

# Multi-species Action Plan for Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site



2016



HAIDA NATION

Canada

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For copies of the action plan, or for additional information on species at risk, including COSEWIC Status Reports, residence descriptions, recovery strategies, and other related recovery documents, please visit the [Species at Risk Public Registry](#)<sup>1</sup>.

**Cover illustration:** Photos by Neil Ever Osborne and Stef Olcen (inset)

Également disponible en français sous le titre :  
Plan d'action visant des espèces multiples dans la réserve de parc national, réserve d'aire marine nationale de conservation, et site du patrimoine Haïda Gwaii Haanas.

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<sup>1</sup> <http://www.registrelep.gc.ca/default.asp?lang=En&n=24F7211B-1>

## Recommendation and Approval Statement

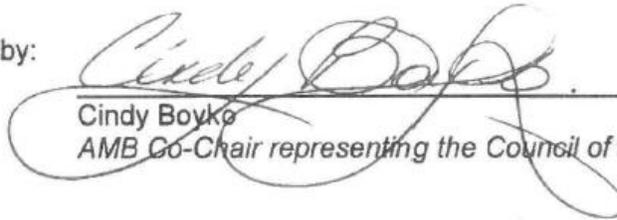
*The Parks Canada Agency and the Council of the Haida Nation led the development of this federal action plan, working together with the other competent minister(s) under the Species at Risk Act. The Vice-President Operations and the Vice-President of the Haida Nation, upon recommendation of the relevant Field Unit Superintendent and co-chair of the Archipelago Management Board (AMB), hereby approve this document indicating that the relevant Species at Risk Act requirements related to action plan development have been fulfilled in accordance with the Act.*

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Vice-President of the Haida Nation

## Preface

The federal, provincial, and territorial government signatories under the [Accord for the Protection of Species at Risk \(1996\)](#)<sup>2</sup> agreed to establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada. Under the *Species at Risk Act* (S.C. 2002, c.29) (SARA), the federal competent ministers are responsible for the preparation of action plans for species listed as Extirpated, Endangered, or Threatened for which recovery has been deemed feasible. They are also required to report on progress five years after the publication of the final document on the Species At Risk Public Registry.

Under SARA, one or more action plan(s) provide the detailed recovery planning that supports the strategic directions set out in the recovery strategy, or in the case of a multi-species action plan, the recovery strategies, for the species. The action plan outlines what needs to be done to achieve the population and distribution objectives (previously referred to as recovery goals and objectives) identified in the recovery strategies, including the measures to be taken to address the threats and monitor the recovery of the species, as well as the proposed measures to protect critical habitat that has been identified for the species. The action plan also includes an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation. The action plan is considered one in a series of documents that are linked and should be taken into consideration together with the COSEWIC status reports, management plans, recovery strategies and other action plans produced for these species. This action plan will be updated to more comprehensively include measures to conserve and recover the marine species at risk once the first integrated Land, Sea, People management plan for Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve & Haida Heritage Site (hereafter called Gwaii Haanas) is complete.

The Minister responsible for the Parks Canada Agency (the Minister of the Environment and Climate Change) and the Minister of Fisheries and Oceans are the competent ministers under SARA for the species found in Gwaii Haanas and have prepared this action plan to implement the recovery strategies on/in Gwaii Haanas lands/waters, as per section 47 of SARA. The action plan has been prepared with the Haida Nation and in cooperation with the province of British Columbia and Environment and Climate Change Canada as per section 48(1) of SARA.

Implementation of this action plan is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations.

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<sup>2</sup> [www.ec.gc.ca/media\\_archive/press/2001/010919\\_b\\_e.htm](http://www.ec.gc.ca/media_archive/press/2001/010919_b_e.htm)

## **Acknowledgments**

Thanks are extended to employees and representatives of the Council of the Haida Nation for their input and perspectives during the action plan workshop held in May 2015 and thanks to them and to the Skidegate Haida Immersion Program for additional support during the preparation of the action plan. Thanks also to the Department of Fisheries and Oceans, the BC Ministry of Environment, the BC Ministry of Forests, Lands and Natural Resource Operations, and BC Parks and Environment and Climate Change Canada for reviewing a draft of this action plan. Finally, Parks Canada would like to thank the BC Conservation Data Centre, NatureServe Canada and the agencies cited above for providing data and information used in assessing the status of species in Gwaii Haanas.

## Executive Summary

The *Multi-species Action Plan for Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site* meets the requirements for an action plan set out in the *Species at Risk Act* (SARA (s.47)) for species requiring an action plan that occur inside the boundary of the site. This action plan will be updated to more comprehensively include measures to conserve and recover the marine species at risk once the first integrated Land, Sea, People management plan for Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve & Haida Heritage Site (hereafter called Gwaii Haanas) is complete. Measures described in this plan will also provide benefits for other species of conservation concern that regularly occur in Gwaii Haanas.

The Minister responsible for the Parks Canada Agency (the Minister of the Environment and Climate Change) and the Minister of Fisheries and Oceans are the competent ministers under SARA for the species found in Gwaii Haanas and have prepared this action plan to implement the recovery strategies on/in Gwaii Haanas lands/waters, as per section 47 of SARA. The action plan has been prepared with the Haida Nation and in cooperation with the province of British Columbia and Environment and Climate Change Canada as per section 48(1) of SARA.

Where it has been determined that Gwaii Haanas can conduct management activities to help recover and/or manage a species, site-specific objectives are identified in this plan and represent the site's contribution to objectives presented in federal recovery strategies and management plans. Species at risk, their residences, and their habitat are protected by existing national park reserve and national marine conservation area reserve regulations and management regimes as well as by SARA. Additional measures that will contribute to the survival and recovery of the species in Gwaii Haanas are described in this plan. These measures were identified based on threats and measures outlined in federal and provincial status assessments and recovery documents, as well as knowledge of the status and needs of each species in Gwaii Haanas. Population monitoring actions are also identified for the species for which management actions at the sites can contribute to recovery.

No new critical habitat is identified in this action plan. Measures used for protection of existing critical habitat are described.

Measures proposed in this action plan will have limited socio-economic impact and place no restrictions on land use outside of Gwaii Haanas. Direct costs of implementing this action plan will be borne by Parks Canada. Indirect costs are expected to be minimal, while benefits will include positive impacts on site ecological integrity, greater awareness and appreciation of the value of biodiversity, and opportunities for engagement of local communities and visitors to Gwaii Haanas.

