

## Draft British Columbia Commercial Bear-Viewing Strategy



\*This Commercial Bear-Viewing Strategy is in draft form and is subject to change following further legal and policy review and Indigenous, interest group, and public engagement.

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## 1.0 Introduction

Ecotourism worldwide is increasing approximately 30% more rapidly than other forms of tourism, and in British Columbia (B.C.), revenue generated by all types of tourism increased over 40% in the last decade. Ecotourism based on high quality natural places models the values of the “Super, Natural British Columbia®” brand which Destination B.C. used to attract \$22.3 billion in visitor spending in 2018. B.C. is a highly sought-after destination for bear viewing. In 2012, wildlife viewing in B.C.’s Great Bear Rainforest generated an estimated \$15.1 million. In 2016, the Commercial Bear Viewing Association’s economic assessment from 16 operators totalled over \$13 million in direct revenue from bear viewing. Some bear viewing operations in B.C. have expanded two and threefold over the past several years and many First Nations are now operating bear viewing businesses.

Both grizzly and black bears, including the Kermode “Spirit Bear”, are viewed in B.C. As of 2018, 74 tourism companies advertised commercial bear-viewing opportunities in B.C. Although most bear viewing occurs along coastal B.C., viewing of bears also occurs in the interior of B.C. With increasing popularity of bear viewing comes increasing concerns about human safety and the influence of viewing, especially viewing by untrained guides or recreational viewing, on bear populations. Given the popularity of bear viewing, some aspects of the impacts of viewing activities on bears have been well researched and documented, although some large gaps remain.

Many bear populations have access to seasonally concentrated and important food sources, including spawning salmon, tidal invertebrates, or spring estuarine vegetation. To maximize the energetic benefit from these seasonal foods, bears gather at these areas of food concentration at densities higher than any other time of the year. Access to these seasonal energy-rich foods, and in particular access to spawning salmon, directly influences bear reproduction rates. The predictability of bear use at these seasonal areas of food concentration is what attracts people to these sites to view bears.

The response of individual bears to viewing activities, and thus the impact of viewing activities on individual bears, depends on a variety of factors including their social dominance status, level of habituation<sup>1</sup>, reproductive status, availability of alternate areas or times for the same forage type, availability of alternate forage types, proximity to carrying capacity, and human activity. Bear response to viewing activities can be categorized into three themes:

- **Spatial displacement** is when bears abandon a foraging location in response to human activity. For example, viewers arriving at viewing sites displaced bears from some foraging sites in Alaska. Additionally, bear foraging activity was inversely proportional to human activity and predicted by individual bears’ habituation status in B.C., Yukon, and Alaska.
- **Temporal change** is when bears change their daily foraging schedule in response to human activity. Some bears, often females with cubs, select foraging times with viewers present likely because viewers displace dominant male bears creating an area with reduced mortality and conflict risk. Other bears will increase the amount of time foraging during crepuscular periods (twilight) or at night when people are not present.

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<sup>1</sup> Habituation in this context describes the continuum of lessening of responses to human disturbance after several non-negative interactions.

- **Behavioural change** is when bears adjust their foraging behaviour in response to human activity. Bears may display reduced foraging bout lengths, reduced fish capture rates, altered proportions of each captured fish consumed, or exhibit increased or decreased vigilance activities.

Depending on the degree of displacement or change caused by viewing and the availability of alternate foraging areas and times, bears may be able to compensate for disruptions caused by viewing. However, nutritional requirements of large male bears and social dominance hierarchy can play a larger role in determining forage consumption than forage availability and viewing activity. More information on spatial, temporal, and behavioural effects of viewing activities on bears are found in Penteriani et al. (2017), Fortin et al. (2016), and Marshall (2007)<sup>2</sup>.

Both commercial (guided) and recreational (non-guided) bear viewing in B.C. typically occurs at concentrated foraging areas and these are predominantly coastal sites. Incidental bear viewing on non-concentrated resources occurs to a lesser degree in B.C. and can occur commercially (e.g., incidental to other commercial tourism activities) or recreationally. This incidental viewing more typically occurs in the interior where random sightings of bears are more common; many of the coastal bear-viewing locations are remote and require significant planning and preparation to visit. Bear viewing can be ground- or water-based and occur from fixed locations or be mobile. Each of these scenarios poses different challenges and opportunities for managers and bears.

Bear viewing occurs on a variety of land types throughout B.C.:

- **Provincial Crown lands** managed under legislation associated with the Ministry for Forests (MOF) or Ministry of Environment and Climate Change Strategy (MECCS; BC Parks) or Ministry of Transportation and Infrastructure (MOTI; road rights-of-way),
- **Federal Crown lands** including National Parks and marine waters where viewing occurs in navigable waters below the low water mark,
- **Treaty Settlement Lands** which are those lands owned and managed by Treaty Nations as identified in each Nation's Final Agreement,
- **Indian Reserves** which are defined under the federal *Indian Act* as a tract of land, the legal title of which is vested in Her Majesty, that has been set apart by Her Majesty for the use and benefit of a First Nation community,
- **Aboriginal Title Lands** which are those lands owned by the First Nation collectively and whose title originates in their occupation of their ancestral lands prior to European assertion of sovereignty,
- **Private land holdings**, and

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<sup>2</sup> Penteriani, V., J. V. López-Bao, C. Bettega, F. Dalerum, M. del Mar Delgado, K. Jerina, I. Kojola, M. Krofel, and A. Ordiz. 2017. Consequences of brown bear viewing tourism: A review. *Biological Conservation* 206: 169–180.

Fortin, J. K., Rode, K. D., Hilderbrand, G. V., Wilder, J., Farley, S., Jorgensen, C., & Marcot, B. G. 2016. Impacts of Human Recreation on Brown Bears (*Ursus arctos*): A Review and New Management Tool. *PloS one*, 11(1), e0141983. DOI: 10.1371/journal.pone.0141983.

Marshall, S. M. 2007. Synthesis of Bear Viewing Literature. Prepared for Ministry of Environment. Victoria, B.C.

- combinations thereof.

Most Provincial and Federal Crown lands are within the traditional territories of First Nations, and where one or more First Nations have established rights or asserted aboriginal rights or title.

In recognition of the growth in bear-viewing activities and potential associated risks to bears and the viewing public, the Auditor General of B.C. recommended the development of clear policies and procedures for bear viewing. This Commercial Bear-Viewing Strategy for B.C. (“Strategy”) provides recommendations, and the associated rationale, to minimize the impacts of viewing activities on bears and maximize the safety of people viewing bears. These recommendations have benefited from considerable engagement with and input from First Nations. The final Strategy will incorporate input from stakeholders and the public of B.C. Although these recommendations are intended for all bear-viewing activities occurring in B.C., the Province does not have jurisdiction for all bear-viewing sites in B.C. The Province intends to work with First Nation Governments and non-provincial landowners and managers to have these recommendations applied outside provincially-managed areas within B.C.

This Strategy has also been developed with the intent to ensure that bear-viewing activities in B.C. occur in accordance with the *Declaration on the Rights of Indigenous Peoples Act* (DRIPA), the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and existing and emerging agreements between B.C. and Indigenous Governing Bodies. The principles within DRIPA and UNDRIP act as a framework for reconciliation, and provide direction when introducing new policies and laws in B.C. The Strategy aims to respond to many concerns identified by First Nations with respect to the negative effects of unregulated bear viewing on bears and communities as well as the positive economic impacts from bear viewing. The Strategy advocates that when considering whether and where regulated bear-viewing activity occurs, that a broad lens be applied to consider the totality of activities in the area and the impacts of these activities on bears and Aboriginal rights. All aspects of the Strategy should be implemented using a shared decision-making model with Indigenous Governing Bodies that appropriately and respectfully incorporates relevant and available Indigenous Knowledge and western science.

This Strategy outlines:

- the current regulatory framework for commercial viewing in B.C.,
- the goals of this Strategy, and
- recommendations for:
  - where, when, and how viewing should occur,
  - establishing sufficient refuges to mitigate negative viewing effects on bears,
  - monitoring requirements to provide for adaptive management of viewing activities,
  - viewing guide and staff training requirements,
  - key operational variables,
  - managing recreational viewing, and
  - guidance for development of area-based viewing plans.

## 2.0 Current Regulatory Framework for Commercial Bear-Viewing Operations

The Province of B.C.'s current legislative framework for authorizing commercial bear-viewing activities on Provincial Crown Land comes from the *Park Act* and *Land Act*. Authorizations under both Acts require the submission of management plans for review by a government officer. More generally, there are provisions in the *Wildlife Act* that can influence bear-viewing activities including prohibition on attracting dangerous wildlife, herding or harassing wildlife with a motor vehicle, and abiding by any land use designation that restricts public access. No authorization is required from the Provincial Government for the general public to view bears recreationally (i.e., not using services of a commercial guide), however First Nations that have established rights or asserted aboriginal rights or title on Crown lands may have conditions or constraints for public bear-viewing activity. Authorization by First Nations and non-provincial landholders and managers may be required on lands not managed by the Province.

Under the *Land Act*, a non-exclusive Licence of Occupation is required on Crown land for commercial bear viewing unless the activity is classified as incidental use. Starting in 2006, all *Land Act* tenure holders carrying out wildlife-viewing activities were required to abide by the provincial "Wildlife Guidelines for Backcountry Tourism/Commercial Recreation in British Columbia" which includes best practices for bear viewing. Through the *Park Act*, BC Parks authorizes bear-viewing activities through Park Use Permits. Permit conditions vary, are aimed at minimizing the impact of viewers on bears, and may include restrictions on areas open for viewing, access, viewer numbers or viewing days, and viewing times. Permit conditions and management approaches are often developed collaboratively by First Nations and BC Parks. Table 1 summarizes details around the current *Park Act* and *Land Act* authorizations.

Under the *Wildlife Act*, there may be regulatory tools available to manage activities related to bear viewing, or bear viewing itself, at a regional level. For example, access to designated areas of B.C. may be prohibited or restricted for wildlife management purposes. Vehicle restrictions and/or closures on highways and roads may also be considered for the purpose of protecting bears. Additionally, regulations prescribing the conditions under which boats, aircraft, and vehicles may be used for wildlife viewing may be prescribed. The creation of a Wildlife Management Area may also be considered as an option to manage bear viewing. With the exception of a recent vehicle closure near the Chilko River, these tools have not been used to regulate bear viewing in the past. They will be considered, along with legislative amendments, as a means to implement the recommendations from the Strategy.

