocean wave exposures with depths mostly >200m and dominated by oceanic water intrusions	Mixture of coastal shelf and oceanic plankton communities; northern limit for many temperate fish species; lower benthic production
North Coast Fjords	5	Deep, narrow fjords cutting into high coastal relief	Very protected waters with restricted circulation and often strongly stratified	Low species diversity and productivity due to poor water exchange and nutrient depletion; unique species assemblages in benthic and plankton communities
Queen Charlotte Strait	28	Predominantly shallow (< 200m), high relief area with deeper fjord areas	Moderately protected, high current and high relief area; very well mixed; moderate to high salinities with some freshwater inputs in the inlets and fjords	Very important for marine mammals; migratory corridor for anadromous fish; moderate shellfish habitat
Johnstone Strait	25	Narrow, constricted channels	Very protected coastal waters with strong currents; well-mixed, poorly stratified	Migratory corridor for marine mammals, anadromous fish; rich sessile, hard substrate invertebrate community; diverse species assemblage of benthic fish
Strait of Georgia	1	Broad shallow basin surrounded by coastal lowlands (Georgia Depression)	Protected coastal waters with significant freshwater input, high turbidity and seasonally stratified; very warm in summer	Nursery area for salmon, herring; abundant shellfish habitat; neritic plankton community



512 *Figure 4: Map of BC Marine Ecosections in the Plan Area*

2.2.2 Marine Biological Features

2.2.2.1 Salmon and other Fish

All five Pacific salmon species (chum, pink, chinook, coho and sockeye) are found in the Plan Area with pink and sockeye being the most abundant species in BC. As anadromous species, salmon are important to both freshwater and marine ecosystems within and beyond the Plan Area. Each stream hosts unique populations of salmon resulting in high biodiversity. Queen Charlotte and Johnstone Straits are moderately important salmon areas as they are important migration routes.

Forage fish prey primarily on plankton, and thus are an essential link in marine and coastal food webs by converting energy from plankton to larger species up the food web. The Plan Area provides migratory, spawning and rearing habitat for herring stocks. Herring is an important food source for marine mammals and fish species. Bute, Knight, Kingcome, Smith, and Loughborough Inlets are important areas and have runs of Eulachon. Eulachon are an important food source for other fish, mammals and birds.

Key groundfish species include halibut, lingcod and rockfish. Declining rockfish stocks have resulted in creation of several federal Rockfish Conservation Areas (RCAs) prohibiting fishing for these species, except for First Nations' food, social and ceremonial (FSC) purposes.

A total of eight species of fish are on the provincial endangered list or the federal species at risk list including: basking, bluntnose sixgill and soupfin sharks, cutthroat trout, eulachon, green sturgeon, longspine thornyhead, and rougheye rockfish. Nimpkish sockeye in Queen Charlotte Strait are categorised as a stock of concern. For more information on provincial and federal listings see **Appendix A1**.

2.2.2.2 Shellfish and Other Invertebrates

The Plan Area contains a wide range of invertebrate species, which are considered to have an important role in food webs. They include sponges, sea stars, molluscs, urchins and sea mussels and have keystone roles in the structure and composition of natural communities. Corals and sponges are often referred to as foundation species because they form diverse complex three-dimensional structures that promote high levels of biodiversity in areas with relatively low structural diversity. There is at least one known glass sponge reef near Malcolm Island, and several known coral reefs including one at Hoeya Sill in Knight Inlet. Northern Abalone and Olympia Oysters are included in provincial endangered and federal species at risk listings.

2.2.2.3 Mammals

The Plan Area supports habitat for migrating and resident marine mammals. Humpback whales travel and feed in the Plan Area from spring to fall, before migrating south, although a few remain to winter in the area. Minke, grey and fin whales are also often observed in the area. Resident and transient Killer whales occur throughout the Plan Area, which contains northern resident killer whale critical habitat (see **Appendix A2**).

Other marine mammals include the Pacific white-sided dolphin, Dall's porpoise, harbour porpoise, sea otters, Harbour seals and Steller's sea lions. Many of these mammals are on the provincial endangered list or the federal species at risk list. See the NVI current conditions and trends document for more information (not yet complete).

2.2.2.4 Plants

Plants include floating algae (or phytoplankton), seagrasses (or vascular plants) and seaweeds (or attached algae).

548 Phytoplankton (the basis of the ocean food web) are eaten by zooplankton, which is the food for fish and invertebrates such as
549 clams, sea anemones and other creatures. They occur in all the marine and estuarine waters of the Plan Area, and their abundance
550 varies seasonally with the availability of light and nutrients.

551 Eelgrass is the main vascular plant in the Plan Area, and is an ecologically important plant and eelgrass beds are key habitat for
552 habitat for ducks, crab, herring, juvenile salmon and many other species. It grows in underwater beds, rooted in fine sandy materials
553 and occasionally in areas with rock. These beds are most commonly found in protected waters in the lower intertidal and shallow
554 sub-tidal zones and are common in the estuaries at the heads of many inlets.

555 The predominantly rocky shorelines also support a variety of seaweeds, which function to absorb nutrients. The three main groups
556 of seaweeds are browns, greens, and reds, reflecting differing abilities to absorb light. Green seaweeds typically occupy the upper
557 intertidal areas, while browns are found in the lower intertidal and reds in the lower intertidal to sub-tidal waters. Kelp are a form of
558 brown seaweeds in the lower intertidal zone, and can form extensive beds with canopies that serve as important habitat for fish,
559 invertebrates, mammals, seabirds and other species. Bull kelp and giant kelp are the primary species in the Plan Area, and form kelp
560 "forest" communities that are habitat for many species.

561 **2.2.2.5 Birds**

562 The Plan Area is rich in bird life. Estuaries, marshes, mudflats and other sheltered waterways provide key resting and feeding habitat
563 for migratory birds. They also provide important breeding and rearing habitat for resident marine and shoreline bird species,
564 including gulls, cormorants, heron, petrels, auklets, guillemots and oystercatchers. Bald Eagles typically nest in large coniferous trees
565 near the shoreline of islands, estuaries and streams. Seabirds are those birds that spend most of their time on open water, only
566 coming to land to breed, and that depend on the marine environment for activities such as foraging, wintering and migration. They

include tubenoses, such as albatrosses, fulmars, shearwaters and storm-petrels; cormorants; jaegers; skuas; gulls and terns; alcids, such as murres, guillemots, auklets and puffins; and phalaropes, which could also be categorised as shorebirds. There are 24 bird species in the Plan Area that are on the provincial endangered list or the federal species at risk list. In the Plan Area there are several existing and proposed provincial and federal protected areas which include bird habitat.

2.2.3 Climate Change

Global climate change is having observable effects on the world's oceans. These include changes in ocean temperatures, chemistry, sea level and storminess, streamflow runoff, current mixing and upwelling. The Plan Area is very complex in terms of climate and ocean conditions, and there is little region-specific data on historic or current climate and oceanography. Observed changes are described in **Table 2** below.

Shoreline sensitivity to climate change has been estimated in BC by ecosection (see **Table 3**). Note that Queen Charlotte Sound and Queen Charlotte Strait ecosections are completely within the Plan Area and are not found anywhere else. Habitats have also been assessed for vulnerability and kelp, seagrass and shallow rocky reefs all have high scores. Benthic habitats in the strait and fjord ecosections also have higher sensitivity than surface and pelagic water areas.

Table 2: Observed Climate Changes in the Plan Area.

Climate Factor	Observed Changes
Ocean temperature	• Average temperatures for both surface and deeper waters between the mainland and BC have increased by up to a degree over the past century • Ocean temperature can increase by 0.4 - 0.7 C during El Nino years • Because of complex oceanography, the area can have both unusually warm and unusually cool areas during the same period (e.g., 2007-2008)

Sea level	• Overall the sea level has risen by as much as 12 cm along the BC coast, but there is some variation with decreases seen in certain areas (e.g., down by 13 cm in Tofino) • The sea level can go up or down by half a meter or more during strong El Ninos (e.g., 1997/98); there is uncertainty on how, if at all, climate change may affect El Ninos
Runoff	• inter streamflow has Increased while late summer flow has decreased. This trend is stronger in the south. • High flows associated with spring snowmelt are happening earlier in many rivers
Currents, mixing, and upwelling	• There is relatively little data for the region. There exists data for the entire Mapp area, but each of the MaPP sub-regions are different in terms of currents, mixing, and upwelling
Salinity	• Decrease in surface salinity in North Pacific by about 0.1 units over past 50 years, likely a result of increased rain and decreased mixing • Globally, salinity trends are variable and poorly understood
pH	• Relatively little data for BC • Multiyear data from intertidal habitats in the Strait of Juan de Fuca indicate that pH changes significantly over the course of the year, and from year to year
Oxygen	• Oxygen levels in shallower water (125 - 300m) have decreased by roughly 25 pecent over the past 50 years • The top of the "oxygen minimum zone" (OMZ), a layer of water with very low oxygen levels that normally occurs at intermediate depths off the coast of BC, has moved up about 100m over the past 50 years
Storminess	• There has been no trend towards increased storminess in the region over the past century, although data sets suggest an increase over the past 30-40 years • Storminess and wave height have increased significantly in other parts of the North Pacific

581

Table 3: Percent of shoreline sensitive to climate change by ecosection.

	Vancouver Island Shelf	North Coast Fjords	Queen Charlotte Sound	Queen Charlotte Strait	Johnstone Strait	Strait of Georgia
High Sensitivity	28.5	21.3	35.2	31.0	25.5	40.4
Very High Sensitivity	26.5	21.2	17.9	14.7	10.9	15
Total	55	42.5	53.1	45.7	36.4	55.4
Proportion of Plan Area in the Ecoregion	1	5	40	28	25	1

2.2.4 Pollution

Marine habitat, species populations and health, human health and safety, and the availability and/or harvest of food sources are all potentially affected by water, air, light, and noise pollution.

In comparison to other locations in BC, and the world, the Plan Area is relatively pristine with respect to chemical contamination, in part due to its remote nature and low resident population; however, Johnstone and Queen Charlotte straits are areas of high vessel traffic density, which can be a chronic dispersed source of pollution. The more urbanized coastal areas tend to have concentrated (and sometimes seasonal) sources of pollution such as wastewater outflows, increased boat traffic and marinas. In Canada, it is estimated that 80 percent of marine pollution comes from terrestrial activities. External sources of contaminants, such as atmospheric (wind) and ocean (current) transport sources, are also significant but difficult to manage at a regional level. Marine spills represent an ongoing pollution risk. Oil spill response equipment caches are located in Port Hardy and Campbell River.

2.3 Socio-Economic Conditions

2.3.1 Population and Communities

The majority of the population in the Plan Area is on the east coast of Vancouver Island, and all communities are located along coastlines. NVI communities are closely tied to the marine environment. Marine resources support many economic, cultural, and social activities, including fishing, tourism, and traditional food gathering activities. The larger communities (and their 2011 population estimates) are: the Municipality of Port Hardy (4,008); the Town of Port McNeill (2,505); the Village of Alert Bay (445); Malcolm Island/Sointula (733); the Village of Sayward (317); and the City of Campbell River (31,186). Nanwakolas First Nation members are primarily located on Indian Reserves in or near these communities. Other First Nations communities are on more remote Indian reserves at Hopetown, Kingcome Inlet, Harbledown Island, Hope Island, and Gilford Island. Just less than half of the member First Nations' membership resides on reserves in or adjacent to the major urban settlements, with slightly more than half of the residents living off-reserve.

Statistics are not collected based on the Plan Area boundary so the statistical areas that overlap the Plan Area are used. In 2011 the Plan Area population was over 40,000 full time residents, with the vast majority of the population concentrated in the south at Campbell River. The population is growing, but population trends are not consistent across the Plan Area. Population is growing in the south, around Campbell River, but slowly declining in the north, and in isolated and rural areas.

First Nations constitute a substantial component of the population (approximately 25 percent in the north and 10 percent in the south) and have growing populations. Recent estimates for the seven Nanwakolas member First Nations (both on and off-reserves) indicate a total registered population of 3,066.

The median age of the population in the Plan Area has increased by about 14 years since 1986 and is currently about 42 years, which is slightly older than across the province as a whole. First Nations' communities have relatively youthful populations. For example, in 2006 approximately 49 percent of the First Nations population was under the age of 24.

There has been net in-migration to the Plan Area. While in the Regional District of Mount Waddington (RDMW) there has been an annual average loss in population of about two percent. Statistics for the former Comox-Strathcona Regional District (CSRD) can be inferred to suggest in-migration into the Strathcona Regional District (SRD), is at a slower rate, but sizeable enough to offset out-migration from the RDMW within the Plan Area.

Member First Nation reserve communities are generally growing. Many First Nations' members are relocating to their reserves, resulting in significant positive local population growth rates along with birth rates. To Illustrate, the Gwa'sala Nakwaxda'xw community at T'sulquate has a consistent annual population growth rate of 11 percent.

2.3.2 Education, Training and Research

About two thirds of the adult population has formal high school or equivalent **education** level, which is below the provincial average of about three quarters. About 9.5 percent of the population had university education in 2006, compared to 17.3 percent across the province. However, the data indicate a slow rate of long-term improvement in the Plan Area.

In addition to regular courses in the classroom, online and through open learning, high school students have access to **training** opportunities through apprenticeship, cooperative education, career preparation and work experience programs that vary by school.

Post-secondary education, including transfer programs, is available at North Island College and Discovery Community College campuses. Related technical training includes nautical, marine emergency, tourism and guiding programs, and Guardian Watchmen. A variety of education programs are also available online and through open learning.

Research is conducted throughout the Plan Area by universities and colleges, government, industries and non-profit societies. Some of these organizations also have education, interpretation and stewardship opportunities.

Traditional and local forms of knowledge are now being incorporated into research, education, and natural resource decision making, beyond a more restricted past use solely among families and local communities. Aboriginal and community knowledge required to be used in the formal assessment of species at risk under the Canadian *Species at Risk Act*.

2.3.3 Economy and Infrastructure

2.3.3.1 Employment, Income and Wellbeing

The marine related economy is characterized by resource and nature based activities of forestry operations (log storage, handling and transport), fishing, aquaculture, transportation, recreation and tourism. Renewable energy generation is an emerging economic activity. Unless otherwise stated, the Plan focuses on the marine portion of economic sectors.

Income dependency data, which indicates the source of monies entering the Plan Area economy, ignores economic activities like retail that involves circulating money that has already entered the region. Based on BC Statistics income dependency data, as of 2006, the public sector, i.e., government services, was a growing and very important economic driver in the Plan Area. In the Campbell River and Port Hardy areas, forest operations were the key sector. Fishing, trapping and processing was a key driver throughout the Plan Area, especially in Bute Inlet and Alert Bay. Tourism was also very important, especially in the Bute Inlet area.

The working age population (ages 20 through 64 years) is about 59 percent of the population and has been growing in the Plan Area as a whole over the last decade, like the rest of the province. However, the working age population in the north part of the Plan Area has been declining.

After a peak in 1991, median household incomes in BC declined and then rebounded somewhat by 2006. In the Plan Area, the decline in median household income has been much more consistent and stronger. Statistics for the former CSRD can be inferred to suggest median household income in the SRD has stabilized somewhat in the past decade ($45, 342 in 2006); whereas in the Regional District of Mount Waddington, income has continued to slide through 2006 ($46,490). Despite the longer and steeper downward trend, the median household income in RDMW was still slightly higher than CSRD in 2006. Females in the Plan Area continue to earn median incomes that are 55 to 64 percent of male median incomes, and below the BC female median.

Overall, unemployment rates in NVI communities are high (7.4 to 11.0 percent in 2006) relative to the provincial average (6.0 in 2006). A rate of roughly 6-7% is considered to be essentially where an economy is at 'full employment'. A much higher proportion of the population are on income assistance relative to the province as a whole. The data indicate a rise in income assistance between 2009 and early 2010, consistent with the provincial trend.

Gislason 2011 and VannStruth 2009 provide detailed analyses of the local marine economy in the RDMW and the local economies respectively. In 2009 marine sectors accounted for almost 30 percent of the labour force in the whole RDMW, not including the accommodation and food services that support some of these sectors. Two in seven private sector person years of employment were found to be attributable to the marine sector in the RDMW with finfish aquaculture providing the highest contribution.

A survey of the participation rates of Nanwakolas member First Nations in marine economic sectors, conducted in late 2011 for the purposes of the Ha-ma-yas Plan shows the level of participation by member First Nations in the marine sector is low. A total of 383

jobs are provided, of which only 39 percent are full-time. Less than 20 percent of each member Nation's workforce is working full-time in the marine sector, although the proportion varies widely amongst the member Nation communities. The highest overall number of jobs is in commercial processing of seafood, commercial fishing, and aquaculture.

First Nations' marine resource use, including use for food, social and ceremonial (FSC) within the RDMW is not included in the employment numbers, but is an important part of First Nations' household and community incomes and wellbeing. If considered at a wholesale food value, the salmon, groundfish and shellfish food social and ceremonial harvest was worth $405,000 and $1,753,000 respectively for 2009 and 2010. These values are similar to the cost if community members were to have to purchase these food goods. There are also other unvalued community benefits of FSC.

Socio-economic issues overall indicate that there are some challenges to wellbeing in the Plan Area. The BC Statistics index of socio-economic indicators includes indicators related to economic hardship, crime, health problems, educational concerns, children at risk and youth at risk.

For 2012, out of 78 Local Health Areas (LHAs) in BC, the Vancouver Island North LHA is the 11th lowest ranked area in the province. The main contributing factors to this ranking were low health and economic hardship indices. Campbell River combined with Vancouver Island West is ranked 34th, with lower rankings for children and youth at risk indices.

2.3.3.2 Infrastructure

Infrastructure is important to maintain and improve all uses and activities for resource access, communities and enhance global competitiveness of the Plan Area economic activities. The Plan Area has a high concentration of structures although some have been closed in the last few years. (See **Table 4**)

The largest concentrations of assets are at Quadra Island and Campbell River in the south, and Alert Bay and Port Hardy in the north. Most small craft harbours are in good physical condition and do not have gaps in structural needs although there are some gaps in fuel and recreational fishing services. Some Nanwakolas Council member nations have identified needs for basic dock provisions and upgrades for community use, and economic expansion.

There are a total of fourteen marine product-processing facilities, and seven cold storage facilities. Campbell River and Port Hardy have the largest concentrations of facilities. Additional services included offloading, weighing and ice making.

Table 4: Infrastructure in the Plan Area

Infrastructure Type	Assets	Count
Major Ports	Ferry terminals	7
	Cruise Ship Ports	1 (not operating)
Fisheries	Commercial (cold storage, offloading, processing, weighing, ice-making)	18 (4 not operating)
	Sport (processing only)	3
Public Assets	Small craft harbours	14
	Resorts and marinas (including yacht clubs, eco-lodges, and fishing resorts)	74 (17 not operating)
	Public wharves	20 (2 not operating)
	Canadian Coast Guard Lifeboat Stations	2
	Royal Canadian Search and Rescue Society Auxiliary stations	3
	Canadian Coast Guard Lighthouses (staffed)	7
	Mooring buoys	36

2.3.4 First Nations' Social and Economic Transition

The First Nations' culture and traditional marine economic system has gone through a major period of transition since the time of European contact. First Nations' culture and economy were previously based on the natural abundance of the marine resources, and reflected in its governance system. Marine resources were a source of wealth and the basis of trade.

Since early European trade contact, the First Nations' social and economic system has been in transition. Initial trade drastically reduced aboriginal populations, largely through disease transfer. In the late 1800s, the federal government established Indian Reserves, and allocated the presumed 'unoccupied' lands to settlers and businesses. Those areas identified as Indian Reserves were relatively small, due to reliance on marine areas for food gathering, and did not include the many seasonal village sites throughout the territories.

Early federal government policy, to assimilate and relocate First Nations into the dominant culture, led to First Nations' difficulties in managing and maintaining association with their traditional territories, making them overly dependent on economic and social assistance programs. The relocation of the separate Gwa'sala and 'Nakwaxda'xw, Nations in 1964 into Port Hardy is the prime example in the Plan Area.

In addition to loss of access to traditional lands, government policies acted to limit First Nations' participation in the economy of the day, as well as to restrict resource-dependent social practices. These included policies that restricted participation in the commercial fishery, which was an initial mainstay of coastal First Nations, and policies that regulated resource management for all users. The combined effect was to preclude First Nations from access to resources and a gradual marginalization of First Nations in the prevailing economy. This marginalization also weakened the resource-dependent social and cultural system as well as overall health of aboriginal communities. Such factors are important in understanding why this Plan includes a focus on redressing poor economic and social conditions and marginal economic participation of First Nations. An opportunity exists for the province and the Nanwakolas member First Nations to work together in assisting the transition from the First Nations' original marine resource economies to full participation in, and benefit from participation in the current economic systems.

2.4 Governance and Enforcement

Marine areas are subject to a range of governance regimes, which adds to the complexity of planning. Generally speaking, the provincial government has jurisdiction over the foreshore area (i.e., the intertidal zone), coastal "inland waters", or waters "within the jaws of the land" on the outer coast, and the lands covered by these waters (i.e., public crown lands). Inland waters are waters within an indented coastline, such as harbours, bays and estuaries, including areas between headlands along the outer coast. The provincial government also has clear jurisdiction over the waters and the lands, minerals and other natural resources of the seabed and subsoil in the Johnstone and Queen Charlotte Straits.

The federal government also has legislative authority over many activities that occur within the water column (e.g., fisheries, aquaculture operations, marine mammals) and over the water's surface (e.g., transportation, navigation). Both the provincial and federal governments have many roles and responsibilities, which benefit from harmonized effort.

A number of existing plans in the Plan Area provide a wealth of information to the process. There are two provincial strategic land use plans that apply to the Plan area, although they focus on the uplands. The Vancouver Island Land Use Plan is in the west and the Coastal Land Use Plan is in the east. There are two provincial Coastal Plans, the North Islands Straits to the north and the Johnstone Bute to the south.

The member nations of the Nanwakolas Council have an inextricable connection to their traditional territory and have developed community marine plans, and these have been integrated into the broader Ha-ma-yas Marine Plan that has similar boundaries to the NVI Plan.

The complexity of management responsibilities in the Plan Area is shown in **Table 5** below.

Table 5: Federal and Provincial Agencies with Marine Management Responsibilities

Use or Activity	Federal Agencies	Provincial Ministries
Sport fishing	Fisheries and Oceans Canada	Ministry of Environment Ministry of Agriculture Ministry of Forests, Lands and Natural Resource Operations Ministry of Jobs, Tourism and Skills Training
Commercial fisheries	Fisheries and Oceans Canada Department of Foreign Affairs and Trade Transport Canada	Ministry of Agriculture BC Centre for Disease Control Ministry of Jobs, Tourism and Skills Training (potentially)
Recreation	Department of Canadian Heritage Parks Canada Fisheries and Oceans Canada	Ministry of Environment Ministry of Forests, Lands and Natural Resource Operations Ministry of Jobs, Tourism and Skills Training
Transportation	Canadian Environmental Assessment Agency Environment Canada Fisheries and Oceans Canada Transport Canada	Ministry of Environment Ministry of Jobs, Tourism and Skills Training Ministry of Forests, Lands and Natural Resource Operations Ministry of Transportation and Infrastructure
Aquaculture	Environment Canada Fisheries and Oceans Canada Transport Canada Department of Foreign Affairs, Trade and Development Canadian Food Inspection Agency	Ministry of Forests, Lands and Natural Resource Operations Ministry of Agriculture BC Centre for Disease Control Ministry of Jobs, Tourism and Skills Training Ministry of Environment
Seafood processing	Canadian Food Inspection Agency	Ministry of Agriculture BC Centre for Disease Control
Energy and mining	Canadian Environmental Assessment Agency Environment Canada National Energy Board Natural Resources Canada	Ministry of Energy and Mines Ministry of Forests, Lands and Natural Resource Operations BC Environmental Assessment Office
Tenure on foreshore, near-shore and marine lands	Industry Canada	Ministry of Forests, Lands and Natural Resource Operations

Disposal	Canadian Environmental Assessment Agency Environment Canada	Ministry of Environment
National defence and public safety	Environment Canada Fisheries and Oceans Canada Department of Foreign Affairs and Trade Department of National Defence and the Canadian Forces Transport Canada Royal Canadian Mounted Police	Ministry of Environment Ministry of Justice
Research, monitoring and enforcement activities	Fisheries and Oceans Canada Environment Canada Parks Canada Natural Resources Canada Transport Canada Department of National Defence RCMP Agriculture and Agri-Food Canada	Ministry of Environment Ministry of Forests Land and Natural Resource Operations Ministry of Agriculture Ministry of Energy and Mines Ministry of Jobs, Tourism and Skills Training
Protection and Conservation	Environment Canada Parks Canada Fisheries and Oceans Canada Canadian Environmental Assessment Agency Canadian Heritage	Ministry of Environment Ministry of Forests Land and Natural Resource Operations

Local governments also have a variety of Official Community Plans and Zoning By-laws that address a variety of foreshore and marine uses ranging from industry to conservation.

2.5 Marine Use Patterns

2.5.1 Conservation, Protection, Cultural Resources and Heritage Resources

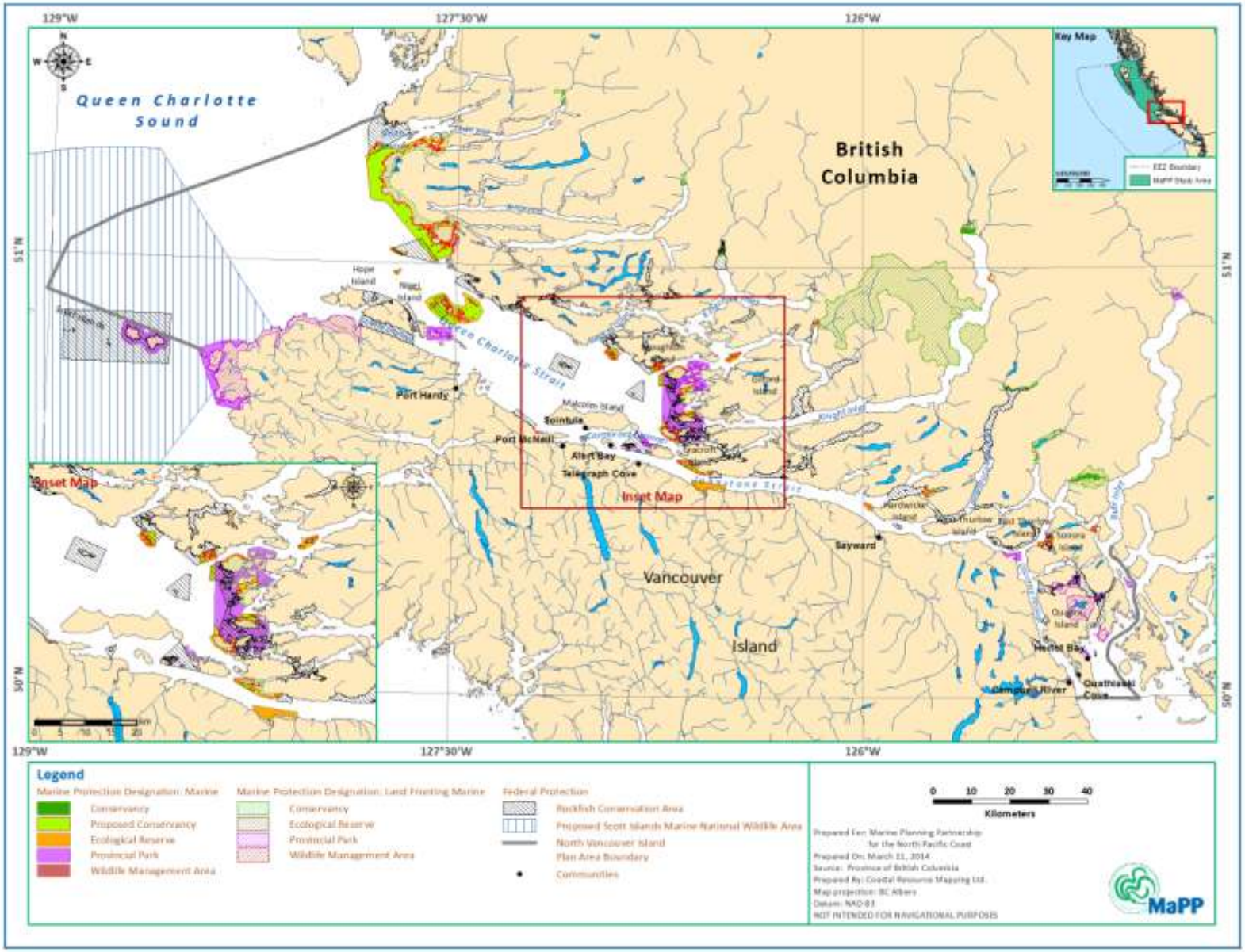
A range of protection types are found in the Plan Area and used to protect and manage important ecosystems, threatened or endangered species, and valuable cultural, heritage, tourism and natural features. As shown in **Table 6**, they include an array of

provincial designations totalling 230 $km^2$and ranging in area from 0.01 km^2 to 99.70 km^2. There are also several conservancies in the process of legal designation by the provincial government. A small number of areas are also zoned by local government for conservation, recreation, and heritage purposes.

