

4. Harvest Issues

Synopsis: Residents and visitors harvest a variety of fish, wildlife, and plant resources on the Kodiak archipelago. All of these resource-extraction activities are interrelated with bears. Management of the harvest of Kodiak bears is currently based primarily on population assessments and regulation of sport hunting. With a healthy population of bears on the archipelago, the emphasis has been on maintaining a stable bear population that will sustain an annual harvest of 150 bears, composed of at least 60 percent males. Subsistence harvest of bears is presently managed by the U.S. Fish & Wildlife Service. Subsistence hunting permits are allocated each year: one in Akhiok, one in Karluk, three in Larsen Bay, two in Old Harbor, two in Ouzinkie, and two in Port Lions. Sport hunting of bears in Game Management Unit 8 (Kodiak archipelago) is regulated by a complex system involving drawing hunts and registration hunts. Nonresident bear hunters are required to use the services of a registered big-game guide. The Citizens Advisory Committee (CAC) makes recommendations on a number of harvest issues, including the following: management of bear-harvest activities, subsistence use of bears, sport hunting, guiding, other resource-extraction activities, and regulations and their enforcement.

The Kodiak archipelago offers many opportunities to harvest a variety of resources. Residents and visitors hunt deer, elk, mountain goats, and bears. Commercial fishing and sport fishing are major industries on the archipelago. Berries and other vegetation are regularly harvested by urban and rural residents.

Bear hunting has the most obvious direct impact on the bear population, but all of these harvest activities are interrelated with bears. Bears share many food resources (such as salmon and berries) with humans, and humans harvesting resources in bear habitat may lead to bear-human encounters resulting in injuries or death for either party. Thus, to prepare a management plan for Kodiak bears, all types of harvesting activities and issues are taken into consideration. These include subsistence use of bears; regulations governing hunters; the roles of guide/outfitters and transporters; the impacts of other resource extraction (i.e., harvest of other fish, vegetation, and wildlife); enforcement of regulations; population assessments and monitoring; the various natural habitats and their carrying capacities; and the needs and desires of human residents that define the wildlife-acceptance capacity⁷.

4.1 Current Management of Bear-Harvesting Activities

Hunting of bears on the Kodiak archipelago has a historical, customary, and traditional role in bear population management. Kodiak has maintained a stable to increasing population of bears in part because of management policies and regulations addressing bear harvesting on the

⁷ reflects the maximum wildlife population level in an area that is acceptable to people (Decker and Purdy 1988)

archipelago. In some areas near the City of Kodiak and around some villages on the archipelago, the population of bears has been perceived as increasing to the point of concern.

Management of the harvest of Kodiak bears is currently based primarily on population assessments and regulation of sport hunting. With a healthy population of bears on the Kodiak archipelago, the emphasis has been on maintaining a stable bear population that will sustain an annual harvest of 150 bears, composed of at least 60 percent males. When there is a need to reduce the bear population in a specific area, and thus reduce the incidence of killing bears in defense of life or property (DLP), hunter harvest is the preferred method. During the past decade (1990–1999), hunters harvested an average of 160 Kodiak bears each year under tightly controlled regulation. (For further description of Kodiak’s bear-management, see section 2.3.)

Present management concerns include the following:

- Are DLP mortalities being accounted for accurately?
- Are the allocations among users appropriate to current needs and desires?
- Although the natural carrying capacity of bear habitat is not being strained, is the wildlife-acceptance capacity being exceeded in any area of the archipelago?
- Is there a need to reduce the number of bears in any specific localities?
- Can population data be improved to keep harvest rates commensurate with bear densities?

4.1.1 Recommendations on Management of Bear-Harvesting Activities

- Endorse Alaska Department of Fish & Game’s (ADF&G’s) current bear-management objectives, as modified by recommendations made by the CAC in this management plan (also see chapter 5, “Redefining Bear-Management Strategy”).
- Continue to prohibit the baiting of bears throughout the Kodiak archipelago.
- Manage bear populations on carrying capacity and density as well as on harvest objectives (see chapter 5, “Redefining Bear-Management Strategy”).
- Recommend that ADF&G refine population estimates in order to maintain a bear population that can sustain a 6 percent annual sport harvest (see chapter 7, “Research and Monitoring”).
- Develop a co-management agreement with villages to reduce DLPs (see section 6.2) in and around villages and to provide economic incentives to conserve bears; this would include expansion of bear-safety practices, solid-waste management, encouraging Natives to become registered big-game guides, and consideration of bear-hunting permits in areas adjacent to villages.
- ADF&G, U.S. Fish & Wildlife Service (USFWS), and other appropriate groups should develop informational and educational materials to help minimize bear-human conflicts and thereby improve hunter image. These materials should be developed for multimedia use and include the following subjects (see chapter 8, “Education”):

- trip planning and physical conditioning
- meat handling and storage skills
- bear behavior and safety
- a safety-in-bear-country video for wide distribution and use

4.2 Subsistence Use of Kodiak Bears

Alutiiq residents of the Kodiak archipelago harvested bears for subsistence purposes for more than 7,000 years without external regulation, until 1925. In that year, however, the Alaska Game Commission developed a harvest limit of three bears per year; and, in 1926, bear harvesting was prohibited during the summer months, except in DLP situations.

When Alaska became a state in 1959, the state government took over management of wildlife, including regulating harvest of bears. The first specific subsistence hunting regulations for Kodiak bears were developed by the state in 1985, when the Alaska Board of Game established a registration permit hunt. Because Alutiiq hunters believed it was illegal to hunt for bear, they did so without completing the required paperwork. Consequently, the substantiation of that practice was not available, and ADF&G determined, in 1987, that there was no customary and traditional use of Kodiak bears. Since then, subsistence bear hunting has not been allowed under state regulations.

