Chapter Five: Current and Projected Uses

Table of Contents

List of Tables

List of Maps

Chapter Five: Current and Projected Uses

This chapter considers and discusses the current and projected uses in the sale area, including uses and value of fish and wildlife as required by AS 38.05.035(g)(iv). The land and waters included in and near the Alaska Peninsula sale area provide habitat for a variety of fish and wildlife as described in Chapter Four. The sale area also provides a variety of uses such as subsistence, sport, and commercial harvest activities. These and other current and projected uses are considered and discussed below. The following information is not intended to be all inclusive, but to provide an overview of the current and projected uses.

A. Uses and Value of Wildlife, Fish, and Plants

Alaska Game Management Units are managed by the Alaska Department of Fish and Game (ADF&G). ADF&G compiles and analyzes harvest and biological information, enabling the establishment of ecologically sound population-based fishing, hunting, and trapping regulations. This information may also be used to promote conservation strategies and recovery actions (ADF&G 2013j). The sale area is located in the following game management units: 9B, C, D, E and 17A and C.

1. Subsistence

State and federal subsistence fishing and hunting occur in Bristol Bay and on the Alaska Peninsula. Alaska law defines subsistence as "noncommercial, customary and traditional uses" of fish or game for a variety of purposes. Alaska law AS 16.05.258 requires that subsistence uses be consistent with sustained yield.

The ADF&G, Division of Commercial Fisheries manages subsistence fishing in state managed fisheries. The USFWS, Office of Subsistence Management manages subsistence hunting, trapping and fishing on Alaska's Federal public lands and non-navigable waters. Since 1999, federal subsistence management has expanded to include fisheries on all federal public lands and waters (ADF&G 2013n).

Many residents rely not only upon fish, but also wildlife and plants for subsistence. Wildlife harvested may consist of moose, caribou, bear, rabbit, porcupine, waterfowl, and seal. Plant resources such as berries and roots and firewood/log harvests are also important. Subsistence harvest uses include furs and hide for clothing, wood and other fuels for heating and cooking, wood and other natural materials for construction, making household goods, trade goods and cash, ceremonial, and arts and crafts (SWAMC 2012).

Subsistence use remains the most consistent and reliable economic component of local communities of the sale area. For many residents, subsistence is the preferred lifestyle and source of food, and wages are used to supplement their subsistence activities. Subsistence fishing, hunting, and gathering provide hundreds of pounds of highly nutritious foods for residents. Some studies estimate that subsistence harvests of wild food provide between 40 and 90% of the protein consumed by the region's residents (Holen and Lemons 2012; LaRoche and Associates 2011).

Subsistence activities are seasonal. Subsistence knowledge is preserved and communicated through the gathering and processing of the area's wild resources, including fishing and hunting activities (Holen and Lemons 2012). Likewise, an important link to cultural heritage and lifestyle is maintained through subsistence harvests and activities. These activities may provide a stabilizing influence in times of rapid social change, and contribute to social cohesion through the exchange and distribution of goods between relatives and other villages (LaRoche and Associates 2011; SWAMC 2012).

Adequate substitutes for locally-harvested food are lacking, would be cost-prohibitive, and would likely have negative cultural, social, and nutritional effects (Holen and Lemons 2012).

Subsistence surveys of 18 local communities were conducted between 2005 and 2010 and six surveys were conducted in the mid-1980s. Results show salmon made up 56% of the subsistence harvest, land mammals (mostly moose and caribou) 23%, fishes other than salmon 9%, and other resources (marine mammals, birds, eggs, marine invertebrates, and wild plants) 12%. Results for smaller communities were similar: 51% salmon, 25% land mammals, 11% other fishes, and 13% other resources. Subsistence provides a substantial part of residents' diet. This is especially true for inland communities where there are fewer employment opportunities (LaRoche and Associates 2011).

a. Fish and Shellfish

Salmon, halibut, finfish, crab, and shrimp are harvested for subsistence use (ADF&G 2013f). From 2009-2011, subsistence harvest of salmon from the Bristol Bay management area ranged from 113,238 to 126,743 salmon. Sockeye salmon comprise most of the salmon catch around 80% while Pink usually bring in less than 1% (Table 5.1). Pacific herring subsistence fisheries predate recorded history and halibut have been harvested for centuries by indigenous coastal peoples (ADF&G 2012i). Rainbow trout, whitefish, herring, Dolly Varden, Arctic graying and northern pike are also harvested for subsistence in the Bristol Bay area (Holen and Lemons 2012). Clams are also harvested in the Port Heiden, King Cove and False Pass areas (DMLW 2005).