Table 6: Provincial Marine Conservation and Protection Areas in the Plan Area.

Type of Provincial Protected Area	**Count**	**Total Marine Area (km^2)**	**% of Marine Plan Area**
Ecological Reserve	2	17.66	0.22
Park	22	191.80	2.38
Conservancy	20	20.14	0.25
Wildlife Management Area	1	0.85	0.01
TOTAL	**45**	**230.45**	**2.86**

The Plan Area contains no federal government Marine Protected Areas (MPAs) or sponge reef closures. However, it does include 47 federal RCAs, which are fisheries management areas and the soon-to-be-established Scott Islands Marine National Wildlife Area. Protection and conservation areas are shown in **Figure 5.** Cultural and heritage resources are found throughout the Plan Area, and while many heritage sites are provincially recorded, others are unknown and unregistered. Many cultural resource locations are kept confidential by First Nations. There are approximately 1,833 archaeological sites in the Plan Area. These sites are a combination of historic, pre-contact, post-contact and traditional use areas and include both cultural and heritage resources. The majority (over 1469) of the sites have a pre-contact component. The highest concentrations of sites are in the Broughton Archipelago and Wells Passage. Motor Vessel BCP 45 (a wooden seiner) is a National Historic Site at Campbell River and there are six staffed lighthouses have been nominated for Federal Heritage Lighthouse designation.



750 *Figure 5: Existing and Proposed Protection Areas in Marine or Adjacent Upland Areas.*

2.5.2 Economic Uses and Activities

There are a variety of economic activities with marine related uses and activities throughout the Plan Area.

Recreation and tourism encompasses a variety of guided and self-guided activities that are provided by commercial service providers or done independently. High value areas for recreation and tourism include areas around God's Pocket, Broughton Archipelago and Malcolm Island, the Discovery Islands, and the estuaries and channels of several large inlets including Bute Inlet and Knight Inlet.

Forestry operations, including log handling, storage and transport are fundamental to the coastal industry. As of August 2013, there were 356 log handling and storage tenures covering 2,090 ha (less than 0.1%) of the Plan Area (see **Figure 6**). These are a mix of tenured active and inactive sites, and activation occurs as needed with each harvesting "pass" through a forested watershed. Due to changes in the areas that are able to be harvested, more frequent harvest of about every five years are expected in remaining areas. The Allowable Annual Cut for logging has decreased throughout the Plan Area, and is expected to continue to decrease on the mainland and smaller islands, while stabilizing on Vancouver Island. However, the need for marine access to future harvestable areas continues to be important to the sector.

Aquaculture activities include bottom and off-bottom shellfish, plants, invertebrates and fish production. The primary farmed species for finfish aquaculture is Atlantic Salmon. As of August 2013, there were 32 finfish tenures in the Plan Area covering about 9.3 km^2, although some tenures are amendments to existing farms and some may be fallow. The majority of the finfish tenures are found throughout the straits and inlets between Vancouver Island and the mainland, primarily in the Broughton Archipelago area, and between Sayward and Campbell River. On March 22, 2013, the provincial government stated in a news release responding to the Cohen Commission, that it does not intend to issue "any new tenure agreements for net-pen salmon farms in the Discovery

Islands until September 30, 2020" (see **Appendix A3**). For the purposes of this plan, it is assumed that this direction will stay in place until 2020 or unless there is a provincial policy change.

Presently, the north end of the Plan Area has limited shellfish aquaculture. Most shellfish operations are located in the Discovery Island area and south. Many species of shellfish can be used in aquaculture including: oysters, clams, scallops, mussels, geoduck, abalone, and cockles. As of August 2013 there were 54 shellfish tenures, encompassing 6.3 km^2 in the Plan Area. The majority of sites are under licences of occupation, with some under designated use areas or standard leases. The designated use areas for potential use by First Nations are established "for so long as required" but are recommended for review every ten years.

Loxiwe, are a unique feature found throughout the First Nations' territories, with a concentration in the Broughton Archipelago. These historic shellfish aquaculture areas are not currently under aquaculture tenure, but are often harvested as part of commercial fishing licences.

Both plant aquaculture and integrated multi-trophic aquaculture are undergoing research and demonstration in BC. Several applications are made each year for wild plant harvest licenses.

In this Plan **energy** related activities are divided into renewable energy generation (offshore wind, wave, tidal) and non-renewable energy (oil and gas).

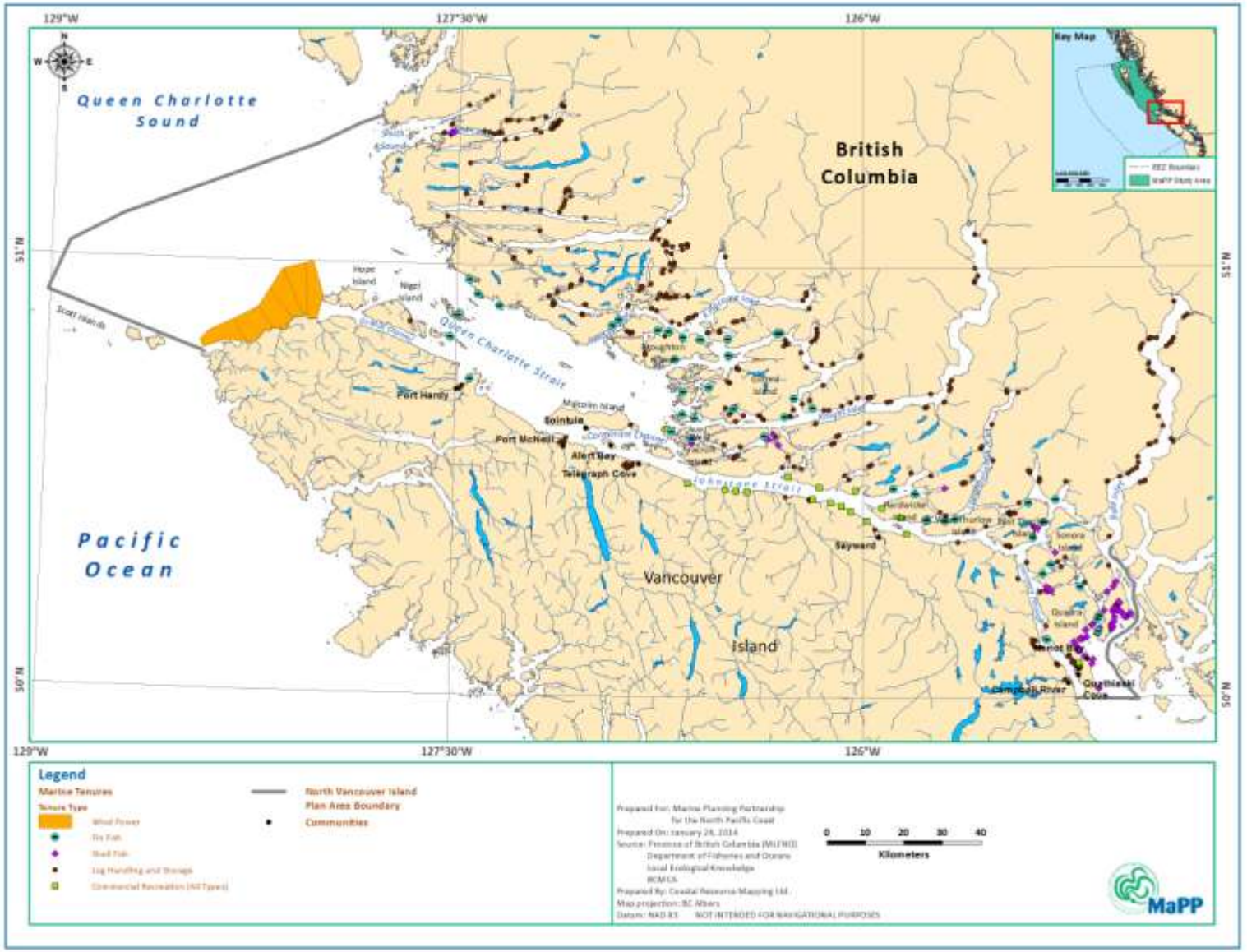
Defacto provincial and federal moratoria on offshore oil and gas exploration are currently in place, and some First Nations have also passed resolutions opposing offshore oil and gas development. There are existing tenures and potential non-renewable resources in the Plan Area. Offshore exploration tenures were mostly issued in the early 1960s. There is one provincially-issued offshore tenure between Port McNeill and Port Hardy, and portions of federally issued tenures in the very northern portion of the Plan Area,

although the rights under the federal permits were suspended in 1972. Non-renewable energy is not a focus of the Plan but is mentioned here as part of background context.

Currently, there are no constructed marine renewable energy projects in the Plan Area. There is high potential for tidal development, and the Sayward and Campbell River areas have been identified as areas of tidal interest by industry. There are several investigative permit applications for tidal energy, and the most developed tidal energy project is for Canoe Pass between Quadra and Maude Island.

Wave energy is also at the research and demonstration stage in BC, although it has lower potential in the Plan Area. A coarse mapping exercise based on expert knowledge has shown only one small area with high annual mean wave energy resources located near the Scott Islands.

Offshore wind energy has some potential in the northern end of the Plan Area in the larger open water areas of Queen Charlotte Sound and Queen Charlotte Strait. The area with the highest potential is near the Scott Islands. There were fifteen tenures for wind energy investigation and monitoring with a foreshore or offshore component as of August 2013.



800 *Figure 6: Selected Tenured Uses and Activities in the Plan Area.*

Fisheries activities are an important component of the economy, subsistence and culture and are described as commercial, recreational and First Nations fisheries.

The commercial fishery occurs throughout the Plan Area and includes over 100 species of finfish, shellfish and other invertebrates. Overall the commercial fishery has been shrinking in size and value although diversifying in species. The numbers of fishing licences and fisher registration cards in the Plan Area have also been decreasing, partly attributed to the restructuring of fisheries.

Salmon fishery efforts are moderate to high throughout the Plan Area. Between 1996 and 2012 the Plan Area provided over 20 percent of the BC salmon catch in 9 out of 17 years in this period. Time and area closures are seasonally implemented in several areas to minimise fisheries impacts on these and other species.

Generally the groundfish fisheries occur from Telegraph Cove north, although there is some rockfish fishing by hook and line in the Discovery Islands area in the south. Since 1996 at least, the groundfish catch has been the largest fishery by volume and has never been less than 43% of the total BC catch. There are more than 70 species targeted in the groundfish fisheries although there are over 200 species caught. Port Hardy is a major landing point for commercially caught fish, especially for trawl-caught groundfish.

Invertebrate fisheries vary in location, and are more common in the Queen Charlotte and Johnston Straits. The prawn fishery is the dominant invertebrate fishery in the inlets. The south end of the Plan Area is part of the Strait of Georgia major prawn stock area. Four main invertebrate species are harvested commercially by dive coast-wide: geoduck, horse clam (test fishery), sea cucumber and red sea urchin. Nearly a quarter of commercial fishing licenses in RDMW in 2009 were for hand harvesting of clams.

The recreational fishery draws provincial residents and visitors from within Canada and internationally. There are an estimated 175,000 angler days for the RDMW alone. Salmon has been the primary species of interest for the recreational fishery, followed by

halibut. Chinook and coho salmon in particular have been recognised as priority recreational salmon fisheries. Other species such as lingcod, rockfish, crab, and prawns are also popular, but in smaller quantities.

Guided recreational fishing activity centres around fishing lodges, resorts, and fishing charters. Fourteen lodges offer recreational fishing in the Plan Area, including one floating lodge. Many are located in the sheltered inlets of the mainland coast. There are an additional 17 marinas, wharfs and harbour authorities that offer recreational fishing facilities. There are three processing facilities, one in Port Hardy and two in Campbell River that will handle recreational fishing products. The Plan Area is a popular region for angling, with fishing the third ranked activity for participation by visitors in 2002.

First Nations fishing has both commercial and community resource use, including use for food, social and ceremonial (FSC) as main sectors. Processing, management and services are other sectors that have fishing related components. FSC fisheries have priority over other fisheries, after conservation and public safety. Nanwakolas member Nations are included in Aboriginal Fisheries Strategy (AFS) agreements related to FSC, communal fishing licences, and co-management. Harvest varies from year to year depending on the availability of each species. Salmon, eulachon, herring, clams, halibut, lingcod, shellfish and rockfish are important species for First Nations' harvest.

Transportation activities occur throughout the Plan Area. The main vessel traffic pattern described from north to south is: to the east side of Calvert Island, after which the traffic splits with the larger proportion following the west coast of the mainland and down the east side of Malcolm and Hanson Islands to Johnstone Strait. The second band of high density traffic passes on the east side of Hurst and Nigei Islands and past the west side of Malcolm and Hanson Islands.

There is very infrequent oil tanker traffic primarily at the north end of the Plan Area due to the voluntary Tanker Exclusion Zone established in 1998. Most shipment consists of the barging of refined petroleum products to communities. Cruise ships generally

transit though the area and their highest concentration is at the north end of the Plan Area where traffic from Hecate Strait, the west and east sides of Vancouver Island and the Inside Passage intersect. There is also a concentration of smaller “pocket” cruises around Port McNeill and Alert Bay. Ferry traffic is at its highest concentration around Campbell River and Port McNeill where regular service is provided to nearby islands. Fishing traffic is throughout the region with a concentration on the east coast of Vancouver Island. Barges and smaller supply boats distribute goods and products to local communities. Orca Sand and Gravel Ltd ships sand and gravel to international markets from its wharf north of Port McNeill.

CHAPTER 3: PLAN DEVELOPMENT PROCESS

3.1 Planning Process

The planning process covered a time period of nearly two and a half years from initiation of the Technical Team in March 2012 to the signing and approval of the Plan in June 2014. The planning process steps are generalized below.

Step 1: Develop and approve work plan. This step included confirmation of specific sub-regional plan "outputs", and a general timeline for the completion of work developed by the MaPP Marine Coordination Team (MCT).

Step 2: Establish a Sub-Regional Marine Plan Advisory Committee (MPAC). This step involved soliciting requests for nominations to MPAC, screening nominations and appointing members and alternates.

Step 3: Assemble Information for Plan Topics. The Technical Team and MaPP contract staff initiated collection and preparation of information applicable to Plan development.

Step 4: Hold Information Open Houses in Local Communities. Open Houses on the MaPP Initiative and the Plan development process were held in Campbell River, Port McNeill and Port Hardy.

Step 5: Prepare and Present Draft Plan Components to MPAC. The Technical Team presented a variety of draft Plan components over four MPAC meetings. Verbal advice was documented in an "Advice Log" along with subsequent written input.

Step 6: Assemble and Present Draft 1 Preliminary Plan to MPAC. The Technical Team reviewed MPAC advice and assembled revised Plan components into a Preliminary Draft Plan (Draft 1). The Draft Plan was presented at a June 2013 MPAC meeting.

Step 7: Assemble and Present Draft 2 Preliminary Plan to MPAC. The Technical Team addressed incomplete components of Draft 1 and incorporated MPAC advice into a Draft 2 Preliminary Plan, presented at the September MPAC meeting.

Step 8: Revise Preliminary Plan Draft 2 and Present to MPAC. MPAC advice on Draft 2 was used, along with additional information from MaPP studies, to prepare a revised draft (Draft 3).

Step 9: Conduct Internal Review of Preliminary Plan Draft 3. Internal reviews of the Draft 3 Plan were completed by provincial government ministries, and by Nanwakolas member First Nations. These reviews resulted in documentation and resolution of issues by senior officials, providing direction for preparation of the Final Preliminary Draft (Draft 4).

Step 10: Present Final Preliminary Draft 4 to MPAC and Facilitate Support. The Technical Team presented the Draft 4 to MPAC to identify changes made, and to document outstanding issues requiring resolution for MPAC member support. This meeting was followed by discussions with specific parties to address Plan support issues.

Step 11: Revise Public Draft and Solicit Broad Feedback. This step consisted of public open houses/meetings, and a 45 day public review period to receive comments on the Final Plan. During this period, discussions were held with non-participating First Nations and stakeholder groups.

Step 12: Confirm and Approve Final Plan. This step included determining the level of support by MPAC participants, and obtaining Plan approval from Nanwakolas and the provincial government. Support letters are provided in **Appendix B1.**

3.2 Marine Plan Advisory Committee (MPAC)

Consistent with the MaPP *Letter of Intent*, the NVI technical team established a stakeholder advisory committee (Marine Plan Advisory Committee, or MPAC) to provide ongoing advice on Plan documents and information. Invitations were sent to stakeholder groups and regional districts along with nomination forms and the MPAC Terms of Reference (See **Appendix B2**). MPAC members and alternate members were screened and selected, and participant funding opportunities provided to all members. All members agreed to comply with the Terms of Reference, which included a Code of Conduct, general work plan and MPAC meeting schedule.

Interests represented on the MPAC were forestry operations, commercial recreation and tourism, conservation, finfish and shellfish aquaculture, municipal or regional government, public recreation, recreational fishing services, commercial fisheries and renewable energy generation. Public recreational fishing attended two meetings. Attempts to include representation from local marine carriers proved unsuccessful. Some MPAC members represented aggregations or associations of organizations with similar interests, while other members provided specialized expertise only.

The first MPAC meeting was held in July of 2012. The MPAC met approximately every two months until June 2014, for a total of **11** meetings. A record of MPAC members, meeting dates and topics is provided in **Appendix B2**. Meetings were co-chaired by the joint Technical Team leads and were facilitated at key meetings by an independent facilitator. All advice received, including verbal feedback at meetings and written comments on distributed material, was recorded in an "Advice Log" maintained by the Technical Team and made available to MPAC for comparison with changes made to material in the final Plan.

Throughout the Plan development process, MPAC members were encouraged to share draft Plan products with constituents (when applicable) in their sectors and communities, and to provide information and feedback to the process from those exchanges. A

standing offer was maintained throughout the process to meet with stakeholder groups as requested, a record of such meetings is provided in **Appendix B2**.

All MPAC meetings were advertised to the public on the MaPP website, and both the agenda and a general meeting summary posted on the MaPP website for each meeting.

3.3 Engagement with Public and Non-Participating Groups

Information open houses were held in Campbell River, Port Hardy and Port McNeill in September and October 2012, to introduce the general public to the MaPP Initiative and the NVI planning process. The open houses were advertised through the MaPP web site, e-newsletter, media, posters, and by members of the MPAC.

A final round of engagement with the public was provided through open houses held in April 2014 in Campbell River, Port Hardy and Port McNeill, as part of a public comment period (see **Appendix B3**). The purpose of this engagement was to outline and solicit feedback on the Final Draft Plan. The Final Draft Plan was advertised in local communities and posted on the MaPP website in advance of the open houses and during the public comment period.

Attempts were made throughout the process to engage First Nations who did not participate in MaPP but who are potentially affected by the Plan recommendations. These efforts were made formally by the provincial government through letters and invitations to meet, and by the Nanwakolas Council, which offered technical meetings with these First Nations. Contact with non-participating First Nations, identified by the provincial government as potentially having shared interests within the Plan Area, is summarized in **Appendix B3**. Similar efforts were made to discuss planning progress and final Plan recommendations with non-

participating stakeholder groups (see **Appendix B3**). Efforts included meeting opportunities and distribution of draft Plan documents for review and comment.

3.4 Planning Information

The Plan is based on multiple data sources, compiled and analyzed by the Joint Technical Team and contract support. Key Information and direction was provided from three existing plans for the Plan Area: the Johnstone Bute Coastal Plan, the North Island Straits Coastal Plan, and the Draft Ha-Ma-Yas Marine Plan. Traditional knowledge was primarily provided through the Ha-Ma-Yas Plan as it included the personal and traditional knowledge of First Nations' members, including Chiefs and Councils, elders and maps of traditional uses developed as part of the Gilgalis Project.

Regional-level work was undertaken by the MaPP Initiative in order to provide important information for the Plans. This work included a number of useful background studies and reports, such as an NVI Current Conditions and Trends document, a regional pollution assessment, a regional infrastructure inventory and gaps assessment, a governance assessment, and a list of potential EBM indicators for Plan effectiveness monitoring. Relevant background scientific reports and technical documents from the PNCIMA process were also used. Information was also derived from government reports and publications, academic literature, industry or sector publications, discussions with experts, and from local and traditional knowledge provided by individuals.

The Plan was also informed by approximately 190 data sets made available through the BC Marine Conservation Analysis (BCMCA), supplemented with information provided by Plan participants on forestry operation, diving areas, high value commercial recreation and tourism areas, and local government zoning. For a list of the key reports and data sources used in the Plan see the References section.

Information and product reviews were also conducted by the MaPP Science Coordinator, as well as by a Science Advisory Committee (SAC). The list of members is provided in **Appendix B4.** A science and technical experts pool was also established to provide advice and review products related to their expertise when required.

3.5 Planning Tools

The Plan was strengthened and guided by common processes, products and guidelines developed through regular meetings of MaPP sub-regional technical teams and the MCT. The NVI Plan benefitted from, and is generally consistent with other MaPP sub-regional marine plans through a common Regional Zoning Framework, a common Recommended Uses and Activities Table (and definitions), a common Compatibility Matrix for marine uses and activities, a common Ecosystem Vulnerability Matrix, and a common spatial planning support tool (SeaSketch) provided to technical staff and MPAC members for review and testing of zones, and for statistical analysis. For a more specific listing of tools, see **Appendix B5**.

3.6 Planning Steps for Zones and Zone Recommendations

A sequence of steps was followed to develop recommended zones and emphasis areas, and recommended uses/activities for the proposed zones:

Step 1: Develop and Sign Letter of Intent

- This initial step involved developing an agreement that identified process structures, and outcomes for collaborative marine planning between the provincial government and the three partner First Nations' organizations.

Step 2: Confirm Zone and Emphasis Categories and Designation Approach.

- Appropriate zones and emphasis categories were determined;
- List of Recommended Uses/Activities and Recommendation Categories was confirmed;
- An approach was confirmed for dealing with geographically specific management requirements within any specific zone or emphasis area.

Step 3: Reconcile Provincial Coastal Plans and Ha-ma-yas Planning Units.

- Areas with common "emphasis" for conservation/protection, general/integrated management, and special management (e.g., community, recreation/tourism, shellfish aquaculture, cultural/economic) were assigned to the major zones determined in Step 2;
- Areas that differed in emphasis were assigned to zones according to the priority of conservation over other emphases and special management over general/integrated emphasis;
- Existing protected areas (legislated or imminent) were assigned to a separate zone requiring no further action.

Step 4: Determine Uses/Activities Recommendations in Preliminary Zones.

- Recommendations for uses and activities were initially determined through review of the acceptable uses/activities in the relevant planning units of provincial coastal and Ha-ma-yas plans, and interpreting them for the confirmed list of Recommended Uses/Activities;
- Management provisions and conditions were created on the basis of those in the provincial coastal and Ha-ma-yas plans.
- The compatibility matrix in **Appendix B5** was utilized to refine preliminary uses/activities.

Step 5: Test and Refine Preliminary Zones and Uses/Activities Recommendations.

- Data layers considered of primary importance in determination of zones and special management zone emphasis areas were identified and systematically applied to test the reliability of preliminary zone types and boundaries;
- New data layers provided by stakeholders were applied, along with recommendations from MPAC members based on Planning Portal work and other information;
- Changes were made to the uses/activities recommendations and management provisions/conditions in zones on the basis of information provided in the data layer overlay process.

Step 6: Review and Finalisation of Recommended Zones and Uses/Activities.

- The Technical Team assessed the effects of zones and zone-specific management provisions/conditions for consistency with Plan vision, goals, objectives and strategies.
- Zones and zone-specific management provisions/conditions were provided to internal MaPP MOU parties and non-participating First Nations as part of Plan review and comment.
- Zones and zone-specific management provisions/conditions were provided to the public as part of Plan public review and comment.
- The MPAC reviewed the final Plan revisions and recommended appropriate adjustments to zones and management recommendations.

Step 7: Complete Zones and Uses/Activities Recommendations.

- Final zone boundaries, uses/activities recommendations and management provisions/conditions were reviewed by MPAC for "suitability" or "social licence."
- Final recommendations were determined, using MPAC advice where appropriate.

CHAPTER 4: PLAN AREA MANAGEMENT DIRECTION

4.1 Vision for the Plan Area

The vision statement is an expression of how the Plan Area would be described twenty years after its approval, assuming the Plan recommendations are successfully implemented. It was developed with the advice of MPAC and expresses the common views of all participants on the desired, long term future state of the North Vancouver Island area, including its ecological, economic, social, cultural, and community condition. It is a high level "benchmark" that could be revisited during Plan review to determine the extent to which this desired future state is being achieved by the Plan recommendations, and if interventions are necessary. The vision statement is as follows:

The Plan Area has healthy, diverse and resilient marine ecosystems that support social and cultural opportunities and a thriving economy. The goods and services provided from the Plan Area are world-renowned and a major source of economic, community, cultural and social prosperity. The Plan has reinforced the unique cultural connection of area First Nations to their traditional lands, waters, and resources. Uses and activities are innovative, adaptable to changing technologies and environments, respect traditional values, and support the long-term sustainability of the supporting ecosystems. The management and decision-making processes for uses and activities are efficient, transparent and accountable, involve effective cooperation between jurisdictions, authorities and business, and they consider future generations. The vision has been achieved through decisions that are guided by traditional and modern values, teachings and principles of EBM. Community members, including First Nations, are actively engaged in the stewardship, monitoring, and management of the resources upon which their livelihoods depend.

4.2 Ecosystem-Based Management

Ecosystem-based management (EBM) is widely considered a crucial approach for effective resource management of coastal and marine ecosystems. EBM differs from sector-based resource management in that it defines management strategies for entire systems, not individual components of the system, with humans as an explicit part of the ecosystem.

4.2.1 Definition of EBM

For the purposes of this Plan, EBM is defined as an adaptive approach to managing human activities that seeks to ensure the coexistence of healthy, fully functioning ecosystems and human communities. The intent is to maintain those spatial and temporal characteristics of ecosystems such that component species and ecological processes can be sustained, and human well-being supported and improved.

4.2.2 Elements of EBM

There are three equally important elements within the MaPP marine ecosystem-based management planning framework:

- Ecological integrity - describes ecosystem connectivity (the extent to which marine habitats are linked and populations are linked by the movement) as well as habitat and species diversity and is focused on ecosystem structure, function and resilience;
- Human well-being - is the combination of social, economic and cultural aspects of human communities, including spiritual and cultural connections to the marine environment; and
- Governance (and collaborative management) - focuses on a collaborative, effective, transparent and integrated governance and management, as well as public engagement.

For more information on EBM goals, principles and assumptions see **Appendix C1**.

4.2.3 Application of EBM in MaPP

The MaPP Initiative uses science and traditional ecological knowledge to advance EBM for healthy ecosystems, sustainable uses and delivery of ecosystem services to human communities in the Plan Area and in the North Pacific Coast of BC. The MaPP Initiative uses an established and peer-reviewed marine EBM framework to address a set of issues and challenges identified by First Nations, the provincial government and stakeholders. The EBM approach to marine management accounts for interactions among resource sectors and the cumulative effects of ocean uses and activities.

4.3 Use and Application of Plan Area Management Direction

Plan Area Management Direction (PAMD) for the Plan Area is comprised of objectives and related strategies for 13 topic areas of importance to the development of an EBM approach to marine management. These objectives and strategies are applicable to the zoning designations in the Plan (Chapter 5) unless superseded by additional strategies and recommendations in the zoned areas. The implementation of most PAMD objectives and strategies will be pursued through actions that are likely to be separate from actions required to implement and administer zoning provisions. The priority for implementation of each strategy has been included adjacent to the relevant strategy (refer "Code"). A description of the coding used to describe implementation priority is included in **Table 7** below. Where there is a reference to a specific area in a strategy, see Chapter 5 area specific management direction.

Table 7: Plan Implementation Codes

Timeframe	Funding	Governance
0 = Ongoing activity **1** = Start within 6 months **2** = Start within 12months **3** = Start within 24 months	**A** = No new funds or resources required **B** = New funds or resources required	**g** = Governance structure required (new committee, working group, etc)

4.3.1 Community and Economy

The ongoing economic health and well-being of communities and their residents is an overarching component of the EBM approach. This topic encompasses such issues as labour force participation rates, capital assets, capacity for local economic opportunities, sector stability, sustainability and integration, and local and First Nations' participation in the economy.

The Plan Area economy and its communities are generally dependent on resource-based activities, which include commercial and recreational fishing, aquaculture, forestry activities, and tourism. The level of support and public acceptability for these activities varies within and between communities (including First Nation communities). All existing and future economic activities would likely benefit from a stronger commitment to, or demonstration of practices and standards that are ecosystem-based and reflect a commitment to sustainability.

Many economic strategies are in place in the sub-region, including those from provincial, federal, municipal, regional and First Nations' governments, as well as economic sectors and other non-government organizations. However, there is a need for better integration, strengthening, and (for some sectors) creation of new strategies.

Lack of participation, capital assets and capacity to develop economic opportunities is an issue in the Plan Area. Collaboration within and between sectors has the potential to improve project development. For example the 2010 North Island Coordinated Workforce Strategy supports cooperation to build a workforce that is able to support economic and employment growth. Employment and training studies from the RDMW show that management, business, finance and administration jobs are hard to fill. These jobs require a skilled workforce to advance economic development projects. Surveys of local First Nations show weak overall participation in the marine economy, and few managerial and ownership positions held by First Nations.