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## 1. Context

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve and Haida Heritage Site (hereafter called Gwaii Haanas) is a 5,000 km<sup>2</sup> protected area (1,500 km<sup>2</sup> of land and 3,500 km<sup>2</sup> of seas) known for its distinct island flora and fauna, rich marine life, examples of living Haida culture, and cooperative management structure. It is accessible only by boat or seaplane and comprises the southern part of the island archipelago of Haida Gwaii, approximately 130 kilometres off the coast of British Columbia and 640 km north of Vancouver. It is an area of many transitions, from deep-sea to continental slope to shallow shelf to rugged islands to mountain-tops, and it remained an unglaciated refugia during the last ice age. The islands of Haida Gwaii have been called “the Galapagos of the north” for their rich and often unique biological diversity, and the surrounding waters support some of the most abundant and diverse marine communities found in temperate waters worldwide.

Gwaii Haanas is a Haida Heritage Site (HHS) commemorating the living culture of the Haida and their long relationship with the land and sea of Gwaii Haanas through examples of monumental poles, Haida architecture, and Haida Gwaii Watchmen who live on site. One of the islands within Gwaii Haanas, SGang Gwaay, was declared a UNESCO World Heritage Site in 1987. Before the 19th century disease epidemics, there were permanent villages and seasonal habitation sites spread throughout Gwaii Haanas, supporting thousands of people. The remote nature of the islands meant that European settlers did not arrive until relatively recently, although ship-based explorers and traders interacted with the Haida for hundreds of years before that.

In 2010, with the establishment of the National Marine Conservation Area Reserve (NMCAR) surrounding the existing National Park Reserve and Haida Heritage Site, Gwaii Haanas is now managed from mountain-top to sea floor. Approximately half of the Gwaii Haanas species assessed as being at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) are terrestrial and half are marine, with a few species crossing the margin between terrestrial and marine for different parts of their life cycles.

Gwaii Haanas is managed cooperatively by the Archipelago Management Board (AMB), made up of representatives of the Government of Canada (Parks Canada and Fisheries and Oceans Canada) and the Council of the Haida Nation. The AMB is guided by the *Gwaii Haanas Agreement* (1993) and the *Gwaii Haanas Marine Agreement* (2010), which describe how Canada and the Haida Nation will cooperate in the planning, operation, management and use of Gwaii Haanas. A comprehensive community of stakeholders provides advice to Gwaii Haanas during the development of site management plans.

Species at risk, their residences, and their habitat are protected by existing national park and marine conservation area regulations and management regimes as well as by SARA. Recovery measures for species at risk will be integrated within the framework of Gwaii Haanas' ongoing ecological integrity maintenance, restoration and monitoring programs. These programs make contributions to the conservation and recovery of

species at risk through inventory and monitoring and the implementation of habitat restoration projects and other measures aimed at biodiversity conservation.

In addition to status assessments, a number of recovery strategies, management plans, and action plans have been prepared for species considered in this action plan. Those documents provide guidance for the conservation and recovery of individual species, including the identification of objectives and the measures required to meet those objectives, the identification of critical habitat, and activities likely to destroy the critical habitat. This action plan was developed and will be implemented in a manner that is consistent with those documents, and should be viewed as part of this body of linked strategies and plans.

### **1.1. Scope of the Action Plan**

The geographic scope of this action plan includes all lands and waters managed by *Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site* (Figure 1). This multi-species action plan has been written specifically for Gwaii Haanas because the Parks Canada Agency (PCA) is legally responsible for species at risk on/in PCA-administered lands and waters, has the ability to take direct conservation action, and deals with different threats, legislation, and management priorities than areas outside Gwaii Haanas.

The *Multi-species Action Plan for Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site* meets the requirements for an action plan set out in the *Species at Risk Act* (SARA (s.47)) for species requiring an action plan that occur inside the boundary of the site. This action plan will be updated to more comprehensively include measures to conserve and recover the marine species at risk once the first integrated Land, Sea, People management plan for Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve & Haida Heritage Site (hereafter called Gwaii Haanas) is complete. Measures described in this plan will also provide benefits for other species of conservation concern that regularly occur in Gwaii Haanas. This approach both responds to the legislated requirements of the SARA and provides the Parks Canada Agency with a comprehensive plan for species conservation and recovery at these sites. The plan will be amended as required to meet SARA requirements for action planning.



Figure 1. Geographic scope for the *Multi-species Action Plan for Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site*. Gwaii Haanas is located on southern Haida Gwaii off the west coast of British Columbia. © Parks Canada

Table 1. Terrestrial species at risk included in the action plan for Gwaii Haanas (status as of Sept 1, 2015)

Species	Haida name	Scientific name	COSEWIC status	SARA status
Ermine, haidarum subspecies	Tllga	<i>Mustela erminea haidarum</i>	Threatened	Threatened
Marbled Murrelet	Ts'allang.nga	<i>Brachyramphus marmoratus</i>	Threatened	Threatened
Little Brown Myotis	GudGaadu gamhlGal (bat)	<i>Myotis lucifugus</i>	Endangered	Endangered
Northern Goshawk, laingi subspecies	Stads k'un	<i>Accipiter gentilis laingi</i>	Threatened	Threatened
Northern Saw-whet Owl, brooksi subspecies	St'aw (daytime) or Sgas sgas (nighttime)	<i>Aegolius acadicus brooksi</i>	Threatened	Threatened
Ancient Murrelet	SGin xaana	<i>Synthliboramphus antiquus</i>	Special Concern	Special Concern
Great Blue Heron, fannini subspecies	HlGuu	<i>Ardea herodias fannini</i>	Special Concern	Special Concern
Keen's Myotis	GudGaadu gamhlGal (bat)	<i>Myotis keenii</i>	Data Deficient	Special Concern (Sched 3)
Oldgrowth Specklebelly Lichen		<i>Pseudocyphellaria rainierensis</i>	Special Concern	Special Concern
Peregrine Falcon, pealei subspecies	Hlk'yah	<i>Falco peregrinus pealei</i>	Special Concern	Special Concern
Western Toad, non-calling population	Hlk'yan k'uust'an	<i>Anaxyrus boreas</i>	Special Concern	Special Concern
Barn Swallow	Kud k'aaluu	<i>Hirundo rustica</i>	Threatened	Not listed
Cassin's Auklet	Haaja	<i>Ptychoramphus aleuticus</i>	Special Concern	Not listed
Haida Gwaii slug	St'aalaay or st'aall	<i>Staala gwaii</i>	Special Concern	Not listed
Horned Grebe, western population	GyuuGaadaGa	<i>Podiceps auritus</i>	Special Concern	Not listed
Peacock Vinyl Lichen		<i>Leptogium polycarpum</i>	Special Concern	Not listed
Red-necked Phalarope	Xil sGid xidid	<i>Phalaropus lobatus</i>	Special Concern	Not listed
Western Bumblebee, occidentalis subspecies	SGaal	<i>Bombus occidentalis occidentalis</i>	Threatened	Not listed

Table 2. Marine species at risk included in the action plan for Gwaii Haanas (status as of Sept 1, 2015). This is a partial action plan for the marine species and will be updated upon completion of the first integrated management plan for Gwaii Haanas including zoning.