Several individual First Nations, or groups of First Nations, have negotiated various kinds of government-to-government agreements with the Province. 'Reconciliation Protocols' or 'Strategic Engagement Agreements (SEA)' establish a protocol and funding for consultation between the Province and First Nations with regard to various specific legislative decisions. More recently, the Province has begun to negotiate 'joint or consent decision-making agreements' with Indigenous Governing Bodies under section 7 of the *Declaration on the Rights of Indigenous Peoples Act*. These decision-making agreements can replace how a specific statutory decision might be made.

These various agreements often establish collaborative government-to-government processes for information sharing, adjudication, and decision making on authorizations and decisions related to bear viewing (e.g., approval of a *Land Act* tenure or park use permit). Through SEA processes, the Province

and First Nation representatives typically share information and review and discuss relevant issues and interests with the goal of reaching consensus on recommendations for certain particularly impactful decisions. Final recommendations, consensus or otherwise, are provided to decision makers, who then consider the recommendations and make decisions as per their own laws, policies, and customs.

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Table 1. Summary of current provincial regulatory framework for bear viewing on Provincial Crown Land in B.C under the Parks Act and Land Act.

|   | <b>Park Use Permit (<i>Park Act</i>)</b>  | <b>Licence of Occupation (<i>Lands Act</i>)</b>   |
|---|---|---|
| When is an authorization required for bear viewing? | Authorization is required for commercial operations within a provincial park, protected area, conservancy or recreation area, including within marine/freshwater boundaries.  | Authorization is required for commercial operations on provincial crown lands not managed under the <i>Park Act</i> . Some operations may align with exceptions under the Adventure Tourism Policy such as incidental-use activities. If substantial concerns exist from the authorizing agency, an operator guiding under incidental use may be directed to apply for a Licence of Occupation.   |
| Considerations in evaluating applications           | <p>Potential impacts to First Nation rights, including title and interests identified by First Nations during consultation. Relationship of applicant with First Nation, and/or how the applicant will build and maintain relationships with First Nation(s).</p> <p>Qualifications of staff, including training and experience. Experience operating low impact, nature-based tourism operations.</p> <p>Details of proposed operation, including how the operation will adhere to local management objectives; tour details (i.e., access, client orientation, communication plans, emergency response plan); where applicable, description of effective and cooperative communication between First Nation Guardians, BC Parks, and other permitted operators; how natural and cultural values will be conveyed to clients; and steps that will be taken to limit and mitigate impacts on bears and other ecological values.</p> <p>Measures the applicant will put in place to ensure compliance with the permit conditions. Review of the compliance history of the applicant and their staff with relevant legislation and provincial authorizations.</p> | <p>Agreement to comply with the Wildlife Guidelines for Backcountry Tourism/Commercial Recreation in British Columbia (2006).</p> <p>Details on location selection, timing of use, infrastructure and access needs, potential disturbance to wildlife and their habitat, and adherence to land use plans where applicable.</p> <p>Details addressing concerns and/or requests for additional information raised by Provincial biologists and First Nations during consultation.</p> |

|   | <b>Park Use Permit (<i>Park Act</i>)</b>  | <b>Licence of Occupation (<i>Lands Act</i>)</b>   |
|---|---|---|
| Topics addressed by standard conditions of authorizations | Timing of commercial bear-viewing activities (daily and seasonally), group size, how waste (garbage and human waste) and other bear attractants are secured from bears, bear-viewing etiquette, and guidelines for preventing human disturbance of bears.   | The approved tenure management plan forms part of the Licence of Occupation and the plan may include specific details around how the viewing business operates.   |
| Typical authorization length                              | Permit lengths may be from 6 months to 10 years. BC Parks staff will consider the management objectives for the particular area when determining the appropriate term length.   | Term is determined on a case-by-case basis and may be up to 45 years for a Licence of Occupation. A license may be terminated with 30-90 days' notice without compensation.                                       |
| Reporting requirements                                    | An Annual Visitor Report describing all trips taken into the protected area(s) and the areas utilized in the protected area(s), trip dates, number of clients, and the activities that took place.<br><br>Permits may also require a Wildlife Observation Report indicating sex, age, species, and notes on any large mammals observed within the protected area(s) or other additional detailed reporting on bear sightings as required. | An Annual Diligent Use report describing area-specific activities and associated client days. Additional reporting requirements may exist through the approved tenure management plan (e.g., wildlife sightings). |
| Permit or Licence Fees                                    | Fees are prescribed in the <i>Park, Conservancy, and Recreation Area Regulation</i> . The application fee is \$250. The annual fee is \$250 or \$1 per client per day, whichever is greater. Where operators are undertaking additional activities as part of their business, additional fees may apply.  | Fees are prescribed in the <i>Crown Land Fees Regulation</i> . The application fee is \$250 for non-motorized guiding, the minimum annual rent is \$500, and fixed revenue-sharing royalty is \$1 per client day. |

## 3.0 Goals

The goals of this Strategy, are to:

- ensure the sustainability of bear populations are not influenced by viewing activities,
- protect Aboriginal rights and support reconciliation with First Nations in B.C. through collaboration and shared decision making on initiatives related to bear-viewing planning and management,
- provide economic benefits for First Nations and non-First Nation communities,
- support business certainty and viability for the bear viewing industry,
- promote safe and respectful co-existence between bears and people and minimize risks to human safety,
- develop an adaptive, ecosystem-based approach for the management of bear viewing that incorporates a blend of western science and Indigenous Knowledge, and
- provide guidance for the development of area-based viewing plans.

To achieve this, the Strategy provides advice, recommendations, and guidance to agencies regulating and managing bear viewing. This Strategy provides recommendations for commercial bear viewing to:

- minimize the impact of viewing activities on bear behaviour and conservation by maintaining individual bears' access to seasonally concentrated food sources to meet their energetic requirements for survival and reproduction,
- ensure that Aboriginal rights and interests are protected, and that culturally important sites are respected and maintained,
- maximize public safety by reducing human-bear conflict,
- provide economic benefits for First Nation communities, and
- increase regulatory certainty and consistency for businesses offering bear viewing.

While this Strategy addresses bear viewing of both grizzly bears and black bears, it will be informed by and support the Provincial Grizzly Bear Stewardship Framework.

## 4.0 Determining Where and When to View

### 4.1 Selecting Potential Viewing Locations

Successful bear viewing is predicated on viewing operations having minimal impacts on bears, the safety of viewers and bears, and viewer satisfaction. This is achieved in part through proper selection and management of viewing sites. Typical viewing sites are places where bears congregate for a concentrated natural food source.

Criteria for viewing site selection have been outlined in various documents and adapted in Table 2 for B.C. These selection criteria have been the basis of viability assessments for commercial bear-viewing operations at several potential viewing sites in B.C.

Where ease of access places the public in close contact with bears, bear viewing will occur opportunistically. Here, implementation of management actions to minimize viewer impacts on bears while maximizing public safety are typically post-hoc and challenging to apply. Opportunistic public

viewing with post-hoc management occurs in several places in B.C. and presents significant management challenges (e.g., Atnarko River and Bella Coola). Recommendations for managing recreational bear viewing are discussed in **Section 7.0**.

Table 2. Criteria for managing agencies to consider when assessing potential bear viewing locations.

| <b>Criteria</b>                    | <b>Description</b>  |
|------------------------------------|---|
| <b>Bear population status</b>      | Consideration should be given to viewing activities based on population or habitat trends, where known. Even the most ideally managed viewing sites can impose negative consequences on some bears. Note that local information may be required to inform these assessments.  |
| <b>Viewable bears</b>              | Locations where bears congregate on a concentrated natural food resource increases the predictability of bear activity and generally has satiated bears which can increase public safety. Long sight lines that allow for appropriate spacing between bears and viewers is also important for public safety and minimizing impacts on bears.  |
| <b>Legal status</b>                | Viewing location and adjacent area must be on land and in foreshore where authority for management exists by the respective agency and that agency is committed to proper viewing management. For the Province, this is typically Crown Land, including parks or protected areas, which may be co-managed with First Nations. There are lands within B.C. borders that are not under Provincial jurisdiction (federal land, private land, Treaty Settlement Lands, Indian Reserves, or Aboriginal Title Lands). Prospective viewing operators must contact the First Nation on whose Treaty Settlement Lands, Indian Reserves, or Aboriginal Title Lands they are interested in viewing on before entering those lands. Where First Nations have established rights or asserted Aboriginal rights or title, the applicable First Nations on whose land there is an interest for viewing may have protocols for establishing agreements directly with operators around viewing activities in addition to authorizations required by the Province. First Nations are critical partners in determining suitability of potential sites. |
| <b>Area-based plan<sup>3</sup></b> | An area-based plan should include: <ul style="list-style-type: none"> <li>• clear and measurable objectives,</li> <li>• protection/conservation of critical habitat and spatial/temporal refugia details,</li> <li>• types of viewing permitted (i.e., commercial, First Nation priority, government operated, non-guided) and carrying capacities/use limits,</li> <li>• viewing site assessment (including viewer impact mitigation),</li> <li>• viewer management (including viewer safety, maximum group size, maximum number of daily visitors, viewer travel paths, timing of viewing sessions and associated travel, attractant management plan),</li> <li>• a plan for communicating with and managing viewing companies and non-viewing human activity in the same area (e.g., angling),</li> <li>• monitoring and compliance program,</li> <li>• standards and training program requirements for guides,</li> <li>• information/communication and education plans, and</li> </ul>   |

<sup>3</sup> Further details on recommended management plan contents provided in **Section 9.0**

| Criteria                    | Description   |
|-----------------------------|---|
|                             | <ul style="list-style-type: none"> <li>hazard assessment and emergency response planning.</li> </ul>  |
| <b>Other human activity</b> | <p>Non-viewing human activity (e.g., hunting, gathering, spiritual practices, angling, rafting, camping, resource extraction, industrial camps) can negatively influence bears at viewing sites through food-conditioning, behavioural change, and displacement of bears from foraging sites. Strong scrutiny should be given to potential viewing activities in areas where the non-viewing human activity cannot be appropriately managed. This is particularly important when viewing can impact the Aboriginal rights to hunt, fish, gather, etc.</p> |
| <b>Hunting</b>              | <p>For areas where hunting spatially overlaps viewing of the same species at concentrated feeding sites (i.e., black bears), area closures for hunting within the home range of local male bears from viewing sites should be considered to avoid the increased vulnerability of habituated bears at viewing sites encountering bear hunters.</p>   |
| <b>Funding</b>              | <p>A stable funding source provides for long-term planning and the mechanism to manage viewing operators and the viewing public for both minimizing impacts on bears and maximizing viewer safety.</p>  |