Climate change may have positive and negative impacts on resource-based economies. Some sectors may be more vulnerable to climate change than others. New opportunities may arise for some sectors due to changes in species availability and a warmer climate.

Issue 1. Support, integration, and creation of more stable and sustainable local marine-based economies.		
Objective	**Strategies**	**Code**
1.1 Increase the support for existing marine economic activities.	1.1.1 Increase government and industry efforts to establish and implement EBM practices for existing marine economic sectors, through such steps as review of regulations, policies, standards and guidelines.	0Bg
1.2 Integrate, and create more stable and sustainable local marine-based economies	1.2.1 Identify and prioritize marine economic development opportunities and constraints for local communities, including social and ecological constraints.	1Bg
	1.2.2 Encourage the application of new technology by existing businesses and agencies to create efficiencies where consistent with EBM.	2A
Issue 2. Local participation, capital assets, and capacity for marine related economic opportunities.		
Objective	**Strategies**	**Code**
2.1 Increase local participation, asset acquisition, and strengthening of local community human resource capacity.	2.1.1 Continue local community collaboration in identifying infrastructure needs, capital and financing requirements and options for successful project development.	0A
	2.1.2 Secure resources and institutional partners to strengthen local community management capacity to initiate and lead marine-based economic development projects, including training provisions in partnership agreements with proponents.	0Bg

Issue 3. First Nations' participation in the marine economy.		
Objective	**Strategies**	**Code**
3.1 Increase First Nations' participation rates in the marine economy.	3.1.1 Encourage industry discussions with First Nations on partnerships, joint ventures opportunities, and revenue sharing/impact benefit agreements for marine economic activities.	0A
Issue 4. Sector business strategy integration, relationships, and conflict reduction.		
Objective	**Strategies**	**Code**
4.1 Improve sector strategy integration, relationships, and conflict reduction.	4.1.1 Encourage economic sectors to develop and/or update long-term business and sector strategies, through such activities as sector economic surveys.	2A
	4.1.2 Facilitate the sharing of strategies between sectors through existing associations.	0A
Issue 5. Long term viability of marine industries and local communities due to climate change impacts.		
Objective	**Strategies**	**Code**
5.1 Anticipate and respond to potential climate-induced changes in viability of marine industries.	5.1.1 Work with communities, industry, stakeholders, and relevant government agencies to identify and assess the vulnerability and risks of climate change on viability of existing marine uses and activities.	2Bg
	5.1.2 Identify the level of adaptability of existing marine industries, including potential monitoring indicators and develop strategies for adaptation or alternative practices.	2Bg
	5.1.3 Evaluate potential and constraints of new sustainable marine industry opportunities resulting from climate changes.	2Bg
	5.1.4 Encourage marine industries to address and respond to potential climate change effects.	0A
	5.1.5 Encourage marine industries to reduce their carbon footprint.	0A

4.3.2 Infrastructure

Infrastructure objectives and strategies focus on improving coastal infrastructure to enhance and enable economic development opportunities, while retaining competitiveness with other areas on the BC coast. There is also a need to increase First Nations' involvement in the development and operation of infrastructure. Finally, existing and new infrastructure projects need to take into account possible consequences of climate change effects.

Marinas, harbours and associated coastal facilities will continue to be important to coastal communities for a variety of uses. Resources for infrastructure maintenance and upgrades will reflect changing economic and community needs, such as the more recent focus on tourism and aquaculture. Harbour authority managed facilities are generally well maintained and meeting community and industry needs, although there are issues of lack of cooperation between different management organizations, and potential duplication of planning processes.

Overall recreation and tourism use of harbours is increasing. Access to fuel has been identified as a potential limiting factor for some commercial and public recreation uses including barge and taxi operations. Public recreational fisheries infrastructure is lacking northeast of Port Hardy and between Sayward and Telegraph Cove, although both areas have medium recreational vessel frequency. Only one marina and no harbours were identified as participating in voluntary "green" management programs.

Nanwakolas member nations have identified a need for First Nations to coordinate their individual infrastructure planning and funding requests with local governments and industry. Identified opportunities for partnering include communications and navigation aids, as well as emergency response services. The Nanwakolas member nations have identified the need for new or upgraded facilities for Compton Island, Village Island, Turnour Island, Hiladi/Adam River, Phillips, Vancouver Bay, Thurston Bay and Kelsey Bay.

Climate change is predicted to increase sea levels and result in more frequent and intense storms. Infrastructure will need to be able to withstand these changes. Since some commercial fish species are expected to move further north, fishing vessel and processing infrastructure will need to be readily adaptable. Some vessels and facilities are already adept at working with a variety of species and products, but others will need to keep abreast of the predicted changes.

Issue 1. Coastal infrastructure utilization and improvements.		
Objective	**Strategies**	**Code**
1.1 Improve the infrastructure required for public, community, and economic uses and activities in the marine environment.	1.1.1 Review the current inventory of marine infrastructure with appropriate government agencies, industries and stakeholders and develop an action plan for addressing priority infrastructure upgrades and gaps including recreation and tourism, fueling and emergency response.	2Bg
	1.1.2 Coordinate infrastructure planning and funding requests among governments, communities and industry to support existing and new uses and activities.	0Bg
	1.1.3 Coordinate or support the coordination of a network of strategically located and maintained infrastructure, including but not limited to the following sectors: fisheries, aquaculture, recreation and tourism, forestry, transportation and energy.	0Bg
	1.1.4 Encourage adoption of voluntary sustainability or green infrastructure programs and design, and, where possible, tie participation to applicable funding.	0A
Issue 2. First Nations' involvement in coastal infrastructure.		
Objective	**Strategies**	**Code**
2.1 Increase First Nations' involvement in coastal infrastructure selection, development and operation.	2.1.1 Encourage partnerships among First Nations' and industries for selection, construction, management, operation and maintenance of new infrastructure developments.	0A
	2.1.2 Encourage First Nations' participation in employment opportunities in construction, management and operation of new infrastructure.	0A
Issue 3. Potential climate change threats to community coastal infrastructure.		
Objective	**Strategies**	**Code**
3.1 Minimize the potential climate change threats to community coastal infrastructure.	3.1.1 Encourage local communities to undertake new and revisions to existing community plans and coastal infrastructure design to incorporate climate change implications.	0A
	3.1.2 Develop action plans based on the climate change vulnerability assessments for responding to the potential effects of climate change on infrastructure and emergency services.	2B

4.3.3 Pollution

Sources of pollution include point and non-point source discharges from vessels, marinas and other activities, and contaminant and sedimentation run-off from upland activities. There are also concerns regarding waste and pollution from ocean disposal sites and

ecological impacts from residential, industrial and commercial activities such as sewage outfalls, salmon aquaculture, and forestry operations.

The cumulative effects of individual sector or site-focused management decisions on ecosystem health are of concern, and are an area of ongoing research. Cumulative effects have varying levels of understanding, documentation or monitoring, and there is a general lack of clear, measurable and concise indicators. Cumulative effects of pollution including additive and synergistic effects, climate change and ocean acidification are not well understood.

Pollution can also impact other human uses. For example, poorly located outfall discharges, marinas, wharves, finfish net-pens, and septic systems can impact wild and aquaculture shellfish harvest. Contamination is often linked to increased population growth or concentrations, and future population increases have potential to increase pollution levels. While populations are not projected to change dramatically (exception for Campbell River), an increase in transient workers and tourists may increase contamination levels above those projected for the base population. Outside of the Georgia Basin, areas under sewage contamination closure tripled from 1989 to 2004; however, some closures are due to a lack of monitoring to enable the site being opened. There are shellfish sanitation contamination closures of varying duration, occurring at different locations throughout the Plan Area, resulting from bacterial contamination caused by vessel and land-based fecal waste. These closures are not to be confused with paralytic shellfish poisoning (PSP or red tide) closures caused by bivalves that have eaten and accumulated PSP toxins from some algae species.

Local governments have identified capacity challenges with accepting and handling marine waste including sewage, garbage and recycling as ship and vessel waste requires transfer to appropriate upland facilities (see **Table 8**). These services are provided to resident and non-resident users and have associated infrastructure costs. There is a risk of illegal dumping if facilities are limited or have high user fees.

Table 8: Operating Waste Disposal Facilities Count in the Plan Area

Facility Type	Facility Count	Pump Out Stations	Garbage	Recycling
Small Craft Harbour	14	6	13	9
Public Wharves	18	0	5	0
Resorts and Marinas	57	3	14	0

Approved materials such as dredged gravel, sand and mud can be disposed of at sea in specific locations that are regulated by Environment Canada. Within the Plan Area there are five inactive disposal-at-sea sites. One active site exists at Cape Mudge at the south end of the Plan Area. The closed site at Malcolm Island is also an identified glass sponge reef.

Another important issue is the presence of abandoned and derelict vessels. There are an estimated 120 vessels currently abandoned in the Plan Area, the majority being abandoned for up to 10 years. These vessels may create navigation hazards, leak oil and toxic chemicals, and create aesthetic problems. It is a challenge for regulatory authorities to find and link the current owner to an abandoned or derelict vessel. A number of regulatory authorities are responsible for their removal, primarily Transport Canada. There is potential for an increasing number of abandoned vessels as the overall age of the vessel fleet increases and vessels reach the end of their life span.

There is a concern that current monitoring capacity, regulations and tools such as best management practices, bonds and letters of credit may not be sufficient to limit potential degradation to the marine environment from diverse concerns including but not limited to abandoned structures and noise pollution.

Marine debris can impact birds, fish and mammals through entanglement and ingestion. Areas of highest potential for debris interactions with mammals are the north end of Vancouver Island and adjacent mainland, and in Johnstone Strait. The 2011

Japanese tsunami has resulted in an increasing amount of debris pollution on BC shorelines. This and other waste is negatively impacting the ability of the human communities to use the shorelines for recreational food gathering and enjoyment, and may present safety issues on the ocean.

Marine spills represent another issue of concern. Greater clarity is required on existing spill response capacity and requirements of governments, communities and industry. While the provincial government has a number of valuable spill response tools and programs, such as a Marine Oil Spill Response Information System for prioritization of areas for shoreline protection, and a Spill Prevention and Preparedness Strategy, there appears to be a lack of locally specific Geographic Response Plans. Proposed oil and gas pipeline projects and associated shipping north and south of the Plan Area could increase the potential for adverse marine environmental quality impacts.

A pollution risk assessment conducted for the entire MaPP Study Area considered a variety of sources and identified areas of high risk that can be used as a basis for restoration planning. Areas of moderate to high relative risk occur throughout Queen Charlotte and Johnstone Straits. The risk assessment also showed that the marine resources with the highest risk are cloud sponge, seagrass, estuaries and kelp.

Other issues include restoration of deteriorated coastal areas, and uncertainty regarding methods of mitigating the potential negative effects of climate change on habitats and species.

Issue 1. Impacts of point and non-point source pollution on marine habitat, species, human health and availability/harvest of marine food sources.		
Objective	**Strategies**	**Code**
1.1 Minimize the impacts of point and non-point pollution on marine ecosystems.	1.1.1 Prepare a cumulative effects assessment of marine uses and activities in the Plan Area, and use results to assist with future tenure decisions and restoration planning.	1Bg
	1.1.2 Assess vulnerability of existing and potential marine uses and activities sensitive to pollution from marine and adjacent upland sources. Priorities are: sewage outfall impacts on shellfish areas in Hardy Bay (SMZ 8); loxiwe in the Broughton (PMZ 7); and existing and new conservation and protection areas.	1Bg
	1.1.3 Work with appropriate government agencies to improve cumulative effects assessments for development proposals and application of the findings.	0Ag
	1.1.4 Coordinate with appropriate agencies a review and improvement of regulations and best management practices for marine pollution to comply with identified thresholds and establish thresholds where none exist.	2Bg
	1.1.5 Assess community infrastructure available to accept and manage marine waste, and develop fee-for-service or other financial mechanisms for development and maintenance of required infrastructure. A priority area is Echo Bay (SMZ 16).	2Bg
	1.1.6 Work with First Nations, local governments and industry to reduce pollution, limit degradation of sensitive areas, and develop or improve action plans for restoration of marine and adjacent upland uses using new technology, best management practices, and other mechanisms. A priority area is Hardy Bay (SMZ 8).	2B
	1.1.7 Work with local, relevant government agencies and industry to mitigate and where necessary restrict activities that may have adverse impacts on sensitive marine habitats including estuaries.	0Bg

1142

Issue 2. Impacts of waste and pollution from ocean disposal sites, derelict vessels, and human-based debris.		
Objective	**Strategies**	**Code**
2.1 Reduce impacts associated with ocean disposal sites, derelict vessels and vessel movements.	2.1.1 Work with appropriate government agencies to determine restoration requirements and processes (as required) for closed disposal-at-sea sites, and to determine the means of addressing ongoing forest industry interest in ocean disposal. Priority restoration areas are: Malcolm North (PMZ 1), and McNeill/Cormorant/Sointula (SMZ 12).	2Bg
	2.1.2 Work with relevant government agencies to confirm locations of abandoned and derelict vessels, and establish a working group with local government, First Nations, and relevant government agencies to identify owners, potential funding sources, and a risk-based action plan for phased vessel removal.	2Ag
	2.1.3 Evaluate existing tools for limiting potential degradation, and develop new ones or strengthen existing ones as required, including: clean up bonds, letters of credit, education programs, additional tenure conditions, and best management practices.	0A
	2.1.4 Develop a plan for cleanup of human-based debris (including tsunami debris) for priority areas, including important recreational anchorages.	1B
Issue 3. Marine spill prevention, preparedness and response-specific Geographic Response Plans.		
Objective	**Strategies**	**Code**
3.1 Improve marine spill prevention, preparedness and response.	3.1.1. Assess spill preparedness and response management capacity from appropriate government agencies, industry and community perspectives.	1Bg
	3.1.2 Work with relevant government agencies to reduce the risk of occurrence of marine spills to Plan Area communities (including First Nations' communities), economic activities and ecosystem health.	0Bg
	3.1.3 Work with appropriate government agencies, industry and local communities to establish locally specific Geographic Response Plans and response centres, including training, preparation and equipment for effective response to both local and regional marine spills.	1Bg
	3.1.4 Establish a working group, including appropriate government agencies and First Nations, to address marine spill challenges, including financing, industry response times and capacity, spill management techniques, clean up levels and standards, improved training, and preparedness and response mapping systems.	1Ag

1143

Issue 4. Restoration of deteriorated coastal areas.		
Objective	**Strategies**	**Code**
4.1 Improve and enhance the restoration of deteriorated coastal areas.	4.1.1 Investigate the high risk pollution areas in the Queen Charlotte and Johnstone Straits for priority restoration sites, including protection management zones, and estuaries.	2B
	4.1.2 Identify opportunities and funding for local and First Nations community participation in the restoration of priority sites, including sites with degraded species habitat from past tenured activities.	2Bg
	4.1.3 Identify and confirm funding sources for local participation in restoration/adaptation programs for species and habitat.	2Bg
	4.1.4 Prepare and/or review estuary management plans for major estuaries to assist in restoration activities. Such estuaries include but are not limited to the Kingcome River, Franklin River, Salmon River, Ahta River, and Kakweiken River.	0Bg
Issue 5. Methods of mitigating potential adverse impacts of climate change on habitats and species.		
Objective	**Strategies**	**Code**
5.1 Identify methods to mitigate the adverse impacts of climate change on habitats and species.	5.1.1 Develop action plans from the preliminary climate change vulnerability assessment for responding to potential effects of climate change.	2B
	5.1.2 Ensure any network of marine conservation and protection areas includes areas that increase ecosystem resilience to adapt to climate change effects.	0A
	5.1.3 Develop plans to address potential changes to toxicity concentration and occurrences of marine debris and pollution due to flooding of pollution sources, changes in water movement, storminess, runoff and sea level rise.	2B
	5.1.4 Determine and monitor climate indicators (both biological and physical) for information on the status and trends of the climate impacts in the Plan Area. Priority is the loxiwe in Broughton (PMZ 7).	0B

4.3.4 Conservation and Protection

A variety of tools and mechanisms can be used to enable protection for ecological and human activities including legislated local, provincial and federal government protected areas and closures. However, these tools may not be able to effectively address the range of values warranting protection, and alternative means, such as indigenous peoples' and community conserved areas and

territories (ICCAs), need to be investigated. In addition, there are very few interim protection tools for use while formal protection processes are underway.

The BC government uses a Conservation Framework to guide conservation actions for species and ecosystems in BC, but it has not yet been applied to any marine ecosystems other than estuaries. Similarly, some but not all, marine species have been ranked in the Framework. Furthermore, there may be species, habitats or ecosystems that are not represented in current management areas or the current management tools being used are not always fully implemented or adequate.

Despite the existence of many provincial government marine parks and conservancies, nearly all are open to some type of harvesting, which may prevent achievement of full ecological objectives for some areas. The ability to develop and update management plans, gain First Nations' support, and enforce management requirements is also a challenge due to limited funding and resourcing. Individually and in combination these issues can result in areas of protection not being operated as intended. Although there are a number of proposed provincial conservancies for which considerable work has been done to establish collaborative management plans, it is uncertain whether or not they will legally designated.

Acoustic protection is of concern in areas that may be contemplated for protection to accommodate mobile marine species. Evaluation of potential restrictions on vessel noise will require management cooperation with relevant government agencies.

Nanwakolas member First Nations have concerns with consultation over previously established protected areas, and the nature and extent of their involvement in new area selection, management and monitoring. The provincial government's conservancy initiative is a forward step for government-to-government relationships through the use of collaborative management, but Nanwakolas member First Nations believe that existing government designation tools are not always adequate to ensure inclusion of First Nations' values and objectives.

The current Canada – BC MPA Network Strategy planning process now contemplates participation of First Nations involved in MaPP but will require a role for local government in candidate selection and review. Their participation could improve the decision-making process and increase the likelihood of local support and benefits.

Adequacy of surveillance of marine conservation and protected areas to ensure they effectively protect designated values, and/or their intended purpose is an ongoing concern. For instance, monitoring includes ensuring adaptive and effective management to achieving proper protection.

Climate change and other hard to predict phenomena may impact the ability of some marine protection areas to deliver intended biodiversity and resource conservation outcomes due to natural susceptibility and changes in distribution of species and ecosystems, over space and time. Protected habitats that are more resilient and/or those that capture and store carbon, such as sea grasses and kelp forests, may help mitigate climate change.

Issue 1. Adequacy of existing marine conservation and protection areas.		
Objective	**Strategies**	**Code**
1.1 Identify and support new marine conservation and protection areas for a range of requirements and values.	1.1.1 Through applicable processes identify and propose new conservation and protection areas for ecosystem and species representation and resilience, and for special or unique marine areas or features, and for protection of First Nations' cultural resources.	0A
	1.1.2 Support formal designation of provincial conservancies identified prior to the initiation of this Plan.	0A
	1.1.3 Undertake Protection Management Planning for PMZ areas approved as part of this Plan.	2Bg
Issue 2. Adequacy of existing marine conservation and protection tools.		
Objective	**Strategies**	**Code**
2.1 Improve tools available for marine conservation and protection.	2.1.1 Use interim protection measures (such as temporary Notations of Interest and/or map reserves) as a tool for managing proposed marine conservation and protection areas until a formal determination is made.	1A
	2.1.2 Review the adequacy of existing protection tools to accommodate a broader range of	2B

	marine values.	
	2.1.3 Through applicable processes develop and apply (where appropriate) new tools for establishing marine protected areas, such as the "Indigenous Peoples' and Community Conserved Areas (ICCA) designation".	2B
	2.1.4 Enhance the provincial government's Conservation Framework by incorporating marine ecosystems and species.	0A
	2.1.5 Through applicable processes undertake an assessment of the need for fisheries management measures in provincial marine parks and conservancies where considered necessary to achieve conservation objectives with appropriate government agencies, First Nations and user groups.	0A
	2.1.6 Work with appropriate government agencies to ensure that critical habitat spatial information for species at risk is accessible in different formats.	0A
2.2 Improve management of existing conservation and protection areas	2.2.1 Foster maintenance of ecological health and integrity through such measures as ecological studies, research, monitoring, management provisions, and habitat protection for key marine species (including threatened species and species at risk).	0B
	2.2.2 Through applicable processes review the boundaries and the adequacy of management regimes for existing provincial marine parks and conservancies and ensure that any proposed changes are communicated to relevant agencies.	1Bg
	2.2.3 Incorporate noise protection in the development of management plans for areas allocated to the Plan's proposed protection management zone.	3A
Issue 3. Potential impacts and benefits of marine conservation and protection designations on marine uses and activities.		
Objective	**Strategies**	**Code**
3.1 Identify and address potential impacts of marine conservation and protection areas on marine uses and activities.	3.1.1 Through the Canada – BC MPA planning process work with appropriate government agencies and affected user groups to conduct social and economic impact assessments on user groups, of all potential legal designations of conservation and protection areas.	2Bg
	3.1.2 Through the Canada – BC MPA Network Strategy designate MPAs in a staged manner to minimize impacts on marine uses and activities.	2Ag
3.2 Increase economic benefits from marine conservation and protection areas to First Nation and local communities.	3.2.1 Encourage employment opportunities for First Nations and local communities associated with new conservation and protection areas.	2B
	3.2.2 Increase and improve marketing and promotion of appropriate uses and activities suitable to the conservation and protection area.	0B
Issue 4. First Nations and local involvement in existing and new conservation and protection areas.		
Objective	**Strategies**	**Code**

4.1 Increase and/or include protection of First Nations' values in existing conservation and protection areas.	4.1.1 Review existing marine conservation and protection areas to confirm adequacy of cultural and heritage resources protection and management, and through relevant processes, implement additional protection where considered necessary.	2Bg
4.2 Increase First Nations' role and influence over the identification, selection, planning and management of new marine conservation and protection areas.	4.2.1 Include First Nation in the Canada-BC MPA Network Strategy review and selection of candidates put forward by First Nations, stakeholders, public and scientific community in their marine territories.	1Bg
	4.2.2 Collaboratively develop management plans for proposed legislated marine conservation and protection areas with First Nations through the appropriate processes.	3Bg
	4.2.3 Encourage greater involvement of local First Nations in marine conservation and protection area operations and management.	0A
	4.2.4 Include First Nations' interests in the selection criteria for the Canada – British Columbia MPA Network Strategy candidate areas.	1A
4.3 Increase local government's role in new marine conservation and protection areas.	4.3.1 Through the Canada-BC MPA Network Strategy, establish mechanisms to include local government in the nomination, review and selection of candidate MPAs.	1Bg
Issue 5. Adequacy of surveillance of conservation and protection areas.		
Objective	**Strategies**	**Code**
5.1 Enhance surveillance of activities within marine conservation and protected areas.	5.1.1 Collaborate with other organizations to enhance surveillance, management and enforcement capabilities within all marine conservation and protection areas, using such techniques such as: working with industry; increasing local involvement; research and monitoring of management plan effectiveness; and using existing facilities (e.g., staffed lighthouses).	1Bg
Issue 6. Adequacy of conservation and protection areas to address climate change implications.		
Objective	**Strategies**	**Code**
6.1 Incorporate climate change considerations in the establishment of new conservation and protection areas.	6.1.1 Establish a network of conservation and protection areas for habitats and shorelines including areas most vulnerable and most resilient to climate change implications as identified by MaPP and other relevant studies.	1A
	6.1.2 Reduce or remove activities from new conservation and protection areas that, when combined with climate change, increase stress on the marine ecosystems and species.	3A
	6.1.3 Initiate studies to evaluate the potential of climate-induced changes to species ranges and timing, and shifts in ecological systems.	3B
	6.1.4 Maintain and restore estuaries and other natural "blue carbon sinks."	0B

4.3.5 Cultural and Heritage Resources

A significant number of cultural and heritage resources exist in the Plan Area. This Plan has separate and specific definitions of "cultural resources" and "heritage resources" in the glossary. Associated issues with these resources include the adequacy of inventories or site knowledge, potential effects of climate change, and lost potential in promoting increased tourism opportunities. Within this topic Nanwakolas member First Nations have also raised concerns about potential destruction and loss of sites through human disturbance. They also have a desire for a more significant role in the management of cultural, spiritual and archaeological sites and databases, and in designating and retaining personal, community and place names.

Many cultural resources are not yet identified, and others are known within communities and have specific protocols for sharing this information. Some sites and objects are identified under the *Heritage Conservation Act*. Although these sites and features are often not publicized, several local facilities offer information, tourism and education resources including U'mista Cultural Centre, Tsa-Kwa-Luten Lodge and the Nuyumbalees Cultural Centre.

Similarly, heritage resources are not all yet identified, while some sites are protected under provincial or federal legislation, and local museums offer access to related resources.

Under the *Heritage Conservation Act (the Act)*, "heritage sites" and "heritage objects", on public and private land, are protected, through: 1) their designation as "Provincial heritage sites" or "Provincial heritage objects"; and 2) through blanket statutory protections for undesignated heritage sites and heritage objects found in section 13 of the Act. Heritage sites and heritage objects, protected through designation or under section 13, may not be altered, excavated or destroyed without a permit issued under section 12. As well, investigation or research of heritage sites and heritage objects requires a permit issued under section 14. It is important to note that in the Act, heritage sites and heritage objects include sites and objects that have value to aboriginal people

(e.g., petroglyphs). The Act does not have the separate definitions of cultural resources and heritage resources used in the Plan. In spite of these available tools, many cultural resources and heritage resources lack an appropriate level of management or protection.

First Nations continue to access and use cultural resources, and to document new resources and their cultural importance. Some sites may be different than sites typically valued by non-aboriginal archaeologists and anthropologists. Sites with spiritual, sacred and traditional use typically lack the physical and archaeological evidence required by the provincial Archaeology Branch. Sites used after 1846 are also difficult to register, unless considered to have significance to the history of BC or Canada.

Recreation and tourism activities are one area of focus as cultural and heritage resources increasingly have economic value, and more visitors are seeking a broader visitor experience that incorporates aspects of cultural tourism. This provides both opportunity for employment and income for both First Nations and non-First Nations communities, and also has the potential for cross-cultural education. There is also interest by Nanwakolas member First Nations in developing some of their sites for other economic benefits, including aboriginal tourism and aquaculture.

Marine-based activities are likely to continue to inadvertently or intentionally disturb or destroy important cultural and heritage resources. The intentional vandalizing or removal of cultural resources for profit or personal collections is an ongoing challenge. Conflicts are likely to increase if activities and numbers of visitors expand in the absence of improved monitoring and site management, and with lack of public awareness of protection regulations. The large area and isolated nature of the coast and limited government resources for enforcement means that it is difficult for government staff to patrol the areas frequently, and ensure that rules and regulations, pertaining to cultural resources, are being followed. Nanwakolas member First Nations' are working to develop the capacity to fill management gaps with respect to monitoring and enforcement for cultural resources.

Climate change is also a potential threat to cultural and heritage resources including food sources due to sea level rise, storms and runoff, since many features are in the foreshore or nearshore areas vulnerable to flooding and erosion. Changes in water temperature, in salinity, oxygen, currents and stratification may also affect the availability of food resources.

Issue 1. Adequacy of cultural and heritage resources inventories and site knowledge.		
Objective	**Strategies**	**Code**
1.1 Improve inventories and site knowledge for cultural and heritage resources.	1.1.1 Encourage proponents to provide existing and newly identified information regarding cultural and heritage resources to Nanwakolas member First Nations and local communities.	1A
	1.1.2 Undertake additional cultural and archaeological surveys and on-going research and field verification for the cultural resource validation of new and potentially new sites and/or resources.	0B
Issue 2. Potential for cultural and heritage resource based tourism opportunities.		
Objective	**Strategies**	**Code**
2.1 Increase cultural and heritage resource based tourism opportunities.	2.1.1 Review existing cultural and heritage tourism studies and develop an action plan for increasing opportunities.	2Bg
Issue 3. Human disturbance impacts on cultural and heritage resources.		
Objective	**Strategies**	**Code**
3.1 Prevent human disturbance and loss of cultural and heritage resources.	3.1.1 Prepare a joint provincial government/Nanwakolas member First Nations vulnerability assessment to identify and determine marine cultural and heritage resources with existing and potential impact from human disturbance.	1Bg
	3.1.2 Develop a joint action plan based on the above vulnerability assessment of human impacts that includes the following components: description of legislative tools and how they apply; restrictions on access and/or visitation guidelines; an efficient process for managing development where cultural or heritage resources may or are being impacted; and appropriate communications tools.	2Bg
	3.1.3 Support the inclusion of mitigation measures for potential impacts on cultural and heritage resources, for project proposals that do not meet the thresholds necessary for consideration under provincial or federal environmental assessment processes.	0A
Issue 4. Level of First Nations involvement in cultural resources management for the Plan Area.		
Objective	**Strategies**	**Code**

4.1 Increase Nanwakolas member First Nations' role in cultural resources management.	4.1.1 Establish a provincial government/Nanwakolas member First Nations agreement to address such topics as surveillance and enforcement of cultural resources in guardian/watchman programs.	2Bg
	4.1.2 Support development of Nanwakolas member First Nations guidelines for sharing information regarding cultural resources and the intended use of this information.	2B
	4.1.3 Develop a provincial government/ Nanwakolas member First Nations pilot project on the conservation and protection of cultural resources.	2Bg
	4.1.4 Support the development of guidelines between Nanwakolas member First Nations and the recreation and tourism service providers for the use and interpretation of cultural resources.	1Ag
	4.1.5 Where appropriate, use the Nanwakolas Clearinghouse as the first point of contact to pursue discussions on the development of policies and procedures relating to cultural resources.	0A
	4.1.6 Support the collaborative development of an educational strategy between Nanwakolas member First Nations and stakeholders on member First Nations culture, traditional ecological knowledge, relationship to the marine environment, and procedures. Include cross-cultural workshops and culturally appropriate information for broad distribution (such as magazines, website, and signage) to user groups and recipients of provincial tenures.	2B
Issue 5. Climate change impacts on cultural and heritage resources, and food sources.		
Objective	**Strategies**	**Code**
5.1. Address potential climate change impacts on cultural and heritage resources, and on food sources.	5.1.1 Develop action plans based on the climate change vulnerability assessment for responding to potential effects of climate change such as inundation, erosion, access limitations, on cultural and heritage resources, including food sources.	2B

4.3.6 Recreation and Tourism

Tourism is one of several key industries that support the local economy and it has potential for growth. The Plan Area provides a variety of recreation and tourism resources and products, which attract local residents, as well as regional and international visitors for self-guided and guided activities. Interest in nature based, adventure and eco-tourism continues to be strong, with an emphasis on the less physical activities. A growing interest in experience-based travel and the environment supports products that include

local cultural and heritage resources, and the natural environment. Small cruise ships such as pocket cruises can use existing infrastructure and some communities are interested in developing this sector further. While the potential for EBM based tourism in the Plan Area is high, work is needed to identify and enable local participation in the creation of viable, sustainable businesses.

