

Bear-Human Conflict Reduction Guidelines  
For River Rafting

Grizzly Bear Conservation Strategy

Government of British Columbia  
Ministry of Environment, Lands and Parks

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# Bear-Human Conflict Reduction Guidelines For River Rafting

## 1. Introduction

The *Grizzly Bear Conservation Strategy* was initiated by the British Columbia Government because of a concern for the future of grizzly bears in British Columbia. The strategy is to address the following:

- the loss of grizzly bear habitat due to permanent changes to the landscape by human activities;
- the alienation of grizzly bear habitat by human activities;
- the increase of scientific knowledge of grizzly bears and their habitat needs;
- the maintenance of genetic diversity of grizzly bears;
- the modification of incompatible human activities;
- an improvement in the management and regulation of the hunting of grizzly bears;
- to increase public knowledge of grizzly bears;
- to increase public involvement in grizzly bear management, and;
- to take a lead role in the international conservation of grizzly bears through management and research.

Subsequently, the British Columbia Government established the *Bear-Human Conflict Committee* to address perceived and real threats to human safety and property from bears. As part of the committee's action plan, the committee defined an educational problem associated with outdoor recreation. It suggested that:

- recreational user's of the back country are in need of bear-awareness information, and;
- provincial bear/human conflict reduction guidelines be developed for specific recreational activities.

The Grizzly Bear Conservation Strategy has developed this set of guidelines aimed at reducing bear-human conflicts during river rafting activities. These guidelines were written to provide British Columbia Government staff with:

- a background to the issue of river rafting impacts on grizzly bears;
- "ideal"~ and "minimum" standards for various river rafting activities~ and;
- options for a proactive approach to the management of bear-human interactions.

## 2. Grizzly Bears and Grizzly Bear Habitat Along Rivers

Grizzly bears in British Columbia have a wide range of behavioural characteristics and corresponding habitat requirements. This variability is a function of the diverse environmental conditions which exist throughout the province. For example, an adult male grizzly in a coastal environment will have a different pattern of daily and seasonal activities than an adult male grizzly in the Rocky Mountains. Also, an adult male grizzly in a coastal environment will have a different pattern of activity than another adult male, young male, female with cubs, or female without cubs, all sharing the same environment. As a result, it is difficult to generalize about the habitat needs of grizzly bears. It is generally accepted, however, that:

- habitats adjacent to rivers are important for grizzly bears;
- habitat selection and behavioural patterns are affected by the presence and activities of humans;
- a bear's pattern of daily and seasonal activities is learned as a cub and reinforced throughout the bear's life, and;
- bear incidents along rivers are most likely to occur due to avoidable human activities.

Habitat adjacent to rivers is typically described as being *patchy* and *variable*. There is often a mix of open forest, thick forest, heavy brush, marshy ground, rocky ground, hot and dry ground, shady and cool ground, and so on. Patchy and variable habitat presents different options for use by grizzly bears. These options include:

- feeding on many types of vegetation (e.g., roots and new green vegetation in the spring, grass, sedge and horsetail in the summer, and berries and roots in the fall).
- feeding on fish, birds, or mammals.
- thermal cover (e.g., bedding/denning sites).
- security cover (e.g., protection of cubs by females).
- breeding in the spring .
- travelling.

For any habitat type, these options are available to bears on a seasonal basis and will vary with the age and sex of individual bears. For example, a female with cubs may use a particular habitat type for feeding during the spring, while, at the same time, it may be used by all other bears (e.g., adult males, females without cubs, and sub-adults) as a travel corridor. So, although there is an overlap of habitat use by individual bears, it may be for

different reasons. Therefore:

- It should be assumed that a grizzly bear may be encountered along rivers from spring until fall. This is especially true for wilderness and semi-wilderness rivers.