## 4.2 Assessment of Potential Viewing Locations

Once candidate viewing sites are selected, further investigation is required to assess how bears may be subject to spatial, temporal, and behavioural impacts from viewing activities. The goal is to ensure viewing-free areas (spatial refugia) and/or times (temporal refugia) are available to maintain bears' unimpeded access to the concentrated food source. These functional refuges should be free from all human activity when bears congregate at the site, not simply an absence of viewing activity. A refuge will not serve its purpose if it is an angling site, a remote camp area, a commonly used travel corridor to reach a viewing area, or angling site or other recreational use. Assessments of bear-viewing impacts and any management or mitigation measures (**Section 4.2.1 and 4.2.2**) are the responsibility of the party driving the interest in the viewing location; this could be a commercial operator, First Nation or its members, the Province, or a combination thereof. In the Great Bear Rainforest, these assessments are the collaborative responsibility of the managing provincial agency and applicable First Nation. Refuges should be identified through the development of area-based bear-viewing management plans (see **Section 9.0**).

### 4.2.1 Spatial Refugia Planning

Spatial refugia set aside certain areas where viewing cannot occur so that bears can access the seasonally important food source without interacting with humans if they choose. Spatial refugia should be considered at two different spatial scales: refugia within river/estuary systems and across river/estuary systems. In ideal circumstances, both scales of spatial refugia will be available to bears as this approach maximizes the effectiveness of refugia for bears of all habituation and dominance statuses. Across-system refugia should benefit wary bears that entirely avoid humans and within-system refugia should benefit more habituated and potential wary bears.

For across-system refugia, the maximum distance between the viewing site and the refugia system should be related to the size of the target species' female home range:

- coastal: ~8 km for grizzly bears and ~5 km for black bears and
- interior: ~18 km for grizzly bears and ~6 km for black bears (see **Appendix 1**).

Within system refugia should be placed such that the influence of viewing is greatly reduced at the refugia site (i.e., bears at the refugia site cannot directly detect (visually or via smell) the viewing site or viewers travelling to/from viewing sites and preferably cannot hear viewers). Research on the scope and scale of effective refugia are limited, and the application of results from different regions may be limited due to site-specific influences. As such, implementation of refugia should be monitored for effectiveness and adapted accordingly (see **Section 8.0**).

Spatial refugia should incorporate the following characteristics:

- adequate habitat connectivity between the viewing site and associated spatial refuge(s).
- adequate access to the food source that concentrates bears which includes considerations for equivalent food availability to the viewing site on a daily basis, across time where pulsed foods are staggered<sup>4</sup> in availability, and accessibility recognizing that some foods are only “available” when environmental conditions are appropriate (e.g., abundant spawning salmon may not be available to bears if water levels are too high). These concentrated food resources may include spawning salmon, fruiting plants, intertidal foods, and estuarine vegetation,
- adequate availability of other natural foods beyond the seasonal concentrations because the effects of displacement from viewers are likely higher in areas with minimal other natural foods beyond the seasonal concentration, and
- adequate access to important mating habitats (e.g., estuaries) if that exists in the viewing site. This consideration is less important if a seasonal temporal closure (see **Section 4.2.2**) is implemented during mating season.

Local conditions may not provide for adequate spatial refugia associated with some potential or existing viewing sites. In this scenario, significant temporal refugia will likely be required to allow bears access to the concentrated resource at the viewing site when viewers are absent.

#### 4.2.2 Temporal Refugia Planning

Temporal refugia are times when viewing is prohibited and this temporal refugia can be designated at a viewing session, daily and/or seasonal scale. Each scale provides different benefits to bears so viewing sites may need to incorporate multiple scales of temporal refugia. As with spatial refugia, research on effectiveness at different scales is limited and refugia should be monitored and adaptively managed.

Temporal refugia are most beneficial to bears when the viewing activities outside of the refugia times occur in a consistent and predictable way (e.g., viewing takes place at the same time(s) and place(s) each day). Effective temporal refugia provide times where bears cannot be viewed based upon bears'

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<sup>4</sup> Staggered resources in this context would be salmon spawning periods that do not temporally overlap with each other (staggered timing) such that the availability of salmon to bears is longer than the duration of any single run

needs, not only the needs of bear viewers. Temporal refugia should incorporate the following characteristics:

- viewing session temporal closures that provide time limits on a group viewing individual bears (e.g., a group must leave a bear after viewing it for 30 minutes) for mobile (boat-based) viewing,
- daily closures that prohibit viewing during times when bears are naturally most active, and
- seasonal closures that provide bears a break from people during critical time periods for mating or foraging. For example, during the mating season, important mating habitats such as estuaries could be closed or a minimum distance of 150m to mating pairs could be implemented to reduce stress during this critical time. Additionally, closures could be in place to protect foraging on a pulsed resource such as spawning salmon. Timing for foraging closures should consider when the resource is most valuable to bears; for example, salmon have the most nutritional value to bears during the early spawning period, though consideration needs to be given to the influence of multiple spawning periods at a single site and how the nutritional value of salmon fluctuates with the flow of each spawn. Seasonal foraging closures should be adaptively managed to be more conservative during years of below-average forage availability to allow bears more access to fish when they are less abundant.

Reduced spatial and temporal refugia measures can be implemented if site-specific data on viewer effects on bears exists to support less conservative refugia. Such information may include analyzed data from rigorous monitoring<sup>5</sup> or research programs, as well as local and traditional ecological knowledge.

The Province (including engagement with stakeholders) and First Nations should collaboratively consider implementing legal protection of refuge areas through area closures, vehicle restrictions, the introduction of Wildlife Management Areas, or by other legal tools within Provincial jurisdiction. More information about the rationale for establishing refugia can be found in Appendix 1.

#### **Recommendation 1**

Develop spatial and temporal refuges that maintain bears' unimpeded access to the concentrated food source that are free from all human activity not simply an absence of viewing activity. Refuges should consider the conditions outlined in Section 4.2.1 and 4.2.2 in context of local conditions and knowledge to be effective refuges.

#### 4.2.3 Assessing and Managing Existing Viewing Locations

Commercial bear-viewing operations exist in many locations throughout B.C., some of which have been operating for decades. Existing viewing operations were established with varying assessments of baseline conditions and potential impacts of viewing activities on bears at the site-specific and home-range scales. Existing viewing locations and associated commercial operations should be reviewed for alignment with management and mitigation measures as discussed in **Sections 4.2.1, 4.2.2, and 6.0**. This assessment should consider whether the existing viewing methods minimize the effects of viewing on bears, recognizing the potential for introducing impacts to bears by changing viewing methods at

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<sup>5</sup> Further details on monitoring programs provided in **Section 8.0**

long-term viewing sites employing highly predictable and controlled viewing methods. This could include subtle changes to past practices to align with newer best practices.

### **Recommendation 2**

Review existing commercial bear viewing operations to ensure they align with the mitigation measures discussed in Sections 4.2.1, 4.2.2, and 6.0.

## 5.0 Guide or Agency/First Nation Staff Training

Training commercial guides and/or agency/First Nation staff (collectively “guides” in this section) who work at viewing sites is essential to minimizing impacts of viewers on bears, maximizing viewer safety, and meeting Work Safe B.C. requirements. Trained guides control viewer movement, viewer behaviour, attractant management, recognize and appropriately respond to signs of stress in viewed bears, and respond to unwanted approaches or behaviour from bears. Guides educate tourists and clients, convey messages about how inappropriate viewing can impact bears directly, manage clients who display inappropriate behaviour, and showcase B.C.’s wilderness to tourists from around the world.

Guides require comprehensive training that includes:

- bear ecology,
- area-specific ecology and history,
- provincial- and/or regional-focused First Nation’s cultural competency training,
- education plan for clients,
- human-bear encounter types (including recognition of habituation),
- potential impacts of viewing on bears,
- techniques to minimize viewer impact (e.g., quiet viewers, no flash photos, consistent movement patterns, remain together),
- recognition of individual bears on-site,
- recognition of bear behaviour and specifically signs of stress and aggression in bears,
- techniques to de-escalate encounters, and
- safety (first aid, bear spray, firearms, emergency response plan).

The Commercial Bear Viewing Association of B.C. (CBVA) has developed and delivers a comprehensive guide certification course. Other training and standards exist such as those developed by some First Nation bear-viewing operations. Any training requirements should meet or exceed industry standards (i.e., those set by the CBVA or similar standards).

### **Recommendation 3**

All guides at bear-viewing sites should have formal training to minimize impacts of viewing activities on bears primarily through viewer management and responding appropriately to bear behaviour.

## 6.0 Key Operational Variables

The recommendations in this section are based on the best available science to reduce the impact of commercial viewing on bears and maximize the safety of viewers. Operators guiding in areas with multiple commercial viewing operations must employ consistent operational measures to ensure that bears are provided with consistent viewer behaviours. This consistency includes the ability of guides to recognize stress behaviours and provide consistent responses to bears displaying those behaviours such as when to leave an area because of the behaviour displayed by a bear.

### 6.1 Maximum Viewing Group Size and Number of Groups

Group size<sup>6</sup> is an important consideration to minimize viewer impacts on bears while maximizing viewer safety. For example, when viewing group size was >15 people at Anan Creek, Alaska, the length of time black bears spent fishing decreased, including habituated bears, and bears did not alter their fishing behaviours to compensate for these shorter fishing times. Group sizes greater than 15 people can create a “cocktail effect”, that is, as the number of viewers increases, the amount of socialization between people increases, leading to more disruptive behaviours and disproportionately increased noise level. The number of groups that a bear can perceive is also important in mitigating impacts to bears. Assessing human activity in the multi-use spawning area at the Chilkoot River, Alaska, found that thresholds constraining bear fishing activities occurred when at least 2.6 anglers and 2.4 vehicles were present at one time. Bears may perceive more than one group of viewers present simultaneously (that is, groups separated from one another) as an additive stressor eliciting further responses to viewers as noted in the K’tzim-a-deen Inlet and Atnarko River areas in B.C.