Species	Haida name	Scientific name	COSEWIC status	SARA status
Blue Whale, Pacific population	Kun (*generic term for both toothed and baleen whale)	<i>Balaenoptera musculus</i>	Endangered	Endangered
Fin Whale, Pacific population	SGap	<i>Balaenoptera physalus</i>	Threatened	Threatened
Humpback Whale, north Pacific population	Kun	<i>Megaptera novaeangliae</i>	Special Concern	Threatened
Killer Whale, northeast Pacific Offshore population	SGaana	<i>Orcinus orca pop. 3</i>	Threatened	Threatened
Killer Whale, northeast Pacific Northern Resident population	SGaana	<i>Orcinus orca</i>	Threatened	Threatened
Killer Whale, northeast Pacific Transient population	SGaana	<i>Orcinus orca</i>	Threatened	Threatened
Leatherback Seaturtle	Siiga	<i>Dermochelys coriacea</i>	Endangered	Endangered
North Pacific Right Whale	Kun	<i>Eubalaena glacialis</i>	Endangered	Endangered
Northern Abalone	GaalGahlyan	<i>Haliotis kamtschatkana</i>	Endangered	Endangered
Pink-footed Shearwater	St'aay sGidxyang saa.nga	<i>Puffinus creatopus</i>	Threatened	Threatened
Sei Whale, Pacific population	Kun	<i>Balaenoptera borealis</i>	Endangered	Endangered
Short-tailed Albatross	Sk'yaw hudjuu sk'aay	<i>Phoebastria albatrus</i>	Threatened	Threatened
Black-footed Albatross	Sk'aay	<i>Phoebastria nigripes</i>	Special Concern	Special Concern
Bluntnose Sixgill Shark	Kun hudjuu stlin na nang gyuugings	<i>Hexanchus griseus</i>	Special Concern	Special Concern
Green Sturgeon		<i>Acipenser medirostris</i>	Special Concern	Special Concern
Grey Whale, eastern North Pacific population	Kun	<i>Eschrichtius robustus</i>	Special Concern	Special Concern
Harbour Porpoise, Pacific population	Skul	<i>Phocoena phocoena</i>	Special Concern	Special Concern
Longspine Thornyhead	SGan xang.ngii skaagiilang	<i>Sebastolobus altivelis</i>	Special Concern	Special Concern

Species	Haida name	Scientific name	COSEWIC status	SARA status
Rougheye/Blackspotted Rockfish complex		<i>Sebastes aleutianus</i> and <i>S. melanostictus</i>	Special Concern	Special Concern
Sea Otter	Kuu	<i>Enhydra lutris</i>	Special Concern	Special Concern
Steller Sea Lion	Kay	<i>Eumetopias jubatus</i>	Special Concern	Special Concern
Tope	Gwiiguuga	<i>Galeorhinus galeus</i>	Special Concern	Special Concern
Yelloweye Rockfish, Pacific outside waters population	SGan	<i>Sebastes ruberrimus</i>	Special Concern	Special Concern

## 2. Site-based Population, Distribution & Recovery Objectives

The potential for management actions in Gwaii Haanas that would contribute to the conservation and recovery of each species of concern has been assessed. Site-specific population and distribution objectives were developed where possible (Appendices A and B), and in cases where such objectives would be too difficult to monitor due to logistical challenges and the remote nature of the site, alternate objectives were set to identify the contribution that can be made towards achieving the objectives presented in federal recovery strategies and management plans. Because they are directly linked to the Gwaii Haanas population and distribution objectives, monitoring activities are reported in Appendices A and B rather than in the tables of conservation and recovery measures (Appendices C1, C2, D1 and D2). Gwaii Haanas-specific population or distribution objectives may not be meaningful for certain species for a variety of reasons, including the fact that particular threats (such as industrial activities) may not exist in Gwaii Haanas, that the species is only transient in the area, or that the population within Gwaii Haanas is a very small part of the Canadian distribution. If there is little opportunity for Gwaii Haanas to contribute to the recovery of a species, site-specific objectives and conservation actions may be limited to protection measures in place under the *Canada National Parks Act*, the *National Marine Conservation Areas Act* and SARA, and monitoring, habitat maintenance, and restoration through the existing site management regime. For many species, population and distribution objectives for Gwaii Haanas are not meaningful at the scale of this action plan for various reasons, including 1) threats cannot be controlled in the park or do not exist in the park (e.g., wide-spread disease, forestry or other industrial practices, etc); 2) species is only transient; 3) population within the site is a very small part of the Canadian distribution or is unknown or unconfirmed

### 3. Conservation and Recovery Measures

The lands and waters of Haida Gwaii are enormously rich and biologically diverse, and Gwaii Haanas encompasses a great many different terrestrial and marine ecosystems and habitats. Within Gwaii Haanas, we have an opportunity to investigate restoration techniques, and to contrast ecological and life history parameters with lands outside the site where logging and other industrial activities continue.

Some of the land within Gwaii Haanas was logged prior to its protection and is still in the process of recovering from extensive habitat alteration. The proliferation of introduced invasive species such as Sitka black-tailed deer, Norway and black rats, and raccoons is another ecological challenge for many terrestrial species at risk on Haida Gwaii. Deer browsing destroys forest understory vegetation, significantly altering terrestrial habitat, and rats have decimated entire colonies of seabirds by preying on eggs, chicks, and adult birds. Gwaii Haanas' *S<sub>G</sub>in Xaana* (Night Birds Returning) project on invasive rat removal and restoration of seabird breeding colonies has garnered international attention, collaborators and support. Finally, wildlife diseases are a future challenge for which we must prepare advance responses, in hopes that the island nature of Gwaii Haanas might provide conservation opportunities not available elsewhere.

The NMCAR waters are managed somewhat differently than the land base. In addition to the core mandate of conservation, protection and recovery of species and ecosystems, the marine mandate includes ecologically sustainable use for the purposes of fisheries, transport, etc. Recovery and conservation of marine species are by nature collaborative efforts, because many of the threats are widespread (climate change, oil spills) and can only be mitigated through partnerships. Most of the marine species at risk in Gwaii Haanas waters are highly mobile and make extensive use of habitats outside Gwaii Haanas, sometimes migrating thousands of kilometers each year.

This Action Plan includes assessment of the knowledge, threats and status of populations of each species in Gwaii Haanas. The action planning process identified measures to achieve site-specific population and distribution objectives, along with measures required to protect the species and to learn more about them. The process of determining which measures will be conducted by Gwaii Haanas (Appendices C1 & C2) and which measures will be encouraged through partnerships or when additional resources come available (Appendices D1 & D2) involved prioritization and analysis. The process primarily considered ecological effectiveness of measures, and also included consideration of opportunities to increase the value of visitor experience to the site, opportunities to increase awareness through external relations, and financial opportunities and constraints.