Table 5.1. Estimated historical subsistence salmon harvests, Bristol Bay management area.

Year	Sockeye	Chinook	Chum	Coho	Pink	Total
Number of fish						
2009	98,951	14,020	5,052	7,982	442	126,447
2010	90,444	10,852	4,692	4,623	2,627	113,238
2011	101,017	14,106	3,794	7,493	333	126,743
Percent of harvest						
2009	78%	11%	4%	6%	<1%	
2010	80%	10%	4%	4%	2%	
2011	80%	11%	3%	6%	<1%	

Source: Holen and Lemons 2012.

b. Terrestrial Mammals

It is difficult to quantify caribou harvests for the MCH for subsistence due to unreported harvests and hunting from herds other than the MCH (Woolington 2011a). State and federal subsistence hunts of the NAPH have been closed since 2005 and not been reopened as of 2010. However, two ceremonial permits were issued to harvest one caribou each in 2007 and 2008 and both were successful (Riley 2011a). State and federal hunts, including subsistence, have been closed for the SAPH since 2008 and as of 2010 not reopened (Riley 2011b).

Moose are harvested for their meat and as a game animal. In 2007, 90% of the moose harvested, including for subsistence, were taken by Alaskan residents (Woodford 2009). In the Alaska Peninsula and Northern Bristol Bay area, it was not until March of 1999 that the Board of Game (BOG) found

moose in Units 9B, 9C, and 9E met the criteria to be considered "important for providing high levels of human consumptive use" and hunting was allowed in these areas (Butler 2010b).

c. Marine Mammals

Marine mammals have long been an important resource for Alaska Natives. Coastal communities use whales, walruses, seals, sea lions, and sea otters. Only Alaska Natives are allowed to harvest marine mammals for subsistence.

Beluga whales are a traditional food source for the Yup'ik people living in Bristol Bay (ADF&G 2006). The oil is used for cooking and fuel and beluga bones are sometimes used in crafts.

Walruses are important to the Alaska Native cultures of Bristol Bay for their nutritional and cultural values. Every year several thousand walruses are harvested in Alaska. Management issues are addressed jointly by the USFWS and the Eskimo Walrus Commission (EWC).

Nearly every part of the walrus may be used. Hides can be processed into rope or used to cover boats. Ivory tusks are carved into artwork, jewelry, and other crafts. Stomach lining is used in making traditional drums for Eskimo dances. The meat, blubber, skin, and organs are also used as food (ADF&G 2012k).

Harbor seals are important to Alaska Native culture and diet. Clothing and handicrafts are made from the hide and meat, and organs and oil from blubber are used for consumption. Otters are taken by Alaska Natives for their fur to make handicrafts and clothing (ADF&G 2012k).

Alaska Natives harvest spotted seals for subsistence but the number taken each year is unknown (ADF&G 2012k). Ice seal hunters, tribes, and researchers have become concerned about ice seals, their habitat, and abundance. Concerns include reduction in sea ice associated with climate change; changes in show and ice cover of arctic waters; offshore oil and gas development; increased ship traffic; environmental contamination; natural predation; prey availability; and noise protection. In 2012, the Ice Seal Management Plan was adopted to outline principles of how the ice seals will be co-managed by subsistence hunters and National Marine Fisheries Service (NOAA 2012).

Although western Stellar sea lions are listed as endangered (USFWS 2012), subsistence harvest is allowed and continues because it has not been shown to contribute to the decline in population (ADF&G 2012k).

2. Commercial Fishing

Alaska's commercial fishing industry is the most productive and valuable in the nation with a wholesale value of over $3 billion. In 2011, the seafood industry in Bristol Bay generated an estimated $148 million in labor income and relies mainly on the sockeye salmon runs, which are the world's largest. It is estimated that 49% of all working age adults living in the Bristol Bay region directly participate in the commercial seafood industry for a part of each year (McDowell Group 2013). As of 2011, commercial fishing and seafood processing were the most important components of the Lake and Peninsula Borough's economy (LaRoche and Associates 2011).

Alaska's science-based management system is widely regarded as one of the best in the world (ADF&G 2013e). In fact, Alaska is the only state in the nation whose constitution includes a mandate that requires sustainability of its fish and wildlife resources (DCCED 2013), an indication of the importance of Alaska's vast fishery resources to the history and culture of the area, and the economy.