It should also be remembered that every interaction between a human and a bear can have a lasting impression on the bear and, depending on the type and frequency of interaction, may result in the alteration of the bear's natural behaviour. Three habitat use responses are possible for bears interacting with rafters along rivers:

1. A bear will find that humans are disagreeable and will avoid (or be "alienated" from) habitats along rivers. This is often a result of negative interactions such as when pain is inflicted on the bear;
  2. A bear will be neutral to human presence and will continue to use habitat along rivers. A bear that is neutral toward human presence is referred to as a "*human habituated*" bear. The bear will, however, maintain a certain sense of unease around humans, or;
  3. A bear will become attracted to humans. A bear which is "attracted" to human food, human food scent or human garbage is referred to as a *food conditioned* bear.
- A human habituated and food conditioned bear is the bear most likely to be involved in a human-bear conflict resulting in human injury. These bears are labelled "problem bears" and often destroyed.

If a female grizzly bear is affected by human interactions, resulting in either "alienation" or "attraction", it is likely that she will pass this information on to her cubs. If it is a case of alienation her cubs may avoid potentially valuable river habitat. In the case of attraction to humans, her cubs may become "problem bears".

- The ultimate goal for rafters should be to reduce or eliminate all interactions with grizzly bears which have negative results for bears and humans.

### 3. Rafting Activities

Rafting is a popular activity in British Columbia and, like most outdoor activities, is growing in popularity. For example, the number of commercial guide licences issued in British Columbia has grown from 363 in 1995 to 423 in 1997. Rafting on rivers in British Columbia can be characterized by two types of rafting:

- Commercial river rafting - regulated by the British Columbia Government (*Commercial River Rafting Safety Act*) and conducted by licenced outfitters and guides. Clients pay for a "catered" trip.
- Recreational river rafting - unregulated in British Columbia. These are privately organized and supervised trips.

Commercial or recreational river rafting is normally divided into:

- Day trips - put-in and take-out on the same day. Popular on many non-wilderness rivers in southern British Columbia, such as the Thompson, Fraser, Kicking Horse, Adams or Chilliwack rivers. These trips are typically 1 to 6 hours long and involve a 10 to 50 kilometre section of river. Although the risk of bear-human conflict is low for this type of rafting, some precautions are necessary (e.g., during rest/lunch breaks along the river).
- Multi-day trips - two or more days spent on the river. Popular on more remote wilderness or semi-wilderness rivers, such as the Clearwater, Chilko, Babine, Taku or Tatshenshini rivers. These trips typically last from 2 to 10 days. There are many potential dangers and complications associated with this type of rafting. As a result, these trips require complicated planning strategies which includes: skill training, communications, and ethical and safety education. The chance of bear-human interaction during a multi-day trip is often moderate to high, therefore bear safety preparation should be a priority in the planning process. Rafters need to consider the following during bear safety planning: food storage and cooking, garbage management, human waste management, campsite location, hiking location, personal protection from aggressive bears, and scents and attractants associated with fishing and hunting.

#### 4. Reduction of Bear-Human Conflicts due to River Rafting Activities - Ideal and Minimum Requirements.

Rafters are faced with many issues which influence the decisions that they make during pre-trip planning. These issues include: the type of equipment to take, the type and amount of food to take, the number of people to be involved and their skill level, the amount of time to spend on the river, where to camp on the river, and so on. Decisions on these issues are made through a combination of ethical, practical and economical factors. For example, the decision on how many people should join a multi-day trip will depend on: how many people are too few (for safety reasons), how many people are too many (for "enjoyment" and "impact" reasons), how much will it cost per person, how many rafts are needed, what skill level is needed, and so on.

- Bear safety and awareness must have a high priority in the decisions made during pre-trip planning. Rafters need to ask themselves:
  - "What are we going to be doing that will attract bears?",
  - "How are we going to prevent the attraction of bears?",
  - "How are we going to protect ourselves during a bear incident?", and;
  - "How are we to behave before, during, and after a bear incident?".

Every river presents a new combination of ethical, practical and economical factors. As various factors are considered during pre-trip planning, it must be understood that for each decision there is an "ideal" answer, and a "minimum" answer. The following are ideal and minimum approaches to potential river rafting-bear conflict issues.

##### a) Food Storage/Cooking:

The objective is to not give grizzly bears access to any food and to not attract a bear to humans.