At key bear viewing sites in Alaska, Yukon, and B.C., visitor use days (a product of group size and number of groups) had a strong positive relationship with human-bear conflict rates. This likely occurred because (1) the probability of encountering a bear increased with increasing abundance of people in an area thereby increasing the probability of human-bear conflicts and (2) viewing site managers, guides, and/or staff are challenged to manage high numbers of people and this unmanaged behaviour increases the probability of human-bear conflicts. Conversely, group size should be large enough to significantly reduce the probability of a human-bear conflict which is often a minimum group size of two people. The maximum allowable group size at existing bear-viewing sites across western North America varies widely from:

- no limit on group size (e.g., Chilkoot River, Fish Creek, and Brooks River, Alaska, and Atnarko River, B.C.), to
- daily use limits without use limits at any single time (e.g., Anan Creek, Alaska, caps viewing to 60 people per day but does not control use at any one time), to
- a maximum 10 viewers plus 1-2 guides at any one time (McNeil Creek, Alaska), to
- a maximum of 5 including a guide at any one time (Fishing Branch River, Yukon), to
- a maximum of 16 including guides (Laiq (Mussel Inlet) Special Management Area, B.C.), to
- limiting boat-based viewer group size within the estuary of K’tzim-a-deen Grizzly Bear Sanctuary, B.C., to 10 people with only 1 vessel permitted at any one time.

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<sup>6</sup> Group size is defined as the number of viewers together within arm’s length of each other. Those beyond an arm’s length are considered a different group.

Some area-specific recommendations exist where group size is not to exceed 12 people including guides. More broadly, the B.C. Coastal Bear Viewing Working Group recommends a maximum group size of 10 and the Commercial Bear Viewing Association of B.C. recommends a maximum group size of 12-15 plus guide(s).

Response of bears to viewing group size will vary based on a site characteristics (e.g., large estuary or small stream system), and mode of viewing (e.g., land- or water-based), as well as variability in forage availability, human and viewer-specific activities, and bears' social dynamics. Without site-specific assessment, research, or monitoring programs to inform viewer management that minimizes impacts to bears, group size should not exceed 16 people, including guides, with only one group visible from the viewed bears' perspective at one time. Restricting group size to 16 or fewer also promotes viewer satisfaction as viewers have expressed the desire to be in smaller groups to maintain the wilderness experience. Water-based groups can be in more than one boat (e.g., inflatable) but should be rafted together while viewing. In some locations, only one viewing group will be allowed in the area/system at a time.

Human activities in viewing areas for purposes other than viewing can influence bear behaviour, access to food, and viewer satisfaction. Limits on group size and a single group viewing can help account for other human presence in the area (e.g., anglers).

#### **Recommendation 4**

Without site-specific assessment, research, or monitoring programs to inform viewer management that minimizes impacts to bears, group size should not exceed 16 people including guides with only one group visible from the viewed bears' perspective at a time. Limits on group size and a single viewing group can help account for other human activity in the area (e.g., anglers).

## 6.2 Predictability in Viewing Timing and Location

Numerous field-based studies have determined that predictability in viewer behaviour and spatial use is critical to minimizing impacts on bears and maximizing viewer safety. At Douglas River, Alaska, where bears were not regularly exposed to human activity, fewer grizzly bears used the concentrated food resource when viewers were moving in and out of viewing areas compared to when viewers were stationary. Temporally predictable viewer activity (viewing locations and travel routes) did not affect resource use at this same site. Responses to viewers has been explored in many existing viewing sites. At Pack Creek, Alaska, implementation of predictable viewer activity (i.e., spatial restrictions for viewers, limiting viewing to the same hours daily) resulted in fewer human-bear interactions despite doubling the number of viewers. In Glendale Cove, B.C., grizzly bears learned the predictable schedules of viewers such that adult males departed the river prior to arrival of morning viewers. Arrival of researchers at a viewer-free fishing area at Anan Creek, Alaska, caused fishing black bears to leave. Predictable behaviour of organized viewing groups elicited fewer responses from fishing grizzly bears than non-guided viewers on Kodiak Island, Alaska.

Site-specific information is required to determine optimal viewing locations and access routes. More generally, viewing should follow the principles below relating to predictability of viewing activities:

- predictable and consistent use of viewing sites, travel routes, and daily viewing schedules that include a standardized portion of daylight hours without viewing activities should be used to minimize disturbance to bears and maximize viewer safety,
- pursuit viewing (viewing that tracks or follows bears) should not occur,
- incidental viewing that does not involve pursuit of bears is acceptable, however, viewing from predictable, consistent locations is preferred for bears and viewers,
- viewer travel routes should avoid existing bear trails, and
- for boat-based viewing, all efforts should be made to maintain predictable viewing locations and travel routes acknowledging how tides influence these factors for coastal viewing sites.

In areas with multiple viewing operators, coordination amongst operators should occur to ensure scheduling and predictability amongst all operators. Area managers should ensure that non-viewing human activity (e.g., anglers, camping) also provides predictability for bears.

#### **Recommendation 5**

Viewing activities should follow these principles:

- predictable and consistent:
  - daily viewing schedules that include a standardized portion of daylight hours without viewing activities,
  - travel routes, and
  - viewing sites should be used to minimize disturbance to bears and maximize viewer safety,
- pursuit viewing (viewing that tracks or follows bears) should not occur,
- incidental viewing that does not involve pursuit of bears is acceptable, however, viewing from predictable, consistent locations is preferred,
- viewer travel routes should avoid existing bear trails, and
- for boat-based viewing, all efforts should be made to maintain predictable viewing locations and travel routes acknowledging how tides influence these factors.

In areas with multiple viewing operators, predictable and consistent viewing activities should occur amongst all operators and non-viewing human activity (e.g., anglers, camping).

### 6.3 Minimum Distance

Individual bear responses to viewer activities vary but research has shown that distance thresholds exist beyond which bear responses elicited by viewers are negligible. For example, at Douglas River, Alaska, where bears were not regularly exposed to human activity, grizzly bears reduced vigilance behaviours directed at viewers when people were >100 m away which maximized their time spent foraging. Along the Chilkoot River, Alaska, grizzly bears caught more than twice as many fish and caught a higher proportion of live fish, which have higher energetic content than scavenged dead fish, when people were >100 m away from grizzly bears. In Katmai National Park, Alaska, bears' fishing duration decreased with boat-based anglers within sight of foraging grizzly bears, however, bears' temporal use patterns were unaffected when boats were >200 m away. Boat-based bear viewing decreased fishing success of grizzly bears, and boats caused bears to flee at distances ranging from 30-250m at Wolverine Cove, Alaska. Bears have been documented leaving foraging areas at K'tzim-a-deen (Khutzeymateen) when

boat-based viewers were an average of 150 m from the bears. With controlled viewing and predictable viewing schedules in the Laiq (Mussel Inlet) Special Management Area on the central coast of B.C., most bears resumed natural behaviour when people were approximately 30-50 m away, but some 'warier' bears needed a distance of >100 m separating them from viewers before they resumed natural behaviours.

Recommended minimum distances between bears and viewers of 30-50 m exist at many bear viewing sites, however, these are often based on viewer safety rather than minimizing impacts on bears. In the Khutzeymateen estuary, large and small vessels must remain a minimum of 75 m and 30 m from bears, respectively. The Laiq Special Management Area has a minimum viewing distance of 30 m and a recommended (initial) distance of 50 m to assess the appropriate viewing distance and associated bear behaviour. If a bear shows any sign of stress, it is recommended that users maintain at least 100 metres and leave the area if the bear continues to display a negative reaction. The Commercial Bear Viewing Association recommends a minimum distance of 50 m between boats and viewed bears and for land-based viewing promotes a respectful distance based on response of the bear without providing a guideline distance.

Researchers have postulated that a bears' decision to depart from a human-bear or bear-bear interaction occurs before the overt reaction can be detected by people. Bears will often continue their current behaviour for a short period of time before departure as part of social dominance behaviour; this is a passive means to maintain social status in scenarios with pre-established dominance hierarchies. Given that no overt reaction occurs at the initial decision point, researchers are challenged to document when this occurs and subsequently estimate the energetic consequences. Furthermore, departure distances are influenced by an individuals' immediate satiation level where satiated bears may leave a foraging site when viewers are more distant; conversely, the same bear in a less satiated state may not depart the foraging site until viewers are closer. Considering this behaviour, conservative separation distances should be applied at bear-viewing sites.

Although bear responses to viewer presence differ depending on habituation level, forage abundance, social dynamics and individuality, research is relatively consistent in distance responses of bears to human activity. A minimum distance of 50-150 m between bears and viewers (or other human presence in the area) is recommended to minimize impacts of viewers on bears and promote viewer safety. The upper end of this spectrum should be used in new viewing areas where bears have no prior exposure to viewing activities at that site. The lower end of the spectrum can be used at well-established viewing sites as those bears have become habituated to viewers or adapted their behaviours in response to viewer activity. Recognizing that bears may approach viewers at closer distances, viewers should not be situated closer than 50-150 m. In these cases, it's the bears' decision whether to move closer to people and if safe, viewers should remain stationary to reduce stress to bears. Viewing and safety management plans should outline the steps taken when bears approach viewers closer than the minimum identified distance.

Many land-based viewing sites have raised platforms or cleared sites set immediately adjacent to foraging areas (e.g., on bank beside spawning creek). Here, habituated bears may travel within a few meters of people with minimal impact while the wary bears are likely to forage further from these sites. The minimum distance between viewers and bears can be less 50-150 m in areas with established viewing sites or structures that have been used consistently in multiple years prior to the current year,

have existing habituated bears, and have appropriate safety measures including trained guides, appropriate viewer behaviour, and appropriate attractant management.

Site-specific minimum distances should be established considering prior viewing activities on-site, whether infrastructure will be used, and configuration of the viewing area as it may restrict safe distances. Viewing should not occur in areas where safe, minimum distances between viewers and bears cannot be achieved.

