d) Noxious and Invasive Plant Species in the Planning Area

Public concern about the harmful effects of invasive non-native plants continues to increase. Unacceptable levels of these undesirable plants could adversely affect crop and forage production, wilderness, wildlife habitat, visual quality, recreation opportunities, and land value. Invasive non-native plants and legally designated noxious weeds are more prevalent near areas of human disturbance and they are increasing in wildland areas as well. It is the BLM's responsibility to ensure that management actions do not increase the spread of invasive plants and noxious weeds. Prevention measures should be considered where soil is disturbed on or adjacent to BLM managed lands. One prevention measure is the use of weed free seed and mulch. To maintain ecological site integrity, native species are used in any revegetation efforts on BLM-administered lands where practicable.

e) Vegetation in Terms of Forestry and Fire in the Bay Planning Area

Prescribed fires may be used to meet vegetative resource objectives when and where the money spent on prescribed fires is commensurate with the value of the resource being maintained or enhanced.

5. Fish and Wildlife

a) Wildlife

With the exception of Federal subsistence areas, consumptive uses of the wildlife resource are regulated by the Alaska Board of Game through season setting and harvest level regulations. Unique to Alaska, however, is the Federal subsistence mandate that ensures subsistence uses of natural resources, including wildlife, receive the highest priority use above recreational or commercial uses. The Federal Subsistence Board manages the fish and wildlife harvest on Federal Reserved waters for fish and Federal lands, including BLM unencumbered lands, for wildlife through harvest regulations. The State and Federal land manager (e.g. BLM, National Park Service, and Fish and Wildlife Service) may comment on these regulations, and close coordination of State and Federal regulations is sought by both entities. Here the term "wildlife" is used to indicate wildlife species in general, and the term "habitat" is used to describe the natural environment occupied by a given species or species group of all game and non-game vertebrates and invertebrates utilizing BLM lands in the Bay planning area.

BLM has responsibilities in the planning area for habitat management, and cooperatively manages habitat with the State of Alaska under a Master Memorandum of Understanding between the Alaska Department of Fish and Game and the Bureau of Land Management (1983) (Appendix G).

In collaboration with the State of Alaska's and adjacent Federal land managers' identified wildlife population management objectives, Anchorage Field Office (AFO) emphasizes wildlife habitat management to maintain, enhance and restore habitats.

Table 3.5 provides a list of all mammal and amphibian species within the Bay planning area. Table 3.6 is a list of all bird species known to occur in the Bay planning area, and Table 3.7 presents the variety of marine invertebrates that may be present in the coastal parts of the Bay planning area. Some of the mammals and many of the birds are migratory species.

Table 3.5. Table of Amphibian and Mammal Species Present in the Bay Planning Area (ADF&G CPDB 2005, Foster 1991, Mountaineers 1994, Udvardy 1977, Whitaker 1980, Jacobsen 2004, USFWS 2005)