Providing opportunities for the public to learn about and experience protected areas is a central component of Parks Canada's mandate. In addition to the implementation of conservation measures that contribute to species recovery and management, Gwaii Haanas plays an important role in promoting awareness and appreciation of species at risk and engaging partners and the public in actions towards their conservation and recovery.

Wherever possible, the site is taking an ecosystem approach, prioritizing actions that benefit numerous species at once to effectively and efficiently protect and recover populations of species at risk. Four themes emerged from the analysis; invasive species management, outreach and engagement, wildlife disease management, and restoration and protection.

### **Invasive Species Management**

Gwaii Haanas will continue to pursue invasive species management projects, both as a means of restoring balance to site ecosystems (a priority in the site management plan) and as a contribution to global research on methods, planning and execution of invasive species management and long-term prospects for ecosystem restoration. In 2011, Parks Canada, the Haida Nation, Island Conservation and Coastal Conservation implemented a ground-based eradication of invasive Norway rats from Arichika and Bischof Islands, once home to significant Ancient Murrelet colonies. The project also drew on technical expertise from international experts in New Zealand and Mexico, and native species are already responding to the absence of rats. Black oystercatchers, shorebirds which are considered to be sentinel species that respond quickly to changes in ecosystem health, are increasing in numbers and are fledging more chicks in the absence of rats. Automated acoustic listening devices have been deployed on these islands and on unaffected islands to measure seabird response to the eradication.

### **Outreach and Engagement**

Gwaii Haanas is a national park reserve, a Haida heritage site, and a national marine conservation area reserve with a mandate for protection and ecologically sustainable use, so the area is uniquely situated to allow for examination of the intersection of human use and conservation on lands in BC and in Pacific waters, and to share lessons learned with colleagues and the public. The mandatory visitor orientation session provides a unique opportunity for engaging visitors in easy and meaningful activities that support species at risk conservation and restoration, such as reporting wildlife sightings to improve our understanding of population size and distribution of species at risk, or using the latest wildlife viewing guidelines to decrease disturbance to sensitive species such as marine mammals.

### **Wildlife Disease Management**

Wildlife diseases such as White-nose Syndrome, which is decimating bat populations in eastern North America and moving west, and chytrid fungus which has been identified as a key cause of amphibian decline globally, are future challenges for which we must prepare by monitoring Gwaii Haanas bats and toads, analyzing samples to check for disease presence, and implementing decontamination protocols. Haida Gwaii is an island archipelago more than 100 kms offshore, so Gwaii Haanas may be a key location for retaining un-infected populations of these species at risk if we are able to mobilize support across Haida Gwaii for efforts to keep these diseases off island.

## **Restoration and Protection**

Restoration and protection of habitats and populations are key activities for the conservation and recovery of species at risk, and the AMB has been implementing a number of such projects since long before the *Species at Risk Act* became law in 2002. Work will continue on projects such as identifying and mapping breeding sites for Northern Goshawk, estimating population size and distribution for Northern Goshawk and Northern Saw-whet Owl, developing methods for snag tree creation for Northern Saw-whet Owl breeding habitat, working with partners to explore opportunities for kelp forest restoration, and preparing an oil spill response for the protection of ecologically sensitive sites and species in Gwaii Haanas.

The Gwaii Haanas team is a recognized leader in ecological restoration and integrated management. The remote nature of the area creates certain management challenges but also opens up opportunities for a living laboratory to explore restoration techniques that could be used elsewhere on Haida Gwaii, in BC, or anywhere in the world. There has been considerable academic interest in the species and ecosystems of Gwaii Haanas, providing a consistent source of research that supports management and restoration efforts and provides opportunities for collaboration to advance conservation and recovery implementation projects.

## **4. Critical Habitat**

Critical habitat is “the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species” (SARA s.2(1)). As of September 2015, it is not possible to identify any additional critical habitat in Gwaii Haanas for Endangered, Threatened or Extirpated species listed on Schedule 1 of SARA. Critical habitat has already been identified in recovery strategies for Marbled Murrelet and Northern Saw-whet Owl (brooksi subpopulation) and for Humpback Whale (north Pacific population) and Northeast Pacific Northern Resident Killer Whale population. Critical habitat in Gwaii Haanas will also shortly be identified for Northeast Pacific Offshore Killer Whale population, Northeast Pacific Transient Killer Whale population, Leatherback Seaturtle, and Northern Abalone. Where critical habitat is not yet identified or not yet complete, it will be identified in an upcoming or revised action plan or revised recovery strategy; refer to the schedule of studies in relevant recovery strategies for further details.

### **a. Proposed Measures to Protect Critical Habitat**

There is no new critical habitat identified in this action plan. Critical habitat within Gwaii Haanas that is identified in other recovery documents is legally protected from destruction under section 58(1) of SARA or through Orders made under subsections 58(4) and 58(5).

## **5. Evaluation of Socio-Economic Costs and Benefits**

The Species at Risk Act requires the responsible federal minister to undertake “an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation.”

## 5.1. Costs

The total cost to implement this action plan will be borne by Parks Canada out of existing salaries and goods and services dollars. This figure includes incremental salary costs, materials, equipment, and contracting of professional services for measures outlined in Appendices A1 and A2. No major socio-economic costs to partners or stakeholders are expected as a result of this action plan. Additional resources or partnerships will be sought to support the measures outlined in Appendices B1 and B2.

Many of the proposed measures will be integrated into the operational management of Gwaii Haanas and there will be few new costs. These costs to Parks Canada will be covered by prioritization of existing funds and salary dollars allocated to the site and thereby will not result in additional costs to the public.

The action plan applies only to lands and waters within the boundaries of Gwaii Haanas, and does not create any use restrictions to outside land or water. As such, this action plan will place no direct socio-economic costs on the public. However, minor restrictions may be placed on visitor activities in Gwaii Haanas to protect and recover species at risk.

## 5.2. Benefits

Measures presented in this action plan for Gwaii Haanas will contribute to meeting recovery strategy objectives for Ermine haidarum subspecies, Marbled Murrelet, and Northern Saw-whet owl brooksi subspecies, and for Blue Whale Pacific population, Fin Whale Pacific population, Humpback Whale north Pacific population, Northeast Pacific Northern Resident Killer Whale population, Northeast Pacific Transient Killer Whale population, Leatherback Seaturtle, North Pacific Right Whale, Northern Abalone, Pink-footed Shearwater, Sei Whale Pacific population and Short-tailed Albatross. Measures presented here will also contribute to meeting management objectives for 27 other species of conservation concern. These measures are expected to have an overall positive impact on ecological integrity and enhance opportunities for appreciation of Gwaii Haanas and its species by visitors and the general public. This action plan includes measures that could result in benefits to the public, such as positive impacts on biodiversity and the value individuals place on preserving biodiversity (Federal, Provincial, Territorial Governments of Canada, 2014).