#### **Recommendation 6**

A minimum distance of 50-150 m between bears, or specific locations where bears are predictably present, and viewers (or other human presence in the area) should be used to minimize impacts of viewers on bears and promote viewer safety. The upper end of this range should be used in areas with new viewing activities, and the lower end of this range can be used at sites with well-established viewing activities.

Bears may approach stationary viewers and encroach on the 50-150 m buffer. In these cases, it's the bears decision whether to move closer to people and if safe, viewers should remain stationary to reduce stress to bears.

Site-specific minimum distances should be established considering prior viewing activities on-site, whether infrastructure will be used, and configuration of the viewing area as it may restrict safe distances.

Viewing should not occur in areas where safe, minimum distances between viewers and bears cannot be achieved.

#### **6.4 Attractant Management**

Preventing bears from accessing human foods and other non-natural attractants (e.g., petroleum products, toiletries) is critical to maintaining safe bear-viewing operations. Food-conditioned bears approach people in close proximity and often display aggressive or defensive behaviour centered around the acquisition and possession of human food or garbage. Avoiding food-conditioning of bears being viewed is a key objective of many bear-viewing sites including Atnarko River, Khutzeymateen, Brooks River, McNeil River, Mussel River, and Pack Creek. The principle of proper attractant management extends beyond the reaches of viewing sites themselves. Bear-viewing operations should implement proactive measures to prevent bears from becoming food-conditioned by ensuring non-natural attractants are securely stored. This principle should extend to other human activities in and around viewing sites to maintain safety of bears and people at viewing sites. Prohibiting food at all viewing sites is a good option.

#### **Recommendation 7**

Bear-viewing operations should implement proactive measures to prevent bears from becoming food-conditioned by ensuring non-natural attractants are securely stored. This principle should extend to other human activities in and around viewing sites to maintain safety of bears and people at viewing sites. Prohibiting food at all viewing sites is a good option.

### 6.5 Infrastructure or Natural Viewing Areas

Some bear-viewing sites utilize natural features for viewing such as riverbanks. Other viewing sites have viewing infrastructure such as raised platforms or boardwalks. Some viewing sites use a combination of infrastructure and natural features. Natural viewing areas can increase viewer satisfaction because of the wilderness setting; however, safety issues can arise without proper management of viewers or by lack of knowledge of bear behaviour and stress cues. Purpose-built viewing infrastructure can increase viewer safety and accessibility by keeping viewers on a separate plane than bear and concentrating viewers to a smaller area. Infrastructure has had mixed effects on bear behaviour. At Brooks River, Alaska, some grizzly bears avoid infrastructure and others avoid the structures when viewer presence was high. By contrast, other studies at Glendale Cove, B.C. have found that viewing platforms did not alter grizzly bears travel paths.

Sometimes viewing infrastructure becomes damaged or lost resulting from flood or other natural events. Here, consideration should be given to the need for permanent versus temporary infrastructure or the need for viewing infrastructure at all. Routine maintenance of structures and assembly and disassembly of temporary structures should occur well outside of the time bears are using the area to minimize disturbance.

The pros and cons of viewing site infrastructure should be considered to determine if the value gained outweighs the potential costs with respect to viewer safety and bear behaviour. Raised platforms are recommended for sites where unguided (recreational) viewing occurs because of their ability to concentrate viewers.

#### **Recommendation 8**

The pros and cons of viewing site infrastructure should be considered to determine if the value gained outweighs the potential costs with respect to viewer safety and bear behaviour. Raised platforms are recommended for sites where non-commercial (recreational) viewing occurs because of their ability to concentrate viewers.

### 6.6 Overflights

Bears can be sensitive to indirect effects at viewing sites including aircraft overflights; this includes drones. Aircraft in bear-viewing areas can be transporting viewers, transporting non-viewers (e.g., anglers), conducting scenic flights, or transiting the area. Similarly, drones may be used for photography or scouting new areas by the public and commercial operators. In one study, bears produced clear physiological responses to proximal unmanned aircraft. Individual bears differed in their response to helicopter-based seismic surveys. Time spent responding to overflights at a minimum reduces foraging

time by increasing vigilance activities but to less tolerant bears, or those of lower social status or family groups, can cause individual bears to abandon the foraging area. Guidance on minimum distances for helicopters and fixed-wing aircraft for grizzly bears varies; at least 500 m straight-line distance from grizzly bears and 500 m vertically and 1000 m horizontally from grizzly bears. Herding or harassment of wildlife with an aircraft (including drones), motor vehicle, or boat is illegal under the *Wildlife Act*.

Although no studies have specifically examined overt response distances of bears at viewing sites to aircraft, aircraft (including drones) flying in bear-viewing areas should maintain an elevation of at least 500 m above ground level during the non-denning season.

#### **Recommendation 9**

Aircraft (including drones) flying in bear-viewing areas should maintain an elevation of at least 500 m above ground level during the non-denning season.

## 7.0 Managing Recreational (non-commercial) Viewing Opportunities

In this Strategy, recreational viewing is considered to be viewing by members of the public where no money or other consideration has been exchanged for any outdoor recreational activity on Crown land.

Although this strategy focuses on commercial bear viewing (i.e., guided bear-viewing tours), it would be remiss to ignore the risks recreational viewing poses to human safety and potential negative impacts to bears, and associated management options. Recreational bear viewing occurs where people unaffiliated with commercial viewing operators encounter bears in a viewable location either incidentally or at concentrated food sources.

- Recreational viewing of incidental bear sightings away from concentrated food sources can have public safety and/or energetic consequences for bears. This incidental viewing occurs infrequently and typically with few people present and hence group size concerns can be minimal.
- Recreational viewing can also occur where public access comes in close proximity to seasonally concentrated food sources that attract bears. Here, public safety issues can arise if viewer behaviour, including management of pets, and access is not controlled (e.g., provision of a food reward which will likely result in the bears' destruction or encounters with surprise or defensive attacks). Furthermore, the likelihood of energetic consequences to bears through spatial, temporal, or behavioural impacts caused by uncontrolled viewers is high.

Recreational bear viewing can be challenging to manage as agencies are often not promoting viewing at that site, and thus do not have the necessary resources, awareness, or tools in place to maximize public safety and minimize disturbance to bears. Unless sufficient agency resources are available to appropriately manage recreational bear viewing (e.g., BC Parks infrastructure and staffing at the Belarko viewing site), actions should be taken to reduce the opportunity for people to view bears while maintaining bears' access to the resource.

Management of recreational viewing can also be challenged by the multi-agency approach required in some situations; a recreational viewing area can involve the jurisdiction of Ministry of Transportation

and Infrastructure (highway right-of-way), RCMP, MoF (Forest Service Roads), Conservation Officer Service, BC Parks, and First Nations. There are no legislative tools to manage recreational viewing in the *Wildlife Act* other than the *Wildlife Act's* general provisions on attracting dangerous wildlife and herding/harassing wildlife with a motor vehicle. Section 108(3)(d) of the *Wildlife Act* provides the authority to make regulations prescribing the conditions under which boats, aircraft, motor vehicles or snowmobiles may be used for the purpose of hunting, trapping, taking, or **viewing** wildlife or for angling. However, this authority does not include provisions related to human safety, guide training, licencing, and other facets that need to be considered for regulation of the viewing industry. Sections 3 and 29 of the *Park Act* provide the authority that could be used to manage recreational viewing as needed to protect park values.

Site-specific solutions are needed to manage recreational viewing and should be developed by a multi-agency group representing all the land managers at the site, including First Nations and the public. Below are some tools that, applied in conjunction, may improve safety and reduce bear disturbance at these sites.

- If terrain is suitable, construct viewing infrastructure to control viewer movements (e.g., raised boardwalks, viewing platforms).
- On-site staff to manage viewer behaviour through education and compliance and enforcement (agency staff and/or First Nation Guardians).
- Closing areas and/or removing infrastructure (e.g., picnic tables, rest areas, outhouses) from undesirable (likely less safe) viewing areas to focus viewer activity in desired places.
- Frequent patrols by relevant enforcement agencies to monitor for compliance issues (e.g., harassing or feeding wildlife, motor vehicle related violations, permissible viewing hours).
- Educational signage on system ecology and potential impacts of viewer activities, and other non-viewing recreational activities, on bears at these sites.
- Creation of designated pet areas away from viewing sites.
- Signage with language to deter viewers (no stopping, no parking, no bear viewing) where viewing is not desired.
- Education on best practices using digital avenues used by tourists such as Drive BC and HelloBC.
- Visual barriers along roadsides in key areas (e.g., fencing or planting of vegetation) to focus viewing in desired places.
- Reduction in speed limits in important areas to minimize vehicle accidents with other vehicles, people, or bears, recognizing that reduced speed limits may promote viewing from vehicles.

## 8.0 Monitoring and Adaptive Management

### 8.1 Why Monitor?

A recurring theme in the bear-viewing literature is the variability of individual bears in response to viewing activity that is driven by social dominance status, habituation status, reproductive status, availability of alternate foraging areas or times, relation to carrying capacity, and human activity. Although the literature guides expectations of bear responses at viewing sites, this individual variability in responses and site-specific variation of viewing site conditions warrants the need for monitoring programs. The overarching goals of monitoring at viewing sites are to:

- ensure that viewing activities minimize adverse effects on body condition (health), survival, and reproduction of bears, and
- provide information to support adaptive viewing management.

Research and operational experience suggest that all viewing sites, including new and existing sites, should implement annual monitoring programs as impacts of viewers can change over time particularly in years of reduced availability of the concentrated food source at the viewing area, as viewer behaviour/activity changes, or as new bears begin using the area. Results from formal monitoring programs as well as anecdotal information (e.g., salmon returns are lower than anticipated) can inform the need for within-season or between-season changes to viewing activities.

## 8.2 Monitoring Goals and Data Considerations

Research and operational experience suggest that a monitoring program should examine whether the total number, age/sex composition<sup>7</sup>, and activity (e.g., detections/time period) of bears using the viewing site and refuge(s) change within and between years in response to characteristics of viewing activities, independent of annual forage fluctuations. This includes considering whether the daily timing and spatial use by viewers affects the age/sex composition of bears using the viewing and refugia areas within a viewing season.

