Appendix A
Abbreviations and Acronyms

ACC	Alaska Administrative Code
ADF&G	Alaska Department of Fish & Game
ADNR	Alaska Department of Natural Resources
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
APHA	Alaska Professional Hunters Association
AS	Alaska Statute
ATV	all-terrain vehicle
AVI	Alaska Village Initiatives
BEG	biological escapement goal
BLM	(U.S.) Bureau of Land Management
BOG	Board of Game
CAC	Citizens Advisory Committee
CCP	Comprehensive Conservation Plan
DEC	Department of Environmental Conservation
DLP	defense of life or property
GMU 8	Game Management Unit 8
IPG	Intergovernmental Planning Group
KIB	Kodiak Island Borough
KICVB	Kodiak Island Convention and Visitors Bureau
KMA	Kodiak Management Area
KNWR	Kodiak National Wildlife Refuge
KUBS	Kodiak Unified Bear Subcommittee
MSY	maximum sustained yield
ORV	off-road vehicle
PUMP	Public Use Management Plan
RNA	Research Natural Area
RPT	Regional Planning Team
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFS	USDA Forest Service

USFWS	U.S. Fish & Wildlife Service
VPSO	village public safety officer
VWCC	Village Wildlife Conservation Cooperative

Appendix B
Glossary

air-cushioned vehicle (e.g., Hovercraft®)
A vehicle that rides over water or terrain on a cushion of air generated by downward-thrusting fans and pushed forward by one or more air propellers

airboat
A small, open boat having a very shallow draft and driven by a caged engine mounted above the rear transom, capable of traveling at relatively high speed through shallow water, swamps, etc.

angler day
One day in which an individual sport fished any portion thereof

biological escapement goal (BEG)
Salmon escapement levels that provide the greatest potential for maximum sustained yield

Board of Fisheries and Board of Game
Alaska has two boards that address conservation and development of Alaska's fishery and game resources: the Board of Fisheries and the Board of Game. The boards are the state regulatory authorities that pass regulations to conserve and develop Alaska's fishery and wildlife resources. The Board of Fisheries and the Board of Game meet together as the Joint Board of Fisheries and Game. The Joint Board promulgates some subsistence regulations and all regulations governing advisory committees. The Board of Fisheries and the Board of Game are supported administratively by the Alaska Department of Fish and Game (ADF&G). The boards and the department, however, function independently. The boards are charged with making allocation and regulatory decisions, and the department is responsible for management based on those decisions. The commissioner of ADF&G is the ex-officio secretary of the boards.

carrying capacity
The maximum density of animals that a particular range (habitat) is capable of supporting

co-management
Specific management arrangement authorized in the law that implies co-equal authority, such as the co-management agreements required by the Marine Mammal Protection Act and the protocol amendment to the Migratory Bird Treaty Act

conservation
The planned management of a natural resource to prevent exploitation, destruction, or neglect

cooperative management
A form of collaborative stewardship that is generally less formal and less exclusive than co-management. Under a cooperative management regime, ADF&G (or USFWS) shares with others, *to the greatest extent legally possible*, equal representation, responsibility, and power in all areas relevant to the management of wildlife resources.

drainage
All of the waters making up a watershed, including tributary rivers, streams, sloughs, ponds, and lakes that contribute to the supply of the watershed

drawing permit
A permit to hunt issued to a limited number of people selected by means of a lottery held for all people submitting valid applications for such permits and who agree to abide by the conditions specified for each hunt

easement
A right to use land owned by someone else for access or other use. There are many different types of easements that specify rights of access or use of the land. Examples include the following:

17(b) easements—(Section 17(b)(2) of the Alaska Native Claims Settlement Act) Easements reserved by the Bureau of Land Management (BLM) on Native corporation lands to provide *trails* to public lands or waters and *sites* for temporary camping and changes in transportation (e.g., float plane pullouts). Uses and widths are specified in the conveyance documents; BLM manages 17(b) easements.

Conservation easements—A landowner gives up some rights to use his land (e.g., no development) and transfers management to an agency or organization for some specific purpose (e.g., wildlife habitat), with specified terms and compensation

Section line easements—A public right-of-way reserved along section lines, width based on time federal land is reserved and uses managed by the state

Emergency Order
A fish and game regulatory directive issued by the ADF&G commissioner or his authorized designee that, when conditions require, summarily opens or closes harvest seasons or areas, or changes weekly closed periods for fish and game harvesting. Also, the commissioner or his designee may, under criteria adopted by the Board of Fisheries, summarily increase or decrease sport fish bag limits of modify the method of harvest for sport fish. An Emergency Order has the force of law after field announcement by the commissioner or an authorized designee.

game
Any species of bird, reptile, and mammal, including a feral domestic animal, found or introduced in the state, except domestic birds and mammals; and game may be classified by regulation as big game, small game, furbearers, or other categories

game management unit (GMU)
One of the 26 geographical areas listed under Game Management Units in the codified hunting and trapping regulations and the Game Unit Maps of Alaska

habitat
The physical and biological resources required by an organism for its survival and reproduction; these requirements are species specific. Food and cover are major components of habitat and must extend beyond the requirements of the individual to include a sufficient area capable of supporting a viable population.

habitat linkages
A finite geographical area used by bears for movement between different areas of their range (large areas of habitat). These linkages are often constrained by natural access barriers (e.g., movement around the end of a large lake or through a mountain pass).

hardened campsite
A campsite that is designed to minimize negative bear-human interactions. A hardened campsite is strategically located to avoid bear-travel corridors. It typically provides bear-resistant food storage options, campsites, and necessary facilities, commensurate with the level of human use, to provide a safe recreational experience.

human food-conditioning
A behavior learned when a bear receives food, fish, or garbage from people; it is undesirable behavior that may result in property loss or damage, human injury, or defense of life or property (DLP) mortality of bears.

human habituation
Decrease in natural responsiveness upon repeated exposure to a nonthreatening, human stimulus

hunting area
That portion of a game management unit in which a season and a bag limit for a species are set

important bear habitat
That habitat necessary to sustain a population at an optimal level

jet boat
A small, propellerless boat powered by an engine that ejects water for its thrust

large land parcel
Privately owned tract of land more than 1,000 acres in size

low-impact
Strategies or techniques used by recreationists and land-use managers to minimize or even eliminate indications that people have used an area

maximum sustained yield (MSY)
The highest harvest by humans that a wildlife population can withstand without any adverse long-term impacts.

> For fisheries, MSY is the greatest average yield from a stock. In practice, MSY is approached when a level of escapement is maintained within a specific range, on an annual basis, regardless of run strength. The achievement of MSY requires a high degree of management precision and scientific information regarding the relationship between escapement and subsequent return. The concept of MSY should be interpreted in a broad ecosystem context to take into account species interactions, environmental changes, an arrange of ecosystem goods and services, and scientific uncertainty.
>
> For wildlife, “sustained yield” means the achievement and maintenance in perpetuity of the ability to support a high level of human harvest of game, subject to preferences among beneficial uses, on an annual or periodic basis

off-road vehicle (ORV)
A small motorized vehicle designed for use on various types of unroaded terrain; often referred to as an all-terrain vehicle (ATV)

optimal/optimum population (for wildlife)
An optimal population is one that is higher than the minimum viable population at a level that allows for sustained economic and recreational opportunities while accommodating human-caused mortality from hunting, DLP, and other causes.

permit hunt
A hunt for which permits are issued on a drawing, registration, or Tier II hunt basis

personal watercraft
Any inboard motorized watercraft less than 16 feet in length that has a water-jet pump as its primary source of motor propulsion and that is designed to be operated by a person sitting, standing, or kneeling *on* the watercraft, rather than the conventional manner of sitting or standing *inside* the watercraft.

photographers
According to Kodiak National Wildlife Refuge special-use permits, photographers are classified as follows:

> Amateur photographers, or hobbyists, take photographs, or use video cameras, for their own personal use and do not derive income from the sale of photographs and video footage. Amateurs do not need a special permit to access refuge lands open to the general public.
>
> Commercial photographers work for hire or on contract basis. Often consumer products or models are an integral part of their work. Activities that may be potentially disruptive to wildlife, or impact other users, may require special regulations or policies, and a commercial-use permit on a national refuge. Access to areas normally closed to the public, or activities that may harm the natural values of the refuge, require a commercial-use permit.
>
> Professional photographers are those who derive a significant portion of their income from photography but do not work for hire or under contract. Unless working for hire or under contract, professional photographers do not need a special permit to access areas that are open to the general public. Permits are required, however, for photographers accessing areas closed to the public.

quality
Degree of excellence; superiority in kind

regional comprehensive salmon plan
A document that integrates and assembles all relevant information regarding the development and protection of the salmon resource, for a specific long-range period of time, into a strategic plan for an established region of the state

regional planning team (RPT)
A region-specific panel established by the ADF&G commissioner for the primary purpose of developing comprehensive salmon plans for one of various regions of the state. Each RPT consists of six members: three are ADF&G personnel appointed by the ADF&G commissioner, and three are appointed by the board of directors of the appropriate regional aquaculture association, qualified under AS 16.10.380.

registration permit
A hunting permit issued to a person who agrees to the conditions specified for each hunt; permits are issued in the order applications are received and are issued (a) beginning on a date announced by ADF&G and continuing throughout the season or until the season is closed by Emergency Order when a harvest quota is reached; (b) beginning on a date announced by ADF&G and continuing until a predetermined number of permits have been issued

salmon
Any of the following five anadromous Pacific salmon species (*Oncorhynchus sp.*) native to Alaska: Chinook or king (*O. tschawtscha*), sockeye or red (*O. nerka*), coho or silver (*O. kisutch*), pink or humpy (*O. gorbuscha*), and chum or dog (*O. keta*)

salmon enhancement
A specific manipulation (e.g., hatchery augmentation, lake enrichment) to a salmon stock to enhance its productivity above the level that would naturally occur. An enhanced stock can be either an introduced stock, where no wild stock had occurred before, or a wild stock undergoing such manipulation but that is distinguished from a stock undergoing rehabilitation, which is intended to restore a stock's productivity to a higher natural level.

salmon escapement
The annual estimated size of the spawning stock. Quality of the escapement may be judged not only by numbers of spawners, but also by factors such as sex ratio, age composition, temporal entry into the system, and spatial distribution within the spawning habitat.

salmon management plan
A salmon regulatory plan approved by the Board of Fisheries designed to address stock-specific biological and fishery-specific allocation considerations. Details of these management plans are documents in annual produced publications.

salmon rehabilitation
Efforts applied to a salmon stock to restore it to an otherwise natural level of productivity. Distinguished from salmon enhancement, which is intended to augment production above otherwise natural levels.

salmon run
The total number of salmon surviving to adulthood and returning to the natural stream in any calendar year; composed of both the harvest of adult fish and the escapement. The annual run in any calendar year is composed of several age classes of mature fish (except for pink salmon) from the stock, derived from the spawning of a number of previous brood years

small land parcel
Privately owned tract of land less than 1,000 acres in size

sport fishing effort
The sum of angler days (see "angler day")

sustainable
As it pertains to Kodiak bear populations, the maintenance of the bear population at a level where the number of deaths from all causes does not exceed the number of bears produced.

Sustainable Salmon Fisheries Policy (SSFP)
A Board of Fisheries–approved policy that provides guidelines for integrating protection, utilization, and enhancement of fish stocks to meet the needs of present generations without compromising the ability of future generations to meet their needs

villages
In this document, refers to the rural communities of Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions

weir
An artificial blockage of an anadromous fish stream to channel migrating salmon past a counting station in order to measure escapement for upriver spawning; a temporary in-stream structure designed to guide in-stream fish migrations to facilitate species-specific data collection. Commonly, human activity is restricted within 300 feet upstream and downstream of these structures.

weir site
An artificial blockage of an anadromous fish stream to channel migrating salmon past a counting station in order to measure escapement for upriver spawning

wilderness
An area essentially undisturbed by human activity, together with its naturally developed life community

Wilderness
A Wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. A Wilderness area is further defined to mean, in this plan, an area of underdeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value (Wilderness Act of 1964).

wildlife-acceptance capacity
Reflects the maximum wildlife population level in an area that is acceptable to people

wildlife conservation
Planned management of wildlife resources and their habitats to 1) ensure that these resources yield the greatest sustainable benefit to current and future generations and 2) ensure that the development of these resources is in the best interests of the economy and well-being of the state.

world-class bear viewing
A world-class bear-viewing opportunity is one that provides a unique combination of natural phenomena that has worldwide human interest and value. In the case of Kodiak, a thriving population of bears, the largest land carnivore on earth, inhabiting a unique island wilderness, constitutes a spectacle of nature unique in the world. A world-class bear-viewing program should be consistent with perpetuation of this natural phenomena while allowing for high-quality public use and enjoyment.

Appendix C

The Alaska Professional Hunters Association
CODE OF ETHICS

Code of Ethics of the APHA:

- to institute and secure the general adoption of a high and sportsmanlike conception of wildlife and hunting of game
- to promote hunting by fair chase: the pursuit of trophy in a legal and sportsmanlike manner, without herding, driving, or chasing of trophies with the use of mechanically powered equipment
- consistent with the practice of hunting, fishing, and photography, to promote and assist in the conservation of fauna and flora and to cooperate with government officials concerned with the conservation of flora and fauna
- to assist in the prevention of illegal or unsportsmanlike practice by anyone in the practice of professional hunting or by anyone engaged in the sports of hunting, fishing, or photography
- to promote and safeguard the interests of all members of the corporation
- to endorse and foster a code of ethics in accord with the ethical standards and the laws and regulations of the State of Alaska

Appendix D

Big-Game–Guide Permitting Process
Kodiak National Wildlife Refuge

Basic requirements

- business license
- guide license
- certification for appropriate game management unit (GMU)
- commercial use permit

Purpose

To fairly apportion commercial hunting services on the refuge to provide the public with quality services for recreational hunting

Overview

Guide submits an application to Kodiak National Wildlife Refuge (KNWR) with a prospectus that describes his or her interest, experience, and anticipated operations for one or more specific guide areas. Once the application period is closed, the refuge assembles a team of individuals to evaluate the applicants and to select the individuals who most qualify for guiding operations on the refuge.