The proposed measures seek a balanced approach to reducing or eliminating threats to species-at-risk populations and habitats, and include protection of individuals and their habitat (e.g., restrictions to human activities within areas occupied by the species, combined with ongoing research and monitoring), potential species re-establishment, and increasing public awareness and stewardship (e.g., visitor programs, public outreach etc).

Potential economic benefits of the conservation and recovery of the species at risk found in Gwaii Haanas cannot be easily quantified, as many of the values derived from wildlife are non-market commodities that are difficult to appraise in financial terms. Marine and terrestrial wildlife, in all its forms, has value in and of itself, and is valued by

the public for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical, ecological and scientific reasons. The conservation of wildlife at risk is an important component of the Government of Canada's commitment to conserving biological diversity, and is important to current and future economic and natural wealth.

Implementing this action plan is expected to have benefits for visitors to Gwaii Haanas, local residents and partners. These include opportunities to learn about and take part in the conservation and recovery of culturally important species at risk, opportunities for visitors and local communities to be involved in conservation of the Gwaii Haanas ecosystem, and opportunities to raise awareness of the value of conservation in the region.

## **6. Measuring Progress**

Reporting on implementation of the action plan (under s. 55 of SARA) will be done by assessing progress towards implementing the measures. Reporting on the ecological impacts of the action plan will be done by assessing progress towards meeting the site-based population and distribution objectives.

## **7. References**

Archipelago Management Board. 2003. Gwaii Haanas National Park Reserve and Haida Heritage Site Management Plan for the Terrestrial Area. Gwaii Haanas National Park Reserve and Haida Heritage Site, Skidegate, BC. 23 pp.

Canada and Council of the Haida Nation. 2010. Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site Interim Management Plan and Zoning Plan. Gwaii Haanas National Park Reserve and Haida Heritage Site, Skidegate, BC. i + 37 pp.

Federal, Provincial, and Territorial Governments of Canada. 2014. *2012 Canadian Nature Survey: Awareness, participation, and expenditures in nature-based recreation, conservation, and subsistence activities*. Ottawa, ON: Canadian Councils of Resource Ministers.

## Appendix A: Gwaii Haanas (GH)-specific objectives and approach to monitoring, conservation and recovery of terrestrial species at risk.

Species	National objectives (from recovery strategies and management plans as of Sept 2015)	GH-specific objectives contributing to the national objectives	Population trend in GH over last 5 years (2009-2014)	Monitoring <sup>3</sup>	General information and broad site approach
Northern Saw-whet Owl brooksi subspecies	Maintain approximately 1800 adults across the species' extent of occurrence (10,000 km <sup>2</sup> across the Haida Gwaii archipelago) until more precise population and distribution targets can be formulated	Maintain known population in GH – major threat (logging) no longer occurs in GH and remote location makes pop'n monitoring difficult.	Unknown	Opportunistically record observations and any changes to the status of the species in GH.	Re-survey to facilitate identification of critical habitat and population assessment. If opportunity arises, address nesting habitat creation in areas where logging has affected ecosystem in the past. Assess logistically feasible and cost-effective methods for deer removal or control.
Marbled Murrelet	By 2032: halt decline of BC population and area of nesting habitat so as to retain at least 68% of 2002 populations (Haida Gwaii); Long-Term Goal: ensure the species will have a high probability of persistence after 2032 across its range by maintaining or restoring sufficient suitable nesting and marine habitat, and by reducing other threats	Maintain stable population in GH region.	Stable	Participate in ongoing population monitoring (radar).	GH participates in coast-wide monitoring activities led by ECCC and will work on oil spill preparedness activities for species like Marbled Murrelet that depend (in part) on marine habitats. Main threats do not occur within GH.
Ermine haidarum subspecies	Maintain or restore a self-sustaining, wild population of Ermine haidarum across its historical range	Confirm presence in GH	Unknown	Record sightings using remote cameras set throughout GH for long-term monitoring of small mammal populations; compile opportunistic sightings by GH staff and visitors	PCA will continue to work on invasive species management and habitat restoration projects that will benefit ermine, including assessing logistically feasible and cost-effective methods for deer removal or control.

<sup>3</sup> Where population and distribution objectives have been established for GH, monitoring is designed to directly measure success in achieving those goals; otherwise baseline monitoring efforts necessary for stewardship, management and general reporting are described.

Species	National objectives (from recovery strategies and management plans as of Sept 2015)	GH-specific objectives contributing to the national objectives	Population trend in GH over last 5 years (2009-2014)	Monitoring <sup>3</sup>	General information and broad site approach
Northern Goshawk laingi subspecies	Maintain at least 58 home ranges on Haida Gwaii	No GH-specific objective established	Unknown	Monitor known breeding sites at least once every 5 years	Monitor known breeding sites at Windy Bay and Sandy Creek, plus do one additional survey for new breeding sites using habitat suitability models. Assess methods for deer removal or control.
Little Brown Myotis and Keen's Myotis	Not Applicable (no recovery document published yet on the SAR Public Registry)	Maintain population at Hot Spring Island maternity colony	Stable at one sentinel site but unknown overall	Continue long-term monitoring of maternity colony at Hot Spring Island	Obtain baseline data on GH bat populations and work with partners on implementing decontamination protocols to keep White-nose Syndrome off Haida Gwaii as long as possible.
Ancient Murrelet	Maintain or increase the current breeding population in Canada and augment the international population numbers in Canadian waters by reducing at-sea mortality	Maintain populations at breeding sites that never had introduced mammalian predators and increase populations on islands where predators have been removed	Stable (slight increase at 3 sentinel sites in GH)	Continue population monitoring at sentinel sites (Rankine, George and Ramsay islands); update seabird colony status information	Monitor offshore islands for new non-native mammal incursions/invasions. Do outreach to prevent burrow trampling and reduce disturbance and human-facilitated incursion/invasion of rats. Maintain/augment existing closures and restrictions at sensitive nesting sites. Evaluate and pursue invasive species eradication and restoration of seabird colonies. Oil spill preparedness. Update colony and population status information throughout GH in partnership with ECCC.
Cassin's Auklet	Not Applicable (no recovery document published yet on the SAR Public Registry)	Maintain populations at breeding sites that never had introduced mammalian predators and increase populations on islands where predators have been removed	Stable	Continue population monitoring at sentinel sites (Rankine, East Copper, Ramsay and SGang Gwaay islands); update seabird colony status information	Monitor offshore islands for new non-native mammal incursions/invasions. Do outreach to prevent burrow trampling and reduce disturbance and human-facilitated incursion/invasion of rats. Maintain/augment existing closures and restrictions at sensitive nesting sites. Evaluate and pursue invasive species eradication and restoration of seabird colonies. Oil spill preparedness. Update colony and population status information throughout GH in partnership with ECCC.