In 1990, management authority for subsistence activities was assumed by the federal government (USFWS). The subsistence bear hunt was reinstated under federal management in 1997, when interviews with Alutiit confirmed the continued subsistence use of bears. At that time, the Federal Subsistence Board determined a customary and traditional use of bears by villages on the Kodiak archipelago and established subsistence hunting regulations for Kodiak bears.

Currently, USFWS manages subsistence activities on federal lands. Subsistence hunting permits for Kodiak bears are available through the Kodiak National Wildlife Refuge (KNWR) each year as follows: one in Akhiok, one in Karluk, three in Larsen Bay, two in Old Harbor, two in Ouzinkie, and two in Port Lions. The subsistence hunting seasons are December 1–15 and April 1–May 15.

4.2.1 Recommendation on Village Subsistence Use of Kodiak Bears

- Continue to provide opportunities for subsistence uses of bears by local residents, consistent with conservation provisions essential to sustain the resource.

4.3 Sport Hunting of Kodiak Bears

Regulation of bear hunting on the Kodiak archipelago is complex, probably the most complex regulatory system in Alaska. Game Management Unit 8 (GMU 8), which comprises the Kodiak archipelago, is divided into 30 hunt areas. Drawing permits are needed to hunt in 29 of these areas; hunting in the final area, which is along the Kodiak road system on northeastern Kodiak Island, is by registration permit.

There are two seasons for hunting bears in GMU 8: fall (October 25 through November 30) and spring (April 1 through May 15). The individual bag limit for all areas is one bear every four years, and cubs or sows accompanied by their cubs cannot be taken. All bear hunters receive a brief orientation from ADF&G staff prior to going afield; hunters must also contact ADF&G to check out of the field after their hunts. All bears killed in GMU 8 must be inspected and sealed by ADF&G staff in Kodiak within 30 days of the end of the season. A resident hunter must have a hunting license and a bear tag. Nonresident hunters for Kodiak bears must meet the additional requirement of hunting with a registered guide (see section 4.4).

Poaching of Kodiak bears is not common in part because it is difficult to access hunt areas without the services of air taxi or charter boat operators, who take great responsibility for reporting the hunting activities of their clients. Another reason is the prevalence and diligence of Division of Fish & Wildlife Protection and of KNWR law enforcement officers (see section 4.6).

4.3.1 Drawing Hunts

Hunting for bears in areas where hunter demand exceeds the number of animals available for harvest is regulated by drawing permits.

To hunt in one of the 29 areas governed by drawing permits, a hunter must first select the area and the season in which to hunt. A hunter may apply for permits in as many as three areas for each season. A certain number of permits are allocated for each hunt area for each season, with at least 60 percent of the permits going to Alaska residents. An application for a drawing permit requires a hunting license and the appropriate application fee. The overall odds of being drawn are 5 percent; in some popular areas, such as around Karluk, the odds are about 2 percent, whereas odds for being drawn for a hunt on Afognak Island are closer to 6 percent.

If a hunter's application is drawn, he or she must come to Kodiak to obtain the permit. The hunter must personally speak with the area biologist, the wildlife technician, or the administrative clerk in the Kodiak ADF&G office. After showing a valid hunting license and bear tag, the hunter receives the permit. To do so, the hunter must sign a form agreeing to all the regulations governing its use (including provisions such as not shooting on the same day as flying in to the area). The hunter then chooses and declares a 15-day period within which to use the permit to hunt Kodiak bear in the specific hunt area. No guide is required for resident hunters, although some choose to use the services of guides to ensure a more successful hunt.

After the 15-day hunting period has ended, the hunter must return to the ADF&G office in Kodiak, bringing the hide and skull of the killed bear for sealing by the area biologist or assistant. If the hunter is unsuccessful, a phone call is sufficient for checking out; hunter report cards, however, must be returned within 15 days.

Nonresident hunters must meet other requirements, the primary one being that, to hunt, she or he must have a licensed guide. The hunter can be guided by someone of second-degree kindred (e.g., sibling, uncle or aunt, father or mother) or the hunter may hire a professional guide (see section 4.4).

Each registered or master guide in Alaska can select as many as three guide-use areas within the state in which to guide hunters. A hunter can select any of these guides, unless the hunt is to take place on KNWR. A hunter who wins a permit to hunt in an area on the refuge must select one of the guides who is permitted to guide in that area. If for some reason the hunter does not wish to use a guide who is authorized for that hunt area, the permit is forfeited.

If a nonresident wins a permit in the drawing and decides not to take it, the permit goes to an alternate applicant. If the alternate also declines the permit, it is then issued on a first-come, first-served basis to a person who has a signed agreement between a guide and the client. This provision is designed to ensure that professional guides do not lose business if an application is submitted frivolously.

When a nonresident hunter is successful, he or she is required to check out and return the hunt report to ADF&G. The hunter may bring the hide and skull to ADF&G for sealing or leave it in the field with the guide, who may bring in several bears for sealing at one time.

4.3.2 Registration Hunts

Hunting in areas (e.g., northeastern Kodiak), where more bears may be harvested, is regulated by registration permit.

To get a registration hunt permit, however, the hunter must come to ADF&G's Kodiak office. In a registration hunt, the number of permits is unlimited, but successful hunts must be reported and the hide and skull brought in for sealing within five days of the kill. Unsuccessful hunters report by mail within 15 days of the close of season. Registration hunts have the same requirements for use of guides as do drawing hunts.