Applicants who meet the basic requirements are evaluated for knowledge, experience, and performance using eight ranking criteria. Selections are determined by which businesses rank the highest in all factors for a given area. Selected guides are issued special-use permits for all guide activities, subject to terms and conditions of the permits. Permits are in effect for five years.

Selection Criteria (no changes from 1998)

- history of compliance with state and federal fish, game, guiding, and permitting requirements, laws, and regulations (30 points)
- safety (30 points)
- ability to provide a high-quality guiding service to the public (30 points)
- impacts of proposed operation on wildlife resources, including expected harvest and displacement (20 points)
- impacts of proposed operation on other refuge resources such as water quality, vegetation disturbance, and soil disturbance (20 points)
- impacts of proposed operation on other refuge users, including subsistence users (20 points)

- demonstrated experience and knowledge of terrain, climate, and species to be hunted (20 points)
- demonstrated experience and knowledge in area for which applying (20 points)

Limits

Individuals may apply for as many as ten offerings for refuges in Alaska. A guide may submit only one application for a given use area. Guides are only allowed to be permitted for three use areas on USFWS lands at any one time.

Disclosure Requirements of Permittees

At end of year, submit use record that discloses actual number of clients, client-use days, numbers of each wildlife species harvested, and *other* data indicated in special-use permit

Performance Evaluation

Refuge staff will periodically monitor compliance through inspections, discussions with clients, etc. In cases involving violation of use permit, permittee will be notified of deficiency and/or legal action.

Status (2001)

- There are 15 guides distributed in 24 guide areas on the refuge.
- The current five-year permits expire at the end of 2003.
- All areas are open for application.
- The same process will be used to reissue permits.
- There is one vacant area (Afognak Island).
- Successful applicants can renew permits for another five years in 2007 if a good track record of performance is maintained.

Appendix E

Principles for the Conservation of Wild Living Resources[31]

- **Principle I.** Maintenance of healthy populations of wild living resources in perpetuity is inconsistent with unlimited growth of human consumption of and demand for those resources.

- **Principle II.** The goal of conservation should be to secure present and future options by maintaining biological diversity at genetic, species, population, and ecosystem levels; as a general rule, neither the resource nor any other component of the ecosystem should be perturbed beyond natural boundaries or variation.

- **Principle III.** Assessment of the possible ecological effects of resource use should precede both proposed use and proposed restriction or expansion of ongoing use of a resource.

- **Principle IV.** Regulation of the use of living resources must be based on understanding the structure and dynamics of the ecosystem of which the resource is a part and must take into account the ecological and sociological influences that directly and indirectly affect resource use.

- **Principle V.** The full range of knowledge and skills from the natural and social sciences must be brought to bear on conservation problems.

- **Principle VI.** Effective conservation requires understanding and taking account of the motives, interests, and values of all users and stakeholders, but not by simply averaging their positions.

- **Principle VII.** Effective conservation requires communications that is interactive, reciprocal, and continuous.

[31] Mangel et al. 1996, excerpted from the Alaska Board of Fisheries Sustainable Fisheries Policy

Appendix F

Principles and Criteria for Sustainable Salmon Fishing[32]

- **Principle I. Protect wild salmon and their habitat in order to maintain resource productivity**

  - Criteria for Principle I

    - I.1. Salmon spawning, rearing, and migratory habitats are protected.

      - I.1.A. Salmon stocks and habitat are not perturbed beyond natural boundaries of variation.

      - I.1.B. Scientific assessment of possible adverse ecological effects of habitat alternation proceed prior to approval of proposed alteration of salmon habitat.

      - I.1.C. Adverse environmental impacts on wild salmon and their habitats are assessed and corrected when appropriate.

      - I.1.D. All essential salmon habitats in marine, estuarine, and freshwater ecosystems are protected.

        - These include

          i. Spawning beds

          ii. Freshwater rearing areas

          iii. Estuarine/near-shore rearing areas

          iv. Offshore rearing areas

          v. Riparian and coastal zones

    - I. 2 Salmon are protected within spawning, rearing, and migratory habitats.

    - I.3. Collateral mortality resulting from habitat loss is understood and communicated to affected user groups.

- **Principle II. Maintain escapements within ranges necessary to conserve and protect potential salmon production and maintaining normal ecosystem functioning.**

[32] from the Alaska Board of Fisheries Sustainable Fisheries Policy

- Criteria for Principle II

  - II.1. The temporal and geographic magnitudes of spawning escapements are measured.

  - II.2. Escapement goals are established in a manner consistent with sustained yield.

  - II.3. Escapement goal ranges incorporate the uncertainty associated with measurement techniques, observed variability in the population measured, and the varying abundance within related substocks of the population measured.

  - II.4. Escapement goals are achieved in a manner consistent with appropriate geographic and temporal distribution of spawners.

  - II.5. Sources and locations of fishing mortality are understood.

  - II.6. Escapements are achieved in a manner consistent with protection of nontarget stocks or species.

  - II.7. The phenotypic and genetic characteristics of escapement are understood.

  - II.8. The role of salmon in normal ecosystem functioning (fish and wildlife and their habitats) is understood.

  - II.9. The population trends of the salmon and allied species are understood.

- **Principle III. Harvest salmon in a manner consistent with the degree of knowledge and uncertainty regarding the status and biology of the resource.**

  - Criteria for Principle III

    - III.1. A precautionary approach is applied to the regulation of activities that alter essential habitat.

    - III.2. A precautionary approach is applied to the regulation of harvest and other consumptive uses of salmon.

    - III.3. Conservation and management decisions for fisheries take into account the best available information, including environmental, economic, social, and resource-use factors.

    - III.4. The best available scientific information on the status of populations and the condition of their habitats is routinely updated and peer-reviewed.

- III.5. Data collections and research are undertaken in order to improve scientific and technical knowledge of fisheries, including their interactions with the ecosystem.

- III.6. Proposals for salmon fisheries development or expansion document resource assessments and other criteria for sustainable management.

- **Principle IV. Establish and apply an effective salmon-management system to control human activities that affect salmon.**

- Criteria for Principle IV

  - IV.1. Salmon management objectives appropriate to scale and intensity of use are in place.

  - IV.2. Management objectives subject to periodic review are provided in the forms of the harvest management plans, harvest management strategies, guiding principles, and policies for managing mixed stocks, disease, and genetics.

  - IV.3. The effectiveness of habitat-protection laws and regulations intended to sustain productivity of salmon habitats are regularly evaluated and documented.

  - IV.4. Government has an open process for objectively evaluating the effectiveness of fishery management actions.

  - IV.5. Management has the means to separate biological and allocation issues.

  - IV.6. Feedback loops are consistently applied, using post-season management action indicators (e.g., escapement habitat maintenance within current regulations), to verify that the management actions sustain salmon populations, fisheries, and habitat. Where deficiencies are documented, actions are taken to resolve them.

  - IV.7. Fisheries management implementation and outcomes are consistent with board regulations. Board regulations are consistent with Alaska statutes. As an example, subsistence needs receive priority called for by statute.

  - IV.8. Management acts in a timely and adaptive fashion to implement objectives on the basis of best available scientific information.

  - IV.9. Management agency has clear authority (in statute and regulation) to control human-induced sources of salmon mortality, including mortality due to habitat loss (a form of collateral mortality).

  - IV.10. Management takes into account the consequences on natural stocks of artificial propagation.

- IV.11. Management incorporates appropriate procedures for effective compliance, monitoring, control, surveillance, and enforcement.

- IV.12. The transboundary nature of aquatic ecosystems is recognized by encouraging multilateral cooperation in research and management.

- IV.13. For transboundary stocks, appropriate procedures for effective compliance, monitoring, control, and surveillance are coordinated with those of other states or agencies.

- IV.14. Effective joint assessment and management arrangements are in place for stocks that cross jurisdictional boundaries.

- IV.15. Management has access to the resources necessary for collection and dissemination of the information and data necessary to carry out management activities.

- IV.16. Government provides adequate staff and budget for the research, management, and enforcement activities necessary to implement the sustainable fisheries management principles.

- **Principle V. Maintain public support and involvement for sustained use and protection of salmon resources.**

  - Criteria for Principle V

    - V.1. A governmental process incorporates appropriate mechanisms for resolution of disputes.

    - V.2. An open and fair public involvement process addresses management and allocation decisions.

    - V.3. A governmental process provides an allocation across all consumptive user groups of the conservation burden for salmon.

    - V.4. A governmental process provides adequately funded public information and education programs for the public concerning salmon habitat requirements, salmon habitat threats, the value of salmon and habitat to public and ecosystem, natural variability and populations dynamics, value of salmon to other fish and wildlife, current status of Alaska fish stocks and fisheries, and Board of Fisheries process.

    - V.5. Management provides for dissemination of results to all interested parties in a timely fashion.

    - V.6. Management promotes understanding of the proportion of mortality inflicted on each stock by each consumptive user group.

5 AAC 39.222. POLICY FOR THE MANAGEMENT OF SUSTAINABLE SALMON FISHERIES

Statute text

(a) The Board of Fisheries (board) and Department of Fish and Game (department) recognize that

(1) while, in the aggregate, Alaska's salmon fisheries are healthy and sustainable largely because of abundant pristine habitat and the application of sound, precautionary, conservation management practices, there is a need for a comprehensive policy for the regulation and management of sustainable salmon fisheries;

(2) in formulating fishery management plans designed to achieve maximum or optimum salmon production, the board and department must consider factors including environmental change, habitat loss or degradation, data uncertainty, limited funding for research and management programs, existing harvest patterns, and new fisheries or expanding fisheries;

(3) to effectively assure sustained yield and habitat protection for wild salmon stocks, fishery management plans and programs require specific guiding principles and criteria, and the framework for their application contained in this policy.

(b) The goal of the policy under this section is to ensure conservation of salmon and salmon's required marine and aquatic habitats, protection of customary and traditional subsistence uses and other uses, and the sustained economic health of Alaska's fishing communities.

(c) Management of salmon fisheries by the state should be based on the following principles and criteria:

(1) wild salmon stocks and the salmon's habitats should be maintained at levels of resource productivity that assure sustained yields as follows:

(A) salmon spawning, rearing, and migratory habitats should be protected as follows:

(i) salmon habitats should not be perturbed beyond natural boundaries of variation;

(ii) scientific assessments of possible adverse ecological effects of proposed habitat alterations and the impacts of the alterations on salmon populations should be conducted before approval of a proposal;

(iii) adverse environmental impacts on wild salmon stocks and the salmon's habitats should be assessed;

(iv) all essential salmon habitat in marine, estuarine, and freshwater ecosystems and access of salmon to these habitats should be protected; essential habitats include spawning and incubation areas, freshwater rearing areas, estuarine and nearshore rearing areas, offshore rearing areas, and migratory pathways;

(v) salmon habitat in fresh water should be protected on a watershed basis, including appropriate management of riparian zones, water quality, and water quantity;

(B) salmon stocks should be protected within spawning, incubating, rearing, and migratory habitats;

(C) degraded salmon productivity resulting from habitat loss should be assessed, considered, and controlled by affected user groups, regulatory agencies, and boards when making conservation and allocation decisions;

(D) effects and interactions of introduced or enhanced salmon stocks on wild salmon stocks should be assessed; wild salmon stocks and fisheries on those stocks should be protected from adverse impacts from artificial propagation and enhancement efforts;

(E) degraded salmon spawning, incubating, rearing, and migratory habitats should be restored to natural levels of productivity where known and desirable;

(F) ongoing monitoring should be conducted to determine the current status of habitat and the effectiveness of restoration activities;

(G) depleted salmon stocks should be allowed to recover or, where appropriate, should be actively restored; diversity should be maintained to the maximum extent possible, at the genetic, population, species, and ecosystem levels;

(2) salmon fisheries shall be managed to allow escapements within ranges necessary to conserve and sustain potential salmon production and maintain normal ecosystem functioning as follows:

(A) salmon spawning escapements should be assessed both temporally and geographically; escapement monitoring programs should be appropriate to the scale, intensity, and importance of each salmon stock's use;

(B) salmon escapement goals, whether sustainable escapement goals, biological escapement goals, optimal escapement goals, or inriver run goals, should be established in a manner consistent with sustained yield; unless otherwise directed, the department will manage Alaska's salmon fisheries, to the extent possible, for maximum sustained yield;

(C) salmon escapement goal ranges should allow for uncertainty associated with measurement techniques, observed variability in the salmon stock measured, changes in climatic and oceanographic conditions, and varying abundance within related populations of the salmon stock measured;

(D) salmon escapement should be managed in a manner to maintain genetic and phenotypic characteristics of the stock by assuring appropriate geographic and temporal distribution of spawners as well as consideration of size range, sex ratio, and other population attributes;

(E) impacts of fishing, including incidental mortality and other human-induced mortality, should be assessed and considered in harvest management decisions;

(F) salmon escapement and harvest management decisions should be made in a manner that protects non-target salmon stocks or species;

(G) the role of salmon in ecosystem functioning should be evaluated and considered in harvest management decisions and setting of salmon escapement goals;

(H) salmon abundance trends should be monitored and considered in harvest management decisions;

(3) effective management systems should be established and applied to regulate human activities that affect salmon as follows:

(A) salmon management objectives should be appropriate to the scale and intensity of various uses and the biological capacities of target salmon stocks;

(B) management objectives should be established in harvest management plans, strategies, guiding principles, and policies, such as for mixed stock fishery harvests, fish disease, genetics, and hatchery production, that are subject to periodic review;

(C) when wild salmon stocks are fully allocated, new fisheries or expanding fisheries should be restricted, unless provided for by management plans or by application of the board's allocation criteria;

(D) management agencies should have clear authority in statute and regulation to

(i) control all sources of fishing mortality on salmon;

(ii) protect salmon habitats and control non-fishing sources of mortality;

(E) management programs should be effective in

(i) controlling human-induced sources of fishing mortality and should incorporate procedures to assure effective monitoring, compliance, control, and enforcement;