Species	National objectives (from recovery strategies and management plans as of Sept 2015)	GH-specific objectives contributing to the national objectives	Population trend in GH over last 5 years (2009-2014)	Monitoring <sup>3</sup>	General information and broad site approach
Peregrine Falcon <i>pealei</i> subspecies	Maintain the population at a minimum of 100 occupied aeries and slowly increase the population to numbers that are closer to historical numbers found in the early twentieth century	Maintain population in GH	Stable or slightly increasing	Monitor population every 5 years in collaboration with EC; compile opportunistic sightings of juveniles by GH staff and visitors	Protect individuals in GH and participate in long-term population monitoring with ECCC and other partners. Evaluate and pursue opportunities for eradication of rats and other invasive species and restoration of seabird colonies (PEFA prey). Assess feasible and cost-effective methods for deer removal or control.
Great Blue Heron <i>fannini</i> subspecies	Ensure that all conservation regions across coastal British Columbia have stable or locally increasing numbers of Pacific Great Blue Herons	Ensure GH users are aware of the importance of not disturbing foraging birds and the best practices to avoid disturbance	Unknown	Compile opportunistic sightings of juvenile Great Blue Herons by visitors and staff	Mine data to determine priority feeding areas for education and outreach related to boat disturbance. Update outreach approaches as required, and work on oil spill preparedness activities for species like Great Blue Heron that depend (in part) on marine habitats.
Western Toad	Maintain self-sustaining populations distributed throughout the species' present range in Canada	Maintain occupancy at known breeding sites	Stable	Perform annual amphibian occupancy monitoring	Confirm (via lab testing) absence of chytrid fungus from Haida Gwaii and collaborate with partners on implementing decontamination protocols. Assess and scope raccoon control options.
Oldgrowth Specklebelly Lichen	Maintain all known extant populations and any future populations of Oldgrowth Specklebelly that may be found in British Columbia	No objectives established: main threats don't occur in GH	Unknown	Record incidental observations	Contribute to preparation of management plan. Work with partners to record incidental observations for the time being and adjust management approach if new populations are found.
COSEWIC-assessed (not yet listed under SARA) species: Barn Swallow, Haida Gwaii slug, Horned Grebe Western population, Peacock Vinyl Lichen, Red-necked Phalarope, and Western Bumble Bee <i>occidentalis</i>		No objectives established: main threats don't occur in GH and/or no possible management actions that could measurably improve status	Unknown	Record opportunistic observations by GH staff and visitors	Contribute to preparation of recovery documents and identification of critical habitat. Protect individuals and critical habitat on/in GH lands/waters. Oil spill preparedness activities for species that depend on coastal or marine habitats. Assess methods for deer removal or control. Work with partners to record incidental observations and adjust management approaches appropriately if new populations are found.

Appendix B: Gwaii Haanas (GH)-specific interim objectives and approach to monitoring, conservation and recovery of marine species at risk. This is a partial action plan for the marine species and will be updated upon completion of the first integrated management plan for Gwaii Haanas including zoning.

Species	National objectives (from recovery strategies and management plans as of Sept 2015)	GH-specific objectives contributing to the national objectives	Population trend in GH over last 5 years (2009-2014)	Monitoring <sup>4</sup>	General information and broad site approach
Northern Abalone	Immediate Goal (5 years): Halt the decline of the existing wild northern abalone population; Long-term Goal (30 years): Increase number and densities of wild northern abalone to self-sustaining levels in each biogeographic zone of BC (incl Haida Gwaii)	Maintain or increase the Northern Abalone population in GH.	Stable with signs of increase as of 2012	Use monitoring data collected by DFO and Haida Fisheries Program to estimate population trends for GH sentinel sites.	Provide support as required to DFO and HFP Northern Abalone monitoring program for populations in GH waters. Outreach and education for poaching prevention etc. Scope kelp forest restoration.
<b>Extirpated, Endangered and Threatened species:</b> Blue Whale Pacific population, Fin Whale Pacific population, Humpback Whale north Pacific population, Northeast Pacific Northern Resident Killer Whale population, Northeast Pacific Transient Killer Whale population, Leatherback Seaturtle, North Pacific Right Whale, Northern Abalone, Pink-footed Shearwater, Sei Whale Pacific population and Short-tailed Albatross, Northeast Pacific Offshore Killer Whale; <b>Special Concern species:</b> Black-footed Albatross, Bluntnose Sixgill Shark, Green Sturgeon, Eastern North Pacific Grey Whale, Pacific Harbour Porpoise, Longspine Thornyhead, Rougheye/ Blackspotted Rockfish complex, Sea Otter, Steller Sea Lion, Tope, Pacific Outside waters Yelloweye Rockfish.		No GH-specific objectives established:	Unknown	Record opportunistic observations by GH staff and visitors for key species	Oil spill preparedness activities. Scope kelp forest restoration. Conduct key threat monitoring. Reduce human disturbance. Outreach and engagement activities for marine species. Continue work with DFO, Council of the Haida Nation, and partners to determine zoning for the NMCAR waters and prepare the first integrated Land, Sea, People management plan. Continue to contribute to recovery docs and critical habitat ID in NMCAR waters. Protect individuals and critical habitat in NMCAR waters.

<sup>4</sup> Where population and distribution objectives have been established for GH, monitoring is designed to directly measure success in achieving those goals; otherwise baseline monitoring efforts necessary for stewardship, management and general reporting are described.

## Appendix C1: Terrestrial conservation and recovery measures that will be conducted by Gwaii Haanas (GH).

Species	Measure #	Measure (Action)	Desired Outcome	Threat or conservation / recovery measure addressed <sup>5</sup>	Timeline
<b>RESTORATION AND PROTECTION</b>					
Marbled Murrelet, Ancient Murrelet, Cassin's Auklet, Great Blue Heron, Peregrine Falcon, Red-necked Phalarope, Horned Grebe	1 (see #14)	Oil spill preparedness - planning, prioritizing sensitive sites for species at risk protection, equipment acquisition and deployment, staff training	GH is prepared for oil spill emergencies	Oil spills, pollution	Some aspects ongoing, others by 2020
<b>INVASIVE SPECIES MANAGEMENT</b>					
Ancient Murrelet, Cassin's Auklet	2	Early detection and biosecurity maintenance: use remote cameras to monitor seabird nesting colonies for new non-native mammal incursions/ invasions (rats, racoons) so as to implement removals before they are established	Islands free of introduced mammalian predators remain predator-free. Ancient Murrelet and Cassin's Auklet colonies on treated islands are re-established (if extirpated) or are increasing	Investigate and implement cost-effective introduced predator monitoring techniques to track predator activity and ensure that predators are not re-introduced in restored colonies	High priority isls every 3 years, secondary priority isls every 5 years;
Ancient Murrelet, Cassin's Auklet	3	Prevent spread or incursion/re-invasion of rats by engaging visitors (through mandatory GH visitor orientation and through business licencing), boaters and the fishing industry	Reduced risk of incursion/re-invasion or new introductions	Develop and distribute pro-active and targeted educational material on the risks of mammalian predator introduction	Ongoing

<sup>5</sup> From existing federal recovery strategies or, when not available, provincial recovery plans or COSEWIC reports.