4.3.3 Recommendations about Sport Hunting of Kodiak Bears

- Maintain the tradition of bear hunting, consistent with the conservative management and regulatory regime that avoid overharvest of the resource.
- Maintain the tradition of bear hunting, consistent with the highest ethical standards of safety and fair chase.
- Ensure that all hunters are provided with the Boone & Crockett fair-chase statement⁸ and that it is printed on all ADF&G and USFWS materials relating to hunting, as appropriate (see also Appendix C).
- If reductions in harvest are necessary, consider ways of reducing the female harvest prior to reducing permit numbers (i.e., skull-sex minimums in southwestern Kodiak).
- To better achieve wildlife-acceptance capacity (see section 5.3) along the Kodiak road system, increase bear harvest by extending the spring bear-hunting season to May 31.

⁸ Fair Chase, as defined by the Boone and Crockett Club, is the ethical, sportsmanlike and lawful pursuit and taking of any free-ranging wild, native North American big-game animal that does not give the hunter an improper advantage over such game animals.

4.4 Big-Game Guides, Outfitters, and Transporters

Big-game hunting is a significant business on the Kodiak archipelago, especially hunting for Kodiak bears, and many big-game hunters that do not live on the archipelago make use of guides or transporters. No one may accept payment for providing a big-game hunting service (such as guiding) without having the appropriate license.

4.4.1 Guides and Outfitters

Nonresident bear hunters are required to use a guide (see section 4.3), and some residents also choose to avail themselves of the expertise and experience a guide offers. Because guided bear hunts provide a source of significant income to not only the guide, but to the community as a whole, these animals are of considerable economic value to Kodiak. To legally contract to provide big-game hunting services for clients, guides must fulfill stringent requirements to be licensed by the Alaska Department of Community and Economic Development, Division of Occupational Licensing.

Four levels of guide licenses can be earned: assistant guide, class-A assistant guide, registered guide, and master guide (one must have a guide's license in order to be an outfitter for big-game hunts.)

An applicant for an **assistant guide** license has to have hunted legally in the state during two calendar years and must have a written recommendation from a registered guide or other qualified person (as described in AS 08.54.630). An assistant guide may not contract to guide or outfit a big-game hunt, but must be employed by a registered guide and under the supervision of either a registered guide or a class-A assistant guide while in the field. Further, an assistant guide may not take charge of a camp or conduct guide activities unless the contracting registered guide is in the field and participating in the contracted hunt.

The **class-A assistant guide** license requires at least three years' experience as an assistant guide or 10 years' hunting experience in Alaska and a written recommendation from an appropriate source. A class-A assistant guide cannot contract to guide or outfit a big-game hunt; he or she must be employed by and work under the supervision of a registered guide. However, the class-A assistant guide may take charge of a camp and conduct guide activities from the camp without the contracting guide being present in the field.

To become a **registered guide**, a person must have significant practical field experience in a number of relevant activities. He or she must also pass a qualifying examination (*or* have 25 years' experience as a class-A assistant guide or class-A assistant guide/outfitter), have hunted in the state for part of each of any five years, and have three years' experience as a class-A assistant guide or class-A assistant guide/outfitter. In addition, the applicant must pass a certification examination prepared specifically for at least one game management unit. She or he must also have been favorably recommended by eight big-game hunters and must show proof of financial responsibility.

To become a **master guide**, one must be licensed as a registered guide for at least 12 of the last 15 years. He or she must submit a list of at least 25 clients for whom guiding or outfitting services have been provided, and must have received favorable evaluations from at least ten of

them. A master guide may contract to guide or outfit hunts for big game and may provide transportation services. When the master guide contracts for a guided hunt, he or she must be physically present in the field with the client at least once during the contracted hunt.

The preceding paragraphs describe only a portion of the requirements that guides must meet to be licensed. Their licenses are evidence of extensive experience, skill, and value to their clients, and the penalties for not adhering to the legal requirements of their professional licenses are severe.

4.4.2 Transporters

A transporter is licensed to provide transportation, lodging, and similar services to the hunter but is not allowed to perform big-game guiding services. By the same token, a transporter cannot call him or herself an outfitter. Licensed transporters cannot set up tents in the field for hunters; they must own cabins and rent them or provide services from them. Further, if a transporter wishes to use a plane, she or he must also have an air taxi operator's license; to transport hunters by boat, a license from the USCG is needed.

A licensed guide may act as a transporter in his or her own guide-use areas, but to take clients outside those areas, she or he must have a transporter license.

4.4.3 Guides in GMU 8

As of January 2001, there were 82 master guides and 498 registered guides in the state. Of these, 39 guides were registered to guide in guide-use areas in GMU 8. Guides may be registered in as many as three guide-use areas within the state, and several guides on the Kodiak archipelago have all three of their registered guide-use areas within GMU 8.

4.4.4 Guiding on the Kodiak National Wildlife Refuge

Guiding for both big-game hunts and sport fishing on the refuge is very complicated. Guides must secure special-use permits from USFWS. The fee for such a permit includes a flat administrative fee and a per client-use day charge for time spent in the field with the client. Within the refuge, the guide-area boundaries of GMU 8 correspond with refuge permit areas. (In addition to the 21 big-game guide areas on KNWR, portions of nine areas on state land on the archipelago are also open to registered guides.)

See Appendix D for a description of the big-game guide permitting process on KNWR.

4.4.5 Alaska Professional Hunters Association

The Alaska Professional Hunters Association (APHA) is an organization of professional guides in Alaska. Members of APHA subscribe to a fair-chase code of ethics (see Appendix C for the APHA's Code of Ethics). In the absence of the Guide Board, which was disbanded by the state legislature in 1994, APHA attempts to police its profession by ensuring that those who are convicted of violating state or federal laws regarding wildlife or the guiding profession cannot be members of APHA.