The Division of Commercial Fisheries manages the State of Alaska's commercial fisheries within the state's jurisdiction. The division also manages some commercial fisheries that occur in the Exclusive Economic Zone (subject to federal jurisdiction) under authority delegated to it by the North Pacific Fisheries Management Council. Because of the cross jurisdictional boundaries and the migratory nature of fishery resources, the Pacific Salmon Commission, joint Canadian/US Yukon River Panel,

North Pacific Fisheries Management Council and other interstate and international agencies are also involved in management of Alaska's fisheries (CF 2013; NOAA 2013a).

Alaska's commercial fisheries are divided into four regions. The sale area is a part of the Central and Western Regions. The Bristol Bay Management Area includes five management districts: Naknek-Kvichak, Egegik, Ugashik, Nushagak, and Togiak. Within those management districts are nine major river systems: Naknek, Kvichak, Alagnak, Egegik, Ugashik, Wood, Nushagak, Igushik, and Togiak (ADF&G 2012d). The north side of the Alaska Peninsula Management Area belongs to the Westward Region (ADF&G 2013c).

Alaska's commercially important species of seafood include the five species of Pacific salmon, five species of crab, various groundfish, herring, shrimp, and other shellfish. Salmon is the most valuable commercial fishery managed by the State of Alaska. From 2010-2013, total harvest of salmon from Bristol Bay and north Alaska Peninsula ranged from about 150 million to about 213 million pounds (Table 5.2). Bristol Bay is the largest sockeye salmon fishery in the world and the most valuable single salmon fishery in Alaska. The Alaska Peninsula is a major pink salmon producing area (ADF&G 2013d). Over half of Alaska's commercial fishermen work on salmon fishing boats (McDowell Group 2013).

Table 5.2 Commercial salmon catch and average salmon price in dollars per pound by species in Bristol Bay and North Alaska Peninsula, 2010-2013.

Year	Sockeye		Chinook		Chum		Coho		Pink		Total
	BB	AP	BB	AP	BB	AP	BB	AP	BB	AP	
Harvest in pounds (thousands)											
2010	169,834	20,117	454	147	6,093	7,496	728	1,612	4,400	2,576	213,457
2011	134,722	16,800	462	127	4,501	8,542	83	1,069	2	18,864	185,172
2012	119,209	16,316	267	139	4,281	6,544	631	779	2,822	2,020	153,008
2013	92,000	17,094	350	83	5,600	7,724	810	2,064	2	24,170	149,897
Price per pound											
2010	$1.06	$1.23	$1.02	$0.75	$0.28	$0.41	$0.64	$0.50	$0.36	$0.38	
2011	$1.18	$1.25	$0.88	$1.01	$0.37	$0.53	$0.63	$0.60	$0.28	$0.40	
2012	$1.07	$0.84	$1.17	$0.99	$0.34	$0.43	$0.51	$0.45	$0.39	$0.35	
2013	$1.5	$1.26	$0.77	$0.56	$0.30	$0.47	$0.80	$0.48	$0.30	$0.35	

Source: ADF&G 2013b.

Several marine fish and shellfish species are harvested commercially in or near the sale area. These include Pacific cod, walleye pollock, Pacific herring, halibut, eulachon, Dungeness, king, and tanner crab, and razor clams (ADF&G 2012i; ADF&G 2012j). Walleye pollock made up 62% of the total groundfish caught in 2011, coming in with 1,282,780 metric tons (AFSC 2013b). Pacific cod accounted for 304,950 metric tons or 15% of all Alaska groundfish caught in 2011 (AFSC 2012a). Along the northern coast of the Alaska Peninsula, commercial fishing also includes yellowfin sole, herring, and herring roe (DMLW 2005).

Shellfish is the second most valuable fishery managed by the state. The predominant commercial harvest is red king crab and the largest harvests come from Bristol Bay. In 2009, Dungeness crab,

Tanner crab, and octopus were commercially harvested (Carroll 2005; Stichert 2010). Swikshak Beach on the Alaska Peninsula is the only beach besides those in the Cordova and Cook Inlet area that is certified for the razor clam human consumption market. They have been harvested there since 1929 (ADF&G 2012j).

3. Sport Fishing

Sport fishing is an important part of the culture and economy of the Alaska Peninsula and Bristol Bay areas. It provides recreation, food, and jobs to both residents and visitors. The revenue from the sale of sport fishing licenses, tags, and permits directly supports ADF&G's research and management of sport fisheries (ADF&G 2013h).

The sale area lies in the Bristol Bay Sport Fish Management Area. The Bristol Bay Sport Fish Management Area contains some of the most productive fishing waters in the world. This management area is not linked to the state's highway system. Local roads provide sport fishermen limited access near major communities. Despite its remote location, over 30,000 visitors a year come through Naknek and King Salmon, most for sport fishing (ADF&G 2013n).