Infrastructure studies indicate that lack of fueling, recreational fishing infrastructure and access to base camps are limitations in the area. In a 2005 study of the commercial nature-based tourism industry, the high level of industry regulation and the lack of long term tenure were identified by the industry as the most serious constraints to long term growth, and sector members confirm that these issues remain.

Competition for natural resources among multiple industries is also a major constraint, as is the seasonality of employment opportunities. Recreation and tourism issues generally include lack of opportunities and resources to increase economic activity and benefits to local communities. Previous studies have proposed a local tourism strategy be developed.

First Nations are seeking adequate and equitable participation in the planning, management and coordination of commercial recreation and tourism activities, in the Plan Area. Knowledge of Aboriginal tourism opportunities in BC is low, and a proportionately higher percentage (29 percent) of visitors to Aboriginal tourism sites in BC, are from overseas.

Potential effects of recreation and tourism on marine species, ecosystems and cultural and heritage resources through disturbance, pollution, and spatial conflicts with other activities have also been identified in this topic. There is a variety of legislation and a range of voluntary best practices, guidelines and codes of ethics for different recreation and tourism activities. However, concerns remain, particularly about the management of cultural and heritage resources.

It is difficult to predict changes to recreation and tourism activities that may be caused by climate change. However, increased air and water temperatures may attract more visitors for a long season. Climate change is impacting species distributions and habitat and this may result in changes to wildlife viewing opportunities. Sea level rise may lead to reduced access to or loss of infrastructure, cultural and heritage resources and natural recreation and tourism assets such as beaches and wetlands.

Issue 1. Opportunities and resources to increase economic activity and benefits to local communities.		
Objective	**Strategies**	**Code**
1.1 Maintain and increase economic opportunities and benefits from recreation and tourism for local communities.	1.1.1 Undertake a review of infrastructure, transportation, market entry and other barriers/challenges to participation in the recreation and tourism opportunities.	2Bg
	1.1.2 Identify and assess marine local and sustainable recreation and tourism expansion and development opportunities.	2Bg
	1.1.3 Work with industry and local communities to develop a pocket cruise ship attraction strategy to improve utilization of existing infrastructure.	2Bg
	1.1.4 Strengthen First Nation and local community capacity to participate in commercial recreation and tourism opportunities.	0B
	1.1.5 Review mechanisms for tourism sectors and agencies to improve industry data collection for statistics related to revenue and employment.	2B
	1.1.6 Continue management of shoreline ecosystems and viewscapes to maintain the high quality of commercial recreation and tourism experiences.	0A
Issue 2. Local and First Nations' participation in commercial marine recreation and tourism industry.		
Objective	**Strategies**	**Code**
2.1 Increase local and First Nations participation in marine recreation and tourism.	2.1.1 Work with recreation and tourism sector to identify value added opportunities for marine recreation and tourism partnerships and joint venture opportunities and encourage conditions to support these businesses.	0Bg
	2.1.2 Encourage collaboration of local and First Nations interests with existing organizations to consolidate various recreational and tourism products and experiences of the Plan Area.	0Bg
	2.1.3 Identify benefits of local participation in a variety of marine recreation and tourism products and services, using First Nation cultural components as a competitive advantage where appropriate.	0Ag
	2.1.4 Facilitate First Nation and local government involvement in the planning and	0Ag

	development of a “marine trails” network that includes sites accessible to marine public recreation users.	
	2.1.5 Facilitate the establishment of new viable and sustainable First Nations’ owned marine recreation and tourism businesses. Priorities include: Knight Inlet North (SMZ 21), Viner Sound/Shoal Bay (SMZ 17), Kalogwis (SMZ 22); Knight Inlet South (SMZ 20), Tribune/Bond (SMZ 18), Thompson Sound (SMZ 19); and Broughton (PMZ 7).	0A
Issue 3. Potential impacts on marine species, ecosystems, cultural and heritage resources.		
Objective	**Strategies**	**Code**
3.1 Minimize the adverse impacts of recreation and tourism on marine species, ecosystems, cultural and heritage resources.	3.1.1 Minimize the adverse impacts of recreation and tourism on species, ecosystems, and cultural and heritage resources through best management practices, standards and marine viewing regulations and guidelines.	0A
	3.1.2 Support the development and implementation of an action plan based on the vulnerability assessment of human impacts on cultural and heritage resources.	0A
	3.1.3 Prepare First Nations “sensitivity maps” showing areas and times of limited/restricted access to known culturally sensitive resources, and distribute to and meet with area organizations and businesses.	3Bg
	3.1.4 Investigate the establishment of a seasonal mooring buoy program based on the assessment of appropriate locations for recreational use.	2B
Issue 4. Potential impacts of climate change on recreation and tourism uses and activities.		
Objective	**Strategies**	**Code**
4.1 Increase the adaptability of recreation and tourism uses and activities to climate change.	4.1.1 Determine tourism activities vulnerable to climate change and assess new business and tourism impacts and opportunities due to climate change.	2Bg

4.3.7 Forestry Operations

The forest industry is one of several key industries that support the local economy, and access to water for log handling, storage and transportation is integral to, and critical for coastal forestry operations. The Plan Area contains numerous foreshore sites used for

handling timber harvested from adjacent watersheds, while log towing through waterways is the primary means of log transportation.

Although stringent government and industry practices are in place, potential exists for conflicts with other user groups, as well as potential for ecosystem impact through cumulative environmental effects and site-specific activities. For example, some recreation and tourism users and First Nations have concerns with timing and location of log handling sites and their impact on the natural environment as well as cultural and heritage resources. The remediation, restoration and alternative use of sites is an issue in some areas. First Nations' concerns also include their role and influence in the approval and management of new log handling and storage sites.

The provincial government has conducted a log handling site review in the Campbell River Forest District for long term log handling needs. It identifies the critical sites that need to be retained for future industry activities, in accordance with approved forest tenures and management plans. The entire Plan Area would benefit from such a review to establish a strategic network of log handling sites, and could be expanded to address associated concerns such as incompatible uses, alternate uses, cumulative effects and restoration of sites and surrounding areas.

Potential climate change impacts on forestry operations in the marine area are only now being identified and should be investigated, given the importance of these sites to the forest industry.

Issue 1. Support for, and rationalization of existing and future marine log handling facilities.		
Objective	**Strategies**	**Code**
1.1 Maintain key log handling and storage sites while providing opportunities for other users.	1.1.1 Build on existing work to prepare an inventory and assessment of log handling and storage sites that incorporates areas of First Nations importance and value such as loxiwe, as well as areas of potential importance to key marine sectors.	1Bg
	1.1.2 Use the inventory and assessment and existing tools to develop a strategic network of	2Bg

	log handling and storage sites that accommodates industry requirements while providing opportunities for sharing the site during inactive periods for other potential uses and activities, including First Nations' uses.	
	1.1.3 Consult with First Nations, local governments and key marine sectors on the strategic network prior to approval and implementation.	2A
Issue 2. Potential cumulative and site-specific impacts of forestry operations on ecosystems and cultural and heritage resources.		
Objective	**Strategies**	**Code**
2.1 Reduce impacts of forestry operations on ecosystems and cultural and heritage resources through the consideration of cumulative and site-specific impacts.	2.1.1 Ensure that the strategic network of sites minimizes adverse impacts on sensitive marine habitat, species, cultural and heritage resources and other values.	0A
	2.1.2 Review and improve (if required), with relevant agencies, best management practices regarding the introduction of debris from log handling and storage sites into the marine environment. This may include practices for debris curtains, debris monitoring, and log retention periods.	0A
	2.1.3 Review level of compliance with best management practices on debris management and develop response plan with relevant agencies where required.	0B
	2.1.4 Work with industry to investigate reduction of log transportation transit time through SARA designated critical habitat (see **Appendix A2**).	0A
Issue 3. Alternative uses of log handling and storage sites.		
Objectives	**Strategies**	**Code**
3.1 Identify log handling and storage sites for alternative uses and activities.	3.1.1 Evaluate potential for temporary alternative uses for log handling and storage sites during inactive periods.	2Bg
	3.1.2 Work with industry and government to address liability concerns related to temporary uses of log handling sites for other purposes.	2Bg
	3.1.3 Build on existing agreements to develop management provisions for resolution of temporal conflicts between log handling and storage and other marine uses and activities, including recreation and tourism, and First Nations' seasonal uses and activities.	1Bg
Issue 4. Restoration of log handling and storage sites.		
Objective	**Strategies**	**Code**
4.1 Identify log handling and storage sites for restoration.	4.1.1 Develop and implement a process for the restoration of log handling and storage sites and adjacent areas that are not included in the strategic network of log handling and storage sites.	3Bg
	4.1.2 Investigate potential funding opportunities for log handling and storage sites determined to require restoration, but which have no or insufficient cleanup bond and/or	3A

	security in place or for which the former tenure holder cannot be held liable.	
	4.1.3 Focus restoration on sites that have been identified as having significant cultural and ecological damage based on existing pollution risk assessments.	0A

1263

Issue 5. Potential impacts of climate change on forestry operations.		
Objective	**Strategies**	**Code**
5.1 Increase the adaptability of forestry operations and infrastructure to climate change.	5.1.1 Encourage industry to assess and respond to the potential impacts of climate change on forestry operations and infrastructure.	2Ag

4.3.8 Aquaculture

Aquaculture is one of several key industries that support the Plan Area economy. Finfish aquaculture is a current economic driver in the Plan Area, and Northern Vancouver Island is the most important production area of all MaPP sub-regions. However, the levels of support vary amongst First Nations and within Plan Area communities. Considerable interest and potential exists in the Plan Area for aquaculture of shellfish, plants and other invertebrate species. Integrated multi-trophic aquaculture on existing sites also has potential for increasing revenue generation through efficient use of sites, wastes and by-products, in some locations.

Fisheries and Oceans Canada regulates finfish and shellfish aquaculture as fisheries, while the provincial government regulates the cultivation of plants. For all types of aquaculture, the provincial government is responsible for site tenuring, industry development, business and labour regulation, and other matters under the Ministry of Environment. Existing aquaculture sites are subject to siting guidelines and consultation with First Nations. Local governments do not regulate or license aquaculture but some have bylaws addressing siting of aquaculture structures. Finfish site operations may also require reorientation of pens within sites.

Economic efficiency of aquaculture is crucial to sustainable industry development. In the Plan Area, siting constraints (including the provincial Discovery Islands net-pen salmon aquaculture moratorium (see **Appendix A3**)), are reducing certainty and potential for expansion. Shellfish aquaculture barriers and constraints include water temperature, a slow tenure process, turnover of

undeveloped tenures, location-based marginal cost disadvantage, economy of scale, and a lack of infrastructure, investors, product transportation and marketing capacity. However, there is suitable habitat and potential workers with transferable skills.

First Nations are seeking further involvement in aquaculture including the use of loxiwe. Branding and marketing for First Nations and local products is considered to be currently lacking although there are opportunities for niche products.

Commercial aquaculture issues include potential impact on ecosystems, economic efficiency, branding and marketing, sector opportunities and climate change impacts. Climate change will result in both positive and negative impacts on aquaculture by changing the environmental conditions that support the growth of different species.

Issue 1. Support for, integration and rationalization of existing and future aquaculture activities.		
Objective	**Strategies**	**Code**
1.1 Increase the support of existing and future ecosystem-based aquaculture activities.	1.1.1 Increase government and industry efforts to establish and implement ecosystem-based management practices for aquaculture.	0Bg
	1.1.2 Encourage research and/or pilot projects in marine plant and integrated multi-trophic aquaculture.	0B
Issue 2. Opportunities for new aquaculture industry sectors.		
Objective	**Strategies**	**Code**
2.1 Maintain local aquaculture opportunities in Plan Area.	2.1.1 Work with industry and key marine sectors to identify areas with high shellfish and other invertebrates and plants aquaculture capability for potential establishment of provincial government notations of interest.	1Bg
	2.1.2 Work with industry to identify opportunities and incentives for entrepreneurial business for aquaculture operations.	0Ag
	2.1.3 Work with relevant agencies to research new marine species that offer viable, long term, EBM based aquaculture opportunities (including but not limited to sablefish, kelp, sea cucumber and urchin production).	2A
	2.1.4 Support the termination of unused provincial shellfish tenures and their reallocation to new applicants, in accordance with the tenure provisions.	0A

Issue 3. Level of First Nations' participation in aquaculture industry sectors.		
3.1 Increase First Nation participation in new aquaculture industries.	3.1.1 Identify appropriate sites with high shellfish aquaculture capability for First Nations tenure opportunities. Priority areas are: the North Shore/Boswell Inlet (SMZ 1), Port Neville (SMZ 25), Booker Lagoon (SMZ 11) and Kalogwis (SMZ 22).	2B
	3.1.2 Initiate discussions between First Nations and the provincial government on tenuring loxiwe to the appropriate First Nation(s) for their protection for cultural and economic use by First Nations.	1Ag
	3.1.3 Encourage opportunities for First Nations' investment, partnership and participation in aquaculture activities through business planning and access to capital.	0A
3.2 Minimize the impacts of aquaculture on First Nations' traditional uses and activities.	3.2.1 Encourage tenure holders to work with First Nations to address seasonal traditional uses and activities through appropriate tenure development provisions.	0A
Issue 4. Economic efficiencies and effectiveness for the aquaculture industry.		
Objective	**Strategies**	**Code**
4.1 Improve economic efficiencies and effectiveness among aquaculture producers.	4.1.1 Encourage development of a trained labour pool and related infrastructure development, and increase industry, governments and First Nations collaboration for resourcing aquaculture production, processing, distribution and marketing.	0Ag
	4.1.2 Encourage industry to use a market-driven approach for the expansion of the shellfish industry.	0A
	4.1.3 Support the establishment of integrated shellfish businesses or cooperatives that include hatcheries, growing, processing, and distribution.	0A
Issue 5. Branding and marketing of local aquaculture products.		
Objective	**Strategies**	**Code**
5.1 Improve branding and marketing of Plan Area aquaculture products.	5.1.1 Build on existing marketing strategies for EBM based aquaculture products produced in association with existing seafood marketing organizations.	3Bg
	5.1.2 Develop branding and marketing based on EBM based products developed by First Nations.	3Bg

1287

Issue 6. Potential impacts of aquaculture on the marine ecosystem.		
Objective	**Strategies**	**Code**
6.1 Reduce potential impacts of aquaculture on marine ecosystem health.	6.1.1 Encourage development and application of technological improvements to reduce the adverse impacts of aquaculture, particularly in light of climate change.	2A
	6.1.2 Review provincial tenure policy to enhance debris management by aquaculture tenure holders to minimize off- tenure impacts. (Refer to Pollution)	2B
	6.1.3 Work with institutions and industry to develop and fund robust information and research programs including but not limited to: impact of benthic fouling, transmission of pathogens and the impact of therapeutants (vaccines, antibiotics or pesticides to combat disease or parasites).	0A
	6.1.4 Encourage industry to work with First Nations to address issues with existing siting guidelines.	3Ag
	6.1.5 Support temporal (short term or seasonal) management and/or siting adjustments to minimize interference of aquaculture sites with seasonal migration of marine species.	0A
Issue 7. Potential impacts of climate change on aquaculture.		
Objective	**Strategies**	**Code**
7.1 Anticipate and respond to potential effects of climate changes on aquaculture.	7.1.1 Work with industry and relevant government agencies to identify and assess the effects of climate change on aquaculture operations including but not limited to increases in algal blooms and disease, acidification, decreased oxygen, and sea level rise.	2Ag
	7.1.2 Evaluate potential new aquaculture opportunities and threats resulting from climate change and movement of species.	2Bg
	7.1.3 Enhance resilience of native and cultivated shellfish populations and ecosystems on which they depend.	0A

4.3.9 Energy

Mapped information for renewable energy generation is key to identifying areas of potential development both for industry development and spatial planning with other users. However, there is a lack of current information on potential energy sites.

Tidal and wave energy generation is relatively new in BC, with few pilot projects in place. Wind energy development is taking place on land but there are currently no offshore wind energy projects in operation. There is a public interest in learning from experiences in other parts of the world and understanding the technologies and ecological implications of renewable energy.

The 2007 BC Energy Plan encourages renewable energy projects through providing information relevant to pre-engineering projects, and addresses development plans, pricing, electricity purchase agreements and applications for remote communities or small-scale projects. Some small off-grid communities have been supported by BC Hydro's Remote Community Electrification Program, however, no new projects are being developed at this time. The Remote Community Implementation Program managed by the Fraser Basin Council is meant to complement other programs with mentorship and funding. An interest exists in increasing renewable energy generation in the Plan Area, as well as increasing community participation in and benefit from local projects.

The use of renewable energy is viewed as a way to reduce greenhouse gas emissions when used to directly displace non-renewable sources (about 10 percent of BC's current supply), or if used to meet future increased energy demands. In remote marine communities dependent on diesel generators, smaller scale technologies including tidal could eventually supply electricity and reduce greenhouse gas production where conditions are appropriate. However, like other sectors, renewable energy generation technology and infrastructure will also need to be adaptable to climate change.

Issue 1. Opportunities for renewable energy generation development.		
Objective	**Strategies**	**Code**
1.1 Encourage new and maintain opportunities for renewable energy generation in high potential locations.	1.1.1 Work with industry to improve inventory of areas of high marine renewable energy generation potential.	3Ag
	1.1.2 Utilize appropriate designation tools to maintain industry access to areas of high potential for renewable energy generation, such as: notations of interest or other designations.	0A

Issue 2. Common understanding of renewable energy technology.		
Objective	**Strategies**	**Code**
2.1 Improve the common understanding of renewable energy technology.	2.1.1 Work with industry to develop information programs, workshops and education sessions on the implications of renewable energy technologies.	2Bg
	2.1.2 Implement information programs, workshops and education sessions with First Nations and local communities in areas with high potential for renewable energy generation development.	3Bg
Issue 3. Benefits and impacts from renewable energy generation projects.		
Objective	**Strategies**	**Code**
3.1 Increase benefits and reduce adverse impacts from renewable energy generation projects.	3.1.1 Undertake a review of barriers and challenges to local community and First Nations participation in the renewable energy sector.	3B
	3.1.2 Ensure or require local and First Nations partnerships, interests, and benefits from renewable energy generation projects.	0A
	3.1.3 Encourage collaboration between proponents and communities (including First Nations) in design and development of renewable energy generation projects.	0A
	3.1.4 Investigate funding sources and opportunities to support local and First Nations participation in renewable energy generation development.	3A
	3.1.5 Work with industry and BC Hydro to transition diesel dependent communities (including First Nations) to renewable energy, in areas of high renewable energy potential.	3Bg
	3.1.6 Ensure that the assessment of renewable energy generation projects includes consideration of impacts on ecosystems and other uses and activities particularly fisheries and recreation activities.	0A
	3.1.7 Continue to promote energy conservation programs and measures to minimize the contribution of energy development projects to climate change and pollution.	0A
Issue 4. Impacts of climate change on energy generation and related infrastructure.		
Objective	**Strategies**	**Code**
4.1 Minimize climate change impacts on energy generation and related infrastructure.	4.1.1 Encourage the use of local, traditional and scientific knowledge of observed and predicted climate change in the assessment of renewable energy generation projects.	0A
	4.1.2 Encourage industry to assess and respond to the potential impacts of climate change on renewable energy operations and infrastructure.	0A

1306

4.3.10 Fishery Economy and Associated Values

Commercial and recreational fisheries are key industries that support the Plan Area economy as well as First Nations social and cultural practices. Fisheries are an integral part of coastal communities as recognised in the United Nations Convention on the Law of the Sea agreement ratified by Canada, and are also the base of First Nations' food, social and ceremonial practices. Access to marine space to pursue fisheries is an important factor for maintaining this industry and First Nations' practices.

Declines in some stocks and changing management have resulted in diversification of species harvested, and an overall decrease in the size of the commercial fishing industry. From 1994 to 2002 a large number of coastal fishery licences were retired, as evidenced by a substantial drop in licences held in the Plan Area, particularly by fishers based in Port Hardy (over 50 percent). The number of people making a living off of fishing decreased quickly in a short period. There is also a lack of Nanwakolas First Nations ownership and participation in the commercial fishery, in 2007 to 2009 the member nations had less than a one percent share of the provincial average landed value. Maintaining this core industry and local participation is an issue, along with sufficient infrastructure.

Effective processing, marketing and branding of local fisheries products are important to maintaining the fishing industry. Certification of sustainable fisheries is important for maintaining access to markets and is a marketing tool in fisheries. Internationally, Canada has many certified fisheries and is trusted for health, safety and quality in food products and a national traceability network is in the works, which may increase the potential for international market share. Sustainable food trends and local uniqueness may also benefit niche market developments such as First Nations products.

The number of recreational tidal (salt) water licences have declined, although days fished per angler has stayed stable since 1995. Recreational fisheries remain popular with local residents, but similar to other areas of tourism, visitor numbers have declined. Nevertheless, recreational fishing accounts for 40 percent of the economic contribution of BC's fishing sector (aquaculture,

commercial and recreational). The Plan Area has a solid reputation for recreational fishing products and experiences to build a local marketing program around.

The FSC fishery is and will continue to be important for First Nations both for harvesting and sharing and for value as a food source. Access to these resources can be affected by other users and tenures.

Fisheries can have an impact on the environment and resources. However, the Plan seeks to support new and existing provincial programs and regulations with the purpose of restoring marine habitats, and increasing compliance with regulations. With climate change, flexibility in fishing fleets will be important to respond to the northerly movement of species, which may reduce or change the opportunities for existing fisheries. New fisheries may also develop with species movement or changes in consumer preferences. Changes in sea level, storm frequency and intensity have the potential to impact docking and processing infrastructure within risk areas.

Issue 1. Support for existing and future fisheries in adjacent coastal communities.		
Objective	**Strategies**	**Code**
1.1 Maintain support for the fisheries economy as a mainstay of adjacent coastal communities.	1.1.1 Increase local resident and First Nations' involvement in and benefit from commercial and recreational fisheries through offloading, processing and guiding.	0A
	1.1.2 Work with relevant agencies to investigate the feasibility of establishing new fisheries related economic opportunities. Priority areas include Port Neville (SMZ 25) and Loughborough Inlet/Matlaten/Stafford/Apple River (SMZ 29).	0B
Issue 2. Coordination and effective processing and marketing of BC fisheries products and experiences.		
Objective	**Strategies**	**Code**
2.1 Coordinate the effective processing and marketing for BC fisheries products and experiences.	2.1.1 Support opportunities for local and First Nations investment, partnership and participation in sustainable BC seafood processing activities and operations.	0A
	2.1.2 Facilitate a First Nations' based marketing strategy that includes certification by an independent body.	3B
	2.1.3 Work with recreational fishing services to facilitate a recreational fisheries marketing	3Bg

	program for the Plan Area.	
Issue 3. Maintaining fisheries as the base of First Nations' food, social and ceremonial (FSC) practices.		
Objective	**Strategies**	**Code**
3.1 Utilize available and new tools to reinforce the importance of the First Nations' FSC fishery.	3.1.1 Support First Nations' monitoring of marine activities as they relate to continued FSC uses.	0A
	3.1.2 Encourage agreements between tenure holders and commercial and recreational fishing service operators with First Nations on seasonal access to provincial tenured areas that are traditionally used for FSC purposes, through such venues as sector workshops.	0Ag
Issue 4. Environmental impacts of fishery activities.		
Objective	**Strategies**	**Code**
4.1 Reduce the ecological impacts of commercial and recreational fisheries.	4.1.1 Support sustainable fisheries practices such as existing voluntary sustainability initiatives.	0A
	4.1.2 Continue to support rockfish conservation initiatives. A Priority Area is Kalogwis (SMZ 22).	0A
	4.1.3 Encourage compliance through existing and new monitoring programs, information and education.	0A
Issue 5. Deterioration and loss of fisheries habitat and species.		
Objective	**Strategies**	Code
5.1 Maintain and enhance species and habitat for sustainable fisheries.	5.1.1 Continue to use and support provincial programs, and regulations to maintain, protect and rebuild salmon, eulachon, herring, rockfish and shellfish populations, as well as key habitat, such kelp beds, eelgrass and estuaries. Priorities include: partnerships with Da'naxda'xw/Awaetlala for enhancement of pink salmon in Glendale Cove (Knight Inlet South SMZ 20); Da'naxda'xw/Awaetlala led projects for research and restoration of eulachon stocks (Knight Inlet North SMZ 21); Wei Wai Kum salmon habitat restoration (Loughborough Inlet/Matlaten/Stafford/Apple SMZ 29; Hardy Bay SMZ 8); and for salmon habitat in Coho Creek (Ba'as/Blunden Harbour PMZ 9).	0A

1336

Issue 6. Impacts of climate change on fisheries infrastructure and processing.		
Objective	**Strategies**	**Code**
6.1 Ensure that fisheries infrastructure, and processing facilities are capable of responding to climate change implications.	6.1.1 Encourage processors to work with harvesters to evaluate the ability of processing infrastructure to be altered in response to changes in species and timing of harvests.	3Bg
	6.1.2 Incorporate changes in sea level, storm frequency and intensity in designing fisheries infrastructure within areas identified in vulnerability assessments as high risk.	3A

4.3.11 Governance and Collaborative Management

Governance is critical to the implementation of an EBM approach and the success of the Plan. Governance and collaborative management issues are related to a lack of "process" understanding, including: decision making, transparency and accountability, appeal processes, and jurisdictional overlap; inclusion of local residents in management and planning; and adaptation to climate change.

Due to the complexity of jurisdictions and some deficiencies with interaction with First Nations, the public and sectors, there is a lack of understanding of processes. In some circumstances, this includes a concern with the ability of First Nations, the public and sectors to provide input into marine management.

As a result of various court decisions, management agreements and the provincial government policy on land use planning, greater collaboration between the provincial government and First Nations is occurring. This reflects the broader trend in government-to-government planning in BC. In some respects, this collaboration reflects a strengthening of the role of local interests in resource management, and there is an opportunity to continue to improve relationships between First Nations and other levels of government.

While the marine environment is changing in response to climate change, there is some concern that legislation, regulation and policies may prevent or discourage adaptation.

Issue 1. Understanding of decision making and appeal processes for marine uses and activities.		
Objective	**Strategies**	**Code**
1.1 Improve understanding of marine governance processes.	1.1.1 Review adequacy of existing information and communication materials regarding marine governance and jurisdiction for various government agencies and First Nations.	2Bg
	1.1.2 Develop and/or improve information access and education on marine governance and jurisdiction.	2Bg
Issue 2. Adequacy of First Nation, local resident, local government, and stakeholder participation in marine resource management.		
Objective	**Strategies**	**Code**
2.1 Increase the participation of First Nations, local residents, local government and stakeholders in marine resource management.	2.1.1 Increase opportunities for First Nations, local residents, local governments, and stakeholders to provide advice on marine management decisions.	0Bg
	2.1.2 Increase the First Nation, local residents, local government and stakeholder participation in management and development plans including planning priorities.	0Bg
	2.1.3 Develop collaborative management agreements between First Nations and the provincial government on marine management under provincial jurisdiction.	0Bg
	2.1.4 Review tenure policy for opportunities to increase local governments and existing tenure holders' input into decisions on new tenures and renewals.	1A
	2.1.5 Increase opportunities for First Nations collaborative management in environmental assessment processes.	2Ag
Issue 3. Working relationships between First Nations and local governments.		
Objectives	**Strategies**	**Code**
3.1 Improve relationships and communications between First Nations and local governments.	3.1.1 Encourage development agreements between First Nations and local governments.	0Ag
	3.1.2 Review and increase the effectiveness of existing agreements between First Nations and local governments.	0Ag

Issue 4. Legislation, regulations and policy constraints on adaptation to climate change.		
Objectives	**Strategies**	**Code**
4.1 Improve legislation, regulations and policies related to climate change adaptation.	4.1.1 Work with relevant agencies to review and revise existing legislation, regulations and policies (where appropriate) to address identified constraints on the adaptability of marine uses and activities to climate change.	2Bg
	4.1.2 Encourage more effective collaboration among First Nations and government agencies regarding the incorporation of climate change implications on tenure decisions related to infrastructure development.	0Ag
	4.1.3 Identify the adaptability of current management practices (including tenure referrals and modification) of marine uses and activities to climate change, and methods of monitoring adaptability.	2Bg

4.3.12 Regulatory Compliance and Enforcement

The primary issue for compliance and enforcement of uses and activities is the lack of resources for on-the-water presence. Compliance and enforcement activities are challenging to conduct is some parts of the Plan Area, largely because of the size of the area and its remoteness. Surveillance costs are high and staff from appropriate government agencies lack the resources required for conducting frequent patrols. However, advancements in technology have also led to new methods of compliance and enforcement monitoring.