4.4.6 Alaska Native Big-Game Guides

Guiding brown-bear hunters has been an important economic and social activity for some individuals in every community on the Kodiak archipelago. With the beginning of the brown-bear expeditions in the early 1900s, professional hunters and guides, with their clientele, enlisted the help of Alutiiq hunters because of their local knowledge of weather, terrain, and bear habits. These village hunters were employed as packers and guides, and many went on to become licensed as class-A or assistant guides. Some worked toward acquiring registered guide licenses and established their own businesses. Eli Metrokin was probably the first Alutiiq on Kodiak to receive his registered guide license. He was followed in the late 1940s–60s by Roy Madsen, Leonard Helgason, Nick Nekeferoff, and Larry Matfay.

A strong tradition of passing the interest in guiding bear hunters to the next generation is evidenced by the following Old Harbor family: Moses Naumoff trained his son-in-law Larry Matfay, who in turn trained Ralph Christiansen and his sons David and Wesley. This extended family interest and involvement in guiding bear hunters continues today. Leonard Helgason, with roots to Afognak village, was taught to hunt bears by “Uncle Bill” Baumann. Leonard’s son Steven received his registered guide license during the 1990s.

Nick Malutin and Griska Nicholi were the village hunters in Karluk village. Both went on to guide extensively for Charlie Madsen. Other well-respected Native bear guides were the Panamaroff brothers, Alex, Walter, and Lawrence; Johnny Aga; Frank Noya; Oscar Alpiak; William Ambrosia; Fred and Bill Kvasnikoff; and others. All held class-A or assistant guide licenses and, over the years, have contributed a great deal to the character and uniqueness of the Kodiak bear-hunting experience. Willie Eluska and Bill Agnot, from Akhiok, guided for many years for Bill Pinnell and Morris Talifson at Olga Bay, as did Minni and Ephriam Agnot to a lesser extent. Herman Malutin, Jeff Peterson, Johnny Parker, and others are currently licensed as class-A assistant guides; David Christiansen was scheduled to take the registered guide licensing exam in winter 2001-2002.

Alaska Village Initiatives (AVI) has formed the Village Wildlife Conservation Cooperative (VWCC) for the purpose of providing rural land owners with education and advocacy on private-land wildlife-habitat management. The VWCC will focus on the enhancement or recovery of subsistence and sport hunting wildlife from private lands and will provide assistance for eco-, adventure- and watchable-wildlife tourism. As part of this effort, The VWCC is working with APHA to develop a cooperative approach to increasing the number of Native registered guides in the business and to dealing with access and trespass issues on private lands.

4.4.7 Recommendations Relating to Guiding

- Strongly support the restrictive guide system currently in use on federal lands of the Kodiak archipelago and encourage reinstatement of this system on other lands.
- Support the Alaska Board of Game resolution 98.127, 1998, (see Appendix R) requesting reinstatement of the Big-Game Commercial Services Board.
- Encourage guides/outfitters and transporters to make bear-safety educational materials available to elk hunters.

4.5 Other Resource Extraction

4.5.1 Sport Hunting

In addition to Kodiak bears, three primary big-game species are hunted on the Kodiak archipelago: Sitka black-tailed deer, Roosevelt elk, and mountain goats. Goat hunting does not usually bring hunters into conflict with bears because fewer hunters are afield during hunting season (approximately 150 goat hunters compared to 4,000 deer hunters), the terrain in which goats are hunted is more open, and smaller amounts of meat from the kill are available for bears.

Deer hunting and elk hunting, however, present increased opportunities for bear-human interactions and DLP killing of bears (see section 6.2 for more information about DLPs).

4.5.1.1 Deer Hunting

Sitka black-tailed deer populations on Kodiak Island reached peak numbers in the 1980s. At that time, there were more than 100,000 of the animals on the island, and some 13,000 deer were taken by hunters each year. The deer population in 2001 was down to approximately 40,000, and annual harvest was down to approximately 2,000 animals. Deer occur throughout the Kodiak archipelago, and efforts are being made to rebuild the population after the severe decline in the late 1990s.

Seventy percent of the harvest is taken during November and December, 20 percent is taken in October, and the remaining 10 percent is taken during the rest of the hunting season (there are three hunting seasons). At its spring 2001 meeting, the Alaska Board of Game changed state regulations to allow hunters to harvest a maximum of three deer (down from four) in GMU 8. Federal subsistence regulations allow residents of GMU 8 to take deer on federal lands within the archipelago (except on the road system). Subsistence harvest limits sometimes differ from state regulations. Federal subsistence regulations on Kodiak only pertain to lands managed by USFWS; state, Native corporation, private, borough, and municipal lands are not included in these liberalized restrictions.

The impact of deer hunting on Kodiak bear behavior and mortality can be significant. When there was a high level of deer hunting, there was an increase in the number of DLP mortalities of bears and requests to reduce deer hunting to protect bears.

4.5.1.2 Elk Hunting

Roosevelt elk, which were introduced to Afognak Island in 1929, now occur on Kodiak, Afognak, and Raspberry islands. In 1959, there were approximately 1,500 elk. As of January 2001, there were about 900 animals. Approximately 650 hunters come to Kodiak each year to hunt for elk.

In 1998, the Federal Subsistence Board opened a subsistence elk hunt September 1–25 on KNWR lands on northwestern Afognak Island, within the traditional range of the Waterfall elk herd. In 1999, the season was liberalized to extend through November 30. Hunters were limited to GMU 8 residents, and access was limited to marine waters only in 1998 and 1999. In 2000, the access restriction was rescinded.