Sport fishing in Bristol Bay is second only to commercial fishing as the most important private economic sector in the region. In a 2005 survey, anglers consistently emphasized the importance of Bristol Bay's uncrowded, remote, wild setting in their decisions to fish there. In 2012, nearly 1,800 anglers spent over 9,000 angler days fishing in saltwater and over 6,000 anglers spent nearly 27,000 angler days fishing in freshwater (Table 5.3). It is estimated that in 2008 nonresidents were paid about $5 million and about $25 million to Alaska residents to fish salmon in the Bristol Bay region (Table 5.4). This generated about 1000 jobs for residents and nonresidents alike (Table 5.4). Total spent on Bristol Bay fishing trips in 2008 by residents and nonresidents is estimated to be $75 million (Table 5.5) (Duffield et al. 2007; Duffield 2009).

Table 5.3 Alaska Peninsula/Aleutian Islands sport fish anglers and days fished, 2012.

Areas Fished	Anglers	Days Fished
Saltwater		
Boat – Alaska Peninsula	584	2,084
Boat – Unlalaska Island	732	5,250
Boat – Other	345	549
Shorelines – Other	241	1,154
Saltwater Total	1, 1774	9,037
Freshwater		
Naknek Lake	464	741
Naknek River above Rapids Camp	1,162	3,415
Naknek River below Rapids Camp	1,519	6,133
Naknek River and Tributaries	435	2,415
American Creek	514	1,147
Brooks River	1,466	3,607
Egegik River and Becharof system	659	1,571
Sapsuk River (Nelson River)	390	1,339
Ugashik system	371	1,756
Other Alaska Peninsula/Aleutian streams	1,257	4,335
Other streams and lakes	149	478
Freshwater Total	6,068	26,937
Grand Total	7,412	35,974

Source: ADF&G 2013o.

Table 5.4 Total full-time equivalent employment (2008) and Alaska payroll associated with use of Bristol Bay wild salmon ecosystems (Thousand dollars (2008)).

	Alaska Residents			Nonresidents	Total
Sector	Local	Non-Local	Total AK		
Jobs					
Sport fishing	258	483	741	146	887
Sport hunting	40	76	116	2	118
Payroll					
Sport fishing	$7,963	$17,074	$25,037	$5,096	$30,133
Sport hunting	$1,111	$2,677	$3,778	$66	$3,854

Source: Duffield et al. 2007; Duffield 2009.

Table 5.5 Total estimated recreational direct spending in Alaska attributable to Bristol Bay wild salmon ecosystems, 2008.

	Alaska Residents			Nonresidents	Total
	Local	Non-Local	Total AK		
Trips					
Sport fishing	8,748	3,153	11,908	16,561	28,462
Sport hunting		1,538	1,538	2,310	3,848
Spending					
Sport fishing	$3,273,000	$5,005,000	$8,278,000	$66,400,000	$74,678,000
Sport hunting		$1,282,000	$1,282,000	$9,815,691	$11,097,691

Source**:** Duffield et al. 2007; Duffield 2009.

4. Sport Hunting

Sport hunting is also an important part of the culture and economy of the Alaska Peninsula and Bristol Bay areas. Revenue from sales of licenses, tags, and permits funds ADF&G's research and management of wildlife (ADF&G 2013h).