(ii) protecting salmon habitats and controlling collateral mortality and should incorporate procedures to assure effective monitoring, compliance, control, and enforcement;

(F) fisheries management implementation and outcomes should be consistent with regulations, regulations should be consistent with statutes, and effectively carry out the purpose of this section;

(G) the board will recommend to the commissioner the development of effective joint research, assessment, and management arrangements with appropriate management agencies and bodies for salmon stocks that cross state, federal, or international jurisdictional boundaries; the board will recommend the coordination of appropriate procedures for effective monitoring, compliance, control, and enforcement with those of other agencies, states, or nations;

(H) the board will work, within the limits of its authority, to assure that

(i) management activities are accomplished in a timely and responsive manner to implement objectives, based on the best available scientific information;

(ii) effective mechanisms for the collection and dissemination of information and data necessary to carry out management activities are developed, maintained, and utilized;

(iii) management programs and decision-making procedures are able to clearly distinguish, and effectively deal with, biological and allocation issues;

(I) the board will recommend to the commissioner and legislature that adequate staff and budget for research, management, and enforcement activities be available to fully implement sustainable salmon fisheries principles;

(J) proposals for salmon fisheries development or expansion and artificial propagation and enhancement should include assessments required for sustainable management of existing salmon fisheries and wild salmon stocks;

(K) plans and proposals for development or expansion of salmon fisheries and enhancement programs should effectively document resource assessments, potential impacts, and other information needed to assure sustainable management of wild salmon stocks;

(L) the board will work with the commissioner and other agencies to develop effective processes for controlling excess fishing capacity;

(M) procedures should be implemented to regularly evaluate the effectiveness of fishery management and habitat protection actions in sustaining salmon populations, fisheries, and habitat, and to resolve associated problems or deficiencies;

(N) conservation and management decisions for salmon fisheries should take into account the best available information on biological, environmental, economic, social, and resource use factors;

(O) research and data collection should be undertaken to improve scientific and technical knowledge of salmon fisheries, including ecosystem interactions, status of salmon populations, and the condition of salmon habitats;

(P) the best available scientific information on the status of salmon populations and the condition of the salmon's habitats should be routinely updated and subject to peer review;

(4) public support and involvement for sustained use and protection of salmon resources should be sought and encouraged as follows:

(A) effective mechanisms for dispute resolution should be developed and used;

(B) pertinent information and decisions should be effectively disseminated to all interested parties in a timely manner;

(C) the board's regulatory management and allocation decisions will be made in an open process with public involvement;

(D) an understanding of the proportion of mortality inflicted on each salmon stock by each user group, should be promoted, and the burden of conservation should be allocated across user groups in a manner consistent with applicable state and federal statutes, including AS 16.05.251 (e) and AS 16.05.258 ; in the absence of a regulatory management plan that otherwise allocates or restricts harvests, and when it is necessary to restrict fisheries on salmon stocks where there are known conservation problems, the burden of conservation shall be shared among all fisheries in close proportion to each fisheries' respective use, consistent with state and federal law;

(E) the board will work with the commissioner and other agencies as necessary to assure that adequately funded public information and education programs provide timely materials on salmon conservation, including habitat requirements, threats

to salmon habitat, the value of salmon and habitat to the public and ecosystem (fish and wildlife), natural variability and population dynamics, the status of salmon stocks and fisheries, and the regulatory process;

(5) in the face of uncertainty, salmon stocks, fisheries, artificial propagation, and essential habitats shall be managed conservatively as follows:

(A) a precautionary approach, involving the application of prudent foresight that takes into account the uncertainties in salmon fisheries and habitat management, the biological, social, cultural, and economic risks, and the need to take action with incomplete knowledge, should be applied to the regulation and control of harvest and other human-induced sources of salmon mortality; a precautionary approach requires

(i) consideration of the needs of future generations and avoidance of potentially irreversible changes;

(ii) prior identification of undesirable outcomes and of measures that will avoid undesirable outcomes or correct them promptly;

(iii) initiation of any necessary corrective measure without delay and prompt achievement of the measure's purpose, on a time scale not exceeding five years, which is approximately the generation time of most salmon species;

(iv) that where the impact of resource use is uncertain, but likely presents a measurable risk to sustained yield, priority should be given to conserving the productive capacity of the resource;

(v) appropriate placement of the burden of proof, of adherence to the requirements of this subparagraph, on those plans or ongoing activities that pose a risk or hazard to salmon habitat or production;

(B) a precautionary approach should be applied to the regulation of activities that affect essential salmon habitat.

(d) The principles and criteria for sustainable salmon fisheries shall be applied, by the department and the board using the best available information, as follows:

(1) at regular meetings of the board, the department will, to the extent practicable, provide the board with reports on the status of salmon stocks and salmon fisheries under consideration for regulatory changes, which should include

(A) a stock-by-stock assessment of the extent to which the management of salmon stocks and fisheries is consistent with the principles and criteria contained in the policy under this section;

(B) descriptions of habitat status and any habitat concerns;

(C) identification of healthy salmon stocks and sustainable salmon fisheries;

(D) identification of any existing salmon escapement goals, or management actions needed to achieve these goals, that may have allocative consequences such as the

(i) identification of a new fishery or expanding fishery;

(ii) identification of any salmon stocks, or populations within stocks, that present a concern related to yield, management, or conservation; and

(iii) description of management and research options to address salmon stock or habitat concerns;

(2) in response to the department's salmon stock status reports, reports from other resource agencies, and public input, the board will review the management plan, or consider developing a management plan, for each affected salmon fishery or stock; management plans will be based on the principles and criteria contained in this policy and will

(A) contain goals and measurable and implementable objectives that are reviewed on a regular basis and utilize the best available scientific information;

(B) minimize the adverse effects on salmon habitat caused by fishing;

(C) protect, restore, and promote the long-term health and sustainability of the salmon fishery and habitat;

(D) prevent overfishing; and

(E) provide conservation and management measures that are necessary and appropriate to promote maximum or optimum sustained yield of the fishery resource;

(3) in the course of review of the salmon stock status reports and management plans described in (1) and (2) of this subsection, the board, in consultation with the department, will determine if any new fisheries or expanding fisheries, stock yield concerns, stock management concerns, or stock conservation concerns exist; if so, the board will, as appropriate, amend or develop salmon fishery management plans to address these concerns; the extent of regulatory action, if any, should be commensurate with the level of concerns and range from milder to stronger as concerns range from new and expanding salmon fisheries through yield concerns, management concerns, and conservation concerns;

(4) in association with the appropriate management plan, the department and the board will, as appropriate, collaborate in the development and periodic review of an action plan for any new or expanding salmon fisheries, or stocks of concern; action plans should contain goals, measurable and implementable objectives, and provisions, including

(A) measures required to restore and protect salmon habitat, including necessary coordination with other agencies and organizations;

(B) identification of salmon stock or population rebuilding goals and objectives;

(C) fishery management actions needed to achieve rebuilding goals and objectives, in proportion to each fishery's use of, and hazards posed to, a salmon stock;

(D) descriptions of new or expanding salmon fisheries, management concern, yield concern, or conservation concern; and

(E) performance measures appropriate for monitoring and gauging the effectiveness of the action plan that are derived from the principles and criteria contained in this policy;

(5) each action plan will include a research plan as necessary to provide information to address concerns; research needs and priorities will be evaluated periodically, based on the effectiveness of the monitoring described in (4) of this subsection;

(6) where actions needed to regulate human activities that affect salmon and salmon's habitat that are outside the authority of the department or the board, the department or board shall correspond with the relevant authority, including the governor, relevant boards and commissions, commissioners, and chairs of appropriate legislative committees, to describe the issue and recommend appropriate action.

(e) Nothing in the policy under this section is intended to expand, reduce, or be inconsistent with, the statutory regulatory authority of the board, the department, or other state agencies with regulatory authority that impacts the fishery resources of the state.

. . . . .

History

History: Eff. 9/30/2000, Register 155; am 11/16/2000, Register 156; am 6/22/2001, Register 158

Annotations

Authority: AS 16.05.251

Appendix G

Alaska Bear-Viewing Areas

by Tom Walker

"We seek to maintain the high resource values of the area, while balancing those values with economic opportunity for guiding operations, as well as providing recreation and wildlife education opportunities for the general public."

—Stephen Brady, Wrangell District Ranger, USDA Forest Service

Anan Creek Wildlife Observatory

(35 miles southeast of Wrangell. Aircraft or boat access. USDA Forest Service [USFS], Wrangell Ranger District, P.O. Box 51, Wrangell, AK 99929, 907/874-2323)

Pre-history—Anan was used as a summer camp by the Tlingit people who fished, hunted, picked berries, and collected plants and sea life.

1965—An observatory at the falls was constructed.

1967—The existing shelter was constructed on the observatory deck.

1967 and 1977—Alaska Department of Fish and Game constructed a fish pass.

1994—A photo blind was constructed on the fish pass.

Brown bears and black bears rarely utilize the same feeding areas. The largest pink salmon run in Southeast Alaska, sometimes over 100,000 fish, lures both species to Anan Creek. Brown bears fish upstream in early morning and late evening hours; black bears snag salmon in mid-day on the lower river. Dense forest allows this tenuous truce—black bears can climb trees, brown bears cannot.

Even though it is rare to see more than a half-dozen black bears at a time, as many as 40 individual black bears fish here. Many biologists consider this to be one of the best places in North America to watch free-ranging black bears close up.

The covered viewing pavilion located about one-half mile from the Anan trailhead overlooks the stream where it tumbles through a narrow, boulder-lined gorge. Natural vegetation was used to screen activity on observatory. A viewing blind was fashioned at the fish pass from two prefabricated hunting blinds purchased from Cabela's. To decrease the impact of visitor movement to the bears, USFS screened the walkway with hanging camouflage netting. Only females and cubs or juvenile females frequent viewing area. . . . about 20–30 total. Large male black bears or brown bears rarely, if ever, use the lower river in mid-season. These animals use the rest of the river, which is closed to viewers. The Anan Bay public use cabin, about a mile

from the lagoon, is the only overnight accommodation. (Reservations accepted as many as 180 days in advance, with a maximum stay of seven days.) Air and boat charter services in Wrangell and Ketchikan offer full-day and half-day trips.

Management authority: Two agencies with some overlap of jurisdiction - USFS/ADF&G. Not one leader of program but team management. A seasonal coordinator supervises interpreters. USFS management plan closes the watershed to logging but does not close it to hunting or have hunting boundaries. Not a designated state refuge or sanctuary, but managed by Board of Game. Until very recently, entire watershed open to brown bear hunting. Since 1997, a narrow strip, from the mouth of Anan Lake to tidewater (1.5 miles) closed to both brown and black bear hunting, an area described as "minimal specific closed area." Hunting allowed at lake—public-use cabin here—and the rest of the watershed. Existing size of black-bear hunting closure area was **reduced** to match the brown-bear hunting closure.

Visitor limits: Maximum group size is 10. Visitor numbers unlimited.

General regulations: Purpose of rules: to make all human behaviors predictable to the bears and consistent. Strictly designed to prevent ***food conditioning.***

Regulations enforced from June 15 to September 15 by two on-site natural history interpreters who do not accompany visitors but explain rules, biology, natural history. Visitors may ***not*** leave the trail and approach bears. Visitors limited to the trailhead, trails, viewing platform, outhouse and the public recreation cabin. A Forest Closure Order prohibits dogs, food, and camping. Upper falls closed to provide space for "non-viewer–tolerant" bears. Both species utilize the upper falls for fishing. At the lower falls, bears have almost nine daylight hours per day to fish that are not in the core viewing time (10:00 a.m. to 5:00 p.m.). Managers concluded that the current viewing situation is not likely to adversely affect Anan's bear population

Permit fees: Donations; $35.00 per night cabin rental.

Sport fishing: Not allowed in river below the lake.

Trailhead interpreters make a point of stressing that Anan is an inherently wild place (not Disneyland) where visitors enter at their own risk and that bears are inherently unpredictable. Staff trained and cautioned *not* to voice any personal opinions about hunting or neighboring logging practices. Refer questioners to local district ranger. Staffers do not get a lot of negative feedback from public about hunting perhaps because interpreters are particularly directed *not* to assign human qualities to bears. Interpreters monitor bear numbers but assign numbers rather than names. Each year the number is changed. Some tour guides name recognizable bears.

Outfitter/Guides: May accompany and guide clients. Private guides, lodges, and air services transport day users. One summer viewing guide is also a hunting guide and hunts the surrounding area. Guides limited to two separate groups (on site at different times) per day. The Authorized Transfer was established, whereby priority use guides could temporarily transfer service days that they would not be able to utilize, to another priority guide.

Guide workshops: Anan guide workshops periodically held in the spring and fall and well-attended by USFS specialists, guides, and some private individuals. Topics included wildlife, cultural resources, bear ecology, bird identification, etc.

Firearms: Allowed. The Anan rifle policy requires staff to carry a weapon any time they walk the trails (bear spray no longer an option). Weapons are stored either in trailhead storage box or in observatory gun rack while interpreters at their station. Interpreters required to qualify with both a .375 magnum rifle and 12 gauge shotgun and to pick one for personal protection. Air horns sometimes carried as extra means of aversive conditioning.

Habituation/property damage: There have been no break-ins or serious property damage, even though the lake cabin is close by, the public-use coastal cabin is .5 miles away, and the USFS admin and cook cabin is at the trailhead. One bear did rip the door off the outhouse. No human injuries reported.

1991 Season—1,405 Visitors

1992 Season—1,830 Visitors

1993 Season—1,526 Visitors

1994 Season—2,026 Visitors

1995 Season—3,832 Visitors

1996 Season—2,204 Visitors

1997 Season—2,504 Visitors

1998 Season—2,412 Visitors

1999 Season—2,506 Visitors

Brooks Camp, Katmai National Park and Preserve

(4,093,229 acres. Alaska Peninsula, about 290 air miles southwest of Anchorage; 30 air miles from King Salmon. Air access. Contact: Headquarters, Lake Clark/Katmai national parks, 4230 University Avenue, Suite 311, Anchorage, Alaska 99508-4626, 907/271-3751, or 907/246-3305. In King Salmon: Mark Wagner, 907/246-2122.)