Many hunters are not familiar with hunting Roosevelt elk, the Pacific Northwest subspecies of elk that inhabit the northern portion of the Kodiak archipelago. Roosevelt elk are larger than the more common subspecies (the Rocky Mountain elk), are generally difficult to hunt, and are often found in the most remote parts of the archipelago. Successful hunters may be faced with transporting significant amounts of game meat over long distances or rough terrain without the aid of all-terrain vehicles or pack animals. Several trips are required to salvage all of the meat of a large elk. As a result, many elk hunters fail to salvage all of the meat. Salvaging meat over the course of days has additional negative impacts because bears are frequently attracted to the kill sites in a short time. Encounters between bears and hunters returning to the kill site or meat caches may result in DLP situations.

4.5.1.3 Recommendations about Sport Hunting

- Urge ADF&G to continue to track the number of bears killed by deer, elk, and goat hunters to minimize such bear mortality and to make a serious effort to mitigate this problem through education of big-game hunters on how to avoid dangerous situations involving bears (see also chapter 8, “Education,” and chapter 7, “Research and Monitoring”).
- Require mandatory hunter education, which should include bear-safety instruction, before going afield in GMU 8 (see chapter 8, “Education”).
- Encourage hunters to quickly remove kill meat to a safe distance from the kill site (see also chapter 8, “Education”).
- Using the ADF&G Web site and brochures, educate hunters about terrain issues (see also chapter 8, “Education”).
- ADF&G develop other educational tools (e.g., videos using local people) to educate hunters about hunting in bear country (see also chapter 8, “Education”).
- Submit an article about hunting on Kodiak (written by Hank Pennington) to a sporting magazine (see chapter 8, “Education”).
- Place educational materials in places (or with people) where they can be readily accessed (e.g., Web site, airport, magazines, tourism offices, U.S. Coast Guard (USCG) base, villages, guide/outfitters, public libraries, schools, museums, ferries, tribal council offices, Fish & Wildlife Protection officers, Alaska State Park offices and state parks staff, public radio, and television) (see also chapter 8, “Education”).
- Recommend strongly that elk hunters hunt in groups or teams.
- Limit the harvest of deer to the number of animals the hunter can handle.
- Encourage hunters to promptly gut the harvested animal and move it to a safe, visible location.
- Encourage hunters to store meat responsibly so it won’t attract bears (e.g., high in trees, within electric fences); use of mini-electric fences is advised.
- Encourage hunters to be aware of carcasses or gut piles from animals harvested by others.

- Urge ADF&G, USFWS, and other appropriate groups to develop educational materials to eliminate conflicts between deer hunters and bears (e.g., how to handle meat, safety, location, bear posture) (see also chapter 8, “Education”).

4.5.2 Commercial Fishing

As well as being an important element of Kodiak bears’ diet, salmon are the mainstay of Kodiak’s commercial fishery. The commercial fishery’s Kodiak Management Area (KMA) encompasses waters surrounding the Kodiak archipelago. The KMA comprises seven districts and 52 sections around the Kodiak archipelago and along the coast of the Alaska Peninsula that borders Shelikof Strait. The KMA includes approximately 700 streams on the Kodiak archipelago in which salmon migration or spawning has been documented. Figure 4-1 shows the canneries and sockeye enhancement, weir, and hatchery locations of the KMA in 2000.

The salmon resources of the KMA have been used commercially for more than 150 years by setnetters, gillnetters, and seiners (fish traps were outlawed in 1959, when Alaska gained statehood). A limited entry system, initiated by the state in 1974, restricted the number of individuals allowed to participate in the commercial salmon fisheries. This system formally established maximum numbers by specific gear type by area that could participate annually; it is administered by the Commercial Fisheries Entry Commission. Currently, there are 608 commercial salmon permits for the KMA.

Commercial harvest limits are controlled by opening and closing fishing periods based on the achievement of escapement goals. Because sport anglers, subsistence users, and Kodiak bears also share use of the salmon resources, it is imperative that escapements be closely monitored and managed to ensure that maximum production levels are maintained.

Biological escapement goals (BEG) set the number of spawning salmon required to sustain maximum production levels for each salmon species. The KMA commercial salmon fisheries are managed to achieve escapement levels that are within the BEG range. The majority of all sockeye and all chinook salmon escapement counts are obtained with the use of weirs, which have been used in as many as 18 different spawning systems.

The KMA staff issues subsistence salmon permits annually to obtain harvest data. Only residents of the State of Alaska are eligible to take salmon for subsistence purposes. With few restrictions, the entire KMA is open to subsistence salmon fishing. Reported subsistence harvests have averaged more than 31,100 fish annually for the 10-year period 1991–2000. Sockeye salmon accounts for more than 70 percent of that harvest. In addition to state subsistence regulations, there are federal subsistence regulations that apply to the federal lands and waters located within the KMA. Alaskans who reside in the Kodiak Island Borough, except those residing on the U.S. Coast Guard Base, are qualified for participation in the federal subsistence fishery.