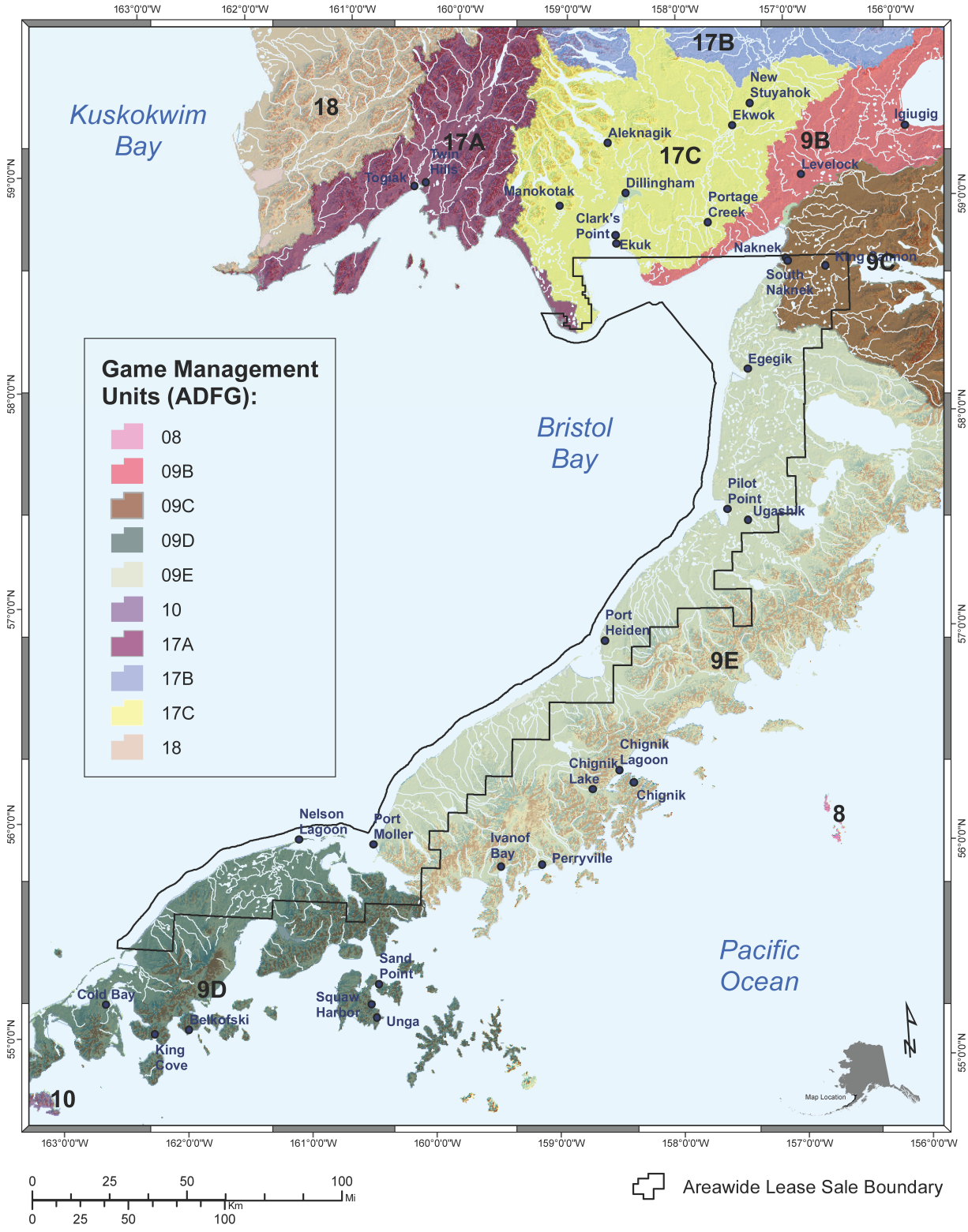
Sport hunting offers high quality hunting for highly valued species such as caribou, moose, and brown bear (Map 5.1). Big game hunters living outside the area spend about $12.4 million a year in direct hunting related expenditures. This estimate may include some caribou hunting of the MCH outside the Bristol Bay region game management units (Duffield et al. 2007).

Some big game species found in and near the sale area are brown bears, caribou, moose, wolf, and wolverine. Some of the highest brown bear population densities are on the Alaska Peninsula. The MCH is also one of the largest in the state. Though hunted, wolverine are infrequently taken (ADF&G 2013k).

The Alaska Peninsula is a premier destination for brown bear viewing and hunting (Riley and Butler 2011). Hunting is traditionally and economically an important aspect of life in Alaska. Most hunting regulations in coastal areas are geared toward maintaining high bear densities and giving hunters opportunities to pursue large bears. In the 2008 – 2009 hunting season, about 70% of the bears taken in the Bristol Bay area Unit 17 were taken by nonresidents (Woolington 2011b). During that same season, about 81% of the bears taken in Unit 9 were harvested by nonresidents (Riley and Butler 2011).

In the Bristol Bay and Alaska Peninsula region common furbearers being trapped include beaver, coyote, red and arctic fox, lynx, mink, muskrat, river otter, ermine, and wolverine (Butler 2010a; Woolington 2010).

In the Bristol Bay area, beaver was historically the most important furbearer being trapped. However, in the last decade or so, trapping in general has declined in importance to the economy and seasonal activities of local residents, thus beaver trapping activity has declined as well (Woolington 2010).