Some marine based industries are required to undertake rigorous monitoring and accountability programs by the regulatory agency. In some instances the provincial government is relying on a professional accountability model.

First Nations' hereditary responsibility as stewards of their traditional territories makes them most likely to be in the areas where activities occur, but the Nations generally lack resources to monitor, and the legal mandate to enforce.

Issue 1. Capacity for on-the-water surveillance, compliance and enforcement.		
Objective	**Strategies**	**Code**
1.1 Improve capacity for on-the-water surveillance, compliance and enforcement activities.	1.1.1 Jointly explore funding sources, new opportunities, and the use of new technologies with appropriate government agencies and local marine surveillance and enforcement programs.	0Bg
	1.1.2 Coordinate training for marine surveillance and enforcement with relevant agencies and organizations.	2Bg
	1.1.3 Promote and/or renew existing, and investigate potential new local educational opportunities (e.g., Lighthouse keepers, StraitWatch) for cultural and heritage resources and ecological disturbances, including wildlife and pollution incidents.	2Bg
	1.1.4 Assess the adequacy of existing programs and regulations and work within agency and organization mandates to establish partnership agreement(s) for efficient and effective use of local surveillance and enforcement personnel and equipment.	2Bg
	1.1.5 Assess provincial cultural and heritage resources conservation and protection regulations and policy for potential improvement to surveillance and enforcement requirements.	2Bg
Issue 2. First Nations' role in on-the-water monitoring, surveillance, and enforcement within existing regulatory regimes.		
Objective	**Strategies**	**Code**
2.1 Increase and enhance First Nations' role in on-the-water monitoring, surveillance, and enforcement within existing regulatory regimes.	2.1.1 Work with relevant government agencies to identify opportunities where guardian/watchmen could participate in the surveillance and enforcement of marine regulations.	1Bg
	2.1.2 Increase the use of the guardian/watchmen program to assist with compliance with tenure provisions, marine plans and existing regulations. This could include, but is not limited to: ecological monitoring, conservancies and protected areas; marine oil spill response; cultural and heritage resources, and related early warning systems.	2Bg
	2.1.3 Identify opportunities for use of the guardian/watchman program to participate in surveillance of unregulated activities such as public recreation and tourism.	2Bg
	2.1.4 Identify funding and resource opportunities for enabling First Nations' involvement in the guardian/ watchman program.	2Bg

1364

4.3.13 Research, Education and Training

Support for a robust marine research program in BC, and inclusion of First Nations and addressing ecosystem-based management knowledge gaps are identified issues in this area. Research is conducted by a variety of organisations including universities and colleges, governments, industry and non-profit groups. This diversity of groups, combined with lack of consistent, long term funding makes coordination of research a challenge.

Traditional and local knowledge are now being seen as legitimate and necessary contributing sources to research, management and policy decisions, although they are subject to constraints associated with funding and for input mechanisms. The integration of traditional and local knowledge in research and education has been increasing and is expected to continue to increase. There is a need for more involvement and capacity for First Nations' participation in research, adaptive planning and decision making.

Coordinated research and education programs are needed to ensure effective planning and management and to enable community members to gain skills needed to work in and enhance businesses in the marine based economy. The 2010 North Island Coordinated Workforce Strategy also identified workforce gaps related to employer engagement and capacity, education and training delivery, coordination, First Nations, those under-represented in the workforce and funding. Due to the small population it is a challenge to find skilled workers and it is also a challenge to have enough students to provide skills training. Although employers have identified that they are dissatisfied with local training opportunities, there has also been a lack of employer participation in coordinating training opportunities. Furthermore education can support the understanding of the marine environment and encourage compliance with regulations.

There are also research gaps in a number of important areas, including ecosystem functioning and monitoring of ecosystem health. Addressing these areas would provide greater opportunity for the application of adaptive management to allocation decision making

and planning for operations and activities. In 2009, the Pacific Marine Analysis and Research Association (PACMARA) developed a summary of identified data and information gaps and uncertainties that can limit the ability to implement EBM in BC. The five main topic areas identified were biodiversity, habitat, ecological functions, human activities and their resulting stressors.

Climate change may also have consequences and increase the threat on ecosystems, and there is presently very limited public understanding of the implications of these effects on the Plan Area.

Issue 1. Robustness of marine research program strategy.		
Objective	**Strategies**	**Code**
1.1 Increase support for a robust marine research program strategy in BC.	1.1.1 Support independent, government, industry and academic funding and collaboration for development of a marine research program strategy, consistent with a national research strategy. Include priority topics such as thresholds for pollutants, long-term marine ecosystem health assessments, impact of light pollution on seabirds and other species, climate change, and analysis of existing data sets.	0Ag
	1.1.2 Work with organizations, institutions, industry and governments to develop robust and objective baseline research and monitoring programs.	0Bg
	1.1.3 Provide local opportunities for hands-on and applied research training.	0Bg
	1.1.4 Connect existing resources, such as staffed lighthouses, research stations, volunteer organizations, and businesses in remote areas, to marine research programs.	0Ag
	1.1.5 Coordinate research and study efforts with other MaPP sub-regions for topics of common interest.	0Bg
Issue 2. Adequacy of First Nations' participation in marine research.		
Objective	**Strategies**	**Code**
2.1 Increase participation of First Nations' in marine research.	2.1.1 Investigate grants and funding sources for increasing research by member First Nations on marine ecosystems, including improved inventories of traditional ecological knowledge.	2B
	2.1.2 Develop programs to increase First Nations' information collection through partnerships with institutions, industry and governments.	2Bg
	2.1.3 Encourage research institutions and industry to utilize First Nations in conducting research programs.	0Ag

Issue 3. Adequacy of marine training and education programs.		
Objectives	**Strategies**	**Code**
3.1 Increase opportunities for apprenticeships, co-op programs, internships, secondary school partnerships, and workforce training or retraining.	3.1.1 Work with existing regional and local committees to identify and address gaps in training and establish programs to educate community youth on opportunities for marine sector employment training.	2Bg
	3.1.2 Increase multi-sector cooperation to create critical mass for training opportunities for mutual certifications.	2Ag
	3.1.3 Evaluate current human resource needs and future sector growth as the basis for training programs.	2Bg
	3.1.4 Encourage training and hiring of local residents for jobs in the marine economic sectors.	0A
3.2 Increase understanding of the marine environment and regulations.	3.2.1 Develop or expand education and awareness programs for prevention, regulatory compliance, restoration and recovery programs (e.g., Straitwatch, Observe Record Report, Marine Mammal Incident reporting).	0B
Issue 4. Common understanding of marine ecosystems.		
Objective	**Strategies**	**Code**
4.1 Address identified research gaps regarding marine ecosystems for implementing EBM in BC.	4.1.1 Collaborate with research agencies, organizations and universities to reassess status of research gaps and existing resources for EBM and create an implementation plan to address opportunities.	3Bg
	4.1.2 Design monitoring and research programs to answer specific technical or management questions using appropriate government and/or academic standards. A priority area is the Port Hardy SMZ Community Area.	0A
	4.1.3 Encourage the timely provision of monitoring data, collected by government as a requirement of tenures, to non-government researchers.	0A
	4.1.4 Identify marine species and ecosystem research priorities through the provincial Conservation Framework	0A
4.2 Potential detrimental impacts of research on habitats and species.	4.2.1 Avoid destructive methods in research programs.	0A
	4.2.2 Consider cumulative effects in research program design.	0A

1390

4.3 Improve understanding of the marine ecosystem functions and dynamics.	4.3.1 Collaboratively develop and make available education materials to improve public understanding of, and caring for, marine cultural, heritage, and ecological resources.	2Bg
	4.3.2 Identify areas for research and education purposes.	2Bg
	4.3.3 Provide and increase awareness of opportunities for stewardship involving education, restoration, and monitoring.	2Bg
	4.3.4 Support the development and use of a common marine biogeographic classification system.	0Ag
Issue 5. Understanding of climate change effects on oceans.		
Objectives	**Strategies**	**Code**
5.1 Improve understanding of the effects of climate change on marine resources and environment.	5.1.1. Increase public awareness of climate change and future impacts through existing community outreach and public education initiatives.	2Bg
	5.1.2 Gather traditional, local, industry (e.g., aquaculture) and scientific knowledge of climate change (e.g., flooding, severe marine storms, acidification), to better understand the potential impacts of climate change and develop response or adaptation measures.	3Bg
	5.1.3 Using the preliminary climate change vulnerability assessment, and other resources prepare a climate change vulnerability assessment for the Plan Area to identify priority areas and issues, including protection of ecosystems, cultural and heritage resources, economic risks and opportunities, community infrastructure impacts, and community design/planning.	3Bg
	5.1.4 Improve research programs to inform understanding of climatic and oceanographic dynamics, ecological responses to climate change and potential climate refugia.	3B

1391

1392

CHAPTER 5: AREA SPECIFIC MANAGEMENT DIRECTION

5.1 Purpose of Area Specific Management Direction

This Chapter identifies specific spatial zones and associated recommendations for marine uses and activities in the Plan Area. Zones and recommendations are intended to guide provincial government and First Nations decision makers in determining their support for uses, activities and project proposals regulated by the provincial government. This Chapter is also intended to assist stakeholder groups, industry and the general public in accessing and using marine space and resources.

The zoning direction assists in determining areas that may contribute to both North Vancouver Island and regional marine protection networks, as well as in identifying the areas where area specific management provisions and conditions are to be applied.

Information related to activities primarily under federal government jurisdiction, was considered in the development of these zones, but the Plan acknowledges additional steps will be needed to consider implications of some of the plan zones, including socio-economic analyses and conflict resolution mechanisms.

5.2 Marine Zoning System

5.2.1 Framework and Approach

The Plan adheres to the MaPP Regional Zoning approach, by allocating marine space into three broad zones: General Management Zone (GMZ), Special Management Zone (SMZ), and Protection Management Zone (PMZ). Proposed and legally designated provincial government marine parks, conservancies and ecological reserves are also shown in **Figure 5** in detail, and in **Figure 7** with the zones. The zoning designations apply to the entire water surface, water column and seabed, and are not intended to include layered or overlapping zones. Zoning is intended to reduce present and potential conflicts amongst uses and activities, provide business and

user group certainty, improve efficiency in permitting decisions, provide potential candidates for a regional Marine Protected Areas Network, and provide general guidance for resource managers. Zones are not intended to be exclusive for any one use or activity.

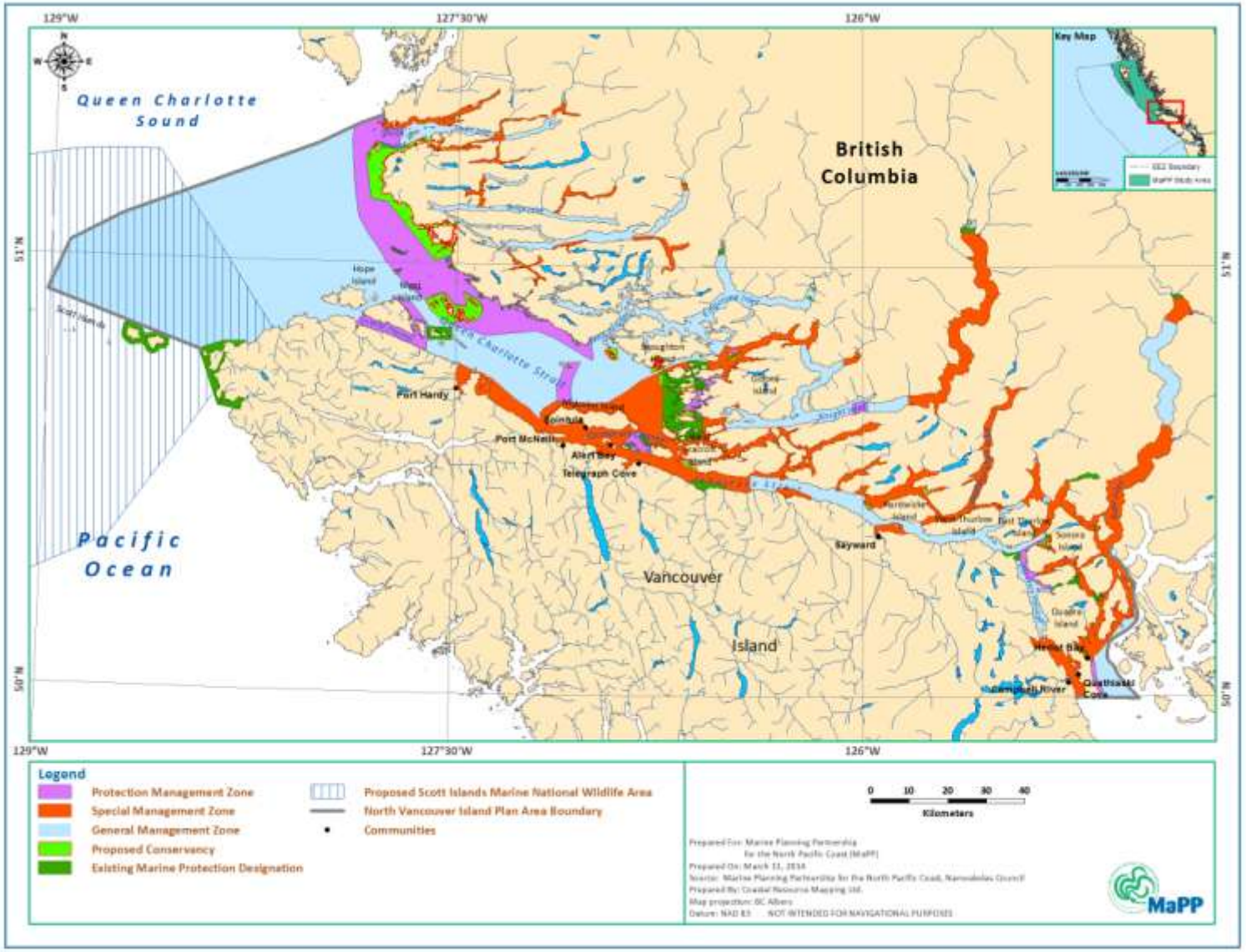
The allocation of marine space to specific zones was done through a sequence of steps involving review and assessment of existing marine and coastal plans, local government zoning, mapped information, and local knowledge. Decision support tools were used throughout this process. More information on the steps involved can be found in **Chapter 3.**

5.2.2 Plan Zones

Marine spatial zones for the Plan Area are shown in **Figure 7** below.

The General Management Zone represents a single zone designation with standard provisions, conditions and recommended uses in the Plan Area. The GMZ includes areas that have no known conflicts between ecosystem and human use values that require special designation at this time. Approximately 45.2 percent of the Plan Area is designated as GMZ.

The Special Management Zone consists of a single zone representing potentially compatible and co-existing uses, activities, values and interests. The SMZ is assigned to management emphasis areas intended to strengthen, encourage and/ or maintain opportunities for important existing values, uses or activities associated with local communities, First Nations, and marine economic sectors related to the area emphasis. Approximately 21.5 percent of the Plan Area is designated as SMZ.



1426 *Figure 7: Plan Area Zoning Designations*

The Protection Management Zone is allocated to ten specific geographic areas, each of which is generally associated with management categories and allowable use recommendations of the International Union for Conservation of Nature (IUCN). **Appendix D1** provides more information on the IUCN categories. Formal designation of PMZ Areas in the future may include a variety of different governance tools. Some PMZ Areas may be advanced for consideration as part of the Canada-BC Marine Protected Area Network Strategy. These combined PMZ areas cover approximately 10.3 percent of the Plan Area, and are in addition to the existing and proposed provincial marine protection area designations and the proposed federal Scott Islands Marine National Wildlife Area, which cover 23 percent of the Plan Area.

5.3 Uses and Activities System

Recommendations are made in the Plan Area for a consistent set of uses and activities appropriate to the sub-regional planning scale and to the limits of provincial jurisdiction. These uses and activities are defined in **Table 9** below, and are focused on those requiring provincial government authorization or tenure. The list also includes other key marine uses and activities in the Plan Area.

Table 9: List and Definitions of Marine Uses and Activities addressed in Plan

Marine Use/Activity	Description
Bottom Aquaculture (Sites) - Shellfish, Other Invertebrates, Marine Plants	Cultivation and harvesting of shellfish, other invertebrates and marine plants for commercial purposes. Culture activity takes place on the sea floor and/or between the high water mark and the low water mark in a natural or manufactured environment. Includes associated physical structures such as rock walls, fencing and anti-predator netting. (Note: Also includes associated licensing for plants.)
Off Bottom Aquaculture (Sites) - Shellfish, Other Invertebrates, Marine Plants	Cultivation and harvesting of shellfish, other invertebrates and marine plants, for commercial purposes. Culture activity takes place on the surface or within the water column using grow-out structures such as bags, nets, strings, trays or tubes suspended from longlines or rafts anchored to the seabed. Includes associated physical structures. (Note: Also includes associated licensing for plants.)

Off Bottom Aquaculture (Sites) – Finfish	Cultivation and harvesting of finfish for commercial purposes. Culture activity takes place on the surface or within the water column using net cages anchored to the seabed or closed pens. Includes associated physical structures such as anchor blocks, feed barges and sheds, float homes for accommodation, navigational markers, net storage, and mooring lines.
Renewable Energy Generation	Energy generation from wave, wind, tidal and/or other renewable marine sources. Includes facilities and infrastructure such as generation structures fixed or anchored to the seabed or foreshore, accommodation, and industrial facilities such as maintenance buildings. Does not include transmission or distribution lines on land or in the sea, which fall under the definition of linear utilities.
Forestry Operations	Marine operations associated with deposition, sorting, and processing of harvested timber. Includes related facilities and infrastructure, log dumps, log sorts, heli-log drop sites, as well as physical structures such as anchor devices, fill, pilings, permanent ways or ramps, and accommodation.
Mining Operations	Marine operations associated with extracting of minerals, sand and gravel from foreshore, nearshore and offshore areas, as well as related facilities and infrastructure. Does not include wharves or docks used for loading and transport of mined products from upland mining operations as these fall under Level 2 docks..
Commercial & Recreational Anchorage	A natural sheltered area or harbour used for temporary and untenured public or commercial boat anchorage (Note: Anchorage restrictions do not apply to commercial towboat reserves and provincially designated boat havens, nor do they apply to vessels in distress or other emergency situations).
Level 1 Docks, Wharves & Facilities	Facilities designed to accommodate commercial, community, public or private marine use. Facilities generally do not include a concentration of marine services. Includes private and public moorage facilities, commercial and community boat ramps, docks associated with upland lodges and base camps, boat haul-outs, and associated structures such as boat lifts and anchor lines. Permanently affixed to foreshore or seabed.
Level 2 Docks, Wharves & Facilities	Facilities designed to attract and accommodate commercial vessels or ships, or multiple vessels for commercial, industrial, community, public or private marine uses. Includes docks, wharves, piers, ramps, breakwaters, and related structures in harbours, marinas and ferry terminals, and associated marine services (e.g., ways, repairs, food services, pump-out sites, fuel). Structures may be affixed to foreshore and seabed through pilings or floats, or involve foreshore fill. Includes commercial ports.
Float Homes	Structures built on a flotation system, which are used for permanent or seasonal residential habitation and not intended for navigation or as a navigational craft. Does not include floating structures used for commercial purposes (e.g. Accommodation for workers).

Floating Lodges	Floating structures and facilities used for accommodation associated with commercial tourism operations, including floating lodges or "mother-ships" moored on the seabed. May include access to camps on adjacent upland. Does not include pocket cruisers, or private commercial tourism vessels.
Commercial Recreation & Tourism	Non-extractive commercial recreation involving a paid service component such as crewed boats, guiding and interpretation, cultural tourism to interpret cultural resources, nature-based adventure and ecotourism.
Public Recreation & Tourism	Non-extractive self-guided uses and activities include birding, boating, jet skiing, kayak staging and landing areas, motor boating, sailing, scuba diving, snorkelling, stand up paddle boarding, surfing, swimming, temporary anchorage, water skiing, whale watching, wildlife viewing, and windsurfing. Public recreation does not involve a paid service component.
Research	Activities designed to establish or expand knowledge of the marine environment and undertaken by educational institutions, research institutions, surveyors, research companies or consultants. Also includes citizen science, non-profit activities, and locally based research and monitoring activities.
Linear & Point-Source Utilities	Underwater lines and structures including, but not limited to, those used for flow, transit, distribution or broadcast of water, electricity, and telecommunication services for public and/or private purposes. Generally on or under the seabed or anchored to the seabed, but may also be suspended in the water column. Includes associated rights of way. Includes associated infrastructure and rights of way.Point-source utilities are outfalls and discharge points including, but not limited to, those used for sewage, wastewater, and stormwater for public, private, commercial and/or industrial purposes

A three-level code is applied to zones and emphasis areas to indicate level of recommended support for potential uses and activities. The code reflects the degree of support for the acceptance and processing of any application or authorization that is required by the provincial government for that use, including referral to First Nations and to local government. Uses may be acceptable (A), not acceptable (N), or conditionally acceptable (C). Where conditionally acceptable (C), the Plan identifies special area based Plan conditions that should be met before the use will be accepted for further review and consideration. The table recommendations do not alter existing tenure application referral obligations.

5.4 General Management Zone (GMZ)

The **Management Intent** for the GMZ is general ecosystem-based management for a wide range of co-existing, compatible and sustainable marine uses and activities associated with public, private and community uses.

Table 10: General Provisions in the General Management Zone

The objectives and strategies found in the Plan Area Management Direction of this Plan are applicable to the GMZ, in addition to standard best management practices and tenure policies and provisions.
First Nations' marine resource use, including uses for food, social and ceremonial purposes (FSC), continues in the GMZ in accordance with legal obligations and government policies.
All proposed uses and activities in the GMZ should address legal obligations and relevant interests of First Nations.
All proposed tenured activities should minimize impact on critical habitat for northern resident killer whales, (see **Appendix A2**), and listed species within the GMZ.
Proposals for uses and activities within the GMZ should be accompanied by information on potential adverse site specific effects on seasonal migration of marine species.
The appropriate government protected area management agency should be included in the referral of applications for uses and activities immediately adjacent to an existing protected area.
All proposed development or disturbance activities within or adjacent to estuaries or lagoons within the GMZ should be planned and managed to avoid negative impact on ecological function and the habitat they provide for key species.
Existing tenured uses and activities identified as conditional (C) may continue unless the tenure is abandoned or expires.
Applications for tenures in the GMZ should be referred to the local government.
All proposed uses and activities in the GMZ should be in accordance with local government by-laws and zoning.
Where a use/activity is under federal jurisdiction (e.g., commercial and recreational fisheries, and transportation – including log transport & navigation), that use/activity is assumed to be acceptable subject to adherence to requirements of the responsible federal department(s).

Table 11: Recommended Uses and Activities for the General Management Zone (GMZ)

Marine Use/Activity	Recommendation
Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	**A**
Off Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	**A**
Off Bottom Aquaculture (Sites)- Finfish	**C**
Renewable Energy Generation	**A**
Forestry Operations	**A**
Mining Operations	**A**
Commercial & Recreational Anchorage	**A**
Level 1 Docks, Wharves & Facilities	**A**
Level 2 Docks, Wharves & Facilities	**A**
Float Homes	**C**
Floating Lodges	**A**
Commercial Recreation & Tourism	**A**
Public Recreation & Tourism	**A**
Research	**A**
Linear & Point-Source Utilities	**A**

A	Uses and activities are considered acceptable subject to all existing legislation, policy and relevant agreements. Acceptability of any use/activities does not guarantee that a use/activity will be approved by the appropriate management body(ies).
C	Uses and activities are considered conditionally acceptable subject to all existing legislation, policy and relevant agreements; and provided they are consistent with (adhere to) the plan conditions. Conditional acceptability of any use/activities does not guarantee that a use/activity will be approved by the appropriate management body(ies).
N	Uses and activities are considered not acceptable and should not be approved by the appropriate management body(ies).

Where a use/activity is outside provincial regulatory authority, the approval of that use/activity is subject to the decision-making process (es) of the responsible authorities. Absence of a use/activity in this table does not imply that the use/activity was not considered or evaluated in the above recommendations or is of no interest.

Table 12: Area-Based Conditions for the General Management Zone for Conditional Uses and Activities

Marine Use/Activity	Area-Based Conditions
Off Bottom Aquaculture Sites-Finfish	***All GMZ Areas:*** *address the interests of the First Nation(s) in whose territory the application is proposed; and the site location being outside the provincial Discovery Islands net-pen salmon aquaculture moratorium (see* ***Appendix A3****).*
Float Homes	***All GMZ Areas:*** *should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws; and be in compliance with the provincial government Residential and Float Home Community policies.*

5.5 Special Management Zone (SMZ)

The **Management Intent** for the SMZ is ecosystem-based management of potentially compatible and co-existing uses, activities, values and interests. SMZ areas are assigned a **management emphasis** intended to strengthen, encourage and/ or maintain opportunities for important existing values, uses or activities associated with local communities, First Nations, and marine economic sectors related to the area emphasis.

SMZ Community Emphasis Areas are intended to reinforce their value for seasonal and year-round uses and activities associated with, required by, and primarily dictated by, adjacent, or nearby communities. The uses and activities in SMZ Community Emphasis Areas should be consistent and compatible with these community uses and activities.

SMZ Recreation/Tourism Emphasis Areas are intended to reinforce their high value to existing commercial tourism operations, particularly during the months of late May to early October. Other uses and activities in SMZ Recreation/Tourism Emphasis Areas should minimize interference with recreation and tourism access to launch, landing, camping, mooring and diving sites.

SMZ Shellfish Aquaculture Emphasis Areas are intended to reinforce interest by First Nations in investigation and (if feasible) the development of bottom and off-bottom shellfish aquaculture operations. These areas may be associated with integrated multi-trophic aquaculture, including other invertebrate species and plants. Other uses and activities in SMZ Shellfish Aquaculture Emphasis Areas should minimize loss of areas with high aquaculture capability, and minimize potential adverse impacts on shellfish operations and ecological requirements.

SMZ Cultural/Economic Emphasis Areas are intended to reinforce their high value to First Nations, on a seasonal and year-round basis, for cultural value protection, Aboriginal economic development opportunities, and food security. This value includes continued First Nation's marine resource use and access to cultural resources, especially those for spiritual, social, food and marine plant fibre harvest, educational and ceremonial purposes. Uses and activities in SMZ Cultural/Economic Emphasis Areas should minimize interference with, or loss of, cultural resources and aboriginal economic opportunities.

A total of 21 percent of the Plan Area is in SMZ. Community Emphasis areas comprise approximately 3 percent (5 areas), Recreation/Tourism Emphasis areas 11 percent (11 areas), Shellfish Aquaculture Emphasis areas 2 percent (4 areas), and Cultural/Economic Emphasis Areas approximately 6 percent (18 areas) of the total Plan Area. Specific geographic areas in the Special Management Zone are identified in **Table 13** below and shown in **Figure 8**.