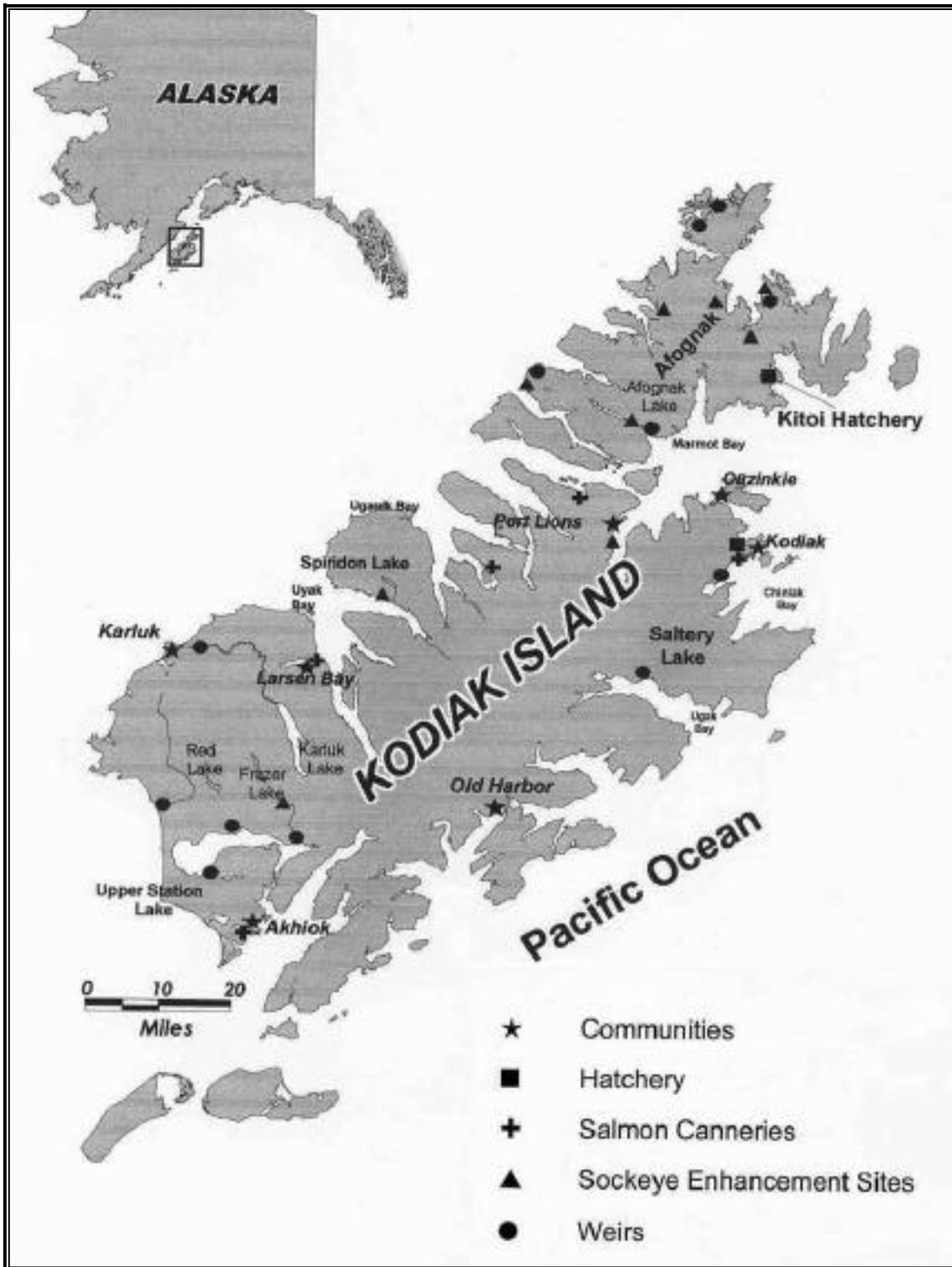


Figure 4-1. Kodiak Island's communities, canneries, and sockeye salmon–enhancement, weir, and hatchery locations of the Kodiak Management Area (2000)

Commercial fishing and processing can account for as much as 55 percent of the private sector work force (according to 1991 figures) of the approximately 14,000 people who reside within the KMA. During the commercial salmon fishing season (approximately June through September), as many as 5,000 people may be directly involved in harvesting, tendering, or processing.

A regional planning team (RPT) plans for the long-term future of the salmon resource within the region. The RPT's primary responsibility is to initiate and continue an orderly process that examines the full potential of the region's salmon production capacity. To accomplish this, the RPT develops a comprehensive salmon plan for the region it represents. Phase II of the Kodiak Regional Comprehensive Salmon Plan 1982–2002 was developed by the Kodiak RPT in March 1992.

4.5.2.1 Recommendations Regarding Commercial Fishing

- Salmon escapement goals should continue to allow for natural predation by bears and other wildlife (see Appendix F, “Principles and Criteria for Sustainable Salmon Fishing,” and Appendix U, “Policy for Statewide Salmon Escapement Goals”).
- Continue evaluating species-specific salmon escapement levels against drainage-specific bear use of salmon; investigations should emphasize an ecosystem overview (e.g., salmon BEG rather than bear densities) (see chapter 3, “Kodiak Bear Habitat” and chapter 7, “Research and Monitoring”).
- Continue monitoring salmon escapement trend data and subsequent species-specific productivity; evaluate salmon harvest strategies for all human user groups. (see Appendix F, “Principles and Criteria for Sustainable Salmon Fishing”).

4.5.3 Sport Fishing

Sport-fishing activities are managed by ADF&G's Sport Fish Division. Sport fish salmon harvest estimated for the Kodiak archipelago includes both guided and unguided angling. Although the sport-fishing harvest is a relatively small percentage of the total return or harvest of salmon, from 1977 through 1998 an overall increasing trend was evident in the total number of salmon reported as harvested by anglers; this was due primarily to increases in the harvest of sockeye, chinook, and coho salmon. Reported annual harvests have ranged from 327 to 5,221 chinook; 1,255 to 12,505 sockeye; 4,716 to 29,456 coho; and 5,336 to 19,044 pink salmon. Annual sport harvests of chum salmon are generally less than 1,000.

The primary conservation burden to ensure that salmon escapement goals are achieved is placed on the commercial net fisheries by means of in-season restrictions. Additional restrictions have been placed on sport salmon fisheries along Kodiak Island's road system and, although it has not been necessary in the past, could be placed on additional system-specific sites as needed.

Approximately half of sport fishing on the Kodiak archipelago takes place in salt water, for halibut. Of the remaining half, about 68 percent takes place in streams along the road system on northeastern Kodiak Island. In 1999, anglers expended approximately 115,000 days of effort, of which less than 20,000 were spent in remote sport fishing.