Map 5.1 Game Management Units In or Near the Alaska Peninsula Sale Area

5. Recreation and Tourism

Southwest Alaska is one of the least visited regions in the state. However, the Division of Economic Development is actively working with the Southwest Alaska Municipal Conference to increase recreation and tourism in the area (DCCED 2009). The scenery, parks and refuges, fish and game, birds, Alaska Native cultures, Russian colonial heritage, and historical sites provide opportunities and potential for sustained tourism development (SWAMC 2013). Tourists come to this region primarily for world class sport fishing and hunting, bear viewing, and adventure based activities (Rural Alaska Tourism Infrastructure Needs Assessment 2004). Tourism and recreation are the second most important industries and rapidly increasing in economic importance (Lake and Peninsula Borough 2013). Even some of the most remote communities benefit from wildlife tourism, especially birding. Birdwatchers visit many communities throughout the summer to view the many species of birds found nowhere else in North America (ADF&G 2006).

The following table lists some of the activities available to tourists in the Alaska Peninsula, Bristol Bay, and Aleutian Islands (Table 5.6).

Table 5.6 Recreation and tourism activities available in the Bristol Bay/Alaska Peninsula area

Activity	Alaska Peninsula	Bristol Bay	Aleutian Islands
Fishing	*	*	*
Hiking	*	*	
Hunting	*	*	
Traditional Culture	*	*	*
Parks and Refuges	*	*	
Bird Watching			*
Wildlife Viewing	*	*	
Boating / Rafting	*	*	
Marine Wildlife		*	
Air Tours		*	
Historical Culture and sites		*	*

Source: SWAMC 2013

B. References

2012. Op. Alaska Att'y Gen. (Dec. 17). http://aws.state.ak.us/OnlinePublicNotices/Notices/View.aspx?id=167463 (Accessed April 12, 2013).

ADF&G (Alaska Department of Fish and Game). 2006. Our wealth maintained: A strategy for conserving Alaska's diverse wildlife and fish resources. Alaska Department of Fish and Game, Juneau. http://www.adfg.alaska.gov/static/species/wildlife_action_plan/cwcs_full_document.pdf (Accessed March 20, 2013).

ADF&G (Alaska Department of Fish and Game). 2012a. Bristol Bay Critical Habitat Area. http://www.adfg.alaska.gov/index.cfm?adfg=bristolbay.draftplan (Accessed February 1, 2013).

ADF&G (Alaska Department of Fish and Game). 2012b. Commercial fisheries overview: Bristol Bay Management Area. http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareabristolbay.main (Accessed February 1, 2013).

ADF&G (Alaska Department of Fish and Game). 2012i. Species. Fish. http://www.adfg.alaska.gov/index.cfm?adfg=animals.listfish (Accessed February 1, 2013).

ADF&G (Alaska Department of Fish and Game). 2012j. Species. Invertebrates. http://www.adfg.alaska.gov/index.cfm?adfg=animals.listinvertebrates (Accessed February 1, 2013).

ADF&G (Alaska Department of Fish and Game). 2012k. Species. Mammals. http://www.adfg.alaska.gov/index.cfm?adfg=animals.listmammals (Accessed February 1, 2013).

ADF&G (Alaska Department of Fish and Game). 2013a. Alaska sport fishing survey. Area R estimates. http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=area.results (Accessed November, 27, 2013).

ADF&G (Alaska Department of Fish and Game). 2013b. Commercial fisheries. Alaska commercial salmon harvests and exvessel Values. http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.exvesselquery (Accessed March 21, 2013).

ADF&G (Alaska Department of Fish and Game). 2013c. Commercial fisheries. Information by area. http://www.adfg.alaska.gov/index.cfm?adfg=fishingcommercialbyarea.main (Accessed March 20, 2013).

ADF&G (Alaska Department of Fish and Game). 2013d. Commercial fisheries. Information by fisheries. http://www.adfg.alaska.gov/index.cfm?adfg=fishingCommercialByFishery.main (Accessed November 7, 2013).

ADF&G (Alaska Department of Fish and Game). 2013e. Fishing in Alaska. http://www.adfg.alaska.gov/index.cfm?adfg=fishing.main (Accessed March 20, 2013).

ADF&G (Alaska Department of Fish and Game). 2013f. Fishing. Subsistence. Information by area. Alaska Peninsula area. http://www.adfg.alaska.gov/index.cfm?adfg=ByAreaSubsistenceAKPenn.main (Accessed March 27, 2013).

ADF&G (Alaska Department of Fish and Game). 2013h. Hunting. Introduction to Alaska big game hunting. http://www.adfg.alaska.gov/index.cfm?adfg=hunting.biggameintro (Accessed April 5, 2013).

ADF&G (Alaska Department of Fish and Game). 2013j. Lands and waters. Protected areas. State refuges, sanctuaries, critical habitat areas. http://www.adfg.alaska.gov/index.cfm?adfg=protectedareas.main (Accessed April 11, 2013).