Monitoring programs should be designed and implemented at the area scale (see **Section 9.0**) to enable monitoring of the efficacy of spatial and temporal refugia (see **Section 4.2.1 and 4.2.2**) as well as monitoring at the viewing sites. Monitoring design should be considered in the development of the area plans. Monitoring programs require development by a qualified individual or organization to ensure the proposed design will deliver the required information. Researchers have acknowledged the challenge of implementing monitoring programs at bear-viewing sites outside of intensive research programs. As such, monitoring programs should consider constraints on implementation and analysis including:

- collared bears at viewing sites provide intensive data on movement of individual bears and allow for tracking of individual survival, including cubs; however, this type of program is invasive to bears, expensive, and detracts from the “wildness” of natural bears at viewing sites,
- observational data collection often includes observer bias as each sampler may interpret behaviour differently,
- inaccuracies/insufficient sample sizes can result if the data collector is the guide as they will be focussed on managing clients and,
- capacity requirements to analyze and interpret the monitoring data.

Three types of data could be considered for monitoring programs are described in Table 3.

*Table 3. Data types, data descriptions, and where the collection responsibility could reside for potential monitoring at bear-viewing areas.*

| <b>Data Type</b>              | <b>Description</b>  | <b>Collection Responsibility</b>  |
|-------------------------------|---|---|
| <b>Viewer use information</b> | Number of viewers, location within viewing area (e.g., raised platform 2, | Commercial operators or agency/First Nation staff depending on who leads the commercial viewing |

<sup>7</sup> Relevant age/sex classes: adult male, adult female, family group, subadult

| Data Type                           | Description  | Collection Responsibility  |
|-------------------------------------|--|--|
|                                     | <p>quadrant 1 on west side of estuary), and duration of each viewing session</p> <p>Number and spatial use of people in and around the viewing area for non-viewing purposes (e.g., anglers)</p>   |  |
| <b>Bear use information</b>         | <p>Number, activity rate (e.g., # detections/week) and <u>timing</u> of detections for each age/sex class using the viewing site and refuge(s) from strategically placed trail cameras</p> <p>Age/sex class (and individual identification/habituation status<sup>8</sup> where possible, including number and age of dependent young) and locations of bears observed during viewing sessions relative to viewing locations</p> | <p>Responsibility for maintaining trail cameras should be considered in the development of area plans</p> <p>Commercial operators or agency/First Nation staff depending on who leads the commercial viewing</p>   |
| <b>Relative forage availability</b> | <p>Relative salmon abundance, run timing and water level</p> <p>Relative availability of alternate foods annually (e.g., relative berry abundance; low, medium, high) is important and would provide additional important information to help interpret monitoring program results</p>   | <p>Fisheries and Oceans Canada can provide escapement estimates for streams included in their monitoring program. Where not available, commercial operators or agency/First Nation staff (whomever leads the commercial viewing) should provide run timing data and relative estimates of salmon abundance (low, medium, high) and availability (water levels are low, medium, high) for each stream in their operating area.</p> <p>Consideration on the optimal means to collect forage information should be done during the development of area plans.</p> |

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<sup>8</sup> Habituation status classes: highly wary, somewhat wary, somewhat tolerant, highly tolerant

| Data Type                   | Description   | Collection Responsibility   |
|-----------------------------|---|---|
| <b>Human-bear conflicts</b> | Thorough description of the conflict scenario. Specific reporting points are detailed in <b>Section 8.3</b> | Commercial operators or agency/First Nation staff depending on who leads the commercial viewing |

There are factors that could negatively affect monitoring results other than existing viewing activity. Initiation of a new viewing operation is one of those factors. The first year or two of viewing may result in a significant change in bear activity as bears navigate viewer presence with social dominance and forage availability to determine where and when they can forage. As certain bears habituate to viewers, age/sex class distribution within viewing and refuge sites should stabilize. These monitoring recommendations track habituation status for individually identifiable bears to enable this influence to be accounted for in the data. Changes in annual abundance of berries can also affect bear use of spawning streams. There is considerable ongoing research in B.C., especially in the south, on the distribution and abundance of berries and their importance to grizzly bears. This research is providing insights that will help inform berry monitoring efforts throughout B.C. Co-operative efforts to monitor berries should be possible in many areas and these may be of interest as part of monitoring at bear-viewing sites.

### 8.3 Human-Bear Conflicts

Commercial operators should report any human-bear conflicts and significant interactions to the authorizing agency(s). Spatially, the reporting should encompass any areas related to viewing operations (e.g., viewing sites themselves, travel corridors to viewing sites, viewing accommodation, etc.).

The following human-bear conflicts and interactions should be reported:

- when physical contact<sup>9</sup> between a bear and viewer occurs,
- when people (typically the guide) took action to deter a bear (e.g., use of voice when a stern voice is required (not the common use of “hey, bear” as normal language to communicate with bears to announce human presence), bear bangers, etc.),
- when a bear charges people or vehicles/boats/towers/platforms associated with viewing; this includes bluff charges,
- when a bear contacts vehicles or boats or other objects associated with viewing,
- when a bear accesses non-natural attractants associated with the viewing operation,
- when a bear and people are in close proximity (within 10m) regardless of the outcome where a barrier between people and the bear does not exist, that is, viewers are not on a raised viewing platform, and
- any other scenario that could have potentially resulted in a human-bear conflict.

Reporting should provide adequate details to understand why the encounter occurred and inform any adaptive management changes that may result from the encounter. Details should include the scenario leading up to the encounter, the encounter itself, any actions taken to deter/diffuse the situation,

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<sup>9</sup> Physical contact between a bear and viewers should be immediately reported to the Conservation Officer Service and through bear-viewing authorization reporting.

reporting of injuries and any medical follow-up required, an interpretation of bear behaviour involved in the encounter (developed in cooperation with qualified MoF, First Nations, Indigenous Governing Bodies, or MECCS staff), and how learnings from the encounter are informing changes to the viewing operation to improve safety. A standardized report form may be developed.

**Recommendation 10**

Results from formal monitoring programs as well as anecdotal information (e.g., salmon returns are lower than anticipated) can inform the need for within-season or between-season changes to viewing activities.

Monitoring programs should be designed and implemented at the area scale (see Section 9.0) to enable monitoring of the efficacy of spatial and temporal refugia (see Section 4.2.1 and 4.2.2) as well as monitoring at the viewing sites. Monitoring design should be considered in the development of the area plans.

Commercial operators should report any human-bear conflicts.

## 9.0 Development of Area-based Bear-Viewing Management Plans (“Area Plans”)

This Strategy provides high-level guidance on how to safely view bears while minimizing viewer impacts on bears via spatial and temporal mitigation, adaptive management through monitoring, guide/staff training, and key operational variables. Currently, some commercial operators submit operational plans (e.g., tenure and risk management plans) for their specific operation as a requirement to obtaining the needed permit or tenure. These operational plans are operator specific and often site specific and do not always consider the impacts of other operators at the same sites or general area, that is, they are focussed on the applicant’s specific proposed activities and not the cumulative impact of all viewing and other human activities. Bear viewing activities need to be part of the consideration of the cumulative impact of all human activities in the viewing areas.

Area based bear-viewing management plans (herein “area plans”) should be collaboratively developed by the managing agency and appropriate First Nation(s) and incorporate the guidance from this Strategy. If, under certain circumstances, the development of an area plan is lead by a prospective or existing commercial operator, it should be done collaboratively with the managing agency and appropriate First Nation(s). Scope and scale are the main differences between an operational and area plan. The area plan should be of an appropriate scale to consider the spatial refugia requirements for bears in addition to the other topics highlighted in this Strategy.

Area plans should include:

- Overview of the area covered in the plan,
- Consideration of higher-level planning exercises such as land-use planning and landscape-level planning,

- Discussion of bear management objectives (the Province, First Nations, stakeholders) applicable to the area covered in the plan and how the viewing outcomes in the plan will align with those objectives (e.g., can viewing be justified in an area where bear populations and/or critical habitat and resources are thought to be declining; decline could be at the population or GBPU scale),
- How the viewing management plan impacts and/or involves First Nations
  - Summary of consultation/engagement<sup>10</sup> associated with development of the plan, including any interests or concerns identified by local First Nations, or the cumulative effects of activities in the area on bears and on First Nation aboriginal and inherent rights;
  - As appropriate, maps showing culturally important sites or restricted areas identified by the relevant First Nation(s) and a description of how those sites will be avoided or used at times that do not interfere with First Nation cultural use; and
  - How local First Nations will be involved (e.g., employment opportunities, business opportunities, use of Indigenous Knowledge, or, if appropriate, First Nation equitable or priority access),
- How viewing sites were selected based on the considerations in Table 2 (**Section 4.1**),
- Map showing spatial refuge and proposed/approved viewing sites,
- Documentation to support the decisions for spatial refuges and viewing sites based on the criteria listed in **Section 4.2.1**,
- Documentation to support temporal mitigation based on the criteria listed in **Section 4.2.2**,
- Map showing access sites via water, air, or land including associated rationale for those options. This could include identification of specific moorage, anchor, and helicopter landing sites, viewing locations and access trails,
- Hazard assessment details for ground-based viewing operations that focus on the safety of trails and viewing site locations to minimize potential human-bear conflicts (e.g., topography that provides escape routes for bears, sightability along trails, noise along proposed trails/viewing sites that would preclude bears hearing viewers moving to sites, connectivity to high value forage areas, trail placement to avoid high value forage areas),
- Description of the proposed monitoring program including considerations for statistical rigour, equipment, and personnel requirements, and how the program is intended to inform adaptive management (**Section 8.0**)
  - If this plan is agency-driven with no current commercial operator interest in viewing or no desire by the agency to operate, details of monitoring protocol implementation can be deferred until an operator expresses interest,
- Training requirements for operational staff,
- Operational details including maximum group size and number of groups onsite, predictable viewing locations and travel paths, predictable daily viewing schedule, minimum distance between viewers and bears to be implemented, attractant management, response plan should a food reward be obtained, natural or viewing site infrastructure (including rationale for any

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<sup>10</sup> consultation is a requirement of the Crown and is not voluntary; whereas engagement can be broader, more varied and can be completed by a business operator (i.e., engagement under reconciliation on issues that do not require consultation but promote relationship building)

alteration of important habitat), management of overflights related to viewing operation, limits on viewing period daily and seasonally, viewer behaviour management, viewer education requirements, safety and emergency protocols, aversive conditioning/bear response plan/human-bear conflict management plan, implementation of “Leave No Trace” principles, and pet management (including certification requirements should a formally-trained bear dog work with guides)

- If this plan is agency-driven with no current commercial operator interest or no desire by the agency to operate directly, some of these operational details can be deferred until commercial interest exists (e.g., specifics on attractant management and response plan, management of overflights related to viewing operations, viewer behaviour management, viewer education requirements, safety and emergency protocols, aversive conditioning/bear response plan), and
- Cumulative impacts of non-viewing user groups to collaboratively minimize impacts of human activity on bears at these sites.