It is with remote sport fishing, however, that most bear-human conflicts arise because of the extended presence of and camping by anglers in bear habitat. Anecdotal information indicates that the two areas in which most problem interactions between bears and anglers occur are on the Karluk River, concentrated around the portage and fish weir area, and on the Ayakulik River, where Bare Creek connects with the Ayakulik River.

In these two areas, bears do not normally seek fish. Except for food brought in by anglers and cleaned fish or fish carcasses, there is little reason for bears to remain in the area when humans are not present. However, when many anglers are concentrated in an area for a period of time, they make available easy food for bears. This convenient food supply draws bears to the sport-fishing sites and may result in bear-human conflicts. Although efforts have been made to frighten bears away by shooting them with rubber bullets, such deterrents do not seem sufficient to keep the bears away from the easy food source.

Implementation of the CAC's recommendations (see section 4.5.3.1) to accommodate anglers (e.g., hardening campsites⁹, securing food storage, providing angler education) will likely solve many of the bear-human conflicts that have been occurring.

At the present time, Koniag, Inc., lands adjacent to the Karluk River are subject to a nondevelopment easement granted by Koniag. The current agreement limits large-scale development and habitat alteration by Koniag on its land. After October 15, 2002, a new conservation easement granted by Koniag will go into effect. The most significant aspect of that easement is the agreement to limit the number of users of the uplands. While the easement does not limit the subsistence use of the lands by the residents of Karluk and Larsen Bay, all other users, including subsistence users from other areas, will be subject to the terms of the easement.

Under the proposed easement, USFWS will conduct a study to determine the appropriate angler handling capacity of the river. Until the study is completed, an interim level of use of 70 users per day would be in effect for the period June 10 through July 15. All commercial use of the uplands is reserved to Koniag and its licensees.

The right of the general public to use the bottom of the Karluk River is presently disputed. While the United States conveyed the Karluk River bottom to Koniag as part of its conveyances under Alaska Native Claims Settlement Act (ANCSA), the State of Alaska has asserted that it holds title to the river bottom. Irrespective of the status of the river's bottom, at the present time, there is no fishing from or other permitted use of the uplands without the owner's permission. While there are 17(b) easements near the river, by law their use is limited to travel-related use only, and they can not be used for fishing. The location of these easements also precludes their use for fishing without trespassing on the private lands.

On the Ayakulik River, there are no cabins; anglers camp in tents. Problems do not develop immediately when the sport fishery opens, but bears become a problem later on in the season. The Division of Sport Fish has recommended to KNWR staff that food caches be established. In 2000, USFWS put up electric fences within which campers could stash their food supplies; this

⁹ A "hardened" campsite is one 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.

reduced the problems. During the 1990s, on the Kodiak archipelago, anglers shot two bears in DLP situations. Both of these incidents occurred on the Ayakulik River. Although other DLP mortalities of bears may be attributed to anglers, they have not been recorded.

Kodiak National Wildlife Refuge did a three-year study in the early 1990s on the interaction of bears and humans along the Ayakulik River. This study could not demonstrate any long-term harm to bears from the presence of anglers.

The Division of Sport Fish strives to provide a diversity of experience for anglers. If anglers are elbow-to-elbow, the experience may not meet anyone's desires for quality. The division is presently engaged in a study of what anglers want in terms of a quality experience on the Situk River, near Yakutat. The Board of Fisheries has the authority to limit the harvest of fish but not the authority to reduce the number of anglers at any one place or time.

Guiding requirements for sport fishing are very different from those for big-game hunting; a sport-fishing guide has only to register with ADF&G. Sport-fishing guiding on the refuge, however, requires a special-use permit. There are currently four drainages within the refuge (i.e., Ayakulik, Dog Salmon, Uganik, and Little River) that are under the refuge's prospectus system with a limited number of guided-use permits.

4.5.3.1 Recommendations Regarding Sport Fishing

- Urge ADF&G to evaluate whether increased human activity will lead to increased negative bear-human encounters in areas of especially high bear use (see chapter 7, "Research and Monitoring").
- Identify areas where hardened¹⁰ fishing campsites would minimize bear-human conflicts (see chapter 7, "Research and Monitoring").
- Encourage Kodiak Unified Bear Subcommittee (KUBS), ADF&G, and USFWS to work together to identify areas where there may need to be restrictions on camping and other activities because of the potential displacement of bears (see chapter 7, "Research and Monitoring").
- Designate food-storage areas, especially at Bare Creek.
- Continue use of electric fences or other practical means of excluding bears from anglers' food caches on KNWR and in other areas and jurisdictions of the Kodiak archipelago.
- Develop an educational program for anglers in cooperation with professional organizations, agencies, and sportsmen's groups to include information about proper food and fish storage and cleaning of fish (see chapter 8, "Education").
- Encourage the use of bear-resistant food containers and require their use in areas of high bear concentrations (e.g., along prime sport fishing streams).

¹⁰ A "hardened" campsite is one 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.

- In certain bear-feeding areas, there is a predictable, seasonal increase in potential bear-human conflicts related to sport fishing activities. The CAC recognizes that ADF&G Division of Sport Fish biologists are not authorized to write emergency orders to manage a sport fishery to address bear conservation. The CAC recommends that ADF&G Divisions of Sport Fish and of Wildlife Conservation cooperatively prepare an integrated management plan for approval by the combined Board of Fisheries and Board of Game, with the prime purpose of the management plan being to reduce bear-human conflicts associated with sport fishing. This plan should determine the carrying capacity for anglers and guide operations at favored fishing sites and the setting of limits necessary to maintain a high-quality wilderness sport fishing experiences.