**IDEAL-** minimize or eliminating scent from food storage containers;

- store all food in "bear proof" containers at least 30 metres from sleeping area (never have any food in a tent);
- minimize odours by choice of foods;
- protect food from bears using a portable electric fence or, suspending food from trees (when trees are present) in scent-free containers;
- cook in an open area, downwind (if possible) from sleeping area;
- keep cook area clean and wash all dishes immediately after use, and;
- use perishable foods first, especially meats;
- never sleep in the same clothes worn while cooking (do not store them in a tent),and;
- never leave food unattended.

**MINIMUM** - keep the outside surface of food containers clean and scent-free by

washing them daily;

- store food at least 30 metres away from sleeping area in scent-free containers (store food in a raft, on shore or suspended from a tree); - never have any food in a tent;
- cook in an open area, downwind (if possible) from sleeping area;
- keep cook area clean and wash all dishes immediately after use, and;
- never leave food unattended.

## b) Garbage Disposal:

The objective is to avoid giving grizzlies access to garbage of any type.

- IDEAL
- store all garbage in scent-free containers, cached away from camp in a "bear-safe" location;
  - ensure that all garbage is accounted for and taken to a landfill after the trip (do not bury garbage);
  - burn all garbage with strong odours in a hot fire, then remove all scraps (foil, cans, glass, unburned organic material, etc.), and;
  - strain gray-water. Throw the liquid into the mainstream of the river and either burn the solids in a hot fire or remove the solids with the rest of the garbage (do not throw gray-water on the ground).

- MINIMUM
- store all garbage in scent-free containers, cached away from camp in a "bear-safe" location;
  - ensure that all garbage is accounted for and taken to a landfill after the trip (do not bury garbage);
  - burn all garbage with strong odors in a hot fire, then remove all scraps (foil, cans, glass, unburned organic material, etc.), and;
  - strain gray-water. Throw the liquid into the mainstream of the river and either burn the solids in a hot fire or remove the solids with the rest of the garbage (do not throw gray-water on the ground).

## c) Human Waste:

The objective is to minimize or eliminate the attraction of grizzlies due to human waste.

- IDEAL
- provide a portable toilet for the storage of human waste (including toilet paper). Biodegradable deodorants can be used to reduce excessive odors. The contents should be removed to a sanitary station and safely disposed of;
  - locate the toilet in an open area with good visibility of surrounding habitat and, if possible, downwind of camp area;
  - make noise when approaching toilet;

- urinate away from camp area and below the high water line so that it is flushed away, and;
- store used female sanitary products in scent-free containers and remove to a landfill.

MINIMUM - dig a deep communal toilet pit or have a portable toilet;

- locate toilet in an open area with good visibility of surrounding habitat;
- burn toilet paper in a hot fire, or remove with garbage;
- urinate away from camp area and below the high water line so that it is flushed away, and;
- store used female sanitary products in scent-free containers and remove to a landfill.

#### d) Campsite Location:

The objective is to minimize or eliminate the risk of surprise grizzly encounters or alienating grizzlies from their habitat.

IDEAL

- scout potential campsite for active bear sign. At frequently used camp locations, look for tracks and scat that may indicate a human habituated or food conditioned bear. Approach all sites by making plenty of noise, and look for signs of recent bear activity, especially signs of fishing or a killsite. If there is fresh sign of use at the campsite or in the vicinity, move to another site. If it is not possible to move to another site, maintain a bear watch and be prepared to take defensive action;
- avoid obvious bear habitat and be aware of potential hazards (e.g., noise from the river can result in surprise encounters);
- camp in open locations, with good visibility of surrounding habitats, and;
- ensure camp area is clean prior to vacating.

MINIMUM

- scout a potential campsite for active bear sign. At frequently used camp locations, look for tracks and scat that may indicate a human habituated or food conditioned bear. Approach all sites by making plenty of noise, and look for signs of recent bear activity, especially signs of fishing or a kill site. If there is fresh sign of use at the campsite or in the vicinity, move to another site. If it is not possible to move to another site, maintain a bear watch and be prepared to take defensive action;
- avoid obvious bear habitat;
- camp in open locations, with good visibility of surrounding habitat, and;
- ensure camp area is clean prior to vacating.

e) Protection from bears:

The objective is to be prepared to take defensive action during a bear incident with the use of appropriate protection equipment.