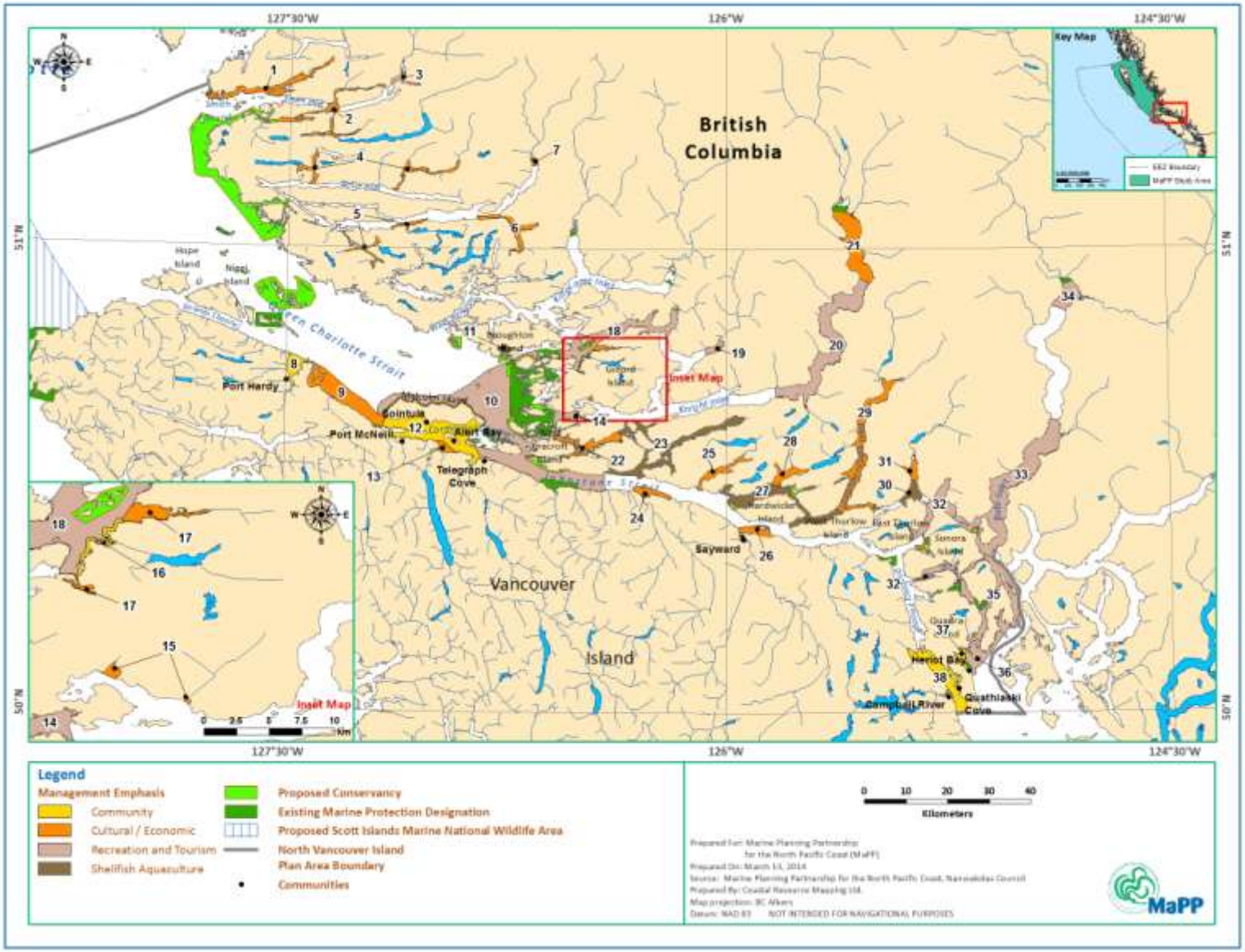
1483 *Table 13: Special Management Zone Areas*

Number on Zoning Map	Area Location
Community Emphasis Areas	
8.	Hardy Bay
12.	McNeill/Cormorant/Sointula
16.	Echo Bay
37.	Heriot Bay
38.	Discovery Passage
Recreation/Tourism Areas	
3.	Walkum Bay
10.	North Malcolm/Hanson/Johnstone
14.	Village Island
18.	Tribune/Bond
19.	Thompson Sound
20.	Knight Inlet South
32.	Nodales/Frederick Arm
33.	Stuart Island
34.	Bute Inlet North
35.	Maurelle Island/Okisollo Channel/Read Island
36.	Hoskyn Channel
Shellfish Aquaculture Areas	
11.	Booker Lagoon
23.	Minstrel Island /Call Inlet/Havanna Channel
27.	Forward/Wellbore/Sunderland
30.	Phillips Arm Entrance

1484

Cultural/Economic Emphasis Areas	
1.	North Shore/Boswell Inlet
2.	Ahelakerho/Nathlegalis/Wyclese/Naysash
4.	Kokwiiss/Alison Sound/Wa'ump/Tsai-kwi-ee
5.	Nenahlmai Lagoon/Woods Lagoon/Warner Bay
6.	'Oo-Tso'—Lis' /Frederick Sound
7.	Wa?Watl/Seymour Estuary
9.	Beaver Harbour
13.	Nimpkish Estuary
15.	Maple Cove/Gilford Creek
17.	Viner Sound/Shoal Bay
21.	Knight Inlet North
22.	Kalogwis
24.	Hiladi/Adam River
25.	Port Neville
26.	H'ksum/Sayward
28.	Jackson/Topaz
29.	Loughborough Inlet/Matlaten/Stafford/Apple River
31.	Phillips Arm

1485



1486 *Figure 8: Special Management Zone Areas*

1487 *Table 14: General Provisions for the Special Management Zone*

The objectives and strategies found in the Plan Area Management Direction of this Plan are applicable to the SMZ, in addition to standard best management practices and tenure policies and provisions.
First Nations' marine resource use, including uses for food, social and ceremonial purposes (FSC), continues in the SMZ, in accordance with legal obligations and government policies.
All proposed uses and activities in the SMZ should address legal obligations and relevant interests of First Nations..
All proposed tenured activities should minimize impact on critical habitat for northern resident killer whales, (see **Appendix A2**), and listed species within the SMZ.
Proposals for uses and activities within the SMZ should be accompanied by information on potential adverse site specific effects on seasonal migration of marine species.
The appropriate government protected area management agency should be included in the referral of applications for uses and activities immediately adjacent to an existing protected area.
All proposed development or disturbance activities within or adjacent to estuaries or lagoons within the SMZ should be planned and managed to avoid negative impact on ecological function and the habitat they provide for key species.
Existing tenured uses and activities identified as not acceptable (N) or conditional (C) may continue unless the tenure is abandoned or expires. Non-tenured uses identified as not acceptable (N) should be removed.
Tenure boundary amendments should be accommodated, for existing, acceptable (A) or conditional (C), tenures within a SMZ to reflect best management practices.
Applications for tenures in the SMZ should be referred to the local government.
All proposed uses and activities in the SMZ should be in accordance with local government bylaws and zoning.
Where a use/activity is under federal jurisdiction (e.g., commercial and recreational fisheries, and transportation – including log transport & navigation), that use/activity is assumed to be acceptable subject to adherence to requirements of the responsible federal department(s).
All proposed uses and activities in an SMZ Emphasis Area should minimize their impacts on key species and ecological functions that support or reinforce the identified management emphasis.
In **SMZ Recreation/Tourism Emphasis Areas**, new and replacement tenure applications for **Conditional uses and activities** should be referred by the appropriate provincial government agency to existing commercial recreation and tourism tenured or permitted operators potentially affected in the proposed area of operation.
In **SMZ Shellfish Aquaculture Emphasis Areas**, new and replacement tenure applications for **Conditional uses and activities** should be referred by the provincial government to existing shellfish aquaculture tenure holders potentially affected in the proposed area of operation.

1488 *Table 15: Recommended Uses and Activities for SMZ Management Emphasis Areas*

Marine Use/Activity	**Community Emphasis** SMZ: 8, 12, 16, 37, 38	**Recreation/Tourism Emphasis** SMZ: 3, 10, 14, 18-20, 32-36	**Shellfish Aquaculture Emphasis** SMZ: 11, 23, 27, 30	**Cultural/Economic Emphasis** SMZ: 1, 2, 4-7, 9, 13, 15, 17, 21, 22, 24-26, 28, 29, 31
Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	**C**	**A**	**A**	**A**
Off Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	**C**	**C**	**A**	**C**
Off Bottom Aquaculture Sites- Finfish	**C**	**C**	**C**	**C**
Renewable Energy Generation	**C**	**C**	**C**	**C**
Forestry Operations	**C**	**C**	**C**	**C**
Mining Operations	**N**	**N**	**N**	**N**
Commercial & Recreational Anchorage	**C**	**A**	**C**	**C**
Level 1 Docks, Wharves & Facilities	**A**	**A**	**C**	**C**
Level 2 Docks, Wharves & Facilities	**C**	**C**	**N**	**N**
Float Homes	**C**	**N**	**N**	**N**
Floating Lodges	**C**	**A**	**C**	**C**
Commercial Recreation & Tourism	**C**	**C**	**A**	**C**
Public Recreation & Tourism	**A**	**A**	**A**	**C**
Research	**A**	**A**	**A**	**C**
Linear & Point-Source Utilities	**A**	**A**	**C**	**C**

A	Uses and activities are considered acceptable subject to all existing legislation, policy and relevant agreements. Acceptability of any use/activities does not guarantee that a use/activity will be approved by the appropriate management body(ies).
C	Uses and activities are considered conditionally acceptable subject to all existing legislation, policy and relevant agreements; and provided they are consistent with (adhere to) the plan conditions. Conditional acceptability of any use/activities does not guarantee that a use/activity will be approved by the appropriate management body(ies).
N	Uses and activities are considered not acceptable and should not be approved by the appropriate management body(ies).

Where a use/activity is outside provincial regulatory authority, the approval of that use/activity is subject to the decision-making process (es) of the responsible authorities. Absence of a use/activity in this table does not imply that the use/activity was not considered or evaluated in the above recommendations or is of no interest.

1489 *Table 16: Area-Based Conditions for the Special Management Zone for Conditional Uses and Activities*

Marine Use/Activity	Area-Based Conditions
Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	***Community Emphasis Areas**: maintenance of First Nations' bottom aquaculture economic opportunities; should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.*
Off Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	***Community Emphasis Areas**: maintenance of First Nations' bottom aquaculture economic opportunities; should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.* ***Recreation/Tourism Emphasis Areas**: address relevant feedback from referral to affected commercial recreation and tourism tenure holders.* ***Cultural/Economic Emphasis Areas**: address the interests of the First Nation(s) in whose territory the application is proposed.* ***Kalogwis Cultural/Economic Emphasis (SMZ 22):** avoid adverse impact on First Nation economic aquaculture opportunities.* ***Knight Inlet North Cultural/Economic Emphasis (SMZ 21)**: design practices to avoid adverse operational and site impacts from activities during the eulachon run period.* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26):** notify appropriate First Nation of expiring marine tenures and provide opportunity for application; and ensure new tenures provide continued First Nation marine access to Salmon River Indian Reserve; should observe, abide by and comply with Village of Sayward bylaws.*
Off Bottom Aquaculture (Sites)- Finfish	***All Emphasis Areas**: address the interests of the First Nation(s) in whose territory the application is proposed; and the site location being outside the provincial Discovery Islands net-pen salmon aquaculture moratorium (see **Appendix A3**).* ***Community Emphasis Areas**: should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.* ***Recreation/Tourism Emphasis Areas**: address relevant feedback from referral to affected commercial recreation and tourism tenure holders.* ***Shellfish Aquaculture Emphasis Areas**: address relevant feedback from referral to affected commercial recreation and tourism tenure holders; and apply separation distance between finfish site locations and aquaculture tenures and shellfish beaches of no less than 50m.*

	Kalogwis Cultural/Economic Emphasis (SMZ 22): *maintain First Nation aquaculture economic opportunities.* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26):*** *should observe, abide by and comply with Village of Sayward bylaws.*
Renewable Energy Generation	***Community Emphasis Areas****: should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.* ***Recreation/Tourism Emphasis Areas****: address relevant feedback from referral to affected commercial recreation and tourism tenure holders.* ***Shellfish Aquaculture Emphasis Areas****: address relevant feedback from referral to affected aquaculture tenure holders.* ***Cultural/Economic Emphasis Areas****: provide opportunity for First Nation benefits.* ***Knight Inlet North SMZ Cultural/Economic Emphasis (SMZ 21)****: design practices to avoid adverse operational and site impacts from activities during the eulachon run period.* ***H'ksum/Sayward Cultural/Economic Emphasis Area:*** *ensure new tenures provide continued First Nation marine access to Salmon River Indian Reserve; should observe, abide by and comply with Village of Sayward bylaws.*
Forestry Operations	***Community Emphasis Areas:*** *should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.; and discussion with First Nation(s) to address potential impact.* ***Recreation/Tourism Emphasis Areas****: address relevant feedback from referral to affected commercial recreation and tourism tenure holders.* ***Knight Inlet South Recreation/Tourism Emphasis (SMZ 20)****: address First Nations' interests in avoiding log dumping and, log transport through the bay at the mouth of Matsui Creek during seasonal salmon migration. ; design practices to avoid adverse operational and site impacts from activities during the eulachon run period.* ***Shellfish Aquaculture Emphasis Areas****: address relevant feedback from referral to affected aquaculture tenure holders.* ***Knight Inlet North Cultural/Economic Emphasis (SMZ 21)****: design practices to avoid adverse operational and site impacts during the eulachon run period (usually March-end of May).* ***Kalogwis Cultural/Economic Emphasis (SMZ 22):*** *involve appropriate First Nation in the site identification, assessment and establishment of forestry operations.* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26)****: avoid expansion of the existing log handling tenure boundary; notify appropriate First Nation of expiring marine tenures and provide opportunity for application; and*

	ensure new tenures provide continued First Nation marine access to Salmon River Indian Reserve; should observe, abide by and comply with Village of Sayward bylaws..
Commercial & Recreational Anchorage	***Community Emphasis Areas**: should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.* ***Shellfish Aquaculture Emphasis Areas**: apply separation distance between anchorage locations and aquaculture tenures and shellfish beaches of no less than 50m; and due consideration of feedback from referral to affected aquaculture tenure holders.* ***Kalogwis Cultural/Economic Emphasis (SMZ 22):** apply separation distance between anchorage locations and aquaculture tenures and shellfish beaches of no less than 50m.* ***Knight Inlet North Cultural/Economic Emphasis (SMZ 21)**: avoid anchoring during the eulachon run period.* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26):** should observe, abide by and comply with Village of Sayward bylaws.*
Level 1 Docks, Wharves & Facilities	***Shellfish Aquaculture Emphasis Areas:** provide opportunity for servicing aquaculture operations; apply separation distance between structures and aquaculture tenures and shellfish beaches of no less than 50m; and due consideration of feedback from referral to affected aquaculture tenure holders.* ***Knight Inlet North Cultural/Economic Emphasis (SMZ 21)**: Provide opportunity for benefit to appropriate First Nation(s).* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26):** notify relevant First Nation of expiring marine tenures and provide opportunity for application; and ensure new tenures provide continued First Nation marine access to Salmon River Indian Reserve; should observe, abide by and comply with Village of Sayward bylaws.*
Level 2 Docks, Wharves & Facilities	***Community Emphasis Areas**: should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.* ***Recreation/Tourism Emphasis Areas**: address relevant feedback from referral to affected commercial recreation and tourism tenure holders; and accommodate or avoid displacement of recreation and tourism facilities.*
Float Homes	***Community Emphasis Areas:** should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws; and in compliance with the provincial government Residential and Float Home Community policies.*
Floating Lodges	***Community Emphasis Areas**: should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.* ***Shellfish Aquaculture Emphasis Areas**: apply separation distance between lodges and aquaculture tenures and*

	shellfish beaches of no less that 50m; and address the relevant feedback from referral to affected aquaculture tenure holders. ***Cultural/Economic Emphasis Areas:*** *use of holding tanks, siting location, provide opportunity for benefit to appropriate First Nation(s).* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26):*** *should observe, abide by and comply with Village of Sayward bylaws.*
Commercial Recreation & Tourism	***Community Emphasis Areas:*** *should observe, abide by and comply with City of Campbell River, Town of Port McNeill, District of Port Hardy, Regional District of Mount Waddington, and Strathcona Regional District bylaws.; and discussion with First Nation(s) to address potential impact on First Nation(s) cultural resources.* ***Knight Inlet South Recreation/Tourism Emphasis (SMZ 20)****: design practices to avoid adverse operational and site impacts from activities during the eulachon run period; and maintain economic opportunities for marine recreation and tourism development by appropriate First Nations at Glendale Cove.* ***Viner Sound/Shoal Bay Cultural/Economic Emphasis (SMZ 17):*** *maintain economic opportunities in Viner Sound for appropriate First Nation(s) cultural tourism development.* ***Tribune/Bond & Thompson Sound Recreation/Tourism Emphasis (SMZ 18):*** *maintain economic opportunities for appropriate First Nation(s) marine wildlife viewing development; minimize potential conflict with seasonal public recreation and tourism activities.* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26):*** *notify appropriate First Nation of expiring marine tenures and provide opportunity for their application; should observe, abide by and comply with Village of Sayward bylaws.*
Public Recreation & Tourism	***Cultural/Economic Emphasis Areas:*** *address the interests and minimize conflict with identified First Nation(s) economic opportunities.*
Research	***Cultural/Economic Emphasis Areas****: provide opportunity for First Nation(s) leadership and participation in the research activity and First Nation(s) access to research results.*
Linear & Point-Source Utilities	***Shellfish Aquaculture Emphasis Areas****: apply separation distance between utilities and aquaculture tenures and shellfish beaches of no less than 50m; and due consideration of feedback from referral to affected aquaculture tenure holders.* ***Cultural/Economic Emphasis Areas****: provide opportunity for benefit to First Nations' and adjacent communities.* ***H'ksum/Sayward Cultural/Economic Emphasis (SMZ 26):*** *ensure new tenures provide continued First Nation marine access to Salmon River Indian Reserve; should observe, abide by and comply with Village of Sayward bylaws.*

5.6 Protection Management Zone (PMZ)

The ten geographic areas in this PMZ Group are identified in **Table 17** and shown in **Figure 9**. Areas 1 and 2 generally align with IUCN Protected Area Category III description and recommended use guidelines, while Areas 3-8 generally align with the IUCN Category IV description and recommended use guidelines. PMZ Areas 9 and 10 generally align with the IUCN Category V description.

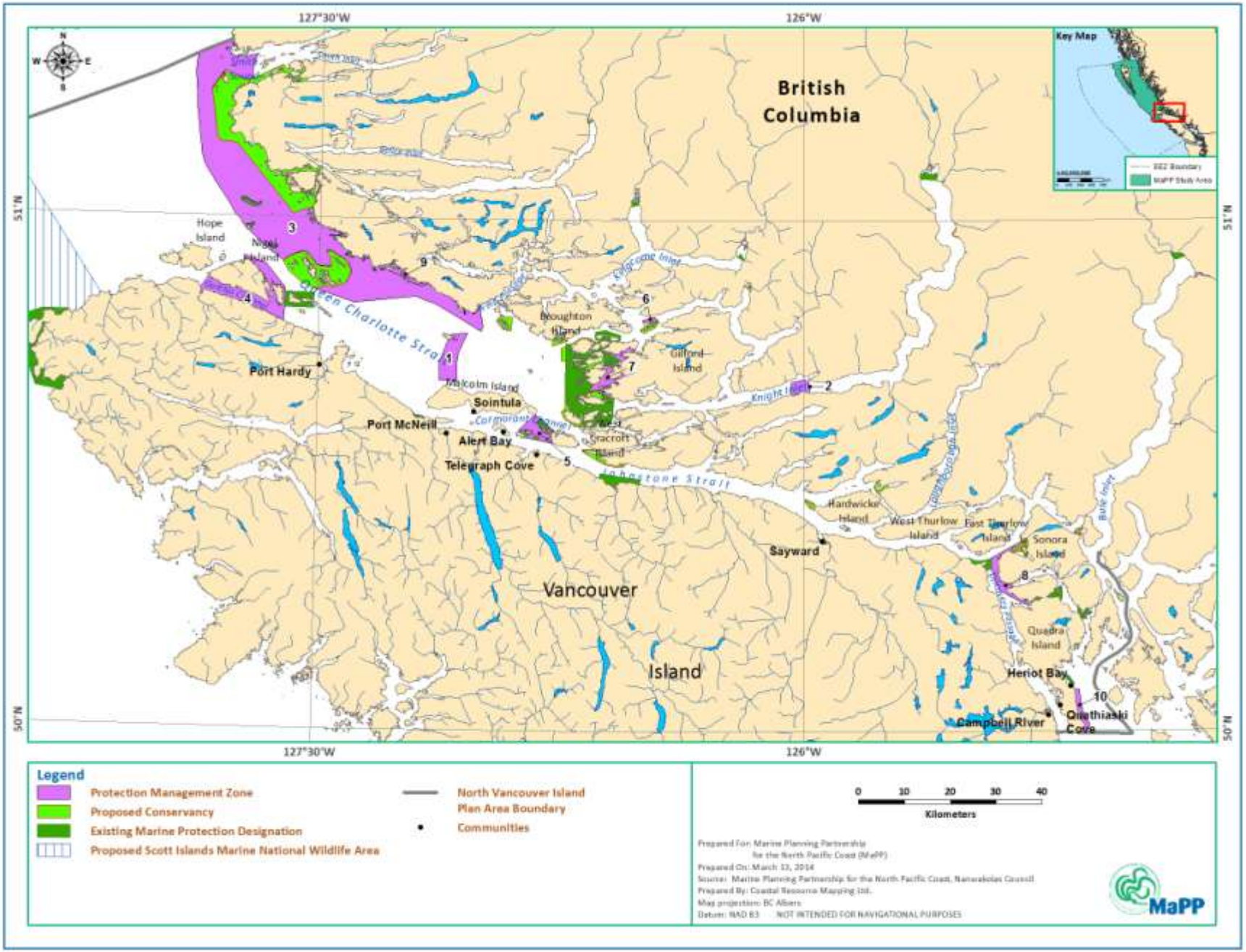
Some of the PMZ Areas may be advanced for further study for federal and/or provincial legal protection designation and may therefore be considered as study areas. The Ba'as/Blunden Harbour PMZ Area will be pursued by the appropriate First Nation as a Tribal Protected Area under the Indigenous Community Conservation Area (ICCA) system. The intention is for a Protection Management Plan to be developed collaboratively with relevant First Nations for each PMZ Area.

The **Management Intent** of the proposed Protection Management Zone Areas is for ecosystem-based management for conservation and maintenance of a suite of ecological functions and features, ecosystems, specific species of concern/interest, and cultural resources.

1502 *Table 17: Protection Management Zone Areas*

Number on Zoning Map	Area Location	Description/Function	IUCN Category
1.	North Malcolm	Important habitat and species, in particular a significant and unique glass sponge reef formation, which includes a complex ecosystem, enabling a species-rich marine environment that supports the local biodiversity of the area. Contains critical habitat for northern resident killer whales (see **Appendix A2**), and habitat for pelagic and nearshore birds adjacent to their colonies.	III
2.	Hoeya Sill	The area is representative of shallow sill ecosystems of coral fans, sponges. Several deepwater and/or rare species including the gorgonian coral, the soft goblet sponge, the cloud sponge, the townsend eualid shrimp, and the bigmouth sculpin are found at shallower than normal depths. Several species recorded at this site, including bigmouth sculpins, brain sponge, leister sculpin, are at or near their southern geographic limits.	III
3.	Cape Caution	Marine species and habitats including those of cultural importance to First Nations. Connects existing conservation and protection areas and provides network/corridor between the Central Coast and North Vancouver Island marine plans to assist in conservation and protection of habitat and seasonal runs and activities of species with cultural and economic value. Includes important areas for gray, humpback and northern resident killer whales and herring. Includes important habitat for seabirds that breed in adjacent conservation and protection areas.	IV
4.	Nigei	A diverse marine ecosystem, with important marine species and habitat. Important recreation and tourism area which includes several scuba diving sites. Includes important areas for humpback and northern resident killer whales, herring and sea otters. Connects existing conservation and protection areas.	IV
5.	Cormorant Channel	Important species and habitats, including those of cultural importance to First Nations. Significant for seasonal marine harvesting and ecotourism activities by First Nations. It is an important whale and wildlife viewing area. Includes important habitat for herring and humpback whales as well as critical habitat of the northern resident killer whales (see **Appendix A2**).	IV
6.	Burdwood Group	Important marine species, habitats, First Nations' cultural resources such as cultural tourism, loxiwe, shell middens, and former seasonal village/resource processing site.	IV

7.	Broughton	High marine recreational values, containing essential marine species and habitats including important areas for herring and northern resident killer whales. Area includes First Nations' cultural resources uses and activities such as cultural tourism, loxiwe, shell middens, and former seasonal village/resource processing site.	IV
8.	Rock Bay	Important marine species and habitats including herring important areas. Protection of representative marine ecosystems at the confluence of three channels supporting rich intertidal species and habitats.	IV
9.	Ba'as/Blunden Harbour	Considerable cultural modification by First Nations based on use of important marine species and habitat. This area includes ongoing practices and teachings, restoration of First Nations' cultural resources, and their associated marine species and habitats, and is important for repatriation. Area is also intended to encourage conservation and maintenance of essential ecological values.	V
10.	South East Quadra Island	Significant ecological values due to major upwelling of nutrients creating a rich, diverse marine ecosystem. There are key First Nation cultural/economic interests and local resident scenic values. Safeguarding the integrity of this interaction between people and the environment is vital to protecting and sustaining the area.	V



1503 *Figure 9: Protection Management Zone Areas in the Plan Area*

Table 18: General Provisions for PMZ Areas

The objectives and strategies found in the Plan Area Management Direction of this Plan are applicable to the PMZ, in addition to standard best management practices and tenure policies and provisions.
A protection management plan should be developed for each PMZ Area with sector input.
Except where specifically restricted, First Nations' marine resource use, including uses for food, social and ceremonial purposes (FSC), continue in the PMZ, in accordance with legal obligations and government policies.
All proposed uses and activities in the PMZ Areas should address legal obligations and relevant interests of First Nations.
Uses and activities in the PMZ Areas should be managed to avoid adverse effects and maintain First Nations opportunities for use and development of loxiwe for shellfish aquaculture and other development compatible with the PMZ.
Collaborative monitoring and enforcement should be an important component of PMZs, including First Nations guardian/watchmen programs.
All proposed tenured activities should minimize impact on critical habitat for northern resident killer whales, (see **Appendix A2**), and listed species within the PMZ.
Proposals for uses and activities within the PMZ should be accompanied by information on potential adverse site specific effects on seasonal migration of marine species.
The appropriate government protected area management agency should be included in the referral of applications for uses and activities immediately adjacent to an existing protected area
All proposed development or disturbance activities within or adjacent to estuaries or lagoons within the PMZ should be planned and managed to avoid negative impact on ecological function and the habitat they provide for key species.
Existing tenured uses and activities identified as not acceptable (N) or conditional (C) may continue unless the tenure is abandoned or expires. Non-tenured uses identified as not acceptable (N) should be removed.
Tenure boundary amendments should be accommodated, for existing, acceptable (A) or conditional (C), tenures within a PMZ to reflect best management practices.
Applications for tenures in the PMZ should be referred to the local government unless the PMZ direction is superseded by an approved Protection Management Plan (developed with sector input).
All proposed uses and activities in the PMZ should be in accordance with local government by-laws and zoning.
Where a use/activity is under federal jurisdiction (commercial and recreational fisheries, transportation – including log transport & navigation), that use/activity is assumed to be acceptable subject to adherence to requirements of the responsible federal department(s).
All proposed uses and activities in a PMZ Emphasis Area should minimize their impacts on key species and ecological functions that support or reinforce the identified management emphasis.

All uses and activities in the **North Malcolm (PMZ 1)** should avoid impacts on glass sponge reef habitat, and activity to be non-extractive in nature. This plan recommends no commercial, recreational and port vessel temporary anchorage in this PMZ.
All uses and activities in the **Hoeya Sill (PMZ 2)** should avoid impacts on coral habitat. This plan recommends no commercial, recreational and port vessel temporary anchorage in this PMZ.

1505
1506

1507 *Table 19: Recommended Uses and Activities for PMZ Areas*

Marine Use/Activity	North Malcolm PMZ 1	Hoeya Sill PMZ 2	Cape Caution PMZ 3	Nigei PMZ 4	Cormorant Channel PMZ 5	Burdwood Group PMZ 6	Broughton PMZ 7	Rock Bay PMZ 8	Ba'as/Blunden Harbour PMZ 9	South East Quadra PMZ 10
Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	N	N	C	C	C	C	C	C	C	C
Off Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	N	N	C	C	C	C	C	C	C	C
Off Bottom Aquaculture (Sites)- Finfish	N	N	C	C	N	C	N	N	N	N
Renewable Energy Generation	N	N	C	C	C	C	C	C	C	N
Forestry Operations	N	N	C	C	N	N	N	N	N	N
Mining Operations	N	N	N	N	N	N	N	N	N	N
Commercial & Recreational Anchorage	N	N	C	C	A	C	C	A	C	N
Level 1 Docks, Wharves & Facilities	N	N	C	C	C	C	C	C	C	C
Level 2 Docks, Wharves & Facilities	N	N	N	N	N	N	N	N	N	N
Float Homes	N	N	N	N	N	N	N	N	N	N
Floating Lodges	N	N	N	N	N	C	N	N	N	N
Commercial Recreation & Tourism	A	A	A	A	A	A	C	A	C	N
Public Recreation & Tourism	A	A	A	A	A	A	A	A	C	A
Research	C	C	A	A	A	A	A	A	C	A
Linear Utilities	N	N	C	C	C	C	C	C	C	N
Point-Source Utilities	N	N	N	N	N	N	N	N	N	N

A	Uses and activities are considered acceptable subject to all existing legislation, policy and relevant agreements. Acceptability of any use/activities does not guarantee that a use/activity will be approved by the appropriate management body(ies).
C	Uses and activities are considered conditionally acceptable subject to all existing legislation, policy and relevant agreements; and provided they are consistent with (adhere to) the plan conditions. Conditional acceptability of any use/activities does not guarantee that a use/activity will be approved by the appropriate management body(ies).
N	Uses and activities are considered not acceptable and should not be approved by the appropriate management body(ies).