4.5.4 Harvest of Berries and Other Plants

Kodiak's lush vegetation provides critical habitat for bears, with sedges, forbs, roots, and berries being important seasonal food sources. Bears share these resources with other animals, including humans, and in some isolated areas competition may result. Vegetative resources are also subject to annual fluctuations of abundance. This is most notable with berry crops, which may swing from absence to overabundance in consecutive years.

The archipelago's vegetation evolved without indigenous ungulates. Grazing by cattle, deer, elk, and mountain goats in the past century has had a notable impact on some plant species and areas. How these impacts affect bears or the long-term survival of the plants has yet to be thoroughly examined.

Berry crops have been harvested by people since the first Alutiit arrived on Kodiak more than 7,500 years ago. Most human use of berries has been restricted to near coastal areas and probably has had little impact on the bear population. Recent development of commercial markets for wild berries (e.g., wine and jelly production) may increase the demand for Kodiak berries. No direct impacts on bears have yet been noted, but future effects, especially in years with reduced berry crops, will have to be monitored.

4.5.4.1 Recommendations Regarding the Harvest of Plants and Berries

- Develop methods to objectively document annual abundance and availability to bears of vegetation in representative habitats on the Kodiak archipelago.
- Research the impact on bears of commercial use of salmonberries and blueberries.

4.6 Regulation Enforcement

Enforcement of state game regulations, for both hunting and fishing, is handled by the Alaska Department of Public Safety, Division of Fish and Wildlife Protection officers, who are Alaska State Troopers. Most big-game enforcement on the Kodiak archipelago is done from the air or by boat. Basically, the officers check for resident or nonresident hunting licenses, make sure hunters have the required locking tags, ensure that the people who are hunting in a specific area have the permits to do so, and enforce meat-salvage requirements.

Most enforcement activities focus on state lands. The protection officers make a point of meeting with guides, outfitters, and transporters to make sure they fulfill their responsibilities with regard to locking tags, bear sealing, etc. They also check to see that bear hides and skulls are returned to the Kodiak ADF&G office within 30 days, as required by law.

Kodiak National Wildlife Refuge officers provide education and law enforcement services to enhance the experience of visitors and to protect resource values on the refuge. Emphasis is on the enforcement of federal rules and regulations pertaining to visitor uses, subsistence activities, and commercial operators. Officers also enforce state hunting and fishing regulations in cooperation and coordination with state Wildlife Protection officers.

U.S. Coast Guard (USCG) and Federal Aviation Administration regulations and guidelines govern activities relating to the USCG's mission on the archipelago. Part of that mission includes low-flying maneuvers. ADF&G staff in Kodiak assist the USCG in educating air crews about the negative effects of low flying on wildlife, hunters, and viewers and about state and federal regulations prohibiting harassment of wildlife. ADF&G also regularly meets with incoming USCG staff and families to provide bear-safety education as well as information regarding hunting.

On lands managed by Alaska State Parks, commissioned park rangers are authorized to enforce most state laws, including fish and game enforcement, and park regulations. They are also involved with resource-management issues, visitor information and safety, and the regulation of commercial operators in state parks.

4.6.1 Recommendations on Regulations and Enforcement

See chapter 6, "Bear-Human Interactions," for recommendations related to DLP harvesting of Kodiak bears. Following are those recommendations for regulations and enforcement other than those relating to DLPs.

- Ensure a level of cooperative state and federal law enforcement deemed essential to achieve compliance with conservation laws, rules, and regulations; preventive education should be the first priority in this regard (also see chapter 8, "Education").
- Provide better funding and staffing of the state Division of Fish & Wildlife Protection to achieve the optimum level of law enforcement presence on the Kodiak archipelago.
- Urge state and federal wildlife protection and enforcement agencies to take appropriate actions under existing law to prevent trade in Kodiak bear parts.
- Identify appropriate elders and leaders to work with village public safety officers (VPSOs) to help educate residents about conservation laws, rules, and regulations (also see chapter 8, "Education").
- To foster cooperation, request that the Alaska Department of Public Safety, Division of Fish & Wildlife Protection, and the U.S. Fish & Wildlife Service conduct annual outreach programs, explaining regulations and enforcement issues (including DLPs) in communities throughout the Kodiak archipelago (also see chapter 8, "Education").

- Urge ADF&G and USFWS to work with the USCG to identify those areas and seasons in which bears and hunters are particularly vulnerable to harassment by overflying and to encourage reinforcing USCG policy minimizing low overflight in these areas (see also section 6.7).
- Continue education cooperation between ADF&G and the USCG annually, or more often as required, to alert air crews to their wildlife-conservation responsibilities and to promote good relations within the community (see also chapter 8, “Education”).
- Encourage USFWS to make enforcement of off-road vehicle (ORV) regulations a priority on the Kodiak National Wildlife Refuge.
- Cross-deputize Division of Fish and Wildlife Protection officers and Kodiak National Wildlife Refuge officers to provide authority for enforcing pertinent state and federal sport fish, wildlife, and refuge laws.

4.6.2 Bear Mortalities in Defense of Life or Property

Alaska Administrative Code (ACC) (5 AAC 92.410) authorizes anyone to protect human life or property from bears as long as specific conditions and reporting requirements are met (see Appendix I). In some cases, Fish & Wildlife Protection officers conduct an investigation of DLP kills and submit formal reports. The main reasons for these investigations are to ensure that all requirements of the DLP regulation have been met, that biological specimens and information are gathered, and that the person who killed the animal did not realize any economic gain from the act. Although individuals are rarely charged with a violation in connection with DLPs, the manner in which investigations are conducted may be viewed by some as intimidating. (See chapter 6, section 6.2 for more discussion of and recommendations on DLPs.)