An example of an area-based management plan is the bear viewing plan for the Laig (Mussel Inlet) Special Management Area (SMA) in Fiordland Conservancy established between the Kitsoo Xai'xais Nation and BC Parks<sup>11</sup>. In addition to including most guidance in this Strategy, this plan has identified that only one operator can view bears at the established viewing site (or designated water-based viewing area) at a time. Permits for wildlife viewing in Laig SMA and associated viewing day allocations are managed through a competitive process, and the Kitsoo Xai'xais bear viewing business, Spirit Bear Lodge, has priority use during peak viewing season.

#### **Recommendation 11**

Area-based bear-viewing management plans (“area plans”) should be developed in consultation and cooperation with local Indigenous Governing Bodies pursuant to DRIPA and other Government to Government agreements. These plans should guide how bear-viewing activity occurs within a defined area. In some circumstances where area plans have not been developed, commercial operators may be able to develop and submit one for review.

Operational Plans submitted by commercial bear-viewing operations should demonstrate how their operation meets the above-listed criteria and complies with the relevant area plan. These plans should be approved by the Provincial Regional Manager and appropriate official(s) of Indigenous Nations with overlapping traditional territory where shared decision-making agreements exist.

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<sup>11</sup> Bear Viewing Operational Plan (2020-2023): Laig (Mussel Inlet), Fiordland Conservancy, BC

## 10.0 Implementing the Strategy

To implement the recommendations in the Strategy, legislation, regulation, policies, and procedures may need to be developed or amended which includes consideration for compliance and enforcement activities and water-based activities, which will require collaboration with the Government of Canada. Implementing the Strategy will consider the viability of the industry and creating business certainty, while managing for bear conservation and public safety.

Any reforms to implement the Strategy must comply with Provincial obligations under DRIPA, UNDRIP, and other agreements with Indigenous Governing Bodies. The Strategy should be implemented collaboratively with First Nations and using a shared decision-making model with First Nations that appropriately and respectfully incorporates relevant and available Indigenous Knowledge and western science. Together for Wildlife has an initiative to establish Regional Wildlife Advisory Teams that represent a broad spectrum of wildlife interests and is meant to provide recommendations to government on wildlife stewardship initiatives, these teams, once established, should also be included in implementing the Strategy.

## 11.0 Summary of Recommendations

To implement the recommendations in the Strategy, legislative, regulatory and policy amendments may be required.

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| 1 | Develop spatial and temporal refuges that maintain bears' unimpeded access to the concentrated food source that are free from all human activity not simply an absence of viewing activity. Refuges should consider the conditions outlined in Section 4.2.1 and 4.2.2 in context of local conditions and knowledge to be effective refuges.  |
| 2 | Review existing commercial bear viewing operations to ensure they align with the mitigation measures discussed in Sections 4.2.1, 4.2.2, and 6.0.   |
| 3 | All guides at bear-viewing sites should have formal training to minimize impacts of viewing activities on bears primarily through viewer management and responding appropriately to bear behaviour.   |
| 4 | Without site-specific assessment, research, or monitoring programs to inform viewer management that minimizes impacts to bears, group size should not exceed 16 people including guides with only one group visible from the viewed bears' perspective at a time. Limits on group size and a single viewing group can help account for other human activity in the area (e.g., anglers).  |
| 5 | Viewing activities should follow these principles: <ul style="list-style-type: none"> <li>• predictable and consistent: <ul style="list-style-type: none"> <li>○ daily viewing schedules that include a standardized portion of daylight hours without viewing activities,</li> <li>○ travel routes, and</li> <li>○ viewing sites should be used to minimize disturbance to bears and maximize viewer safety,</li> </ul> </li> <li>• pursuit viewing (viewing that tracks or follows bears) should not occur,</li> <li>• incidental viewing that does not involve pursuit of bears is acceptable, however, viewing from predictable, consistent locations is preferred,</li> <li>• viewer travel routes should avoid existing bear trails, and</li> </ul> |

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|    | <ul style="list-style-type: none"> <li>for boat-based viewing, all efforts should be made to maintain predictable viewing locations and travel routes acknowledging how tides influence these factors.</li> </ul> <p>In areas with multiple viewing operators, predictable and consistent viewing activities should occur amongst all operators and non-viewing human activity (e.g., anglers, camping).</p>  |
| 6  | <p>A minimum distance of 50-150 m between bears, or specific locations where bears are predictably present, and viewers (or other human presence in the area) should be used to minimize impacts of viewers on bears and promote viewer safety. The upper end of this range should be used in areas with new viewing activities, and the lower end of this range can be used at sites with well-established viewing activities.</p> <p>Bears may approach stationary viewers and encroach on the 50-150 m buffer. In these cases, it's the bears decision whether to move closer to people and if safe, viewers should remain stationary to reduce stress to bears.</p> <p>Site-specific minimum distances should be established considering prior viewing activities on-site, whether infrastructure will be used, and configuration of the viewing area as it may restrict safe distances.</p> <p>Viewing should not occur in areas where safe, minimum distances between viewers and bears cannot be achieved.</p> |
| 7  | <p>Bear-viewing operations should implement proactive measures to prevent bears from becoming food-conditioned by ensuring non-natural attractants are securely stored. This principle should extend to other human activities in and around viewing sites to maintain safety of bears and people at viewing sites. Prohibiting food at all viewing sites is a good option.</p>   |
| 8  | <p>The pros and cons of viewing site infrastructure should be considered to determine if the value gained outweighs the potential costs with respect to viewer safety and bear behaviour. Raised platforms are recommended for sites where non-commercial (recreational) viewing occurs because of their ability to concentrate viewers.</p>  |
| 9  | <p>Aircraft (including drones) flying in bear-viewing areas should maintain an elevation of at least 500 m above ground level during the non-denning season.</p>  |
| 10 | <p>Results from formal monitoring programs as well as anecdotal information (e.g., salmon returns are lower than anticipated) can inform the need for within-season or between-season changes to viewing activities.</p> <p>Monitoring programs should be designed and implemented at the area scale (see Section 9.0) to enable monitoring of the efficacy of spatial and temporal refugia (see Section 4.2.1 and 4.2.2) as well as monitoring at the viewing sites. Monitoring design should be considered in the development of the area plans.</p> <p>Commercial operators should report any human-bear conflicts.</p>  |
| 11 | <p>Area-based bear-viewing management plans ("area plans") should be developed in consultation and cooperation with local Indigenous Governing Bodies pursuant to DRIPA and other Government to Government agreements. These plans should guide how bear-viewing activity occurs within a defined area. In some circumstances where area plans have not been developed, commercial operators may be able to develop and submit one for review.</p>  |

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| Operational Plans submitted by commercial bear-viewing operations should demonstrate how their operation meets the above-listed criteria and complies with the relevant area plan. These plans should be approved by the Provincial Regional Manager and appropriate official(s) of Indigenous Nations with overlapping traditional territory where shared decision-making agreements exist. |
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## 12.0 Conclusion

Properly managed commercial bear-viewing operations can provide economic opportunities for operators, including First Nations, and an excellent experience for tourists that showcases B.C.'s wilderness, all while minimizing impacts to bears and maximizing safety of people viewing bears.

This Strategy provides recommendations for the management of bear viewing in B.C. that are based on a combination of research and operational experience to help maintain bear viewing as a sustainable activity on the landscape. This Strategy aims to respond to many concerns identified by First Nations and non-First Nations with respect to the negative effects of unregulated bear viewing on bears and communities while recognizing the positive economic impacts from bear viewing. The Strategy advocates that when considering whether and where regulated bear-viewing activity occurs, that a broad lens be applied to consider the totality of activities in the area and the impacts of these activities on bears as well as on Indigenous Peoples' constitutional rights.

Guidance in this Strategy incorporates Indigenous Knowledge and research of the land, bears, and bear habitat, as well as experience with bear viewing. This Strategy has also been developed with the intent to ensure that bear-viewing activities in B.C. occur in accordance with the *Declaration on the Rights of Indigenous Peoples Act* (DRIPA), the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and existing and emerging agreements between B.C. and Indigenous Governing Bodies.

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## Appendix 1 - Rationale for Establishing Spatial and Temporal Refugia

The spatial and temporal mitigation measures in Sections 4.2.1 and 4.2.2 were designed considering the influence of individual bears' foraging strategy, foraging area fidelity, forage availability and timing, social dynamics, and the size of a female home range. The goal of mitigation is to ensure the reproductive component of the population (female bears) retains access to food sources necessary to meet their energetic requirements for survival and reproduction and to ensure that larger bodied male bears can meet their energetic requirements. The following points provide the rationale supporting the mitigation measures for designation of refuge(s) and viewing sites:

- Bears foraging on spawning salmon in streams capitalize on differences that lead to staggered timing of spawning between and within streams. This foraging strategy lengthens the availability of a pulsed (short-term) resource providing increased opportunity for high caloric intake. Within-stream variation increases salmon availability through lengthened spawning duration on an individual stream basis, while between-stream phenological variation increases salmon availability through a resource wave. Habitat connectivity allows bears to move between streams with staggered timing. Maintaining natural stocks is recommended to keep staggered resource availability as hatchery fish may not maintain the staggered spawning time of native salmon.
- Bears consistently remain in a local neighborhood of spawning streams potentially because of familiarity with streams including spawning characteristics and timing and increased energetic costs of moving to another area.
- Daily consumption of a pulsed forage resource is often proportional to availability until bears reach maximum consumption in relation to gut capacity and social interactions. Various researchers have quantified salmon consumption by bears in coastal Alaska and B.C. The average salmon consumption between studies is consistent at approximately 14 salmon per bear per day (equating to approximately 650 salmon per bear per season and approximately 1000 kg of salmon per bear per season incorporating an average of 1.6 kg of each salmon consumed over a 45-day spawning season), although each study notes high variability amongst individual bears. This variability is driven by individual variation in foraging strategies, social dynamics, and availability of alternate concurrent forage options. Since stream characteristics and competition with scavengers limit the availability of salmon to bears, salmon availability should exceed an average of 14 salmon per bear per day to ensure bears can acquire what they need.
- Consumption estimates are confounded by selective consumption of fish parts which is in turn influenced by stream characteristics that affect capture success, prey abundance, and time to denning because of decreasing caloric content of salmon throughout the spawning period.
- Social dynamics and habituation status of bears interact and influence access to the highest quality foraging sites. In general, dominant bears secure priority access to quality foraging sites displacing subordinate bears to lower quality foraging sites, less efficient foraging times (e.g.,

after dark), or when dominant bears leave preferred foraging sites. Habituation status confounds these effects where presence of viewers may displace dominant, non-habituated bears creating access for habituated, subordinate bears at viewing sites which can be high quality foraging sites. Increased nutritional requirements for large male bears may disproportionately influence their responses to viewer activity at salmon streams and intertidal areas because they often cannot meet their energetic requirements in sub-optimal foraging areas; simply put, big bears need more and higher quality food and thus may benefit the most from refuges. Furthermore, some bear viewing occurs during mating season such that bears are faced with the effect of viewers, forage availability, regular social dynamics, plus the added nuance of mating behaviour and the competition for mates.