ADF&G (Alaska Department of Fish and Game). 2013l. Sport fishing. Bristol Bay Management Area. http://www.adfg.alaska.gov/index.cfm?adfg=ByAreaSouthcentralBristolBay.main (Accessed April 2, 2013).

ADF&G (Alaska Department of Fish and Game). 2013n. Subsistence in Alaska. Fishing. http://www.adfg.alaska.gov/index.cfm?adfg=subsistence.fishing (Accessed March 26, 2013).

ADF&G (Alaska Department of Fish and Game). 2013o. Alaska sport fishing survey. Area R estimates. http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=area.results (Accessed February 18, 2014).

AFSC (Alaska Fisheries Science Center). 2013a. National Marine Fisheries Service-NOAA fisheries. Species. Pacific cod. http://www.afsc.noaa.gov/species/Pacific_cod.php (Accessed November 5, 2013).

AFSC (Alaska Fisheries Science Center). 2013b. National Marine Fisheries Service-NOAA Fisheries. Species. Walleye Pollock. http://www.afsc.noaa.gov/species/pollock.php (Accessed November 5, 2013).

Butler, L. B. 2010a. Unit 9 & 10 furbearer management report. Pages 121-129 *in* P. Harper editor. Furbearer management report of survey and inventory activities 1 July 2006-30 June 2009. Alaska Department of Fish and Game. Project 7.0 Juneau, Alaska. http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/10_fur.pdf (Accessed April 5, 2013).

Butler, L. B. 2010b. Unit 9 moose management report. Pages 116-123 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007-30 June 2009. Alaska Department of Fish and Game. Project 1.0. Juneau. http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/10_moose.pdf (Accessed December 3, 2012).

Carroll, Amy. 2005. Alaska crab fishery: Big money days are gone. Alaska fish and wildlife news. December 2005. http://www.adfg.alaska.gov/index.cfm?adfg=wildlifenews.view_article&articles_id=181 (Accessed November 5, 2013).

CF (Division of Commercial Fisheries). 2013. Division overview. http://www.adfg.alaska.gov/index.cfm?adfg=divisions.cfoverview (Accessed March 20, 2013).

DCCED (Alaska Department of Commerce, Community, and Economic Development). 2009. Division of Economic Development. Developing alaska rural tourism. current projects. http://www.commerce.state.ak.us/ded/dev/dart_new/current_projects.htm (Accessed April 8, 2013).DCCED (Alaska Department of Commerce, Community, and Economic Development). 2013. Offices of Fisheries Development. Frequently asked questions. http://www.commerce.state.ak.us/ded/dev/seafood/seafood.cfm (Accessed March 20, 2013).

DMLW (Division of Mining, Land and Water). 2005. Bristol Bay Area Plan for State Lands. http://dnr.alaska.gov/mlw/planning/areaplans/bristol/pdf/bbap_complete.pdf (Accessed January 31, 2013).

DMLW (Division of Mining, Land and Water). 2011. Fact sheet. State of Alaska legislatively designated areas. http://dnr.alaska.gov/mlw/factsht/ldafct.pdf (Accessed November 15, 2012).

Duffield, J.W. 2009. Bristol Bay wild salmon ecosystem economics. 2008 Update. http://ourbristolbay.com/pdf/Duffield-Report-update-2009.pdf (Accessed April 4, 2013).

Duffield, J.W., C.J. Neher, D.A. Patterson, and O.S. Goldsmith. 2007. Economics of wild salmon ecosystems: Bristol Bay, Alaska. http://www.fs.fed.us/rm/pubs/rmrs_p049/rmrs_p049_035_044.pdf (Accessed April 4, 2013).

Holen, Davin and Terri Lemons. 2012. An overview of the subsistence fisheries of the Bristol Bay management area. Alaska Department of Fish and Game. Division of Subsistence. Special Publication No. BOF 2012-05. http://www.adfg.alaska.gov/specialpubs/SP2_SP2012-005.pdf (Accessed March 26, 2012.

Lake and Peninsula Borough. 2013. About the Lake and Peninsula Borough. http://www.lakeandpen.com/index.asp?Type=B_BASIC&SEC=%7BE4E1AF70-DAB9-4462-942A-C4B21F8A2D31%7D (Accessed April 8, 2013).

LaRoche and Associates. 2011. Lake and Peninsula Borough Coastal Management Program: Revised public hearing draft, March 2011. Department of Commerce Lake and Peninsula Borough Planning Commission, Community and Economic Development, ADNR Division of Coastal and Ocean Management. http://alaskacoast.state.ak.us/District/DistrictPlans_Final/LakeandPen/revised_phd/vol1_rphd.pdf (Accessed October 8, 2012).