Pre-history: Yup'ik hunting and fishing site and residences. A rich archaeological past witnesses human occupation that dates back 7,500 years. Brooks River National Historic Landmark recognizes and protects North America's highest concentration (about 900) of prehistoric human dwellings,.

Established: September 24, 1918. To protect the Valley of Ten Thousand Smokes in wake of the Mt. Katmai eruption of 1912.

Expansion: Repeatedly; last ANILCA, 1980.

2000: New viewing platform and boardwalk constructed.

Once at Brooks River, on the shore of Naknek Lake near the mouth of Brooks River and the park's main destination, all visitors stop at the Brooks Camp Visitor Center, which operates from

June to mid-September. All visitors required to attend the Brooks Camp School of Bear Etiquette, a 15- to 20-minute safety and bear orientation program.

To overnight at Brooks River, visitors must stay in either the campground, located about one mile from Brooks Falls, or in the nearby lodge. The rustic campground has a limit of 60 persons per day. Advance reservations and both day use fees and campground fees must be paid prior to arriving at Brooks Camp.

Despite an array of wildlife, wilderness, and geologic wonders, Katmai has become best known for its bear viewing. During the peak of the sockeye salmon run each July, and during return of the spawned-out salmon in September, 40–60 bears congregate along the Brooks River. Bear watchers—campers, lodge guests, fly-in day users—jam Brooks Camp in July.

Raised platforms along the river enable viewing. Crowding results in waiting lists to access viewing platforms. At peak times, a 2–3 hour wait often necessary to access falls platform. High demand may limit visits to falls platform to as little as 20 minutes. New boardwalk and platform, with capacity of 80, is expected to reduce this unpopular congestion and waiting period. On occasion, especially in July, a few visitors were unable to get to the falls platform due to time constraints or flight schedules.

During peak season, visitors first must check in at the lower bear-viewing platform, or trailhead, before continuing to the Brooks Falls platform. The lower bear-viewing platform is large and often overcrowded, yet the location of this platform does not deter bears from wandering by. Juvenile bears, and some females and cubs, tend to hang out here, the favored fishing spots up river being controlled by more dominant bears. Larger individual bears and family groups dominate fishing sites at the falls. This is the site for Katmai's icon photo of a salmon leaping into a bear's open maw. Large males and other bears intolerant of people begin showing up at Brooks River in mid-September when few visitors are present.

Management authority: National Park Service. No hunting within wilderness park.

Visitor limits: No total day-use. Campground limits set.

General regulations: Except when on the bear-viewing platforms, visitors may not intentionally approach or remain within 50 yards of a single bear, or 100 yards of a female with cubs, and must follow all procedures detailed in the Brooks Camp School of Bear Etiquette. With the exception of the campground, camping prohibited within five miles of Brooks River. Visitors may not carry food of any kind on the trails and paths. Clean-camping techniques strictly enforced. All food must be stored in bear-proof lockers and meals prepared in designated shelters. Strict food and garbage controls enforced. Back country users urged to use bear-proof food containers or tree storage.

Permit fees: $10 per day; $5 per day camping.

Sport fishing: Brooks River is a catch-and-release fishery for trophy-sized rainbow trout. Barbless hooks recommended to prevent needless injury. Each angler is allowed to keep one salmon. Any fish kept at Brooks Camp must immediately be placed in a special bag and taken to the freezer building near the lodge. Fishermen must cut their lines if a bear approaches the fish-

on. Bears have learned to respond to the ***sound*** of a screaming fishing reel as the fish pulls out line. Last bear killed by NPS at Brooks Camp (early 1980s) had regularly taken fish from people and once swam out to a boat in the lake in attempt to get fish.

Ranger/interpreters: Enforce regulations, accompany visitors. May carry firearms and nonlethal deterrents such as rubber bullets, cracker shells, sprays, air horns, and the like.

Outfitter/guides: No special access. May accompany clients as part of a group.

Habituation/property loss and damage: Tents infrequently shredded. Extensive lodge damage due to break-ins after the lodge operator illegally stored food inside. Last human injury: 1991, a seasonal ranger ran from a bluff charge and slightly bitten on the hand.

2000 Season: 9500 Visitors*

*14,000 visitor-days, Brooks Camp only. Majority visiting in July, 75% for bear viewing, 25% for fishing (June and August); 20% of total took Valley of Ten Thousand Smokes tour.

McNeil River State Game Sanctuary

(246,700 acres. 250 air miles southwest of Anchorage, 100 air miles west of Homer. Aircraft access. June–August. Contact: McNeil River Sanctuary manager, Alaska Department of Fish and Game, 333 Raspberry Road, Anchorage, Alaska 99518-1599, 907/267-2182)

Pre-history: No known sites

1911: Charlie McNeil homesteads and prospects here.

1920s: Dense grasslands replaced by alder thickets, possibly as result of 1912 Katmai ash deposits believed to allow bear population expansion

1955: McNeil River Reserve established by USFWS through the aid of Master Guide Slim Moore, Cecil Rhode, Clarence Rhode (USFWS), and photographer Steve McCutcheon.

1959: McNeil River Closed Area

1967: McNeil River Game Sanctuary established by legislature

1973: Permit system and use regulations enacted.

Excessive, uncontrolled public use in the early 1970s endangered this unique area. People sometimes outnumbered bears at the falls. Bears abandoned the river or fished at night. Since preservation of the unique ***concentration*** is the sanctuary's primary goal, managers instituted a permit system. Regulations prohibit solo inland jaunts. Visitors travel in groups lead by a sanctuary employee. These stringent rules work. By being consistent, and going to the same predictable locations, bears view humans as nonthreatening.

Other than a communal cook shack and pit toilets, the only campground is undeveloped. There are no concessions of any kind. The campground is a two-mile walk from the McNeil Falls. Visitors are lead to one of two viewing sites, one at McNeil Falls, and one on Mikfik

Creek. In spring, bears graze the sedge flats and fish for red salmon in Mikfik; in mid-summer they fish for dog salmon in McNeil River. The McNeil Falls impede salmon migration and provide bears with a unique fishing opportunity. The record number in sight at one time within the quarter-mile area at falls is **67**. Now, as many as 144 individual bears utilize the sanctuary each summer. The congregations of bears at the falls are one of Alaska's most famous icons.

McNeil Sanctuary is viewed as one of the world's great wildlife attractions and serves as *the* world's ideal for bear viewing and habituation. Here visitors experience bears close up and with minimal risk. Because visitor numbers are tightly limited and all human behavior conforms to predictable patterns, bears have learned to neither fear nor seek out people. The McNeil Experiment demonstrates that people and bears can co-exist peacefully. McNeil's worldwide fame and publicity, but limited public access, have spawned additional bear-viewing opportunities and benefited regional businesses, such as Chenik Bear Camp.

The majority of human-tolerant bears at McNeil are females with cubs, juveniles, and, rarely, a large male. Large, dominant males do frequent McNeil Falls at the peak of the July salmon run but almost always on the opposite side of the river from the viewing pad; family groups and smaller bears frequent the near side of the river and viewing-pad area. Night-time research observations have revealed an entirely different population, which managers refer to as a subculture, of large dominant males that seldom, if ever, are seen during the day. Some of these animals flee when human presence is sensed.

Management authority: Alaska Department of Fish and Game.

Visitor limits: No more than 10 total per day.

General regulations: Camping in campground only. Visitors may not approach bears and may not access the viewing sites unless in an staff-escorted group. Viewing confined to specific sites, or uncommonly, transient positions enroute. Groups do not approach bears but allow bears to continue their normal behaviors that often bring them within feet of viewers. Typical day at the falls involves 6-8 hours confinement to a small viewing pad, so children are not recommended. No pets. All visitors must sign a liability waiver.

Permit system: Each year 1500–2000 people apply for standard four-day permits, which are awarded by a random lottery, March 1 application deadline. Lottery application fee: $25. Nonresident fees: $350; resident fees: $150. Standby permits: nonresidents, $175; residents, $75. Standby access **not** guaranteed.

Sport fishing: McNeil River closed to sport fishing; commercial fishing occurs outside the markers.

Outfitter/guides: Permit holders only; visitors accompanied by sanctuary staff.

Firearms: All staff carry firearms in the field, visitors advised not to bring weapons, but may do so. Few, if any, do.

Habituation/property damage: In 1970, one visitor, a Kodiak hunting guide, while crawling up on a sleeping female bear to photograph her, shot and killed the bear when she bluff charged. This is the only DLP by a visitor to the sanctuary. No human injuries since the sanctuary was

established. Garbage is shipped out by plane, and food and cooking are restricted to the communal cook shack. Very rare minor property damage.

1995 Season—212 Visitors

1996 Season—219 Visitors

1997 Season—228 Visitors

1998 Season—219 Visitors

1999 Season—208 Visitors

2000 Season—198 Visitors

Stan Price State Game Sanctuary

(60,000-acres. Located at the mouth of **Pack Creek** on the eastern shore of Admiralty Island about 30 miles south of Juneau. Aircraft, boat, or kayak access. USDA Forest Service Information Center, Centennial Hall, 101 Egan Drive, Juneau, Alaska 99801, 907/586-8751; Contact: Admiralty Island National Monument, 907/586-8790.)

Prehistory: Tlingit fishing site

1927: Stan Price arrives in Southeast.

1930: Closed to hunting with support of Territorial Sportsmen and others.

During July and August, brown bears move along the shores and down from the steep slopes of Admiralty Island to the intertidal wetlands at the mouth of Pack Creek to feed on spawning pink and chum salmon and on the sedges found there. The bears tolerate a certain amount of human presence, and visitors may often view and photograph bears fishing for salmon and interacting. Visitors access two different designated viewing sites, a sand spit at the mouth of the creek and a viewing tower located a mile upstream and accessed by a groomed trail through old-growth forest.

Most of the bears seen at Pack Creek are females and female/cub groups. Large males infrequently seen near the upriver viewing tower. Almost all visitors (more than 95%) are successful in seeing at least one bear. During peak viewing periods from mid-July to mid-August, fortunate visitors may enjoy close-up views of five or more bears during the day. Researchers say there are about 30 to 35 bears that use Pack Creek part of the summer. It is neither unknown to see several bears at one time nor to watch for hours without seeing a single bear.

Stan “the Bear Man” Price, spent 39 years on Pack Creek and became a local legend for his ability to live peacefully with the bears. Sailing a boat he’d built in Seattle, Price arrived in Southeast in 1927, and worked as a miner, fisherman, mechanic, and logger before settling at Pack Creek. Price took in several orphaned cubs and raised them. Armed only with a walking

stick, with which he sometimes used to bop the rare troublesome bear, Price wandered freely through the area. His continued presence habituated the bears to humans. The 90-year-old Bear Man once said "if you're friends with the bears, they will be friends with you."

Management authority: Joint USFS and ADF&G. Hunting not allowed.

General regulations: To ensure safety and preserve the bear-viewing opportunities, access to Pack Creek is restricted and limited by permit from June 1 to September 10, with a maximum stay of three days. Permits are especially hard to acquire during peak viewing season of July 10–August 20. No facilities or lodging of any kind exist, and campers are restricted to nearby Windfall and Swan islands. A canoe or kayak needed to reach shore. No food beyond trailhead. Safe storage areas for gear and food at beach landing site. Advance reservations required for peak season, July 10–August 25. Viewing restricted to two sites, visitors may not approach bears.

Visitor limits: 24 permits per day, peak season: unlimited shoulder season.

Permit fees: $20 per day, shoulder season; $50 per day, peak season.

Sport fishing: Not allowed in creek.

Outfitter/Guides: Both guided and unguided visits. All visitors restricted to two viewing sites. USFS recognizes **"Charterers"** who provide transportation to the area but do not accompany clients and **"Guides"** who can provide transportation and accompany clients.

Habituation/Property Damage: No human injuries; no substantial property damage due to restrictive camping rules and food-storage, and -handling techniques.

1995 Season—1403 Visitors

1996 Season—1241 Visitors

1997 Season—1381 Visitors

1998 Season—1392 Visitors

1999 Season—1351 Visitors

2000 Season—1400 Visitors

Summary Point

All managers agree on two points: For a quality experience, visitor numbers must be limited and on-site activities strictly controlled and made predictable and consistent to bears.

Appendix H

North American Nature Photographers Association (NANPA) PRINCIPLES OF ETHICAL FIELD PRACTICES

NANPA believes that following these practices promotes the well-being of the location, subject, and photographer. Every place, plant, and animal, whether above or below water, is unique, and cumulative impacts occur over time. Therefore, one must always exercise good individual judgment. It is NANPA's belief that these principles will encourage all who participate in the enjoyment of nature to do so in a way that best promotes good stewardship of the resources.

Environmental: knowledge of subject and place

- Learn patterns of animal behavior—know when not to interfere with animals' life cycles.
- Respect the routine needs of animals—remember that others will attempt to photograph them, too.
- Use appropriate lenses to photograph wild animals—if an animal shows stress, move back, and use a longer lens.
- Acquaint yourself with the fragility of the ecosystem—stay on trails that are intended to lessen impact.

Social: knowledge of rules and laws

- When appropriate, inform managers or other authorities of your presence and purpose—help minimize cumulative impacts and maintain safety.
- Learn the rules and laws of the location—if minimum distances exist for approaching wildlife, follow them.
- In the absence of management authority, use good judgment—treat the wildlife, plants, and places as if you were their guest.
- Prepare yourself and your equipment for unexpected events—avoid exposing yourself and others to preventable mishaps.

Individual: expertise and responsibilities

- Treat others courteously—ask before joining others already shooting in an area.
- Tactfully inform others if you observe them engaging in inappropriate or harmful behavior—many people unknowingly endanger themselves and animals.
- Report inappropriate behavior to proper authorities—don't argue with those who don't care; report them.
- Be a good role model, both as a photographer and as a citizen—educate others by your actions; enhance their understanding.