Species	Measure #	Measure (Action)	Desired Outcome	Threat or conservation / recovery measure addressed <sup>5</sup>	Timeline
Ancient Murrelet, Cassin's Auklet	4	Update information on seabird colony status on islands in GH to guide conservation and recovery action decisions	A 30 year comparison of colony status that can support evaluations of the impacts of invasive species and their eradication and guide placement of new restoration projects	Establish baseline monitoring protocols to assess population size and status at each colony location (active and historic); implement protocols to track changes in the species' population and distribution. Short term: attention should be paid to large west coast colonies (not re-surveyed since 1980s	Starting in 2016 and ongoing
<b>OUTREACH AND ENGAGEMENT TO INCREASE SAR PROTECTION</b>					
All species	5	Develop citizen science partnerships with interested tour operators to collect survey / inventory data on select species (including species at risk and introduced species)	Data collected from within GH, especially information on threats, abundance and distribution	Support data collection efforts for all species that require data on GH populations for recovery and management planning and monitoring	2018
Ancient Murrelet, Cassin's Auklet	6	Outreach to prevent burrow trampling and to mitigate at-sea light disturbance to seabird colonies during the breeding season (mid-March to mid-June)	Reduced disturbance at seabird colonies and lower probability of burrows accidentally destroyed	Human disturbance or harm; develop and distribute pro-active and targeted educational material on the risks associated with nocturnal lights near seabird colonies (both land based structures and anchored vessels)	2018
Ancient Murrelet, Cassin's Auklet	7	Augment access restrictions at high priority seabird colonies	Reduced disturbance during nesting season and lower probability of burrows accidentally destroyed	Human disturbance or harm; ensure that zoning and public land use restrictions currently in place for Ancient Murrelet colonies are actively monitored and enforced	2017
Great Blue Heron	8	Minimize human disturbance around heron feeding grounds through education and outreach (through mandatory GH visitor orientation and through business licencing for tour operators)	Fewer reports of disturbance events at Great Blue Heron foraging locations	Human disturbance; educate the general public on how to avoid disturbance of herons	2016 onwards

Species	Measure #	Measure (Action)	Desired Outcome	Threat or conservation / recovery measure addressed <sup>5</sup>	Timeline
<b>WILDLIFE DISEASE MANAGEMENT</b>					
Little Brown Myotis, Keen's Myotis	9	Work with partners to keep White-nose Syndrome off Haida Gwaii via outreach and implementation of decontamination protocols	Prevent or slow the arrival of White-nose Syndrome to Haida Gwaii	White-nose Syndrome catastrophic effects	2016 onwards
Little Brown Myotis, Keen's Myotis	10	Continue long-term monitoring of maternity colony at Hot Spring Isl, collect data on bat presence at caves and old mine sites in GH, and obtain baseline distribution and relative abundance data on bats in GH	Data on bat distribution, relative abundance and long-term use of maternity colony at Hot Spring Isl is collated prior to arrival of White-nose Syndrome	White-nose Syndrome catastrophic effects, disturbance of hibernating bats	Ongoing (maternity colony), collect distribut'n & relative abundance data 2016 & ongoing
Western Toad	11	Conduct lab testing to confirm absence of chytrid fungus from Haida Gwaii and assess need for implementation of decontamination protocols	Chytrid fungus not found on Haida Gwaii	Control spread of disease and invasive species among breeding sites; establish hygiene protocols and outreach for all those who work and recreate in and around breeding sites	2016
<b>HABITAT MAPPING</b>					
Northern Saw-whet Owl	12	Identify and map NSOW critical habitat within GH and conduct a population assessment	Map of critical habitat and population estimate completed	Identify additional critical habitat (schedule of studies); ensure population monitoring sufficient to estimate population trends over the long term	2016
Northern Goshawk	13	Monitor known breeding sites and conduct targeted field surveys to locate additional breeding sites	Updated population estimate for GH and new breeding sites identified	Identification of critical habitat and habitat requirements to meet population goals	2016

## Appendix C2: Marine conservation and recovery measures that will be conducted by Gwaii Haanas (GH).

Species	Measure #	Measure (Action)	Desired Outcome	Threat or conservation / recovery measure addressed <sup>6</sup>	Timeline
<b>RESTORATION AND PROTECTION</b>					
All marine species	14 (see #1)	Oil spill preparedness - planning, prioritizing sensitive sites for species at risk protection, equipment acquisition and deployment, staff training	GH is prepared for oil spill emergencies	Oil spills, pollution	Some aspects ongoing, others by 2020
Northern Abalone	15	Work with partners to explore opportunities for kelp forest restoration	Assessment made of potential kelp forest restoration project	Promote abalone population rebuilding initiatives in collaboration with First Nations	2018
All marine mammals	16	Ensure all marine zoning is reflected on electronic charts	Zoning information available to visitors to improve compliance	Ensure that disturbance from human activities does not prevent recovery, including disturbance from increasing whale watch activity & disturbance or injury in association with vessels	After zoning of NMCAR completed
<b>OUTREACH AND ENGAGEMENT IN MARINE SAR PROTECTION</b>					
Northern Abalone, all marine species	17	Outreach & education: prevent abalone poaching, participate in Haida Gwaii Marine Stewardship Group, include N. Abalone and other species at risk in curriculum for Mt Moresby Adventure Camp student trip to GH	Decline in abalone poaching, inclusion of species at risk in curriculum	Continue to raise awareness of the plight of the abalone and the threats to their survival; stop or discourage illegal harvesting activities	2016 onwards and ongoing

<sup>6</sup> From existing federal recovery strategies or, when not available, provincial recovery plans or COSEWIC reports.