McDowell Group. 2013. Economic value of the Alaska seafood industry. July 2013. http://pressroom.alaskaseafood.org/wp-content/uploads/2013/09/AK-Seafood-Impact-Report-Final-9_16-Online.pdf (Accessed November 5, 2013).

NOAA (National Oceanic and Atmospheric Administration) 2012. Fisheries. National Marine Fisheries Service. Alaska Regional Office. Co-Management agreements. http://www.fakr.noaa.gov/protectedresources/comanagement.htm (Accessed December 19, 2012).

NOAA (National Oceanic and Atmospheric Administration). 2013a. National Marine Fisheries Office. Alaska Regional Office. Alaska salmon fisheries management. http://alaskafisheries.noaa.gov/sustainablefisheries/salmon/default.htm (Accessed March 21, 2013).

NPS (National Parks Service). 2003. History E-Library. Nomenclature of park system areas. http://www.nps.gov/history/history/hisnps/NPSHistory/nomenclature.html (Accessed April 15, 2013).

NPS (National Parks Service). 2013a. Katmai. http://www.nps.gov/katm/index.htm (Accessed April 15, 2013).

NPS (National Parks Service). 2013b. Aniakchak. History and culture. http://www.nps.gov/ania/historyculture/index.htm (Accessed April 15, 2013).

Riley, M. D. 2011a. Units 9C & 9E caribou management report. Pages 33-43 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008-30 June 2010. Alaska Department of Fish and Game. Juneau, Alaska. http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/11_caribou.pdf

Riley, M. D. 2011b. Southern Alaska Peninsula Unit 9D caribou management report. Pages 44-52 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008-30 June 2010. Alaska Department of Fish and Game. Juneau, Alaska. http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/11_caribou.pdf

Riley, M. D. and L. Butler. 2011. Unit 9 Brown bear management report. Pages 109-117 *in* P. Harper, editor. Brown bear management report of survey and inventory activities 1 July 2008-30 June 2010. Alaska Department of Fish and Game. Juneau, Alaska. http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/11_brbear.pdf (Accessed November 6, 2013).

Rural Alaska Tourism Infrastructure Needs Assessment. 2004. Bristol Bay and Alaska Peninsula. http://commerce.alaska.gov/ded/dev/toubus/pub/8c_bristol_bay_section.pdf (Accessed April 8, 2013).

Stichert, M.A., 2010. Annual management report for shellfish fisheries in the Kodiak, Chignik and Alaska Peninsula areas, 2009. Alaska Department of Fish and Game, Fishery management report 10-32, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMR10-32.pdf (Accessed November 7, 2013).

SWAMC (Southwest Alaska Municipal Conference). 2012. Comprehensive Economic Development Strategy: 2009-2014. http://www.swamc.org/files/CEDS%202010/Combined%202010%20CEDS%20Report_compressed.pdf (Accessed October 25, 2012).

SWAMC (Southwest Alaska Municipal Conference). 2013. Tourism development. http://www.swamc.org/html/industries/tourism.php (Accessed April 8, 2013).

USFWS (U.S. Fish and Wildlife Service). 2012. Species report. Listings and occurrences for Alaska. http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=AK&s8fid=112761032792&s8fid=112762573902 (Accessed February 1, 2013).

Woodford, Riley. 2009. Alaska fish and wildlife news. Who takes home Alaska wildlife? January 2009. http://www.adfg.alaska.gov/index.cfm?adfg=wildlifenews.view_article&articles_id=414 (Accessed November 5, 2013).

Woolington, J.D. 2010. Unit 17 furbearer. Pages 212-232 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July-30 June 2009. Alaska Department of Fish and Game. Project 7.0 Juneau, Alaska. http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/10_fur.pdf (Accessed April 5, 2013).

Woolington, J.D. 2011a. Mulchatna caribou management report, Units 9B, 17, 18 south, 19A & 19B. Pages 11-32 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008—30 June 2010. Alaska Department of Fish and Game. Juneau, Alaska. http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/11_caribou.pdf (Accessed November 7, 2013).

Woolington, J.D. 2011b. Unit 17 Brown bear management report. Pages 177-188 *in* P. Harper, editor. Brown bear management report of survey and inventory activities 1 July 2008- 30 June 2010. Alaska Department of Fish and Game. Juneau, Alaska http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/11_brbear.pdf (Accessed November 6, 2013).