Adopted February 3, 1996, by the NANPA board of directors

Appendix I

5 AAC[33] 92.410
Taking Game in Defense of Life or Property

(a) Nothing in 5 AAC prohibits a person from taking game in defense of life or property if

(1) the necessity for the taking is not brought about by harassment or provocation of the animal, or by an unreasonable invasion of the animal's habitat;

(2) the necessity for the taking is not brought about by the improper disposal of garbage or a similar attractive nuisance; and

(3) all other practicable means to protect life and property are exhausted before the game is taken.

(b) Game taken in defense of life or property is the property of the state. A person taking such game shall immediately salvage the meat or, in the case of a black bear, wolf, wolverine, or coyote, shall salvage the hide and shall immediately surrender the salvaged meat or hide to the department. In the case of a brown bear, the hide and skull must be immediately delivered to the department. A surrendered hide and skull of a bear must be completely removed from the carcass. A surrendered bear hide must include attached claws. A person taking game under this section shall notify the department of the taking immediately, and within 15 days after the taking shall submit to the department a completed questionnaire concerning the circumstances of the taking.

(c) As used in this section, “property” means

(1) a dwelling, permanent or temporary;

(2) an aircraft, boat, automobile, or other conveyance;

(3) a domesticated animal;

(4) other property of substantial value necessary for the livelihood or survival of the owner.

[33] Alaska Administrative Code

Appendix J

Reporting Bear Sightings[34]

If a person reports seeing a bear along the Kodiak road system, here's what to do:

First, determine the kind of report it is:

BEAR SIGHTING—The bear is acting normally, doing such things as walking, eating natural foods, etc., and poses no immediate threat to human life or property. The caller just wants to tell someone that the bear is around.

NUISANCE BEAR—The bear is interacting with people in an annoying or potentially threatening way. Examples include hanging out in an area that is frequented by people, rummaging through compost, etc.

PROBLEM BEAR—The bear is a threat to human life or property. This includes any bear that is near human habitation and is acting abnormally, bears that are chasing people, killing or threatening pets or livestock, destroying property, or actually hurting people (maulings).

Next, respond as follows:

BEAR SIGHTING—Fill out a bear-observation form and assure the caller that the information will be forwarded to Alaska Department of Fish and Game. Also inform any on-duty patrol officers of the call so that they are apprised of the situation. Fax the observation form to the ADF&G office at 486-1869.

NUISANCE BEAR—Contact ADF&G (Larry Van Daele) during normal working hours or have the caller contact ADF&G (486-1880). If ADF&G cannot be contacted, fill out a bear observation form and tell the caller that the information will be forwarded to ADF&G and that they will be contacted as soon as a biologist is available. Fax the form to 486-1869. Inform on-duty patrol officers of the call so that they are apprised of the situation. If the caller requests immediate assistance after normal working hours, try to contact Larry Van Daele (ADF&G) at home at 486-8822.

PROBLEM BEAR—Contact on-duty patrol officer immediately to respond to the situation. Advise Sgt. Joanna Roop at 486-4761 during normal working hours or at 486-1987 at home. Fill out a bear-observation form as soon as possible and fax it to ADF&G (486-1869). If the patrol officer needs assistance, contact ADF&G at 486-1880 (work) or 486-8822 (home).

[34] prepared by ADF&G, Kodiak

KODIAK BEAR OBSERVATION FORM

Date: _____ **Time:** _____

Caller Name: _____ **Phone number:** _____

Location: _____

Type of bear: ÿ Adult ÿ Young adult ÿ Female with cubs ÿ Unknown

Number of bears seen (including cubs): _____

What was the bear doing?_____

_____

_____

_____

Response requested by the caller (if any): _____

Type of Observation: ÿ Bear Sighting (bears acting normally)
ÿ Nuisance Bear (bears annoying people)
ÿ Problem Bear (bears threatening people or their property)

Action taken by dispatcher:_____

_____

_____

FAX THIS FORM TO ADF&G at 486-186

9*30 July 1998*

Appendix K

BACKYARD BEARS[35]

October 2000

Our neighbors, the brown bears, will be busy looking for food as they prepare to go to bed for the winter sometime in early November. As days get shorter and kids are back in school, we would like to share a few tips on how to reduce bear problems and what to do if a problem exists.

PREVENTION

Bears are naturally shy animals and prefer to avoid people. Most of the bears that live around towns and villages on Kodiak have shifted their natural patterns so that they sleep during the day and are active at night. Usually the only time there is a problem is when they are attracted to food or garbage or when we surprise them.

Tips to avoid bears

- Make a special effort to keep dog food, meat scraps, and fish secure from curious bears. Keep an eye on your neighbor's yard, too.
- Empty garbage cans often, use trash bags, and close the dumpster lids.
- Keep away from thick brush (especially alders); if you have to go through those areas, make noise to alert bears of your presence.
- Teach children to use extra caution when playing outside during morning and evening hours and while at the bus stop in the morning.
- If you see a bear, don't panic or run. Move away from it slowly. If it starts toward you make noise and wave your arms.

IF YOU HAVE A PROBLEM

If, in spite of your best efforts at prevention, a bear is causing a problem, here are a few things you can do to get rid of him:

- Make sure you and your family are secure in your home.
- Turn on a spotlight and make noise (yell, bang pans, etc.) to scare the bear.
- If the bear is not threatening, continue to watch it and try to figure out why it is coming around. Fix the problem in the morning or call for suggestions.
- If the bear is a threat to a person's life or your property, you may either call the police (911) and/or shoot the bear yourself.

[35] prepared by ADF&G, Kodiak

- Remember, if the bear has been attracted to your yard by improperly stored food or garbage, it can ***NOT*** be legally killed.

KILLING A BEAR FOR DEFENSE—THE RULES

You may kill a bear if you do not provoke an attack or cause a problem by leaving food or garbage lying around, *and* if you have done everything else you can to protect your life and property. Property means your dwelling, means of travel, pets, or other valuable property necessary for your livelihood or survival.

If you have to shoot a bear, be sure you shoot to kill—wounded bears are much more dangerous than healthy bears. Also be very careful of what lies beyond your intended target—stray bullets can travel more than a mile and still be deadly.

If you kill a bear, you must remove the hide (including claws) and the skull and give them to ADF&G. Meat will be donated to anyone who wants it. You must also notify ADF&G as soon as possible and fill out a questionnaire.

BEAR HUNTING SEASON

The bear hunting season along the Kodiak road system is open from October 25 through November 30, and from April 1 through May 15. You need a hunting license, a bear tag ($25), and a registration permit (available at ADF&G) to hunt bears. You are allowed to take one bear every four years, but you may not shoot cubs or sows with cubs. Hunters can keep the bear they kill, but they must have the hide and skull measured and sealed by ADF&G.

State law prohibits bear hunting within one-half mile of the dump or with the aid of any artificial light. City ordinance prohibits the discharge of firearms within Kodiak city limits (except for in defense of life or property).

THE BOTTOM LINE

People here in Kodiak are among the most experienced folks in the world in living with bears. It will be challenging for the next couple months, but with a community effort, we can minimize bear problems. Let’s keep up the good work and be continue to ***BE BEAR AWARE.***

If you have questions, comments, or if you would like to discuss bears or bear problems in more detail call us at:

Kodiak Island Borough
486-9301

City of Kodiak
486-8635

Larry Van Daele
Wildlife Biologist
Alaska Dept of Fish & Game
486-1880

Appendix L

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
March 1990

POLICY ON SOLID-WASTE MANAGEMENT AND BEARS IN ALASKA

INTRODUCTION

Black (*Ursus americanus*) and brown/grizzly (*U. arctos*) bears are common or abundant throughout most of Alaska. Both omnivorous species quickly learn to seek out human food or garbage when provided the opportunity. Polar bears (*U. maritimus*) live in the sea ice environment of the Beaufort and Chukchi seas and are sometimes attracted to human developments along the Arctic coastline. Habituated bears are particularly dangerous and once habituated, generally must be destroyed. As state land disposals, resource development, community expansion, tourism, and outdoor recreation increase throughout Alaska, more bear-human conflicts will occur. Therefore, a consistent and enforceable departmental policy on solid waste-waste management is necessary to minimize impacts on Alaska's bear resources as well as to protect the safety of human residents. This policy addresses human settlements throughout Alaska; however, cities may have special problems that must be dealt with on a case-by-case basis.

OBJECTIVES

The objectives of this policy are to

- reduce garbage/bear interactions, thereby reducing bear-human confrontations that risk human injury or death or result in killing nuisance bears;
- provide consistent guidance for departmental responses to proposed human developments where solid waste and other attractants may affect bears; and
- provide guidelines to other agencies on the solid-waste management practices that should be required prior to issuance of permits under their jurisdictions.

IMPLEMENTATION

To achieve the preceding objectives, interagency cooperation among the Alaska Departments of Fish & Game (ADF&G), Public Safety (DPI), Environmental Conservation (DEC), Natural Resources (DNR), and Transportation & Public Facilities (DOT/PF), and the USDA Forest Service (FS), National Marine Fisheries Service (NMFS), Bureau of Land Management (BLM), National Park Service (NPS), U.S. Fish & Wildlife Service (USFWS), private industry, and private landowners (e.g., Native corporations) will be necessary in developing plans and issuing, monitoring, and enforcing permits and regulations as well as providing public education. The prime elements to accomplish this effort will be

- solid-waste disposal permits issued by DEC;
- DNR, FS, NPS, USFWS, and BLM administration of special use permits for permitted facilities and general prohibitions concerning solid-waste storage and disposal;
- ADF&G, DEC, and DPS regulations for proper storage, transport, and disposal of food, garbage, fish and game waste products, and other associated solid waste;
- coordinated public education efforts by federal and state agencies involved in natural resource management in Alaska;
- cooperation among agencies, interest groups, and the general public involved in management and use of Alaska's natural resources; and
- effective private industry policies that prohibit employees and contractors from feeding bears or improperly disposing of attractants and that punish, with immediate dismissal and refusal to rehire, employees who violate this policy.

GUIDELINES

Bears are attracted to human foodstuffs and garbage because they are easily obtained, occur in large quantities, and are often a nutritious food source. The most effective solution for handling bear problems is to eliminate the attractant from the bear's environment before a problem develops.

The following guidelines should be followed throughout Alaska where bears are or may be attracted to garbage:

- Solid-waste disposal sites for communities and permanent field camps should be located, if feasible, in habitats receiving the least use by bears. For example, traditional movement routes and season concentration areas (such as salmon spawning streams or productive berry areas) should be avoided.
- The preferred alternative for disposal of organic products that may attract bears is incineration at a facility that meets DEC standards for combustible residue (i.e., less than 5% unburned combustibles). In large urban communities or at regional disposal sites, daily landfill is an acceptable alternative to reduce or eliminate attraction to bears, provided that these facilities are secured by a bear-proof fence.
- Existing open-pit sites that use surface burning for disposal should be phased out and replaced by a system of daily incineration meeting the above standards, or by daily landfill.
- Large (more than 15 people), permanent (more than one field season) field camps should dispose of organic products by daily incineration in a fuel-fired incinerator that meets the above standards. Alternatively, organic products could be hauled daily to a DEC-approved regional disposal site. Temporary storage of organic products prior to incineration or back haul should be within a bear-proof enclosure (building or fence).
- These camps should be surrounded by bear -resistant fence. Alternatively, dining halls, kitchens, sleeping areas, and incinerators should be fenced, and no organic wastes allowed to be left in vehicles.

- Small permanent facilities (e.g., lodges, weather stations) or large nonpermanent camps should daily segregate and store organic wastes, and items such as cans and jars that are contaminated with organic waste, in a bear proof container for weekly back hauling to an approved disposal site. Alternatively, (a) organic waste and other combustibles could be incinerated in a locally fabricated incinerator meeting DEC standards for residue, or (b) garbage grinders with disposal to a sewer system could be used to remove organic wastes, while contaminated combustible and noncombustible wastes could be incinerated or temporarily stored as above.
- Food and organic wastes, if stored outside in bear habitat, should be stored in sealed bear proof containers. Although it is not necessary to remove fish or game carcasses from the field, these should not be left at a central site nor should they be left in or near a campsite or other place with high potential for bear-human conflicts.
- Small parties using Alaska's backcountry should burn all combustibles and pack out all noncombustibles. Organic material should not be discarded along trails. Caution and comment sense are required to reduce or eliminate attractants to bears.
- In all new parks, roadside facilities, and temporary construction work sites located in bear habitat, bear-proof garbage cans and regular garbage pickup should be required. This requirement should be phased into all existing facilities as soon as possible.
- Baiting and feeding bears and other wild game by photographers, tourists, hunters, or others is prohibited except for trapping furbearers or hunting black bears consistent with regulations on black-bear baiting [5AAC[36] 92].
- Bears currently accustomed to eating garbage should be handled on a case-by-case basis according to ADF&G guidelines for managing bear-human conflicts.

DEFINITIONS

Combustible: wood, paper, or plastic products that can be c*ompletely burned to ash* with a normal fire (e.g., campfire)

Field camp: a field facility (including cabins, trailers, or tents) used for sleeping and feeding people (e.g., at mines, logging camps, oil and mineral exploration camps, fish camps, lodges, research facilities, remote fish hatcheries, fish weirs, etc.)

Garbage: human refuse including paper and plastic products, glass, metal, aluminum, and a wide variety of organic food material

Habituation: the process by which animals lose their natural fear of humans; habituated bears may be extremely dangerous, especially when they associate people with food

Organic products: all foods or edible plants and animal parts (e.g., meat, vegetables, bread, grain, apple cores, banana peels, lettuce, fish and game animal carcasses, etc.)

Sealed bear-proof container: a container sealed to prevent the escape of attractant odors; bear-proof by means of physical barrier or hanging out of reach (e.g., sealed aluminum containers, pulley system in a tree 15 feet above ground level)

[36] Alaska Administrative Code

Appendix M

BEARS AND The Electric Landfill[37]

The Kodiak Island Borough is improving our landfill so that it meets or exceeds state and federal requirements. An important part of that project is an electric fence that will surround the entire area. The fence, similar to electric cattle fences used throughout the western states, is specifically designed to keep bears out of the landfill. Construction of the fence is scheduled to begin on July 7,1998, and it should be completed by the end of that month.