Where a use/activity is outside provincial regulatory authority, the approval of that use/activity is subject to the decision-making process (es) of the responsible authorities. Absence of a use/activity in this table does not imply that the use/activity was not considered or evaluated in the above recommendations, or is of no interest.

1508 *Table 20: Area-Based Conditions for Conditional Uses and Activities for PMZ Areas*

Marine Use/Activity	**Recommendation**
Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	***All PMZ Areas where conditional:*** *maintenance of First Nations' bottom aquaculture economic opportunities.* ***South East Quadra (PMZ10):*** *should observe, abide by and comply with Strathcona Regional District bylaws.*
Off Bottom Aquaculture (Sites)- Shellfish, Other Invertebrates, Marine Plants	***All PMZ Areas where conditional:*** *maintenance of First Nations' off-bottom aquaculture economic opportunities.* ***South East Quadra (PMZ10):*** *should observe, abide by and comply with Strathcona Regional District bylaws.*
Off Bottom Aquaculture (Sites)- Finfish	***Cape Caution (PMZ 3), Nigei Island (PMZ 4) and Burdwood Group (PMZ 6):*** *consideration of the interests of the First Nation(s) in whose territory the application is proposed.* ***Burdwood Group PMZ Area (PMZ 6):*** *avoidance of impact on First Nations' loxiwe.*
Renewable Energy Generation	***All PMZ Areas where conditional:*** *providing opportunity for local benefits.*
Forestry Operations	***Cape Caution (PMZ 3), and the Nigei (PMZ 4):*** *heli-drop operations only, and only during periods which avoid adverse impact on eulachon, herring and salmon migration, consistent with appropriate government guidelines.*
Commercial & Recreational Anchorage	***Cape Caution (PMZ 3) and Ba'as/Blunden Harbour (PMZ 9):*** *designate anchorage sites in collaboration with local First Nations.* ***Nigei (PMZ 4), Burdwood Group (PMZ 6), and Broughton (PMZ 7):*** *use of holding tanks by marine vessels.*
Level 1 Docks, Wharves & Facilities	***All PMZ Areas where conditional:*** *providing opportunity for servicing protection area operations.* ***Ba'as/Blunden Harbour (PMZ 9):*** *providing opportunity for use and benefit of the appropriate First Nation.* ***South East Quadra (PMZ10):*** *should observe, abide by and comply with Strathcona Regional District bylaws.*
Floating Lodges	***Burdwood Group (PMZ 6):*** *demonstration of ability to enhance ecological and conservation based*

	tourism activities.
Commercial Recreation & Tourism	***Broughton (PMZ 7):*** *avoidance of impacts on First Nations' bottom and off-bottom aquaculture; and on support from First Nations where loxiwe sites are to be utilized.* ***Ba'as/Blunden Harbour (PMZ 9):*** *obtaining a signed protocol with the appropriate First Nation for avoiding impacts on cultural resources including traditional uses and activities.*
Public Recreation & Tourism	***Ba'as/Blunden Harbour (PMZ 9):*** *adherence to First Nation procedures for avoiding impacts on cultural resources including traditional uses and activities.*
Research	***North Malcolm (PMZ 1), and Hoeya Sill (PMZ 2)****: avoidance of disturbance of sensitive features and habitat.* ***Ba'as/Blunden Harbour (PMZ 9):*** *providing opportunity for First Nation leadership and participation in the research activity.*
Linear Utilities	***All PMZ Areas where conditional:*** *providing opportunity for servicing protection area operations.* ***Cape Caution (PMZ 3), Cormorant Channel (PMZ 5), and Rock Bay (PMZ 8):*** *providing opportunity to benefit adjacent or nearby communities.*

1509

1510

CHAPTER 6: PLAN IMPLEMENTATION

6.1 Plan Review, Amendment and Updating

The Plan is intended to remain relevant to changing issues, priorities and conditions. This is intended through a number of structures and mechanisms, all of which are subject to modification, based on available implementation funding.

A standing Implementation and Monitoring Committee will be created and be comprised of representatives of key marine use and activity sectors in the Plan Area, as well as local government. Membership will be confirmed by the provincial government and Nanwakolas Council, and Terms of Reference established to outline the roles, responsibilities and engagement schedule for this Plan Implementation and Monitoring Committee (PIMC).

A joint Technical Team will be maintained by provincial government and Nanwakolas staff to manage implementation tasks and address Plan implementation issues. The Technical Team will report to a Senior Management Committee of provincial government and Nanwakolas directors.

Plan implementation progress will be reviewed on an annual basis from the date of final Plan approval with the assistance and advice of the Plan Implementation and Monitoring Committee. Amendments to the Plan may be made on the basis of the annual review.

An annual audit report will be prepared by provincial government and Nanwakolas staff to report on Plan implementation using a set of "implementation performance measures" that outline the degree to which plan strategies and zoning recommendations are being followed by governments (including First Nations) and participating stakeholders. A report will also be presented on "EBM implementation indicators" to show the extent to which the Plan recommendations are creating positive change to EBM health and

well-being. A listing of interpretation issues, Plan variation requests and any public comments received during the report period, as well as recommended plan amendments will be included in the report along with recommended actions or plan adjustments.

The annual audit report will be presented to the Implementation and Monitoring Committee. Opportunities will be provided at that time for Plan amendment to reflect recommendations from the annual report. The Implementation and Monitoring Committee will consider at that time the need for any broader review of Plan amendments by agencies, the public, and interest groups.

The Plan must be formally reviewed by the Implementation and Monitoring Committee three years after initial approval. On the basis of this formal review, the Plan may be updated and reaffirmed by the provincial government and the Nanwakolas Council. The process for the reaffirmation of an updated Plan requires full review of proposed changes by the Plan Implementation and Monitoring Committee. A formal plan review may include review by the general public and non-participating interests. Any revised or modified Plan will be posted on the Provincial government and the Nanwakolas Council websites for public comment.

6.2 EBM Implementation Indicators

These indicators will be selected to measure the long-term changes to marine ecosystems, including community and human health changes potentially attributed to implementation of Plan recommendations.

The indicators reflect key aspects of the marine ecosystem attributes and the means of their measurement. The indicators selected for EBM implementation for the Plan are identified in **Appendix E**.

6.3 Implementation Agreements and Funding

The Plan will be implemented through an Implementation Agreement to be negotiated and signed between the Nanwakolas Council and the Provincial government.

6.4 Plan Variance Requests

Plan provisions identifying a use or activity as “Acceptable”, “Conditionally Acceptable” or “Not Acceptable” may be challenged by a proponent. For appropriate consideration, the request for a variance in Plan recommendations should provide technical rationale, site information, and support from First Nations and local government authorities. Other considerations may include new technologies or methods of operation, a new economic activity or venture, and new information that was not available at the time of Plan development.

Applications for proposals which constitute a possible plan variance would be referred by the tenuring agency to technical team representative who would refer it to the PIMC for comment. Responses would be received by the technical team who would incorporate all feedback and conference as necessary to discuss a recommendation, which would be provided to the tenuring agency. A decision on the proposal will be made, and the PIMC members advised of the outcome.

Acceptance and support for a proposed Plan variation request should not be interpreted as approval or support for issuance of any authorization.

A successful Plan variation request will be reflected in written changes to the Plan at the time of annual review if there have been a large number of successful variation requests.

The Plan variation process will be formalized through an agreement between the provincial government and the Nanwakolas Council.

6.5 Implementation Priorities and Schedule

The Plan recommendations, including Plan Area Management Direction strategies and zone recommendations are intended for implementation in accordance with **Table 21**. This Table will form the basis of reports to the Plan Implementation and Monitoring Committee.

Table 21: Plan Implementation Schedule and Resource Requirements

Implementation Priority 1: Start within 6 months of Plan approval		
Topic	*Strategy*	*Requirements*
Conservation & Protection- (Improvement of tools)	2.1.1	No new funding
Conservation & Protection- (Increase First Nation role)	4.2.4	No new funding
Conservation & Protection- (Climate change implications)	6.1.1	No new funding
Cultural & Heritage Resources- (Inventories & site knowledge)	1.1.1	No new funding
Governance & Collab. Management- (Participation adequacy)	2.1.4	No new funding
Pollution- (Spill prevention, response)	3.1.4	No new funding; Governance Structure
Cultural & Heritage Resources- (First Nation involvement)	4.1.4	No new funding; Governance Structure
Aquaculture- (First Nation participation)	3.1.2	No new funding; Governance Structure
Fisheries- (Support)	1.1.4	No new funding; Governance Structure
Pollution- (Impact from specific activities)	2.1.4	Funding
Community and Economy: (Local support and integration)	1.2.1	Funding; Governance Structure
Pollution- (Impact on habitat, species, harvest)	1.1.1	Funding; Governance Structure
Pollution- (Impact on habitat, species, harvest)	1.1.2	Funding; Governance Structure
Pollution- (Spill prevention, response)	3.1.1	Funding; Governance Structure
Pollution- (Spill prevention, response)	3.1.3	Funding; Governance Structure
Conservation & Protection- (Improved management)	2.2.2	Funding; Governance Structure
Conservation & Protection- (Increase First Nation role)	4.2.1	Funding; Governance Structure

Conservation & Protection- (Increase local government role)	4.3.1	Funding; Governance Structure
Conservation & Protection- (Surveillance)	5.1.1	Funding; Governance Structure
Cultural & Heritage Resources- (disturbance)	3.1.1	Funding; Governance Structure
Forestry Operations- (Maintain key sites)	1.1.1	Funding; Governance Structure
Forestry Operations- (Alternative uses)	3.1.3	Funding; Governance Structure
Aquaculture- (New sector opportunities)	2.1.1	Funding; Governance Structure
Reg. Compliance & Enforcement- (First Nation role)	2.1.1	Funding; Governance Structure
Implementation Priority 2: Start within 12 months of Plan approval		
Topic	*Strategy*	*Requirements*
Community and Economy: (Local support and integration)	1.2.2	No new funding
Community and Economy- (Business conflicts and relationships)	4.1.1	No new funding
Forestry Operations- (Maintain key sites)	1.1.3	No new funding
Aquaculture- (New sector opportunities)	2.1.3	No new funding
Aquaculture- (Impacts on Ecosystem health)	6.1.1	No new funding
Pollution- (Impact from specific activities)	2.1.2	No new funding; Governance Structure
Conservation & Protection- (Impacts)	3.1.2	No new funding; Governance Structure
Forestry Operations- (Climate change impacts)	5.1.1	No new funding; Governance Structure
Aquaculture- (Climate change effects)	7.1.1	No new funding; Governance Structure
Governance & Collab. Management- (Participation adequacy)	2.1.5	No new funding; Governance Structure
Research, Education & Training- (Training & education)	3.1.2	No new funding; Governance Structure
Pollution- (Impact on habitat, species, harvest)	1.1.6	Funding
Infrastructure- (Climate change impacts)	3.1.2	Funding
Pollution- (Deteriorated sites and restoration)	4.1.1	Funding
Pollution- (Climate change impacts on habitat, species)	5.1.1	Funding
Pollution- (Climate change impacts on habitat, species)	5.1.3	Funding
Conservation & Protection- (Improvement of tools)	2.1.2	Funding

Conservation & Protection- (Improvement of tools)	2.1.3	Funding
Conservation & Protection- (Benefits)	3.2.1	Funding
Cultural & Heritage Resources- (First Nation involvement)	4.1.6	Funding
Cultural & Heritage Resources- (Climate change impacts)	5.1.1	Funding
Recreation & Tourism- (Increased opportunity & benefits)	1.1.5	Funding
Recreation & Tourism- (Species, ecosystem & other impacts)	3.1.4	Funding
Aquaculture- (First Nation participation)	3.1.1	Funding
Aquaculture- (Impacts on Ecosystem health)	6.1.2	Funding
Research, Education & Training- (First Nation participation)	2.1.1	Funding
Cultural & Heritage Resources- (First Nation involvement)	4.1.2	Funding
Community and Economy- (Climate change impacts)	5.1.1	Funding; Governance Structure
Community and Economy- (Climate change impacts)	5.1.2	Funding; Governance Structure
Community and Economy- (Climate change impacts)	5.1.3	Funding; Governance Structure
Infrastructure- (Use and Improvements)	1.1.1	Funding; Governance Structure
Pollution- (Impact on habitat, species, harvest)	1.1.4	Funding; Governance Structure
Pollution- (Impact on habitat, species, harvest)	1.1.5	Funding; Governance Structure
Pollution- (Impact from specific activities)	2.1.1	Funding; Governance Structure
Pollution- (Deteriorated sites and restoration)	4.1.2	Funding; Governance Structure
Pollution- (Deteriorated sites and restoration)	4.1.3	Funding; Governance Structure
Conservation & Protection- (New protection areas)	1.1.3	Funding; Governance Structure
Conservation & Protection- (Impacts)	3.1.1	Funding; Governance Structure
Conservation & Protection- (Include First Nation values)	4.1.1	Funding; Governance Structure
Cultural & Heritage Resources- (Tourism opportunities)	2.1.1	Funding; Governance Structure
Cultural & Heritage Resources- (disturbance)	3.1.2	Funding; Governance Structure
Cultural & Heritage Resources- (First Nation involvement)	4.1.1	Funding; Governance Structure
Cultural & Heritage Resources- (First Nation involvement)	4.1.3	Funding; Governance Structure
Recreation & Tourism- (Increased opportunity & benefits)	1.1.1	Funding; Governance Structure

Recreation & Tourism- (Increased opportunity & benefits)	1.1.2	Funding; Governance Structure
Recreation & Tourism- (Increased opportunity & benefits)	1.1.3	Funding; Governance Structure
Recreation & Tourism- (Climate change impacts)	4.1.1	Funding; Governance Structure
Forestry Operations- (Maintain key sites)	1.1.2	Funding; Governance Structure
Forestry Operations- (Alternative uses)	3.1.1	Funding; Governance Structure
Forestry Operations- (Alternative uses)	3.1.2	Funding; Governance Structure
Aquaculture- (Climate change effects)	7.1.2	Funding; Governance Structure
Energy- (Common understanding)	2.1.1	Funding; Governance Structure
Governance & Collab. Management- (Process understanding)	1.1.1	Funding; Governance Structure
Governance & Collab. Management- (Process understanding)	1.1.2	Funding; Governance Structure
Governance & Collab. Management- (Climate change adaptation)	4.1.1	Funding; Governance Structure
Governance & Collab. Management- (Climate change adaptation)	4.1.3	Funding; Governance Structure
Reg. Compliance & Enforcement- (Capacity)	1.1.2	Funding; Governance Structure
Reg. Compliance & Enforcement- (Capacity)	1.1.3	Funding; Governance Structure
Reg. Compliance & Enforcement- (Capacity)	1.1.4	Funding; Governance Structure
Reg. Compliance & Enforcement- (Capacity)	1.1.5	Funding; Governance Structure
Reg. Compliance & Enforcement- (First Nation role)	2.1.2	Funding; Governance Structure
Reg. Compliance & Enforcement- (First Nation role)	2.1.3	Funding; Governance Structure
Reg. Compliance & Enforcement- (First Nation role)	2.1.4	Funding; Governance Structure
Research, Education & Training- (First Nation participation)	2.1.2	Funding; Governance Structure
Research, Education & Training- (Training & education)	3.1.1	Funding; Governance Structure
Research, Education & Training- (Training & education)	3.1.3	Funding; Governance Structure
Research, Education & Training- (Ecosystem understanding)	4.3.1	Funding; Governance Structure
Research, Education & Training- (Ecosystem understanding)	4.3.2	Funding; Governance Structure
Research, Education & Training- (Ecosystem understanding)	4.3.3	Funding; Governance Structure
Research, Education & Training- (Climate change)	5.1.1	Funding; Governance Structure

1568

Implementation Priority 3: Start within 24 months of Plan approval		
Topic	*Strategy*	*Requirements*
Conservation & Protection- (Improved management)	2.2.3	No new funding
Conservation & Protection- (Climate change implications)	6.1.2	No new funding
Forestry Operations- (Site restoration)	4.1.2	No new funding
Energy- Issue 3 (Benefits and impacts)	3.1.4	No new funding
Fisheries- (Impacts of climate change)	6.1.2	No new funding
Aquaculture- (Impacts on Ecosystem health)	6.1.4	No new funding; Governance Structure
Energy- (Development opportunities)	1.1.1	No new funding; Governance Structure
Conservation & Protection- (Climate change implications)	6.1.3	Funding
Energy- Issue 3 (Benefits and impacts)	3.1.1	Funding
Fisheries- (Processing & marketing)	2.1.2	Funding
Research, Education & Training- (Climate change)	5.1.4	Funding
Conservation & Protection- (Increase First Nation role)	4.2.2	Funding; Governance Structure
Recreation & Tourism- (Species, ecosystem & other impacts)	3.1.3	Funding; Governance Structure
Forestry Operations- (Site restoration)	4.1.1	Funding; Governance Structure
Aquaculture- (Branding & marketing)	5.1.1	Funding; Governance Structure
Aquaculture- (Branding & marketing)	5.1.2	Funding; Governance Structure
Energy- (Common understanding)	2.1.2	Funding; Governance Structure
Energy- Issue 3 (Benefits and impacts)	3.1.5	Funding; Governance Structure
Fisheries- (Processing & marketing)	2.1.3	Funding; Governance Structure
Fisheries- (Impacts of climate change)	6.1.1	Funding; Governance Structure
Research, Education & Training- (Address research gaps)	4.1.1	Funding; Governance Structure
Research, Education & Training- (Climate change)	5.1.2	Funding; Governance Structure
Research, Education & Training- (Climate change)	5.1.3	Funding; Governance Structure

1569

Ongoing Priority: Ongoing after Plan approval		
Topic	*Strategy*	*Requirements*
Community and Economy- (Local participation and capacity)	2.1.1	No new funding
Community and Economy- (First Nation participation)	3.1.1	No new funding
Community and Economy- (Business conflicts and relationships)	4.1.2	No new funding
Community and Economy- (Climate change impacts)	5.1.4	No new funding
Community and Economy- (Climate change impacts)	5.1.5	No new funding
Infrastructure- (Use and Improvements)	1.1.4	No new funding
Infrastructure- (First Nation participation)	2.1.1	No new funding
Infrastructure- (First Nation participation)	2.1.2	No new funding
Infrastructure- (Climate change impacts)	3.1.1	No new funding
Pollution- (Impact from specific activities)	2.1.3	No new funding
Pollution- (Climate change impacts on habitat, species)	5.1.2	No new funding
Conservation & Protection- (Improvement of tools)	2.1.4	No new funding
Conservation & Protection- (Improvement of tools)	2.1.5	No new funding
Conservation & Protection- (Improvement of tools)	2.1.6	No new funding
Conservation & Protection- (Increase First Nation role)	4.2.3	No new funding
Cultural & Heritage Resources- (disturbance)	3.1.3	No new funding
Cultural & Heritage Resources- (First Nation involvement)	4.1.5	No new funding
Recreation & Tourism- (Increased opportunity & benefits)	1.1.6	No new funding
Recreation & Tourism- (First Nation & local participation)	2.1.5	No new funding
Recreation & Tourism- (Species, ecosystem & other impacts)	3.1.1	No new funding
Recreation & Tourism- (Species, ecosystem & other impacts)	3.1.2	No new funding
Forestry Operations- (Reduce site impacts)	2.1.1	No new funding
Forestry Operations- (Reduce site impacts)	2.1.2	No new funding
Forestry Operations- (Reduce site impacts)	2.1.4	No new funding
Forestry Operations- (Site restoration)	4.1.3	No new Funding

Aquaculture- (New sector opportunities)	2.1.4	No new funding
Aquaculture- (First Nation participation)	3.1.3	No new funding
Aquaculture- (Effects on First Nation activities)	3.2.1	No new funding
Aquaculture- (Economic efficiency & effectiveness)	4.1.2	No new funding
Aquaculture- (Economic efficiency & effectiveness)	4.1.3	No new funding
Aquaculture- (Impacts on Ecosystem health)	6.1.3	No new funding
Aquaculture- (Impacts on Ecosystem health)	6.1.4	No new funding
Aquaculture- (Impacts on Ecosystem health)	6.1.5	No new funding
Aquaculture- (Climate change effects)	7.1.3	No new funding
Energy- (Development opportunities)	1.1.2	No new funding
Energy- Issue 3 (Benefits and impacts)	3.1.2	No new funding
Energy- Issue 3 (Benefits and impacts)	3.1.3	No new funding
Energy- Issue 3 (Benefits and impacts)	3.1.6	No new funding
Energy- Issue 3 (Benefits and impacts)	3.1.7	No new funding
Energy- (Impacts of climate change)	4.1.1	No new funding
Energy- (Impacts of climate change)	4.1.2	No new funding
Fisheries- (Support)	1.1.1	No new funding
Fisheries- (Processing & marketing)	2.1.1	No new funding
Fisheries- (First Nations fishery base)	3.1.1	No new funding
Fisheries- (Environmental impact of fisheries)	4.1.1	No new funding
Fisheries- (Environmental impact of fisheries)	4.1.2	No new funding
Fisheries- (Environmental impact of fisheries)	4.1.3	No new funding
Fisheries- (Species and habitat loss)	5.1.1	No new funding
Research, Education & Training- (Training & education)	3.1.4	No new funding
Research, Education & Training- (Address research gaps)	4.1.2	No new funding
Research, Education & Training- (Address research gaps)	4.1.3	No new funding
Research, Education & Training- (Address research gaps)	4.1.4	No new funding

Research, Education & Training- (Research impacts)	4.2.1	No new funding
Research, Education & Training- (Research impacts)	4.2.2	No new funding
Conservation & Protection- (New protection areas)	1.1.1	No new funding
Conservation & Protection- (New protection areas)	1.1.2	No new funding
Pollution- (Impact on habitat, species, harvest)	1.1.3	No new funding; Governance Structure
Recreation & Tourism- (First Nation & local participation)	2.1.3	No new funding; Governance Structure
Recreation & Tourism- (First Nation & local participation)	2.1.4	No new funding; Governance Structure
Aquaculture- (New sector opportunities)	2.1.2	No new funding; Governance Structure
Aquaculture- (Economic efficiency & effectiveness)	4.1.1	No new funding; Governance Structure
Fisheries- (First Nations fishery base)	3.1.2	No new funding; Governance Structure
Governance & Collab. Management- (FN &Local Government)	3.1.1	No new funding; Governance Structure
Governance & Collab. Management- (FN &Local Government)	3.1.2	No new funding; Governance Structure
Governance & Collab. Management- (Climate change adaptation)	4.1.2	No new funding; Governance Structure
Research, Education & Training- (Robust program strategy)	1.1.1	No new funding; Governance Structure
Research, Education & Training- (Robust program strategy)	1.1.4	No new funding; Governance Structure
Research, Education & Training- (Robust program strategy)	1.1.5	No new funding; Governance Structure
Research, Education & Training- (First Nation participation)	2.1.3	No new funding; Governance Structure
Research, Education & Training- (Ecosystem understanding)	4.3.4	No new funding; Governance Structure
Pollution- (Climate change impacts on habitat, species)	5.1.4	Funding
Conservation & Protection- (Improved management)	2.2.1	Funding
Conservation & Protection- (Benefits)	3.2.2	Funding
Conservation & Protection- (Climate change implications)	6.1.4	Funding
Cultural & Heritage Resources- (Inventories & site knowledge)	1.1.2	Funding
Recreation & Tourism- (Increased opportunity & benefits)	1.1.4	Funding
Forestry Operations- (Reduce site impacts)	2.1.3	Funding
Aquaculture- (Support, integration, and rationalization)	1.1.2	Funding

Fisheries- (Support)	1.1.2	Funding
Research, Education & Training- (Understanding of marine environment)	3.2.1	Funding
Community and Economy: (Local support and integration)	1.1.1	Funding; Governance Structure
Community and Economy- (Local participation and capacity)	2.1.2	Funding; Governance Structure
Infrastructure- (Use and Improvements)	1.1.2	Funding; Governance Structure
Infrastructure- (Use and Improvements)	1.1.3	Funding; Governance Structure
Pollution- (Impact on habitat, species, harvest)	1.1.7	Funding; Governance Structure
Pollution- (Spill prevention, response)	3.1.2	Funding; Governance Structure
Pollution- (Deteriorated sites and restoration)	4.1.4	Funding; Governance Structure
Recreation & Tourism- (First Nation & local participation)	2.1.1	Funding; Governance Structure
Recreation & Tourism- (First Nation & local participation)	2.1.2	Funding; Governance Structure
Aquaculture- (Support, integration, and rationalization)	1.1.1	Funding; Governance Structure
Governance & Collab. Management- (Participation adequacy)	2.1.1	Funding; Governance Structure
Governance & Collab. Management- (Participation adequacy)	2.1.2	Funding; Governance Structure
Governance & Collab. Management- (Participation adequacy)	2.1.3	Funding; Governance Structure
Reg. Compliance & Enforcement- (Capacity)	1.1.1	Funding; Governance Structure
Research, Education & Training- (Robust program strategy)	1.1.2	Funding; Governance Structure
Research, Education & Training- (Robust program strategy)	1.1.3	Funding; Governance Structure
Research, Education & Training- (Robust program strategy)	1.1.6	Funding; Governance Structure

1570

1571

REFERENCES

Select key documents used to develop the plan. For more information see the NVI Current Conditions and Trends Document (under development).

British Columbia Marine Conservation Analysis (BCMCA). 2011. Marine Atlas of Pacific Canada: a product of the British Columbia Marine Conservation Analysis (BCMCA).

Government of British Columbia. 2002. North Island Straits Coastal Plan. Coast and Marine Planning Branch.

Government of British Columbia. 2004. The Johnstone-Bute Coastal Plan. Coast and Marine Planning Branch.

Nanwakolas Council. 2012. Ha-Ma-Yas Marine Plan: September 17, 2012 Draft Endorsed for Consultation.

Pacific North Coast Integrated management Area Initiative (PNCIMA) Initiative. 2011. Atlas of the Pacific North Coast Integrated Manager Area.

APPENDIX A1: SPECIES AT RISK

Provincial Endangered Species

Red List: A provincial designation that includes any ecological community, and indigenous species and subspecies considered to be of special concern (formerly vulnerable) in BC.

Blue List: A provincial designation that includes any ecological community, and indigenous species and subspecies that is extirpated, endangered, or threatened in BC.

Yellow List: A provincial designation for species and ecological communities that are secure (not included in this list unless it also has one of the risk status' under SARA or COSEWIC).

Federal Species at Risk Act (SARA)

The Act was developed to prevent wildlife species from becoming extinct and to enable their recovery. It provides for the legal protection of wildlife species and the conservation of their biodiversity.

Endangered: A wildlife species that is facing imminent extirpation or extinction.