**IDEAL** - know what to do before, during and after a bear encounter. This is the best defense against an attack;

- have at hand "bear spray", an air horn and/or "cracker shells". Everyone on a raft trip should possess these, and know how and when to use them. They should be accessible at all time;
- use a specifically trained "bear dog". If a dog is not trained for defense against bears, it could attract bears to humans;
- possess a firearm only if fully trained and illegal to do so. A shotgun, with cracker shells, plastic slugs and lead slugs, is a recommended firearm. Remember, wounding a grizzly creates a dangerous problem bear and the unnecessary killing of a grizzly contributes to their decline, and;
- report all bear-human incidents to the appropriate agency, Le., a British Columbia Government Conservation Officer, British Columbia Parks staff if in a provincial protected area, or Parks Canada Warden if in a national park.

**MINIMUM** - know what to do before, during and after a bear encounter. This is the best defense against an attack; .

- possess bear spray, an air horn and/or cracker shells. Everyone on a raft trip should possess these, and know how and when to use them. They should be accessible at all time, and;
- report all bear-human incidents to the appropriate agency, Le., a British Columbia Government Conservation Officer, British Columbia Parks staff if in a provincial protected area, or Parks Canada Warden if in a national park.

#### **f) Hunting and Fishing:**

The objective is to conduct hunting and fishing activities so as to minimize or eliminate the attraction of grizzlies.

**IDEAL**-strictly follow all hunting and fishing regulations;

- gut, package and remove the carcass/catch as soon as possible. For fish, throw guts into the mainstream. For mammals, never leave the gut pile on or near a trail, and;
- always leave a carcass in an open area, and approach from upwind making plenty of noise. If a bear is on the carcass, leave the site immediately.

**MINIMUM** -strictly follow all hunting and fishing regulations;

- gut, package and remove the carcass/catch as soon as possible. For fish, throw guts into the mainstream. For mammals, never leave gut pile on or near a trail, and;
- always leave a carcass in an open area, and approach from upwind making plenty of noise. If, upon return, a bear is on the carcass, leave the site immediately.

#### **g) Education:**

The objective is to ensure that all members of a river rafting trip are aware of bear safety issues, and that they know how to conduct themselves in grizzly habitat.

**IDEAL** - provide all members of a river rafting group (recreational or commercial) with "bear-awareness" information or training. The information/training should be specific to rafting conditions and issues;

- ensure that all commercial river guides are fully trained in bear safety techniques;

**MINIMUM** - provide all members of a river rafting group (recreational or commercial) with "bear-awareness" information or training;

## Summary of potential bear incidents along rivers

The majority of bear incidents do not result in human injury. It is most likely that a bear will be disturbed by a human without the person ever knowing it. Another common type of encounter is described by those involved as: "*The bear just seemed curious, then it moved off. We never saw it again*". It is extremely rare that a bear-human incident results in human injury.

The causes of most bear-human conflicts resulting in human injury include:

- a grizzly reacting defensively to a perceived threat (e.g. . a female with cubs), or surprise encounter (e.g. . along a trail or at a kill site). To avoid these situations, rafters need to be aware of the surroundings in the vicinity of campsites and while hiking. This means that rafters should know what potential grizzly habitat is, and what bear sign to be on the look-out for. (This is the most common cause of attack by bears) ;
- a "human habituated" and "food conditioned" grizzly attracted to humans. To avoid these situations rafters must take care not to provide bears with rewards, such as food or garbage. Rafters must also be aware of "unnatural" grizzly behaviour, such as a bear which approaches a camp from downwind. They must respond early by scaring the bear away (e.g., with noise such as air-horns or exploding "cracker shells") or vacating the camp;
- a grizzly with the constant pressures of human activities in its valued habitat. To avoid these situations, rafters must be able to recognize the signs of agitation or aggression in a bear. Rafters must react early by scaring the bear away or vacating the site, and;
- a predatory attack by a grizzly. To avoid these situations, rafters must be able to react immediately to a bear with this behaviour. Rafters must, if possible, vacate the site. If they cannot vacate the site, they should make plenty of noise and be alert until such time that they can move on. (An attack of this type would be extremely unlikely)

NOTE: information on bear behaviour and responses to bear encounters is available in the supplementary documents listed in SECTION 5.