IS THE FENCE SAFE? The fence is certified by Underwriters Laboratories, and it has been used throughout the world. Although it is very uncomfortable when you receive a shock, it is not life threatening for people (including children), pets, or other animals. The fence will be easy to see, and there will be warning signs all along the fence line.

HOW WILL THE BEARS REACT? Electric fences have been used in other parts of Alaska and in Canada to keep brown/grizzly bears away from dumps and field camps. In most cases, habituated bears (the ones that are accustomed to getting food from people) test the new fence with their nose or paw. Because these parts of their bodies do not have fur, their curiosity is rewarded with a jolt. Most bears will quickly learn that there are easier places to get a meal and will leave the fence alone. Some, however, will continue to test the fence, searching for weak spots. On rare occasions, bears learn to dig under fences or climb trees to go over them.

HOW MANY BEARS USE THE DUMP? There are currently about 6 bears that use the Kodiak landfill. The numbers range from 4 to 11, depending on the year. When natural foods are abundant, fewer bears use the landfill. Even when natural foods are scarce, the bears do not seem to rely on the landfill as a main source of food.

WILL THE ELECTRIC FENCE INCREASE BEAR ACTIVITY IN TOWN? Bears that are prohibited from getting food at the landfill will look for other places to get an easy meal. Fortunately, there seem to be a lot of natural foods for the bears this year and most bears will use those. There will, however, be some bears that will go near homes and into dumpsters in their search for food. Residents in the Monashka Bay area will have to be particularly wary as these dump bears adjust to the change in their diets.

WHAT CAN WE DO TO MINIMIZE BEAR PROBLEMS? As residents of Kodiak, we share the island with one of the densest brown bear populations in the world, and we are proud of our ability to co-exist with them. All we have to do is apply some of these bear-safety precautions we routinely use in the field to our activities here in town:

- Keep human food, pet food, and garbage secured so that bears cannot get to it.
- Before using a dumpster, be bear aware and check for bears in the area.
- Walk in open areas and be cautious when walking at dusk or at night.
- If you walk through the brush, go in a group and make noise to alert the bears that you are coming.
- Avoid jogging or biking along trails that are in thick brush.
- If you see a bear, stay calm. Yell at it. Do not run.

FOR INFORMATION ABOUT BEARS OR BEAR SAFETY:
Larry Van Daele, Alaska Department of Fish and Game..... 486-1880
FOR INFORMATION ON THE LANDFILL OR ELECTRIC FENCING:
Ron Riemer, Kodiak Island Borough 486-9341
IF YOU HAVE AN EMERGENCY INVOLVING A BEAR:
Kodiak Police Department 911

[37] This information was sent to Kodiak Island Borough residents prior to completion of the electric fence at the local landfill.

Appendix N

Best Management Practices—Flightseeing/Wildlife-Viewing Guidelines[38]

Alaska provides a rich environment that supports a wide variety of wildlife. Many of these animals, particularly Dall sheep, mountain goats, bears, moose, and caribou, inhabit the mountains, forested valleys, and tundra areas of the state over which tour operators fly. While most of our customers enjoy seeing and photographing wildlife, getting too close is disruptive and stressful to these animals and also makes them less visible for future flightseeing.

In order to encourage sensitivity to wildlife species of every kind, to ensure their continued viability, and to maintain high-quality viewing opportunities for future visitors, the Alaska Visitors Association (AVA) and its members have consulted with local, state, and federal agencies in developing the following set of guidelines regarding air transportation and flightseeing associated with wildlife. AVA recognizes that particular species and regions of the state may require greater specificity for wildlife-associated flight standards.

- Consistent with aircraft passenger safety, pilots shall take avoidance measure to prevent close overflights of individual animals or groups of animals. However, ad hoc alterations of regular flight paths to try and avoid incidental sightings of animals is not required.
- Hovering near, herding, harassing, or driving wildlife in any way must never be allowed. If an animal, or group of animals, shows signs of disturbance, runs, or takes flight, the pilot is too close.
- Operators will consult with local wildlife authorities to ensure that flight paths avoid known sensitive wildlife areas, including kidding and calving areas, dens, nest sites, haulouts, rookeries, and seabird colonies during critical time periods.
- All flight operators shall comply with FAA restrictions and will consult with wildlife agency recommendations for wildlife flightseeing.
- Consistent with aircraft and passenger safety, operations should establish flightseeing routes that will provide for regular and consistent aircraft operations, which will encourage habituation and minimal disturbance to wildlife.

It is incumbent on tour operators and air taxis to help educate visitors about the importance of adhering to these guidelines. We want Alaska visitors to enjoy their flights and understand, as well as appreciate, the need for responsible flight behavior around wildlife.

[38] as adopted by the Alaska Visitors Association

Appendix O

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION

March 1990

POLICY FOR MANAGING BEAR-HUMAN CONFLICTS IN ALASKA

PURPOSE

This department policy provides guidance to the Alaska Department of Fish and Game, Division of Wildlife Conservation for dealing with bear-human conflicts. The wide range of conditions in Alaska and circumstances leading to conflicts necessitate a flexible policy. The philosophy in these guidelines is to minimize human injury, loss of property, and unnecessary loss of bears, while maintaining the health of the bear populations throughout the state.

BACKGROUND

The Department of Fish and Game, Division of Wildlife Conservation, is the state agency charged with managing black and brown/grizzly bears in the state. As such, the division is responsible for ensuring sustainable populations of these species statewide. The department is also responsible for assisting the public in avoiding and dealing with bear-human conflicts.

Bears are abundant in Alaska, occurring throughout the state, including urban areas. As the human population of Alaska grows and expands further into bear habitat, increased contact with bears will occur, and the number of bears habituated to humans will increase. Circumstances will develop where action must be taken to alleviate real or perceived conflicts between bears and people.

In some areas, bear density is seasonally high, such as on salmon streams or in good berry feeding areas. These congregation sites require special management considerations to protect food resources important to bear populations and to minimize conflicts with human uses of these areas.

Two state regulations deal with bear-human conflicts. One prohibits the feeding of bears and other large predators or intentionally leaving human food or garbage in a manner that attracts these animals (5AAC 92.230). The other defines a person's rights and responsibilities in defending himself or his property from wild animals (5AAC 92.410) (see Appendix I). These regulations give the individual responsibility, guidance, and authority to deal with legitimate bear conflicts. In some instances, particularly those involving black bears for which hunting regulations are liberal, problem bear can oftentimes be taken under normal hunting regulations, and it is the department's policy to promote such legal taking.

RATIONALE

Incidental encounters occurring away from human habitation are the most common bear-human contacts. These are usually brief and do not develop into conflicts. Options for minimizing the frequency with which these encounters become serious conflicts include

- increasing public education on bear behavior and how to deal with bears and garbage in the wild;
- increasing public information about areas of high bear density;
- recommending that people avoid areas of high density or recommend that land managers temporarily prohibit public use of such areas; and
- recommending that private or commercial land-use development not be sited in areas of seasonally high bear concentrations.

Bear-human conflicts are most common where bears regularly acquire human food or garbage. The best way to prevent bears from becoming attracted to human food is to preclude access to these food sources. Once a bear is habituated to human food or garbage, options become limited, expensive, ineffective, and unacceptable to some members of the public. These options include

- rigorous garbage management policies and enforcement of regulations to deny bears access to human foods and garbage;
- aversive conditioning to teach a bear to associate human food with discomfort;
- translocation (moving a bear to a different location);
- capture of a bear and confinement to a zoo; and
- destruction of the “problem” bear.

Denying bears access to human food, garbage, or other attractants is by far the most effective and satisfactory method of minimizing bear/human conflicts. This is the preferred option.

Aversive conditioning means deterring a bear by using loud noises or by inflicting pain. Methods include sirens, cracker shells, rubber slugs, birdshot, and thumper projectiles. Chemicals for taste aversion, irritant properties, or both may also be employed. To be effective on a habituated bear, aversive conditioning should be preceded by removal of the food, garbage, or other reason that the bear was attracted initially.

Translocation is seldom an effective solution. Bears have a proven ability to return to home ranges from long distances and over rugged terrain. Those that do not return are likely to continue to be involved in bear-human conflicts in new locations. Translocation is often preferred by the public, but considering its demonstrated ineffectiveness, human safety concerns, and the high expense, it is generally inappropriate to spend time and funds on such efforts.

Removal to zoos is only occasionally a viable option. Few qualified facilities are willing to take bears from Alaska because they are easy to obtain, breed, and maintain in captivity. Rarely will zoos accept bears older than cubs. Capture can be difficult and expensive.

Killing the bear may be the only effective alternative once efforts to avoid a bear-human conflict have failed. Division personnel lack the time and resources to routinely kill bears involved in such conflicts. Circumstances of time and distance usually require that such situations be handled by individuals on the scene. Alaska hunting regulations can generally accommodate these situations. Hunting regulations in the vicinity of problem may result in habituated bears being killed legally and used by the public; this is preferable to state or municipal agency personnel killing these bears. Bears habituated to human food are probably more vulnerable to hunters than are other bears, and they are often taken early in the hunting season near human settlements. However, liberal hunting seasons are not specific to the individual bears(s) causing the conflict and the resulting increase in the harvest of nontarget animals may reduce the area bear populations more than is desired, so the effect of liberalized seasons should be considered before they are adopted. Liberal hunting seasons are inappropriate if the offending bear(s) include sows with cubs because these bears cannot be legally harvested by hunters. State law also prohibits legal harvest of brown bears within one-half mile of established landfills or dumps, so liberalized regulations may not be effective at reducing brown bears accustomed to feeding in these areas.

In cases where immediate danger to an individual or his property exists, offending bears may be killed by any individual under the provisions of the Defense of Life or Property (DLP) regulations. A person killing a bear under these circumstances is responsible for reporting the incident and salvaging the hide and skull.

POLICY GUIDELINES

- Management efforts will emphasize the prevention of bear-human conflicts. Staff will attempt to anticipate problems that may result from changing human-use patterns in bear habitat and will recommend methods to minimize conflicts to land managers and local authorities. Public information efforts on avoiding bear conflicts will be employed.
- Bears living in proximity to humans and feeding on natural foods will not be considered nuisance animals. If necessary for public safety, the public will be alerted to the presence of bears, and, where feasible, efforts will be made to prevent access by bears to human food or garbage.
- State, municipal, and corporate policies and regulations regarding food storage and garbage disposal should be rigorously enforced. If division staff becomes aware of violations they should notify both the offender and the appropriate enforcement agency. The individual, agency, or corporation responsible for food or garbage stored in a matter that is “attractive” to bears, under provisions of 5AAC92.230 and .410, should be warned or cited. If a bear is killed under DLP provisions, and the taking was brought about by the improper disposal of garbage or a similar attractive nuisance [5AAC92.410(a)(1)], the offender will be warned or cited.
- Nonlethal methods of deterrence should be used before other options are exercised if a new conflict situation develops. If a chronic bear-human conflict exists, aversive conditioning techniques will be employed only after all reasonable efforts have been made to remove or secure the source that may have caused the conflict. These techniques should begin as soon as possible and be employed as consistently as possible. If staffing or funding limitations prohibit division staff from being directly

involved in aversive conditioning, qualified staff from other agencies or private citizens may be used.

- The division generally will not translocate bears involved in bear-human conflicts. Exceptions may be made in cases where bears are uncommon, where translocation funds are generated outside the division, and where acceptable release sites are identified. Translocated bears will be moved only to suitable remote habitat selected by the local area biologist. All translocated bears will be marked to facilitate future identification.
- The division generally will not capture bears involved in bear-human conflicts for confinement in a zoo. Exceptions will be made if suitable zoo facilities are available and the zoo is willing to pay for transportation costs for shipping the bear. Zoos must meet the standards set forth in the division's "Policy on Zoos" (August 18, 1989) prior to receiving bears. The division's headquarters office will be responsible for maintaining a list of qualified zoos willing to accept bears, and they will be contacted prior to capture.
- Orphaned cubs will be left in the wild except in circumstances where qualified zoos are available to accept them. If there is no zoo to accept orphaned cubs and they are likely to become habituated adults or perish if left on their own (<6 months old for black bears or <1 year old for brown/grizzly bears), the cubs will be destroyed.
- Where chronic bear-human conflicts exist and nonlethal options have failed, the problem bear(s) will be killed. Division personnel will kill the bear(s) only in cases where an immediate or recurring danger to the public exists.
- In cases where immediate danger to an individual or his property exists, offending bears may be killed by any individual under the provisions of the DLP regulation (5AAC92.410).
- Division staff, with assistance from the Department of Public Safety, will interview and obtain written statements from all individuals taking bears in DLP instances. Standard DLP report forms shall be used to report circumstances of the kill. Sealing certificates, DLP reports, and hides will be sent to the Regional Sealing Officer in Anchorage. Hides will be disposed of by public auction or provided to recognized scientific or educational institutions (a minimum of $200 handling fee will be charged) under provisions of scientific/educational permits. Skulls may be retained in the area office or disposed of to recognized scientific or educational institutions.
- Division staff will not attempt to hunt and kill bears responsible for human maulings in cases where the attack was unprovoked, the bear continues to pose an immediate threat to human safety, and the offending bear can be identified with a reasonable degree of certainty.

Appendix P

Regulations Pertaining to Littering and to Feeding of Game

13 AAC[39] 02.530
Littering, Depositing Materials, and Dragging Objects Prohibited

No person may throw, deposit or allow to be thrown or deposited upon a highway or vehicular way or area litter, garbage, glass, nails, tacks, wire, cans, oil, or any other substance. A person who throws, deposits, or allows to be thrown or deposited such substances shall immediately remove or cause to be removed those substances. A person removing a wrecked or damaged vehicle from a highway shall remove any glass or other substance dropped upon the highway from that vehicle.