Threatened: Wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

Special concern: A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

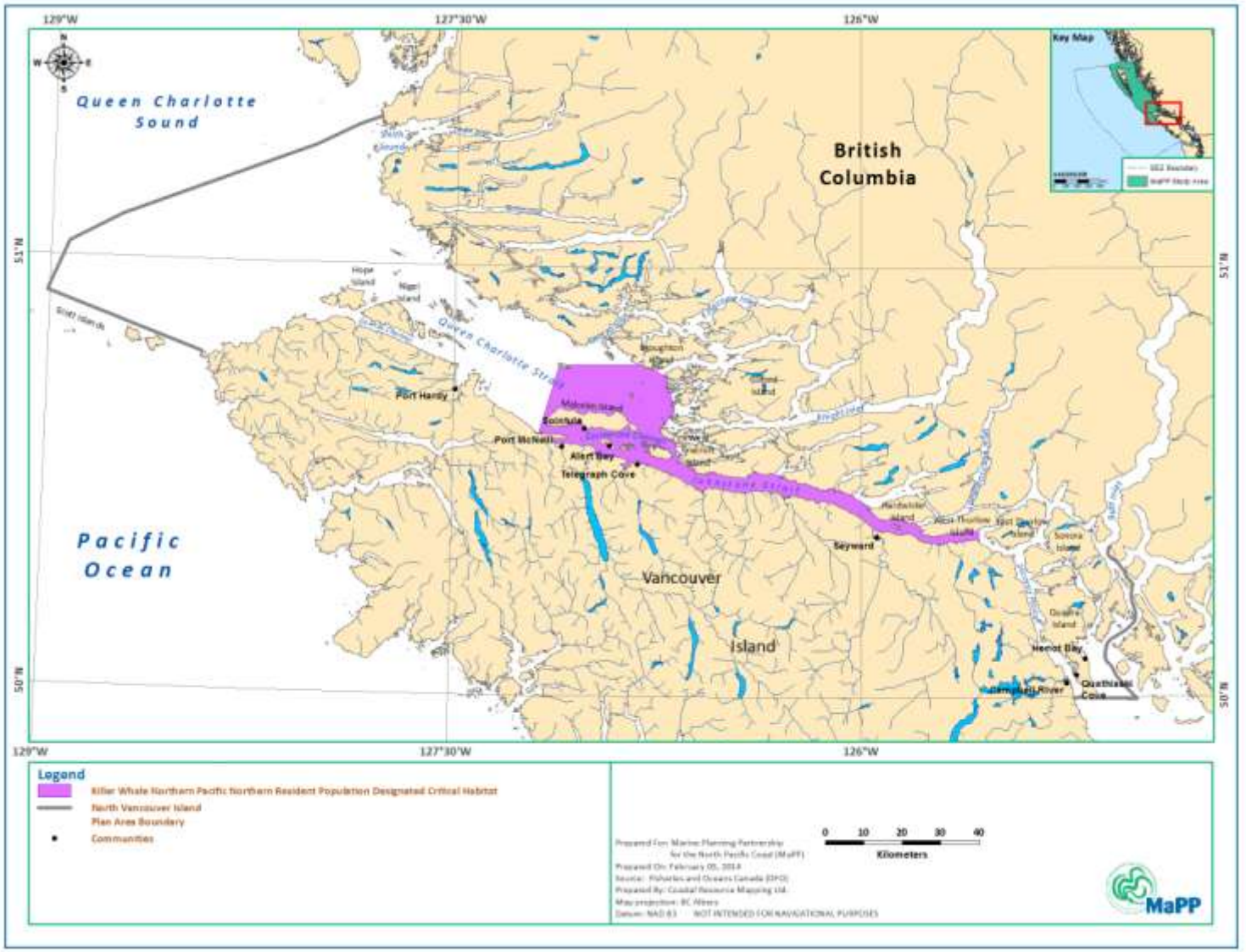
Common Name	*Scientific Name*	BC Listing	SARA
Birds			
Ancient Murrelet	*Synthliboramphus antiquus*	Blue	Special Concern
Black-footed Albatross	*Phoebastria nigripes*	Blue	Special Concern
Brandt's Cormorant	*Phalacrocorax penicillatus*	Red	
Buller's Shearwater	*Puffinus bulleri*	Blue	
California Gull	*Larus californicus*	Blue	
Caspian Tern	*Hydroprogne caspia*	Blue	
Cassin's Auklet	*Ptychoramphus aleuticus*	Blue	
Common Murre	*Uria aalge*	Red	
Double-crested Cormorant	*Phalacrocorax auritus*	Blue	
Flesh-footed Shearwater	*Puffinus carneipes*	Blue	
Horned Puffin	*Fratercula corniculata*	Red	
Laysan Albatross	*Phoebastria immutabilis*	Red	
Long-tailed Duck	*Clangula hyemalis*	Blue	

Marbled Murrelet	*Brachyramphus marmoratus*	Blue	Threatened
Northern Fulmar	*Fulmarus glacialis*	Red	
Pelagic Cormorant, *pelagicus* subspecies	*Phalacrocorax pelagicus pelagicus*	Red	
Peregrine Falcon, *pealei* subspecies	*Falco peregrinus pealei*	Blue	Special Concern
Pink-footed Shearwater	*Puffinus creatopus*	Blue	Threatened
Red-necked Phalarope	*Phalaropus lobatus*	Blue	
Short-tailed Albatross	*Phoebastria albatrus*	Red	Threatened
Surf Scoter	*Melanitta perspicillata*	Blue	
Thick-billed Murre	*Uria lomvia*	Red	
Tufted Puffin	*Fratercula cirrhata*	Blue	
Western Grebe	*Aechmophorus occidentalis*	Red	
Yellow-billed Loon	*Gavia adamsii*	Blue	
Fish			
Basking shark	*Cetorhinus maximus*		Endangered
Bluntnose sixgill shark	*Hexanchus griseus*		Special Concern

Cutthroat Trout, *clarkia* subspecies	*Oncorhynchus clarkii clarkii*	Blue	
Eulachon	*Thaleichthys pacificus*	Blue	
Green Sturgeon	*Acipenser medirostris*	Red	Special Concern
Longspine thornyhead	*Sebastolobus altivelis*		Special Concern
Rougheye rockfish type I and type II	*Sebastes* sp. type I and type II		Special Concern
Tope (Soupfin shark)	*Galeorhinus galeus*		Special Concern
Invertebrates			
Northern Abalone	*Haliotis kamtschatkana*	Red	Threatened
Olympia oyster	*Ostrea lurida* (Formerly *Ostrea conchaphila*)	Blue	Special Concern
Mammals			
Blue Whale	*Balaenoptera musculus*	Red	Endangered
Fin Whale	*Balaenoptera physalus*	Red	Threatened
Grey Whale	*Eschrichtius robustus*	Blue	Special Concern
Harbour Porpoise	*Phocoena phocoena*	Blue	Special Concern

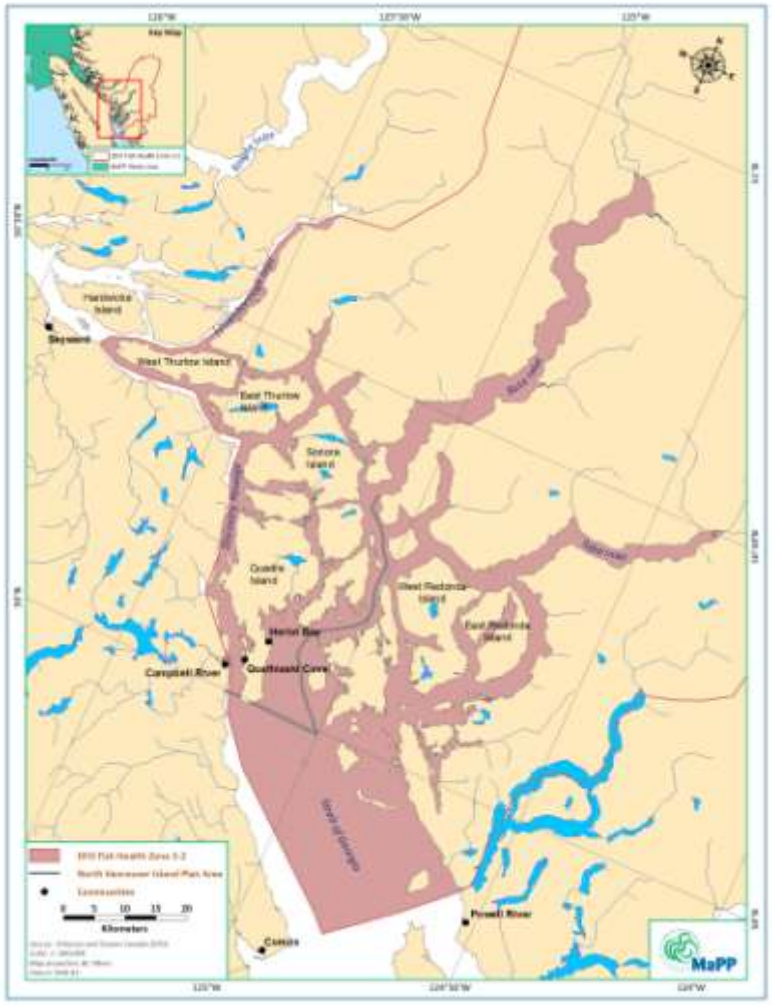
Humpback Whale	*Megaptera novaeangliae*	Blue	Threatened
Killer Whale (Northeast Pacific northern resident population)	*Orcinus orca pop. 6*	Red	Threatened
Killer Whale (Northeast Pacific offshore population)	*Orcinus orca pop. 2*	Red	Special Concern
Killer Whale (Northeast Pacific southern resident population)	*Orcinus orca pop. 5*	Red	Endangered
Killer Whale (West Coast transient population)	*Orcinus orca pop. 3*	Red	Threatened
North Pacific Right Whale	*Eubalaena japonica*	Red	Endangered
Northern Fur Seal	*Callorhinus ursinus*	Red	
Sea Otter	*Enhydra lutris*	Blue	Special Concern
Sei Whale	*Balaenoptera borealis*	Red	Endangered
Sperm Whale	*Physeter macrocephalus*	Blue	
Steller Sea Lion	*Eumetopias jubatus*	Blue	Special Concern
Reptile			
Leatherback Sea Turtle	*Dermochelys coriacea*	Red	Endangered

APPENDIX A2: NORTHERN RESIDENT KILLER WHALE CRITICAL HABITAT



APPENDIX A3: FISHERIES AND OCEANS CANADA FISH-HEALTH ZONE 3-2

Area where the provincial government has identified it will not issue "any new tenure agreements for net-pen salmon farms in the Discovery Islands until September 30, 2020."



APPENDIX B1: SUPPORT LETTERS

APPENDIX B2: MARINE PLAN ADVISORY COMMITTEE

Advisory Committee Participants (some sector representatives changed during the process). Participant period start based on first meeting attendance.

Name	Sector	Role	Participation Period
Bruce Storry	Coastal Forestry	Member	July 2012 -
Jonathan Armstrong	Coastal Forestry	Alternate	November 2012 – July 2012
Lorena Hamer	Commercial Fisheries	Member	September 2012 – March 2013
Dan Edwards	Commercial Fisheries	Alternate Member	January 2013 – March 2013 November 2013 -
Jim McIsaac	Commercial Fisheries	Alternate	
Kim Olsen	Commercial Fisheries	Alternate	November 2013 -
Richard Snowdon	Commercial Tourism	Member	July 2012 -
Andrew Jones	Commercial Tourism	Alternate	July 2012 – May 2013
Jamie Scarrow	Commercial Tourism	Alternate	June 2013 - August 2013
Jacob Etzkorn	Marine Conservation	Member	July 2012 - August 2013
Gord Curry	Marine Conservation	Member	September 2013 -
Bill Wareham	Marine Conservation	Alternate	July 2012 - August 2013

Panos Grames	Marine Conservation	Alternate	November 2012 – August 2013
Kat Middleton	Marine Conservation	Alternate	September 2013 -
Kim Wright	Marine Conservation	Alternate	July 2013 - October 2013
Richard Opala	Finfish Aquaculture	Member	July 2012 -
David Minato	Finfish Aquaculture	Alternate	July 2012 -
Jim Abram	Local Government – Strathcona Regional District	Member	November 2012 -
Jude Schooner	Local Government – Strathcona Regional District	Alternate	
Heidi Soltau	Local Government – Regional District of Mt Waddington	Member	July 2012 -
Doug Aberley	Local Government – Regional District of Mt Waddington	Alternate	June 2013 -
Alan Thomson	Public Recreation	Member	July 2012 -
Nick Heath	Public Recreation	Alternate	July 2012 -
Rupert Gale	Public Recreational Fishing	Member	July 2012 – September 2012
Dwayne Mustard	Recreational Fishing Services	Member	September 2012 -

Paul Kariya	Renewable Energy	Member	July 2012 -
Ellen Bird	Renewable Energy	Alternate	September 2012 -
Bill Johnson	Renewable Energy	Alternate	March 2013 – December 2013
Brian Kingzett	Shellfish Aquaculture	Member	November 2012 -
Michele Patterson	Shellfish Aquaculture	Alternate	July 2012 -

1611

1612

Schedule of Marine Plan Advisory Committee Meetings

Meeting Number	Date	Location	Objectives
1	July 9-10, 2012	Campbell River	Introduction to participants, process and roles
2	September 27-28, 2012	Campbell River	Feedback on plan components, discussion of desired future state, introduction to issues, objectives and strategies
3	November 28-29, 2012	Campbell River	Review issues, objectives and strategies and draft vision statement
4	January 22-23, 2013	Campbell River	Review current conditions and trends, issues objectives and strategies and introduction to the zoning framework
5	March 6-7, 2013	Campbell River	Review of preliminary zoning, data layers and spatial planning
6	June 5-6, 2013	Campbell River	Overview of Preliminary Draft 1 of the NVI Marine Plan and orientation to the marine spatial planning tool
7	September 9-10, 2013	Port McNeill	Review of Preliminary Draft 2 of the NVI Marine Plan and field trip
7b	October 10, 2013	Campbell River	Area specific management direction and marine spatial planning
8	November 21-22, 2013	Campbell River	Review of Preliminary Draft 3 of NVI Marine Plan
9	February 19-20, 2014	Campbell River	Review of Preliminary Draft 4 of the NVI Marine Plan

Schedule of NVI Planning Team and Sector Meetings

Date	Location	Objectives
February 27, 2014	Nanaimo	Meeting with commercial recreation and tourism and conservation
Feb 28, 2014	Nanaimo	Meeting with finfish aquaculture
March 3, 2014	Victoria	Meeting with commercial fisheries

Marine Plan Advisory Committee Terms of Reference

Context

The Nanwakolas Council and the provincial government are jointly preparing a marine plan for the North Vancouver Island sub-region of the North Pacific Coast. This work is being done pursuant to a November 2011 Letter of Intent among the Nanwakolas Council, Coastal First Nations-Great Bear Initiative, the North Coast-Skeena First Nations' Stewardship Society, and the provincial government (represented by the Ministry of Forests, Lands and Natural Resource Operations). The Letter of Intent, related funding agreements and work plans constitute the Marine Planning Partnership for the North Pacific Coast (MaPP). MaPP provides for collaborative development of four sub-regional marine plans, and a regional planning document using an ecosystem-based management approach. MaPP may also serve to inform the Pacific North Coast Integrated Management Area (PNCIMA) planning process currently underway.

Preparation of the North Vancouver Island Marine Plan is being led by a joint provincial government - Nanwakolas Council Technical Team. Plan preparation will commence in March 2012, and will be completed by November of 2013 for final review and approval. The sub-regional plan area is shown in Attachment 1.

Committee Roles and Responsibilities

The general role of the Marine Plan Advisory Committee (MPAC) is to provide stakeholder advice and feedback on a North Vancouver Island Marine Plan.

Specific **responsibilities** of the MPAC are to:

a) Review, discuss and provide timely feedback and advice on draft components of the Marine Plan during its development;
b) Review, discuss and provide timely feedback and advice on a final Marine Plan prior to its approval by the Nanwakolas Council and the provincial government;
c) Assist in the promotion of, and participate in any public meetings organized by the Technical Team to solicit input at key stages of Marine Plan development; and
d) Confirm the nature and extent of support for the final Marine Plan by the interests represented on MPAC.

The role and responsibilities of the MPAC **do not include** provision of advice on process design or public communications, unless specifically requested by the Technical Team.

MPAC Composition

The MPAC will be comprised of representatives of key marine interests, as shown in Table 1.

MPAC members will be appointed by the Technical Team on the basis of a nomination and selection process developed by the Technical Team.

Alternate members may be nominated for appointment by the Technical Team to attend advisory meetings and observe discussions, for continuity and familiarity purposes. An alternate may participate in meeting discussions only in the absence of the member that is represented by the alternate.

The Technical Team will provide co-chairs for each meeting, who will be responsible for agendas, background materials, technical presentations, venues, and other meeting details.

Other Technical Team members or provincial/Nanwakolas Council staff may attend MPAC meetings to present information and products and address questions on specific topics.

Table 1: MPAC representation and seats

Marine Conservation (1)	Commercial Recreational Fisheries (1)
Commercial Fisheries (1)	Public Recreational Angling (1)
Marine Transportation Carriers (1)	Municipal or Regional Government (2)
Commercial Tourism (1)	Public Recreation (1)
Finfish Aquaculture (1)	Shellfish Aquaculture (1)
Renewable Energy (1)	Forest Industry (1)

MPAC MEMBER RESPONSIBILITIES

MPAC members (and alternates) will:

a) Communicate on a regular basis with individuals and organizations having similar marine interests to convey information on emerging MaPP products and develop feedback and advice on draft Marine Plan components;
b) Make best efforts to keep their sectors or colleagues informed of the role of the MPAC and Marine Plan review progress;
c) Develop advice that considers relevant government policies and programs, the perspectives of other MPAC members, and supporting data and documentation;
d) Abide by the Code of Conduct established for MPAC meetings as outlined in Attachment 2;
e) Make best efforts to attend all scheduled meetings of the MPAC as outlined in Attachment 3;
f) Advise the Technical Team co-chairs if unable to attend a scheduled meeting, and ensure the designated alternate is available for the meeting.

MEETING PROCEDURES

MPAC meetings will primarily be in-person meetings and will preferably be held in central communities in the Plan Area in accordance with the meeting schedule in Attachment 3. Teleconference or webinar meetings may occur in-between face-to-face meetings.

Most meetings will be facilitated by an independent facilitator, whose role is to:

a) Provide good meeting management, including adherence to agendas and timelines;
b) Enforce adherence to the Code of Conduct (Attachment 2);

c) Encourage all perspectives to be expressed on a topic, and provide clarification of the members' views on draft Plan products; and

d) Provide closure to discussion topics and agenda items, by ensuring clarity on topics being discussed, summarizing advice heard, and acknowledging key points.

General consensus or agreement on advice is a desirable meeting outcome, but not a pre-requisite for moving on to review other draft Marine Plan products identified on a meeting agenda.

The Technical Team co-chairs are responsible for developing and circulating meeting agendas, and for distributing review materials in advance of meetings. Meeting materials will be circulated no later than two weeks in advance of a meeting to provide adequate review time, unless otherwise arranged with a majority of MPAC members.

A general meeting summary will be prepared by the Technical Team co-chairs as input to final Marine Plan products, and posted to the MaPP website. The summary will identify key discussion items, key advice given, and any agreements reached. Summaries will be circulated within 14 business days of a meeting and members provided a minimum of 5 business days to review and comment before posting to the website.

Meetings are intended to be progressive and focussed. Consequently, past meeting summaries and review of amended Marine Plan products will not be included on MPAC meeting agendas.

The MPAC schedule will include time for a review of a final draft Marine Plan; to enable MPAC members to determine the extent to which advice and comment on individual components has been incorporated.

MPAC meetings are not intended to be public meetings, and will not be advertised. However, notice of meetings will be posted on the MaPP website and the public will not be excluded from meetings. Public observers will be expected to adhere to meeting procedures and to refrain from entering discussions without the express approval of the co-chairs.

PLAN REVIEW TOPICS

The MPAC will meet to review, discuss and provide feedback on draft planning products (including objectives, strategies, best practices, implementation measures, and spatial designations) for all key marine uses and activities in the sub-region.

Draft Marine Plan products will be developed using the best available information, including traditional and local knowledge, and using independent scientific and technical advice where required. MPAC members may bring additional information to the Technical Team's attention for consideration in draft Marine Plan products preparation and revisions.

FUNDING

Funding will be provided to MPAC members to cover their travel and accommodation expenses for meeting participation, and a per diem provision to cover meals and incidental costs not otherwise provided or covered by MaPP. Expenses for alternates will be provided when alternates are substituting for their member, and (if funding is available) for attendance at meetings where their member is present. Expense claims must be submitted within 15 business days of the meeting end date or they will not be accepted. Expense claims will be reimbursed within 30 days of receipt.

Where considered necessary and if MaPP funds permit, the Technical Team co-chairs will consider requests by MPAC members for additional funding to facilitate review of draft materials by others within a sector or area of interest represented by an MPAC member.

Appendix 1: Map of Sub-Regional Marine Plan Area

Appendix 2: MPAC code of conduct

Members (and Alternates) agree to:

a) Act in good faith in all aspects of the MPAC meeting process;
b) Treat each other with respect and as equals;
c) Strive to present the perspectives of their sectors or interests that they represent:;
d) Assist the facilitator/co-chairs in ensuring that meetings are efficient and effective;
e) Assist the facilitator/co-chairs in ensuring all perspectives are expressed on an agenda topic;
f) Seek to reach agreement on advice and feedback with other members, wherever possible;
g) Explain reasons or provide rationale for their comments on Marine Plan products;
h) Focus disagreements on the issues or facts, not on individuals or groups;
i) Make good faith efforts to accurately characterize MPAC discussions to constituents, members of their interest groups, and members of the public;
j) Adhere to this Code of Conduct and raise directly with MPAC members any matter they perceive to be in violation of this Code of Conduct.

North Vancouver Island Marine Plan Advisory Committee (MPAC)

Terms of Reference Clarification Addendum (October 18, 2013)

Topic Area

1. **Roles and Responsibilities**
   - MPAC members may offer advice on process as it relates to the *MPAC meeting schedule and review topics*; and
   - MPAC members may assist in the promotion of, or participate in, public meetings and *associated communications*.

2. **Composition**
   - Alternate members may attend all MPAC meetings, but will *only be covered under meeting expenses and included in MPAC discussions when the primary member is not available*;
   - *MPAC members may, by way of the MaPP Support Fund, fund alternates to come to MPAC meetings as laid out in the proposal guidelines of the MaPP Support Fund*; and,
   - "Commercial Recreational Fishing" interests will be referred to as "*Recreational Fishing Services*" and "Public Recreational Angling" will be referred to as "*Public Recreational Fishing*."

3. **Meeting Procedures**
   - Meeting summaries will be provided to MPAC members following each MPAC meeting as well as *an 'advice log' to document all advice captured during meetings*. *Written comment on MaPP products will also be documented and distributed to all members prior to each meeting*;
   - Advice logs will include status updates, noting whether the advice is under consideration, has been incorporated, or not feasible. *A brief synopsis on input received will be given at MPAC meetings.*
   - *An online dropbox has been created for distribution of MPAC documents in each sub region*. The intent is to allow MPAC members to see what is going on in each subregion and as the method for distributing larger document files and higher resolution maps.

4. **Meeting Schedule**
   - Meeting scheduling will be reviewed at each MPAC meeting. *Online Doodle Polls* will be used to plan meetings and coordinate member availablilty at least three months in advance.

5. **Extension**
   - The term of service was extended to June 30, 2014 due to the extension of the MaPP Initiative.

1752 ## APPENDIX B3: ENGAGEMENT WITH NON-PARTICIPATING GROUPS

Date	Group	Form of Engagement	Purpose
March 2012	Other First Nations within the NVI Marine Plan area	Letter from the Province of BC	Invitation to meet to discuss the process.
February 2013	Other First Nations within the NVI Marine Plan area	Letter from the Province of BC	Update on process and invitation for further discussion.
February 2013	Other First Nations within the NVI Marine Plan area	Letter from the Province of BC	Inform of changes to boundary.
March 2014	Other First Nations within the NVI Marine Plan area	Letter from the Province of BC	Update on process and invitation for further discussion. Provision of draft plan.

1753

1754 # APPENDIX B4: SCIENCE ADVISORY COMMITTEE

Name	Affiliation	Area of Expertise
Natalie Ban	University of Victoria	cumulative effects, biodiversity
Rosaline Canessa	University of Victoria	spatial analysis, conservation planning, coastal zone management, tourism, recreation, interdisciplinary
Charles (Bud) Ehler	Ocean Visions	marine planning, integrated coastal and ocean management
Wolfgang Haider	Simon Fraser University	social and economic research, protected areas planning and management, nature conservation, outdoor recreation and tourism, human dimensions of recreational fishing and wildlife, landscape perception
Phil Levin	NOAA National Marine Fisheries Service	ecosystem science, ecological processes, fisheries, EBM
Gordon Munro	Clark, Munro and Associates; University of British Columbia (emeritus)	economics, fisheries, natural resources
Nancy Turner	University of Victoria	traditional knowledge, ethnobotany, ethnoecology
Frank Whitney	Retired, Fisheries and Oceans Canada	oceanography, nutrient transport, multi-decadal ecosystem processes, hypoxia, climate change
Spencer Wood	Natural Capital Project - Stanford University	socio-ecological interactions, models, ecosystem services, marine biodiversity

APPENDIX B5: PLANNING SUPPORT TOOLS

Regional Zoning Framework

The zoning framework is primarily intended to provide guidance for marine and coastal resource management decision makers and marine user groups. The framework identifies the goal, principles, scale, objectives, guidelines and designations to be used for zoning.

Compatibility Matrix

The Compatibility Matrix is a high-level guidance document that is intended to help identify uses that may need to be separated spatially and/or temporally. By citing the reasons why two uses are considered to have identified incompatibilities or potential incompatibilities, it is also intended to assist decision makers in identifying management provisions that may be required to mitigate conflicts between uses. Vulnerability Matrix

The purpose of the matrix for MaPP is to provide information while using the Regional Zoning Framework and the other planning tools for zoning designations in the MaPP sub-regions, for example, the compatibility matrix.

It is a two by two matrix that provides a quantitative, qualitative, or relative value for the effects of marine issues or uses on marine ecosystem types. The vulnerability matrix provides a measure of the vulnerability of ecosystem types to relevant stressors, or marine uses, in order to guide spatial planning in the MaPP region. The MaPP vulnerability matrix uses the BC Marine Ecosystem Classification system as well as biogenic habitats (e.g., coral sponge reefs) and biotic communities (e.g., eelgrass and kelp communities) as the ecosystem types.

Marine Planning Portal

1773 The portal is a spatial planning support tool. The portal is for displaying spatially-explicit data and draft plans for planning and
1774 discussion purposes throughout the MaPP study area. The expectations for the portal's use are to educate and inform users about
1775 the ecology as well as human uses and activities in the marine environment for the North Pacific Coast.

APPENDIX C1: ECOSYSTEM- BASED MANAGEMENT

Draft EBM Goals

1. Integrity of the marine ecosystems, primarily with respect to their structure, function and resilience
2. Human well-being supported through societal, economic, spiritual and cultural connections to marine ecosystems
3. Collaborative, effective, transparent, integrated governance and management and public engagement
4. Improved understanding of complex marine ecosystems and changing marine environments.

Principles

An EBM approach:

e) Seeks to maintain ensure ecological integrity).
f) Includes human well-being.
g) Is precautionary.
h) Is adaptive.
i) Includes the assessment of cumulative effects.
j) Is equitable, collaborative, inclusive and participatory.
k) respects Aboriginal rights, Aboriginal titles and treaty rights.
l) Is area-based.
m) Is integrated.
n) Is based on science and on wise counsel.

Assumptions

o) Ecosystem goods and services underlie and support human societies and economies; such goods and services can be direct or indirect.

p) Humans and their communities are part of ecosystems, and they derive social, cultural and economic value from marine ecosystem goods and services.

q) Human activities have many direct and indirect effects on marine ecosystems.

r) EBM informs the management of human activities.

s) Marine ecosystems exist on multiple spatial and temporal scales, and are interconnected.

t) Marine ecosystems are dynamic and subject to ongoing and sometimes unpredictable change.

u) Marine ecosystem states have limits to their capacity to absorb and recover from impacts.

v) Human understanding of marine ecosystems is limited.

w) Humans prefer some ecosystem states more than others.

x) Humans can manage some drivers of change better than others, and can adjust or respond to such some changes only better at the scale of MaPP planning.

APPENDIX D1: INTERNATIONAL UNION FOR CONSERVATION OF NATURE (IUCN) PROTECTED AREA MANAGEMENT CATEGORIES

See the MaPP Zoning Framework for further information.

IUCN Category	Definition
Ia	Strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.
Ib	Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.
II	Large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristics of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities
III	Set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living component such as a specific coralline feature. They are generally quite small protected areas and often have high visitor value.
IV	Aim to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.
V	Areas where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.
VI	Areas that conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under low-level non-industrial sustainable natural resource management and where such use of natural resources compatible with nature conservation is seen as one of the main aims of the area.

APPENDIX D2: TENURING PROCESS

Tenure over Provincial Crown Land is an important component of commercial, industrial, private and public development (including infrastructure) in BC. The *Land Act* and its regulations and policies, guide the administration of provincial tenures in BC's marine areas.

Land Act tenures provide secured access to public lands for periods of 1 to 30 years and include permits, licences of occupation, leases, easements and statutory rights of way. Tenures include an identified set of rights for a specific period of time. Marine uses permitted with these tenures include: energy, aquaculture, petroleum, utilities, log handling and storage, marinas, yacht clubs, private moorage, disposal at sea, towboat reserves, docks, boat launches, commercial, floating communities, recreation/tourism, and conservation. Crown land is also allocated through sale, sponsored crown grants/nominal rent tenures, reserve, withdrawal and transfer. Land use tenure applications are handled by the Land Tenures Branch under Ministry of Forests, Lands and Natural Resource Operations. (Oil and gas tenures are handled by the Ministry of Energy, Mines and Natural Gas.) Application fees and rental fees are collected on tenures. Several tenure specific policies have been developed or updated in the last few years.

The policy for Crown land allocation identifies five principles:

a) Crown land values are managed for the benefit of the public.
b) Economic, environmental and social needs and opportunities are identified and supported.
c) The interests of First Nations' communities are recognized.
d) Decisions are timely, well-considered and transparent.
e) Public accountability is maintained during the allocation of Crown land.

Different uses also have specific policies that lay out directions for tenuring including disposition types, pricing and conditions or terms.

New tenures, *Land Act* reserves, designations and notations are reviewed for referral to other agencies, organizations, local governments and First Nations. In some cases interagency agreements can set standards or identify areas where referrals are not needed. For complex applications, Project Review Teams of federal, provincial, municipal and First Nations agencies can be included, as can representatives from non-governmental organizations. The situations and requirements for newspaper advertising for notification of tenure applications are guided under the Land Act. Advertising is required for some specific marine activities including: finfish and shellfish aquaculture, float home communities, log handling, marinas, major utility rights of way, major linear telecommunications. Advertising is discretionary for private moorage. For marine applications, reports and assessments on potential impacts by qualified professionals are used by *Authorizing Agency* staff, along with impacts on adjacent upland owners. Replacement or renewals of tenures are determined at the discretion of the *Authorizing Agency*, and are commonly only referred to First Nations

APPENDIX E: EBM INDICATORS

Still in progress.