- Female bear home ranges are typically smaller than males meaning that female bears need access to sufficient food sources within a smaller geographical area.
  - Grizzly Bears - Coastal: Although few home range estimates exist for grizzly bears in coastal B.C. and Alaska, the average adult female grizzly bear home range varies from 2 to 160 km<sup>2</sup>. Assuming circular home ranges, this equates to an average home range diameter of 8.1 km. Average daily travel distance was calculated for adult female bears wearing GPS collars at Douglas River and on the Kenai Peninsula; these were 7.2 and 8.0 km/day, respectively. Daily movement distances and home range diameters suggest that female bears need adequate access for foraging resources within about an 8-km straight-line distance. Home range shape is dictated by many factors including topography, distribution of food, human activity, and intraspecific social interactions. Assuming home ranges are circular is a moderately conservative approach. Home ranges are typically not circular, but refinement of this metric would require detailed location data for coastal female grizzly bears.
  - Black Bears - Coastal: Although few home range estimates exist for black bears in coastal B.C., Washington and Oregon, the average adult female black bear home range varies from 2 to 34 km<sup>2</sup>. Assuming circular home ranges, this equates to an average home range diameter of about 5 km. Black bear population estimate work in Washington found that most female black bears were detected only at a single sampling site suggesting that the average of 4-km between sampling sites may have exceeded their home range size. Home range diameters suggest that female black bears need adequate access for foraging resources within about a 5-km straight-line distance. Home range shape is dictated by many factors including topography, distribution of food, human activity, and intra- and inter-specific social interactions. Assuming home ranges are circular is a moderately conservative approach. Home ranges are typically not circular, but refinement of this metric would require detailed location data for coastal female black bears.
  - Grizzly Bears - Interior: Although few home range estimates exist for grizzly bears in interior B.C. or western Alberta, the average adult female grizzly bear home range varied from 58 – 382 km<sup>2</sup> by study area. Assuming circular home ranges, this equates to an average home range diameter of 18 km suggesting that female bears need

adequate access for foraging resources within about an 18-km straight-line distance. Home range shape is dictated by many factors including topography, distribution of food, human activity, and intraspecific social interactions. Assuming home ranges are circular is a moderately conservative approach. Home ranges are typically not circular, but refinement of this metric would require detailed location data for interior female grizzly bears.

- **Black Bears - Interior:** Although few home range estimates exist for black bears in interior B.C., Washington and Oregon, the average adult female black bear home range varied from 26 - 35 km<sup>2</sup> by study area. Assuming circular home ranges, this equates to an average home range diameter of about 6 km suggesting that female black bears need adequate access for foraging resources within about a 6-km straight-line distance. Home range shape is dictated by many factors including topography, distribution of food, human activity, and intra- and inter-specific social interactions. Assuming home ranges are circular is a moderately conservative approach. Home ranges are typically not circular, but refinement of this metric would require detailed location data for interior female black bears.

## Appendix 2 – Bear Management in the Great Bear Rainforest

In B.C.'s Central and North Coast is an area now known as the Great Bear Rainforest or "GBR". The GBR has a unique set of arrangements for the protection and stewardship of bears, including the management of bear viewing, that have emerged because of the First Nations' cultural and spiritual connections with bears and because of the successful collaboration between the Coastal First Nations (CFN) and the Province.

In the early 2000s, the Central Coast and North Coast land use planning processes were the first such processes to be conducted in the context of government to government (G2G) agreements. The General Protocol on Land Use Planning between the Coastal First Nations and the Province provided that the planning tables would be co-managed and in the case of the NCLRMP co-chaired, and that recommendations from the multi-stakeholder planning tables would inform later G2G discussions between the Province and the First Nations<sup>12</sup>.

Following submission of the Central Coast Land and Resource Management Plan and North Coast Land and Resource Management Plan recommendation reports in 2004 and subsequent G2G discussions, agreement on a land-use decision for the GBR was reached between First Nations and the Province in early 2006. This agreement was incorporated into strategic land use planning agreements (SLUPAs); bilateral agreements between individual First Nations and the Province<sup>13</sup>. Broader agreements were also entered into by the Province and First Nation coalitions including CFN<sup>14</sup> and Nanwakolas Council<sup>15</sup>.

The SLUPAs and related collective agreements established a comprehensive G2G commitment for collaborative implementation of GBR land-use decisions. Amendments to the *Park Act* and a new Order-in-Council under the Environment and Land Use Act were developed to enable legal designation of more than 100 new protected areas, many of which encompassed critical and important bear habitat. A G2G technical team comprised of senior First Nation and B.C. representatives was established to develop recommendations on a new land-use regulation. The first GBR Land Use Order, enacted in 2007, added further protections for bears in the form of legal requirement to protect 100% of Class 1 and 50% of Class 2 bear spring and summer forage habitat that remained on the land.

Over the past 15 years, the CFN Nations and the Province have continued to work on a collaborative G2G basis to advance the protection and stewardship of bears and their habitats. Critical habitat inventories have been improved. Field research by First Nations revealed that grizzly bears now occupy outer coast islands and population unit maps and habitat protection measures have been expanded accordingly. Recent amendments to the GBR Land Use Order now provide enhanced protection for bear dens and other critical habitat, and for the riparian forests next to fish-bearing streams that bears rely

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<sup>12</sup> See <https://www.for.gov.bc.ca/tasb/slrp/citbc/finalprotocol.pdf>

<sup>13</sup> See for example the Gitga'at SLUPA: [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/westcoast-region/great-bear-rainforest/great-bear-rainforest-first-nations-agreements/gitgaat\\_fn\\_signed\\_slupa.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/westcoast-region/great-bear-rainforest/great-bear-rainforest-first-nations-agreements/gitgaat_fn_signed_slupa.pdf)

<sup>14</sup> See [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/westcoast-region/great-bear-rainforest/great-bear-rainforest-first-nations-agreements/turning\\_point\\_protocol\\_agreement\\_signed\\_optimized.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/westcoast-region/great-bear-rainforest/great-bear-rainforest-first-nations-agreements/turning_point_protocol_agreement_signed_optimized.pdf)

<sup>15</sup> See <https://nanwakolas.com/wp-content/uploads/2020/08/AIP-FInal-Signed-Version-compressed.pdf>

on. A forthcoming amendment to the GBR Land Use Orders will establish a requirement to create landscape level reserve plans that will enhance protection of bear travel corridors and other landscape features.

In 2006 the CFN Nations and BC Parks entered into collaborative management agreements. The Nations have worked closely with BC Parks to develop new approaches for managing bear viewing and other activities that impact bears. For example, Kitasoo Xai'xais Nation, with support from BC Parks, began intensively monitoring the potential impact of bear viewing on bears in response to dramatic increases in tourism pressure over the previous decade. Operational bear viewing management plans are being established in many protected areas in the GBR, and in areas where bear viewing has become popular, to manage the activity. Some of these plans are also identifying equitable access to viewing opportunities for Nations.

In 2009 the CFN Nations and the Province entered into a Reconciliation Protocol. The protocol created a new framework for shared land and resource decision making, including decisions that may impact bears and bear management. Implementation of this framework has led to creation of new collaborative approaches for granting and managing tenures for commercial bear viewing under the *Park Act* and the *Land Act*. Protocols between First Nations and commercial operators are creating working relationships and a more stable and effective arrangement for shared management of bear and other wildlife viewing operations.

## Appendix 3 – Considerations for Starting a Bear-Viewing Business

Some considerations for starting a new bear-viewing business are discussed below. This is not a comprehensive list but rather some key points to inform business planning as shared by some experienced viewing operators.

- Gain experience guiding bear viewing tours to understand the operational side of the business and bear ecology/behaviour as it relates to promoting safe viewing that minimizes impacts to bears. This should include formal training/certification and understanding of best practices for viewing.
- Connect with existing viewing operators, if they exist, and First Nations in the area of interest to develop working relationships and understand current level of viewing activity in relation to an acceptable level of viewing activity in the area.
- Consider the anticipated bear responses to viewing activity in an area where bears have not been viewed before, that is, an area where there are no habituated bears. Many of these bears will likely leave the area upon arrival of viewers, some bears will be displaced in the short-term, and subordinate bears may begin moving into the viewing area. The development of an operational plan, area plan, and monitoring program should consider the higher impact of viewing activities on bears not previously viewed and implement conservative measures to mitigate this such as high minimum viewing distances, short maximum times for viewing bears, small group sizes, significant temporal and spatial mitigation measures, etc. The focus in new viewing areas should be a multi-year, highly conservative viewing approach that allows the bears to become accustomed to viewing activity over many years.
- Obtain all required authorizations for commercial bear viewing including Provincial requirements (e.g., park use permit, land use tenure), business licensing, and health/safety requirements. Consider requirements for certification of guides.
- Develop an agreement (e.g., Memorandum of Understanding or Protocol Agreement) with the First Nation(s) in the planned viewing area for the viewing operation.