5 AAC 92.230
Feeding of Game

No person may intentionally feed a moose (except under terms of a permit issued by the [Alaska] department [of Fish & Game] bear, wolf, fox, or wolverine or intentionally leave human food or garbage in a manner that attracts these animals. However, this prohibition does not apply to use of bait for trapping furbearers or hunting black bears under 5 AAC 84–5 AAC 92.

[39] Alaska Administrative Code

Appendix Q

Kodiak Bear-Management Plan
Citizens Advisory Committee Charter[40]

Introduction

Brown bears are a significant component of the Kodiak archipelago ecosystem and are important for the economy of Kodiak residents. The purpose of this charter is to guide the Citizens Advisory Committee (CAC) in the development of a Kodiak bear-management plan. The CAC comprises a diverse group that represents various public interests concerned with the management of brown bears on the Kodiak archipelago. The CAC is responsible for developing a comprehensive bear-management plan that has scientific integrity and broad public support. This charter provides the background, purpose, and objectives for the CAC. It also identifies expected committee standards and products, interests represented (to be inserted), available resources, constraints, and authority to implement outcomes of the process.

Background

Kodiak bears, the largest bears in the world, are a unique subspecies of the brown or grizzly bear, having been isolated from other bears for some 12,000 years. The Kodiak bear represents a wildlife image known throughout the world. Currently, the Kodiak archipelago bear population is healthy.

Concern over a reduction in the Kodiak bear population in the early decades of the last century prompted sportsmen to petition the federal government to protect the bears and their habitat. The result was the creation, in 1941, of the Kodiak National Wildlife Refuge (KNWR) to provide habitat for bears, salmon, and other wildlife. While the U.S. Fish & Wildlife Service (USFWS) is charged with conserving wildlife and habitat on the refuge, the Alaska Department of Fish and Game (ADF&G) has primary authority for managing the bears. ADF&G's specific objectives for management of Kodiak bears are 1) to maintain a stable bear population that will sustain an annual harvest of 150 bears, composed of at least 60 percent males; 2) to maintain diversity in the sex and age composition of the bear population, with adult bears of all ages represented in the population and in the harvest; and 3) to limit human-caused mortality of female bears to a level consistent with maintaining maximum productivity. At times, the different missions and objectives of USFWS and ADF&G may result in disparate management policies.

Public interest in Kodiak bears and shared management responsibilities between ADF&G and USFWS have resulted in the need to develop a cooperative Kodiak archipelago bear management plan. The plan will be comprehensive and address human uses of the archipelago relating to bears, negative bear-human interactions, potential habitat degradation, the impact of private land ownership in bear habitat, and any other bear-management issues deemed appropriate by the CAC.

[40] original charter dated January 2, 2001

Input to a Bear-Management Plan

Biologists and management staff from USFWS, ADF&G, and other agencies will provide the scientific, technical, and enforcement elements that must be considered by the CAC when developing the bear-management plan.

Although the natural history and biology of the Kodiak bear form the necessary basis for a bear-management plan, the CAC must also incorporate socioeconomic information. and public input to fashion a management plan with broad public support. Implementation of the bear-management plan may require changes in activities and behaviors among a broad range of agencies, corporations, recreational and resource user groups, and individuals. A bear-management plan based on sound science that has broad public support and acceptance will demonstrate that citizens and local, state, and federal resource managers in Alaska have the foresight and coordination necessary to develop a comprehensive bear-management plan.

Citizens Advisory Committee Responsibilities

Purpose

The *purpose* of the CAC is to develop a bear-management plan that has specific recommendations to help ensure the sustainability of the Kodiak bear population, to respond to the public's desires for uses of this wildlife resource, and to address public safety concerns. The plan will reflect relevant biological and sociological information.

Objectives

The specific *objectives* of the CAC are

- **To review the available biological and socioeconomic information on Kodiak brown bears, evaluate all relevant aspects of bear management that may affect the Kodiak bear population, and prepare, by April 30, 2001, specific recommendations regarding the management of brown bears in the Kodiak archipelago.** The CAC will consider biological and other information to produce a bear-management plan that has scientific integrity and broad public support. Committee members should consider all biological and socioeconomic aspects of bear-management on the Kodiak archipelago that they deem relevant. In developing the management plan, the committee will consider, at a minimum a) issues such as optimal size of the bear populations to be maintained on the archipelago; b) identification of recreational uses of bears on the archipelago; c) recommendations regarding public education and management actions required to minimize negative bear-human interactions; d) other considerations and actions deemed necessary by the CAC; and e) the scope of authorities, responsibilities, and legal parameters of agencies who will implement the plan. The bear-management plan may also contain recommendations for monitoring systems to assess the effectiveness of the plan.
- **To ensure public support for the bear-management plan by involving the public in the development process.** The key to success in this project is building a partnership of those interests that reflect local, state, national, and international concerns and that have a stake in the decisions about brown-bear management. The public will be afforded

opportunities to participate in each CAC meeting, and the CAC will schedule forums to gather knowledge and opinions and to inform the public of the committee's progress.

Expected Standards and Products

The CAC is expected to produce a draft bear-management plan for public comment by April 1, 2001[41]. The CAC will release the final plan to ADF&G for publication by April 30, 2001[42]. The plan will contain recommendations for policies and actions that have broad, public support and acceptance and that are consistent with the mission of each managing agency. The bear-management plan will be developed based on the following considerations: a) sound biological and socioeconomic information; b) prudent management; and, c) public input resulting from an open public process encouraging collaboration among all interested public and private parties.

The CAC is expected to use a consensus-building process facilitated by a neutral party to guide development of the plan. Consensus is defined as an agreement reached by identifying the interests of all of the concerned parties and then building a cooperative solution that maximizes the satisfaction of as many of the interests as possible. Each committee member enters the process with the intention of working cooperatively with other committee members to reach consensus decisions on actions supporting the management of Kodiak bears. In some cases, consensus may not be possible. In these cases, committee members will document the points of disagreement in a minority report. However, it is expected that the facilitator and committee members will work diligently to reach consensus on even the most difficult issues.

Each CAC member is responsible for communicating with his or her constituents throughout the process. For example, CAC members will provide updates regarding the activities and outcomes of the CAC meetings to those individuals or groups that hold similar interests. In addition, CAC members will be encouraged to participate in community outreach efforts coordinated by ADF&G and other participating agencies.

Resources and Constraints

Several people will provide professional support and assistance to the CAC as it develops the bear-management plan. A neutral party will assist the CAC by facilitating meetings and guiding development of the bear-management plan. Larry Van Daele (ADF&G Kodiak area biologist) and Mike Getman (KNWR deputy manager) will attend each CAC meeting and will provide the fundamental biological and management information about bears on the Kodiak archipelago. Cynthia Loker, ADF&G wildlife planner, will serve as a technical advisor to the CAC on planning issues, will coordinate the communication and public outreach effort, and will provide logistic and administrative support. Additional resources (e.g., public safety and enforcement) will be available to the CAC as needed.

Approximately eight, two-day CAC meetings will be held in Kodiak. If necessary, CAC members may be reimbursed for actual expenses. Funds for additional meetings are contingent upon expenses incurred by CAC activities. The CAC will begin work in early January 2001 and

[41] During the course of the project, this date was revised to May 1, 2001.
[42] During the course of the project, this date was revised to February 1, 2002.

will meet until the end of April 2001. All work must be completed and the bear-management plan submitted to ADF&G no later than April 30, 2001[43].

CAC members will limit the scope of their work to bears on the Kodiak archipelago. The Kodiak archipelago, for the purposes of the brown-bear management plan, is limited to Game Management Unit 8, as defined in the codified hunting regulations.

Authority

The public agencies making up an interagency planning group (IPG) have agreed to reconvene after conclusion of CAC activities to develop an implementation strategy for recommendations included in the Kodiak Bear-Management Plan

No assumptions have been made regarding the commitment of other landowners to implement the recommendations of the CAC. However, CAC members are free to include such recommendations in the bear-management plan.

Performance Review

The CAC is asked, as a final task, to evaluate this process to assist ADF&G in refining the methods by which public input and involvement are accomplished. An evaluation process and format is to be determined by consensus.

Citizens Advisory Committee Membership

The following CAC members agree to the provisions of this charter:

Richard Carstens
Dave Cline
Charles Dorman
Wallace Fields
Pam Foreman
Dave Kubiak
Tom Panamaroff
Hank Pennington
Jeff Peterson
Bettye Plyler
Dick Rohrer
Barbara Rudio
Rolan Ruoss
Tom Walker

[43] During the course of the project, this date was revised to February 1, 2002.

Appendix R

Alaska Board of Game

98-127-BOG
Resolution concerning commercial guiding activities in Alaska

WHEREAS, the Board of Game is given authority to manage Alaska's wildlife resources by the state legislature, through establishment of seasons, bag limits, and regulation of methods and means, and

WHEREAS, the board has received requests and concerns from guides and the public regarding the uncontrolled increase of commercial guiding, outfitting, and transporting activities and the negative impact that these activities have on game resources and hunt conditions, and

WHEREAS, the board does not have the regulatory authority to limit the number of guides, transporters, and their clients, and no agency exists with the ability to act on these requests, and

WHEREAS, in the past these issues were dealt with by the Commercial Guide and Services Board, which has been decommissioned by the legislature, and

WHEREAS, continued conflict involving this issue may result in restrictions placed by federal land owners that will shift the pressure to state lands and will result in further user conflict in areas that are deemed to be crowded,

NOW THEREFORE BE IT RESOLVED that the Board of Game requests that the legislature reinstate the Big Game Commercial Services Board or delegate authority over guides, outfitters, and transporters to an existing board or agency.

ADOPTED DATE: October 26, 1998
Ketchikan, Alaska

[signed]

Lori Quakenbush, Chairman
Alaska Board of Game

VOTE: 7–0

Appendix S
Terror Lake Agreement (excerpted)

In 1981, the Terror Lake Hydroelectric Project agreement included the "Cooperative Management Agreement between the State of Alaska, Departments of Natural Recourses (DNR) and of Fish and Game (ADF&G), and the U.S. Fish & Wildlife Service (USFWS)." Accordingly, the state and USFWS agreed to eight provisions to mitigate the impact of the Terror Lake dam on Kodiak National Wildlife Refuge (KNWR) resources.

In provision 1. (a) of the agreement, the state agreed that "certain lands within the Kodiak Island Borough will be designated as replacement land to replace habitat lost to fish and wildlife within the refuge.

In 1. (b), DNR and ADF&G "recognize the desirability of establishing consensus between them on fish and wildlife management and management of other resources on the Shearwater Peninsula generally . . . ."

1 (c) states that "the state and USFWS agree that USFWS may take notice of a management agreement between DNR and ADF&G regarding management of fish and wildlife habitat and other resources on the Shearwater Peninsula for purposes of determining whether there has been appropriate mitigation of the adverse effects of the proposed Terror Lake hydroelectric project on the refuge . . . ."

The second provision of the agreement divided the Shearwater Peninsula into the "Kiliuda Bay Unit" and the "Shearwater Unit." DNR agreed to manage the Kiliuda Bay Unit "in a manner compatible with the purposes of the refuge as long as the project is in operation . . . . Specifically, DNR will manage the lands in consultation with ADF&G and USFWS consistent with the Refuge Administration Act, which defines and governs the National Wildlife Refuge System. . . ." And, "any proposed use found by USFWS to be incompatible with the refuge purposes will not be permitted."

The third provision dealt with lands designated in the Shearwater Unit and how they were to be managed by DNR and ADF&G. In 3 (a), "DNR agrees to propose under AS 38.05.300, that the majority of the land in the unit will be classified as 'wildlife habitat.'"

3 (b) states that the land classified as wildlife habitat would be in a manageable unit. "Its primary resource value will be habitat for bear, other wild animals, birds, fish, or other animals. The primary management goal will be the maintenance of the habitat's productivity, with provisions for human use of the fish and wildlife resources present." ADF&G would have a consulting role to the DNR commissioner.

3 (c) states that "if a major economic use is determined by DNR to be a higher and better use of any portion of lands within the unit classified as 'wildlife habitat,' DNR will consult with ADF&G as to the habitat protection or mitigation measures necessary. DNR agrees to institute

necessary habitat protection or mitigation measures on the lands after a written review by an interdisciplinary team using the best data practicably available. DNR further agrees to consult with USFWS on such matters because of its expertise on wildlife management in the area."

3 (d) of the agreement states that "the land disposal brochure for sale of land on the Shearwater Peninsula under the state land disposal program will include a copy of the version of the ADF&G regulations 5 AAC 81.375 in effect on the date of this agreement . . . ."

The other five provisions of the Terror Lake Agreement dealt primarily with Federal Energy Regulatory Commission licensing issues for the Terror Lake Hydroelectric Project.

Appendix T

Assessment of the Vulnerability of Habituated Bears to Sport Harvest in theKarluk Lake Vicinity of Kodiak National Wildlife Refuge, Alaska

by
Victor G. Barnes, Jr., Wildlife Forever, P.O. Box 1546, Westcliffe, CO 81252
and
Gregory A. Wilker, U.S. Fish & Wildlife Service, Kodiak National Wildlife Refuge,
1390 Buskin River Road, Kodiak, AK 99615

June 2000

I. Relevant Data Sets

1. Composition of bears identified in studies of the O'Malley and Thumb river bear viewing programs

2. Mortality of bears marked in the Southwest Kodiak study area

3. Seasonal and home ranges of bears on Kodiak Island

4. Recoveries of bears marked at Karluk Lake during 1957–1966.

II. Data Assessment

1. Composition

The number of independent (excludes offspring) bears identified during the four-year O'Malley study ranged from 57 to 63; during two years of bear viewing programs (1992–1994) the average was 62.5 bears. Composition of adult males, adult females, and subadults was 11%, 58%, and 30%, respectively. During three years (1996–1998) of study at Thumb River, 17 to 36 independent bears were identified annually; composition of bears averaged 8% for adult males, 59% for adult females, and 33% for subadults. If we assume that about half of the subadults were female (Troyer and Hensel 1969, Smith and Van Daele 1989), roughly 75% of the independent bears at O'Malley and Thumb were females.