5. Supplementary Documents for Additional Information'

1. *Reducing Bear Conflicts*. Bear Human Conflict Committee (Sept. 1997). Government of British Columbia (Ministry of Environment, Lands and Parks).
2. *Reducing Human-Bear Conflicts: solutions through better management of non-natural foods*. L. Ciarniello (1997). Government of British Columbia (Ministry of Environment, Lands and Parks).
3. *Safety Guide to Bears in the Wild*. Grizzly Bear Conservation Strategy for British Columbia (1997). Government of British Columbia (Ministry of Environment, Lands and Parks).
4. *British Columbia Parks - Bear Awareness Orientation Course*. (May 1997). Government of British Columbia (Ministry of Environment, Lands and Parks).
5. *Conservation of Grizzly Bears in British Columbia (Background Report)*. (May 1995). Government of British Columbia (Ministry of Environment, Lands and Parks).
6. *A Future for the Grizzly: British Columbia Grizzly Bear Conservation Strategy*. (June 1995). Government of British Columbia (Ministry of Environment, Lands and Parks).

Options for Future Actions  
to Reduce Grizzly Bear Conflicts with River Rafters.

(Supplement to Guidelines prepared for the Grizzly Bear Conservation Strategy)

A. Options for Future Actions to Reduce Grizzly Bear Conflicts with River Rafters

The following are actions aimed at pro actively minimizing grizzly bear conflicts with rafters. These actions should be carried out by the British Columbia Government as part of the Grizzly Bear Conservation Strategy:

**Food Storage/Cooking:**

- promote the development and use of portable electric fence technology;
- promote the development and use of bear safe food storage containers;
- see Education

**Garbage Disposal:**

- promote the development and use of bear safe garbage containers;
- see Education.

**Human Waste:**

- regulate the use of portable toilets on commercial river rafting trips;
- see Education.

**Campsite Location:**

- obtain river use statistics from commercial outfitters. Specifically, collect information on: the volume of traffic on a river, the location and condition of commonly used sites, and the occurrence of bear interactions;
- conduct bear hazard evaluations on commonly used rivers, or rivers with potential bear related issues. Publish results in map format and distribute to commercial outfitters and retail outlets. (an extreme measure may be to post signs along river edge in areas of "High Bear Hazard" and indicate that "No Camping" is allowed);
- see Education.

**Protection:**

- see Education.

**Hunting and Fishing**

- see *Education.*

## Education:

- modify the existing *Bear Awareness Program* to include recreation-specific information and training. Educational efforts need to be concentrated on addressing ethical, practical and economic issues. Educational strategies for "recreational" river rafters will differ from those for "commercial" river rafters;

- recreational river rafters can be approached through pamphlets/posters distributed in retail sport outlets which deal in water activities. A more intensive (and expensive) approach is through a television advertisement campaign;

- priority options for bear safety/awareness training for commercial river guides (i.e., one or more of these options should be considered in the near future):

- bear safety/awareness training regulated as an amendment to the British Columbia Commercial Rafting Regulations;

- bear safety/awareness training included as part of British Columbia Guide Licence exam;

- bear safety/awareness training included as component to other required training (e.g. wilderness first-aid program);

- maintain a mailing list for outfitters and guides. Send out information and questionnaires/surveys for the development of a data base;

- introduce these options as part of the agenda for the annual general meeting between rafting outfitters, guides, and the registrar of commercial river rafting (British Columbia Government). Implementation by the British Columbia Government should be coordinated using feedback from this meeting;

- secondary options for bear safety/awareness training for commercial river guides (i.e., these may be feasible for a more intensive information campaign):

- British Columbia MOELP "certification" of individual river rafting outfitter companies as being a "*bear aware rafting company*". Outfitters would become "certified" when all of the guides have received bear awareness training, and use bear safety precautions on guided trips.;

- bear safety/awareness training regulated by Workers Compensation Board (W.C.B.). The W.C.B. is currently active with bear-awareness training in the forest and mining industries. If a bear awareness/safety workshop is considered for the commercial outfitters annual general meeting, the W.C.B. should be represented.