Species	Measure #	Measure (Action)	Desired Outcome	Threat or conservation / recovery measure addressed <sup>6</sup>	Timeline
All marine mammals	18	Minimize disturbance to marine mammals from visitor boats by promoting compliance with Whale Watching Guidelines through mandatory visitor orientation and business licencing	Reduced disturbance of marine mammals	Ensure that disturbance from human activities does not prevent recovery, including disturbance from increasing whale watch activity, disturbance or injury in association with vessels, anthropogenic noise in the marine environment	Ongoing
All marine Mammals	19	Scope the concept of a "Quiet Sea Reserve" designation for GH	The quiet soundscape in the NMCAR is maintained or improved	Ensure that disturbance from human activities does not prevent recovery, including anthropogenic noise in the marine environment (chronic and acute)	2020
<b>THREAT ASSESSMENT</b>					
All marine species	20	Develop a baseline and conduct on-going monitoring of key threats to marine species (e.g., ocean temperature, noise) to inform a long-term monitoring program for the NMCAR	Trend information collected for key threats and available for decision-making and action	Evaluating progress for all conservation and recovery efforts in GH	2020

Appendix D1: Other terrestrial conservation and recovery measures that will be encouraged through partnerships or when additional resources become available.

Species	Measure #	Measure (Action)	Desired Outcome	Threat or conservation / recovery action addressed <sup>7</sup>
<b>INVASIVE SPECIES MANAGEMENT</b>				
Ancient Murrelet, Cassin's Auklet	21	Investigate the feasibility and test the use of sniffer dogs for early detection of invasive mammals and ongoing biosecurity maintenance at nesting seabird colonies	Evaluation of sniffer dogs as a tool for early detection of invasive species	Investigate and implement cost-effective introduced predator monitoring techniques to track predator activity and ensure that predators are not re-introduced in restored colonies
Ancient Murrelet, Cassin's Auklet	22	Rat genetics analysis to examine movement patterns and assess rat incursion/re-invasion potential on islands identified for eradication	Rat dispersal risk estimated to prioritize restoration locations	Prioritize and implement predator eradication projects at Ancient Murrelet colonies
Ancient Murrelet, Cassin's Auklet	23	Remove non-native rats from smaller technically feasible islands (Kunga and Titul, Tanu, Huxley, Shuttle)	Additional rat-free islands to improve seabird breeding success, other ecological impacts, and biosecurity	Prioritize and implement predator eradication projects at Ancient Murrelet colonies
Ancient Murrelet, Cassin's Auklet	24	Operational planning to remove non-native rats from Kunghit (a very large, biologically significant seabird colony island) and associated islets, but only pursue if genetics analysis (ongoing) indicates low re-invasion risk	An additional significant seabird colony island rat-free to improve seabird breeding success and other ecological impacts	Prioritize and implement predator eradication projects at Ancient Murrelet colonies
Ancient Murrelet, Cassin's Auklet	25	Facilitate seabird re-colonization using active restoration techniques such as call-playback	Increase number of breeding seabirds on islands where rats have been eradicated	Maintain or increase the current breeding population; conduct further research on attraction and retention of prospecting adults at vacant breeding colonies using social cues

<sup>7</sup> From existing federal recovery strategies or, when not available, provincial recovery plans or COSEWIC reports.

Species	Measure #	Measure (Action)	Desired Outcome	Threat or conservation / recovery action addressed <sup>7</sup>
Ancient Murrelet, Cassin's Auklet, Western Toad	26	Investigate logistically feasible and economical raccoon control methods to protect seabird colonies and Western Toads	Methods evaluated for decision-making on future raccoon management actions	Prioritize and implement predator eradication projects at Ancient Murrelet colonies throughout the Canadian breeding range; increased abundance of predators such as raccoons are a threat to the Western Toad
Barn Swallow, GB Heron, Haida Ermine, HG slug, Keen's Myotis, Little Brn Myotis, N Goshawk, N Saw-whet Owl, West Bumblebee	27	Assess logistically feasible and cost-effective methods for deer removal or control on a landscape level scale.	Methods evaluated for decision-making on future deer management actions	Introduced mammalian predators; habitat changes brought about by introduced species; introduced species effects on prey availability
<b>HABITAT RESTORATION</b>				
Northern Saw-whet Owl	28	Create NSOW nesting habitat in second growth forest areas (Lyll, Huxley, Murchison, Faraday) through snag creation	Snags (nesting habitat) created in previously logged areas of GH	Habitat loss or degradation; investigate the feasibility of stand level forest restoration

Appendix D2: Other marine conservation and recovery measures that will be encouraged through partnerships or when additional resources become available.

Species	Measure #	Measure	Desired Outcome	Threat or conservation / recovery action addressed <sup>8</sup>
<b>THREAT ASSESSMENT</b>				
Northern Abalone	29	Conduct research into intertidal/shallow sub-tidal predation risk to Northern Abalone from native and non-native predators	An understanding of the relative impacts to Abalone populations of certain predators	Research to improve understanding of abalone recruitment and species interactions

<sup>8</sup> From existing federal recovery strategies or, when not available, provincial recovery plans or COSEWIC reports.

## Appendix E: Effects on the Environment and Other Species

A strategic environmental assessment (SEA) is conducted on all SARA recovery planning documents, in accordance with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*. The purpose of a SEA is to incorporate environmental considerations into the development of public policies, plans, and program proposals to support environmentally sound decision-making and to evaluate whether the outcomes of a recovery planning document could affect any component of the environment or achievement of any of the [Federal Sustainable Development Strategy](#)'s<sup>9</sup> goals and targets.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that recovery measures may also inadvertently lead to environmental effects beyond the intended benefits. The planning process, which is based on Canada's national guidelines, directly incorporates consideration of all environmental effects, with a particular focus on possible impacts upon non-target species or habitats. The results of the SEA are incorporated directly into the plan itself, and are summarized below.

Overall, it is anticipated that implementation of this action plan will have a beneficial impact on native non-target species, ecological processes, and the environment in Gwaii Haanas. In the interest of restoration of native ecosystems and species at risk, some actions in this plan include removal of invasive non-native species. This plan puts into practice recovery goals presented in recovery strategies already developed for some of the species at risk in this plan, which were subject to SEAs during the development of those documents. Further, this action plan was developed to benefit all species at risk that regularly occur in Gwaii Haanas; all of these species were considered in the planning process, any potential secondary effects were considered and mitigated, and where appropriate, measures were designed to benefit multiple species. The planning process was also guided by priorities identified in the site's ecological integrity monitoring program, the Gwaii Haanas management plan (Archipelago Management Board, 2003), and early drafts of the Land, Sea, People Plan (in prep). Consequently measures outlined in this plan address key management priorities aimed at improving the broader ecological health of Gwaii Haanas. Finally, this plan outlines stewardship measures, educational programs, and awareness initiatives that will involve Gwaii Haanas visitors, partners and the general public. This will lead to greater appreciation, understanding, and action towards the conservation and recovery of species at risk in general.

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<sup>9</sup> [www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1](http://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1)