Each year, the independent bears were classed according to their level of habituation (high, moderate, low, unknown.) During years of bear-viewing programs at O'Malley, an average of 16.5 independent bears were classed as high or moderate (tolerant of people at $\leq$50 m) and an average of 11.5 were classed as low. Some bears classed as low would undoubtedly become moderate or high habituated bears over time.

Composition of independent bears classed as moderately or highly habituated to bear viewers (bear-viewing programs) varied somewhat between the O'Malley and Thumb areas. Only two adult males became habituated over the five years of study. Among adult females, a lower percent of animals became habituated at O'Malley (n=12; 16%) than at Thumb (n=22; 42%.) Similarly, a lower percent of subadults became habituated at O'Malley (n=20; 53%) than at Thumb (n=19; 66%.) Overall, assuming male and female subadults have approximately an equal likelihood of becoming habituated, females accounted for about 72% (range = 70–74%) of the habituated bears at O'Malley and Thumb.

These composition data suggest that an assessment of vulnerability of habituated bears to sport harvest should focus on adult females. This judgment is based on the following reasons:

Females made up a high percentage of habituated bears at O'Malley and Thumb.

Subadult females tend to remain in and use large portions of the ranges of their mothers, whereas subadult males tend to disperse away from maternal ranges (LeFranc 1987.) Thus, subsequent recruitment of females into the adult population would undoubtedly maintain or increase the high proportion of habituated adult females at O'Malley.

Adult males represent a small proportion of the bear population on Kodiak Island, are unlikely to become habituated, travel widely, and are sought out by hunters because of their large size. Hence, it is biologically impractical to attempt protection for adult males.

2. Female Survival

Survival of adult female brown bears on Kodiak Island is high (Smith and VanDaele 1988, Barnes and Smith 1992, 1997a) even though they are a component of a hunted population. This is a result of protection they are afforded when accompanied by offspring, by having minimum skull size restrictions in some permit areas, and by having generally lower trophy value (small size) compared to males.

Data collected in the Southwest Kodiak study area (Barnes and Smith 1992), located immediately south and west of the Karluk Lake drainage, provide insight into vulnerability of females to sport harvest. Of 63 adult females marked during 1982–1993, nine (14%) have been taken by sport hunters and 19 (30%) are known to have died of natural causes. The estimate of natural mortality is significantly biased because of radiocollar failures during the study and completion of the study. Another 76 females were marked as offspring or subadults and 9 (11%) of those had been taken by sport hunters as of the Fall,

1999 hunting season. These data indicate that females are much more likely to die of natural causes than by sport hunting.

3. Seasonal and Home Ranges

   Ranges of brown bears on Kodiak Island are small. This is especially true of females, whose ranges are generally less than a third the size of male ranges (Barnes 1990, Smith and VanDaele 1990, Barnes 1994, Barnes and Smith 1997.) Overall, the data indicate that most adult females have annual ranges of less than 25 mi2. The largest reported mean annual range for adult females (mean = 35 mi^2) was on the Southwest Kodiak study area (Barnes 1990.) Those larger ranges were a function of summer travel between streams to feed on the diverse and abundant salmon runs of that area. Average spring and fall ranges of those females were much smaller (5–10 mi^2.) Some females radiocollared on Southwest Kodiak made occasional forays into the Karluk Lake drainage, but this use was primarily limited to a small number of animals who had exceptionally large annual ranges (mean = 81 mi^2; Barnes 1990).

   Berns et al.(1980) radiocollared a sample of brown bears on the Karluk Lake drainage and reported very small ranges for both females (4-6 mi^2) and males (9 mi^2.) They attributed the small ranges to the unusual diversity of forage, cover, and denning habitat present in the Karluk Lake drainage.

4. Sport harvest recoveries—Karluk Lake Sample

   From 1957 through 1966, Troyer and Hensel (1969) conducted an intensive capture and marking study in the Karluk Lake drainage. Most of the capture effort was focused on the Thumb and O'Malley river areas. They captured 113 females and 89 males and reported sport hunter harvest of marked bears through 1967. Twenty-six (23%) females were taken a mean distance of 2.8 mi. from their capture/release site. Just three of the females were taken outside the Karluk drainage. Troyer and Hensel (1969) recorded 12 recoveries of females marked in the southern part of Karluk Lake (Meadow Creek to Canyon Creek.) All were harvested in the same general area they were captured except one female killed in Uyak Bay and another taken near Thumb Lake.

   Males were more vulnerable to harvest and moved greater distances to kill sites; 36 were harvested a mean distance of 7.6 mi. from the capture site. Thirteen were killed outside the Karluk drainage.

III. Risk Assessment

A structured bear-viewing program at O'Malley River would result in the habituation of at least 20 bears, and that number would likely increase if the program persisted for several consecutive years (Sellers and Aumiller 1994.) A high proportion of those bears (>65%) would be females; most of the habituated males would be subadults.

The risk of sport harvest of habituated bears would essentially be limited to the Karluk drainage during the fall season. During the early part of the fall season, bears congregate in lowland areas of the O'Malley River area to feed on late-run sockeye (Troyer and Hensel 1969, Barnes 1990.) During the spring hunting season, bears are primarily feeding on vegetation; they are dispersed and generally located in mid-slope habitats (Clark 1957, Troyer and Hensel 1969, Barnes and Smith 1997b.) Thus, during spring in the Karluk Lake drainage, bears typically would not be in the areas where they habituated to people, and, because of denning, probably would be less tolerant because they would not have had recent and predictable exposure to people.

Habituated bears on stream and lakeshore areas of the O'Malley area would be tolerant of people and clearly at risk of sport harvest. The actual number of animals taken would be small because of limited permits, protection of females with offspring, and hunter selectivity for trophy animals. Realistically, the average harvest of habituated bears on the O'Malley area could be expected to be less than one per year.

Additional protection of habituated bears at O'Malley could be accomplished through changes in hunting regulations. One possibility would be regulations to discourage harvest of females. For example, female sport kills could be compensated by reducing subsequent permit allocations on a one-for-one basis in the appropriate residency category (resident, nonresident.) Because females make up such a large component of the bear population at O'Malley, this type of restriction should provide substantial protection to habituated bears. Further, subadult males would receive some measure of protection because of their relative small size.

Habituated bears could be given a high level of protection by closing a portion of the Karluk Lake drainage to sport hunting. Because the focus should be on protection of habituated females, boundaries should conform to expected movement and range of females. The data presented above indicate that an area incorporating about 30 mi^2 of the southern Karluk Lake drainage would accomplish that objective. This area would encompass the Meadow Creek, Cascade Creek, O'Malley Lake, Falls Creek, and Canyon Creek watersheds.

Finally, it should be recognized that the current sport harvest system on Kodiak Island provides for a conservative harvest of animals. The system limits harvest of females and allows for a reasonable composition of large (trophy) adult males (Barnes and Smith 1990.) One consequence of this conservative system, compared to a more intensive rate of harvest, is substantial natural mortality of adult females. If a bear-viewing program was established at O'Malley River, loss of habituated bears would primarily occur because of natural factors rather than sport hunting, regardless of what level of protection was imposed.

LITERATURE CITED

Barnes, V.G., Jr. 1990. The influence of salmon availability on movements and range of brown bears on southwest Kodiak Island. Int. Conf. Bear Res. Manage. 8:305–313.

Barnes, V.G., Jr. 1994. Brown bear-human interactions associated with deer hunting on Kodiak Island, Int. Conf. Bear Res. Manage. 9:63–73.

Barnes, V.G., Jr., and R.B. Smith. 1992. Survival and productivity of female brown bears on Kodiak Island, Alaska, and application of aerial survey methods to estimate density and composition of brown bears on Kodiak Island, Alaska—Progress report, 1992. U.S. Fish and Wildl. Serv. and Alaska Dept. Fish and Game. 14 pp.

Barnes, V.G., Jr., and R.B. Smith. 1997a. Population ecology of brown bears on Aliulik Peninsula, Kodiak Island, Alaska. Final Rep., Proj. 94237 (Natl. Fish and Wildl. Fund.) U.S. Natl. Biol. Serv. and Alaska Dept. Fish and Game. Kodiak, Alaska. 43 pp.

Barnes, V.G., Jr., and R.B. Smith. 1997b. Brown bear population assessment on the Shearwater Peninsula and Kiliuda Bay areas, Kodiak Island, Alaska. Final Rep., U.S. Natl. Biol. Serv. and Alaska Dept. Fish and Game, Kodiak, Alaska. 35 pp.

Berns, V.D., G.C. Atwell, and D.L. Boone. 1980. Brown bear movements and habitat use at Karluk Lake, Kodiak Island. Int. Conf. Bear Res. Manage. 4:293–296.

Clark, W.K. 1957. Seasonal food habits of the Kodiak bear. Trans. North Am. Wildl. And Nat. Resour. Conf. 24:337-345.

LeFranc, M.N., Jr., M.B. Moss, K.A. Patnode, and W.C. Snug III, Eds. 1987. Grizzly bear compendium. The Natl. Wildl. Fed., Washington D.C. 540 pp.

Smith, R.B., and L.J. VanDaele. 1988. Terror Lake Hydroelectric project, Kodiak Island, Alaska—Final report on brown bear studies (1982–1986.) Alaska Dept. Fish and Game. Rep. to Alaska Power Authority. 182 pp.

Smith, R.B. and L.J. VanDaele. 1990. Impacts of hydroelectric development on brown bears, Kodiak Island, Alaska. Int. Conf. Bear Res. Manage. 8:93–103.

Sellers, R.A. and L.D. Aumiller. 1994. Brown bear population characteristics at McNeil River, Alaska. Int. Conf. Bear

Troyer, W.A., and R.J. Hensel. 1969. The brown bear of Kodiak Island. U.S. Fish and Wildl. Serv., Kodiak, Alaska. 233 pp.

Appendix U

Policy for Statewide Salmon Escapement Goals

(5 AAC[44] 39.223)

(a) The Department of Fish and Game (department) and the Board of Fisheries (board) are charged with the duty to conserve and develop Alaska's salmon fisheries on the sustained yield principle. Therefore, the establishment of salmon escapement goals is the responsibility of both the board and the department working collaboratively. The purpose of this policy is to establish the concepts, criteria, and procedures for establishing and modifying salmon escapement goals and to establish a process that facilitates public review of allocative issues associated with escapement goals.

(b) The board recognizes the department's responsibility to

(1) document existing salmon escapement goals for all salmon stocks that are currently managed for an escapement goal;

(2) establish biological escapement goals (BEG) for salmon stocks for which the department can reliably enumerate salmon escapement levels, as well as total annual returns;

(3) establish sustainable escapement goals (SEG) for salmon stocks for which the department can reliably estimate escapement levels when there is not sufficient information to enumerate total annual returns and the range of escapements that are used to develop a BEG;

(4) establish sustained escapement thresholds (SET) as provided in 5 AAC 39.222 (Policy for the Management of Sustainable Salmon Fisheries);

(5) establish escapement goals for aggregates of individual spawning populations with similar productivity and vulnerability to fisheries and for salmon stocks managed as units;

(6) review an existing, or propose a new, BEG, SEG and SET on a schedule that conforms, to the extent practicable, to the board's regular cycle of consideration of area regulatory proposals;

(7) prepare a scientific analysis with supporting data whenever a new BEG, SEG, or SET, or a modification to an existing BEG, SEG, or SET is proposed and, in its discretion, to conduct independent peer reviews of its BEG, SEG, and SET analyses;

(8) notify the public whenever a new BEG, SEG, or SET is established or an existing BEG, SEG, or SET is modified;

(9) whenever allocative impacts arise from any management actions necessary to achieve a new or modified BEG, SEG or SET, report to the board on a schedule that conforms, to the extent practicable, to the board's regular cycle of consideration of area regulatory proposals so that it can address allocation issues.

(c) In recognition of its joint responsibilities, and in consultation with the department, the board will

(1) take regulatory actions as may be necessary to address allocation issues arising from implementation of a new or modified BEG, SEG, and SET;

[44] Alaska Administrative Code

(2) during its regulatory process, review a BEG, SEG, or SET determined by the department and, with the assistance of the department, determine the appropriateness of establishing an optimal escapement goal (OEG); the board will provide an explanation of the reasons for establishing an OEG and provide, to the extent practicable, and with the assistance of the department, an estimate of expected differences in yield of any salmon stock, relative to maximum sustained yield, resulting from implementation of an OEG.

(d) Unless the context requires otherwise, the terms used in this section have the same meaning given those terms in 5 AAC 39.222(f).

History: Eff. 6/22/2001, Register 158

Annotations

Authority: AS 16.05.251

Appendix V

Responses of Brown Bears to Human Activities at O'Malley River, Kodiak Island, Alaska

(Wilker and V. G. Barnes Jr. 1998)

GREGORY A. WILKER, U.S. Fish & Wildlife Service, 1390 Buskin River Road, Kodiak, AK 99615, USA
VICTOR G. BARNES, Jr., U.S. National Biological Service, 1390 Buskin River Road, Kodiak, AK 99615, USA

Abstract: We classified levels of direct response of brown bears (*Ursus arctos middendorffi*) to aircraft, watercraft, and groups of people on the O'Malley River area of Kodiak Island, Alaska. General public use occurred on the area in 1991 and 1993, whereas structured bear-viewing programs used the area in 1992 and 1994. Brown bears displayed high (running) or moderate (walking away) response on 18 (48%) occasions when fixed-wing aircraft flew over the animals <100m above ground. Three of four helicopter flights <200 m overhead and nine interactions with watercraft at $\leq$ 200 m distance also elicited strong response. Encounters between people and bears resulted in strong responses from bears more frequently (37%, n = 134) during years of general public use than in years of structured bear viewing (6%, n = 72, P <0.0001). We suggest that higher levels of low or neutral response by bears to encounters with guided bear-viewing groups was the result of consistent and predictable patterns of human activity.