Common Name	Scientific Name	Common Name	Scientific Name
Amphibian		Wolverine	*Gulo gulo*
Wood Frog	*Rana sylvatica*	Masked Shrew	*Sorex cinereus*
Land Mammals		Dusky Shrew	*Sorex monticolus*
Large Land Mammals		Arctic Shrew	*Sorex arcticus*
Black Bear	*Ursus americanus*	Pygmy Shrew	*Microsorex boyi*
Brown Bear	*Ursus arctos*	Tundra Shrew	*Sorex tudrensis*
Caribou	*Rangifer tarandus*	Little Brown Bat	*Myotis lucifugus*
Moose	*Alces alces*	Hoary Marmot	*Marmota caligata*
Dall Sheep	*Ovis dalli*	Red Squirrel	*Tamiasciurus hudsonicus*
Small Land Mammals		Northern Red-Backed Vole	*Clethrionomys rutilus*
Beaver	*Castor Canadensis*	Meadow Vole	*Microtus pennsylvanicus*
Coyote	*Canis latrans*	Tundra Vole	*Microtus oeconomus*
Red Fox	*Vulpes vulpes*	Singing Vole	*Microtus gregalis*
Arctic Fox	*Alopex lagopus*	Brown Lemming	*Lemmus sibiricus*
Alaskan (Tundra) Hare	*Lepus othuss*	Northern Bog Lemming	*Synaptomys borealis*
Snowshoe Hare	*Lepus americanus*	Collared Lemming	*Dicrostonyx torquetus*
River Otter	*Lontra canadensis*	Meadow Jumping Mouse	*Zapus hudsonius*
Lynx	*Lynx canadensis*	**Marine Mammals**	
Marten	*Martes americana*	Northern Fur Seal	*Callortinus ursinus*
Mink	*Mustela vison*	Bearded Seal	*Erignathus barbatus*
Ermine	*Mustela erminea*	Harbor Seal	*Phoca vitulina*
Least Weasel	*Mustela rivalis*	Ringed Seal	*Phoca hispide*
Muskrat	*Ondatra zibethicus*	Ribbon Seal	*Phoca fasciata*
Porcupine	*Erethizon dorsatum*	Spotted Seal	*Phoca largha*
Parka Squirrel (Arctic Ground Squirrel)	*Spermophilus parryii*	Steller Sea Lion	*Eumetopias jubatus*
Wolf	*Canis lupus*	Walrus	*Odobenus rosmarus*
		Beluga Whale	*Delphinapterus leucas*
Red-throated Loon	*Gavia stellata*	Short-billed Dowitcher	*Limnodromus griseus*
Pacific Loon	*Gavia pacifica*	Long-billed Dowitcher	*Limnodromus scolopaceus*
Common Loon	*Gavia immer*	Wilson's Snipe	*Gallinago gallinago*
Yellow-billed Loon	*Gavia adamsii**	Red-necked Phalarope	*Phalaropus lobatus*
Horned Grebe	*Podiceps auritus*	Red Phalarope	*Phalaropus fulicaria**
Red-necked Grebe	*Podiceps grisegena*	Pomarine Jaeger	*Stercorarius pomarinus*
Double-crested Cormorant	*Phalacrocorax auritus*	Long-tailed Jaeger	*Stercorarius longicaudus*
Pleagic Cormorant	*Phalacrocorax pelagicus*	Bonaparte's Gull	*Larus piladelphia*
Red-faced Cormorant	*Phalacrocorax urile*	Mew Gull	*Larus canus*
Tundra Swan	*Cygnus columbianus*	Herring Gull	*Larus argentatus*
Trumpeter Swan	*Cygnus buccinator*	Glaucous Gull	*Larus huperbor*
Greater White-fronted Goose	*Anser albifrons*	Glaucous-winged Gull	*Larus glaucescens*
Snow Goose	*Chen caerulescens*	Slaty-backed Gull	*Larus schistisagus*
Emperor Goose	*Philacte canagica*	Black-legged Kittiwake	*Rissa tridactyla*
Cackling Goose	*Branta canadensis minima*	Sabine's Gull	*Xema sabini*
Brant	*Branta bemicia*	Arctic Tern	*Stema paradisaea*
Mallard	*Anas platyrhyncos*	Aleutian Tern	*Stema aleutica*
Gadwell	*Anas strepera*	Common Murre	*Uria aalge*

Table 3.6. Table of Resident, Migratory, Wintering, Rare* and Accidental Bird Table 3.6. (ADF&G CPDB 2005, Foster 1991, Udvardy 1977, USFWS 2005

Common Name	Scientific Name	Common Name	Scientific Name
Green-winged Teal	*Anas crecca*	Thick-billed Murre	*Uria lomvia*
Baikal Teal	*Anas formosa**	Pigeon Guillemot	*Cepphus colomba*
American Wigeon	*Anas americana*	Marbeled Murrelet	*Brachyramphus marmoratus*
Eurasian Wigeon	*Anas Penelope**	Parakeet Auklet	*Aethia psittacula*
Northern Pintail	*Anas acuta*	Kittlitz's Murrelet	*Brachyramphus brevirostris*
Blue-winged Teal	*Anas discors**	Horned Puffin	*Fratercula comiculata*
Garganey	*Anas querquedula**	Tufted Puffin	*Fratercula cirrhata*
Canvasback	*Aythya valisineria*	Short-eared Owl	*Asio flammeus*
Redhead	*Aythya Americana*	Great Horned Owl	*Bubo virginianus*
Ring-necked Duck	*Aythya collaris**	Snowy Owl	*Bubo scandiaca*
Tufted Duck	*Aythya fuligula**	Northern Saw-whet Owl	*Aegolius acadicus**
Greater Scaup	*Aythya marlia*	Northern Hawk Owl	*Sumia ulula*
Lesser Scaup	*Aythya afffinis*	Boreal Owl	*Aegolius funereus*
Common Eider	*Somateria mollissima*	Belted Kingfisher	*Ceryle alcon*
King Eider	*Somateria spectabilis*	Northern Flicker	*Colaptes auratus*
Spectacled Eider	*Somateria fischeri*	Downy Woodpecker	*Picoides pubescens*
Steller's Eider	*Polysticta stelleri*	Hairy Woodpecker	*Picoides villosus*
Black Scoter	*Melanitta nigra*	American Three-toed Woodpecker	*Picoides dorsalis*
White-winged Scoter	*Melanitta deglandi*	Black-backed woodpecker	*Picoides arcticus*
Surf Scoter	*Melanitta perspicillata*	Olive-sided Flycatcher	*Contopus cooperi*
Harlequin	*Histrionicus histrionicus*	Alder Flycatcher	*Empidonax alnorum*
Long-tailed Duck	*Clangula hyemalis*	Say's Phoebe	*Sayomis saya*
Barrow's Goldeneye	*Bucephala islandica*	Northern Shrike	*Lanius excubitor*
Common Goldeneye	*Bucephala clangula*	Gray Jay	*Perisoreus canadensis*
Bufflehead	*Bucephala albeola*	Black-billed Magpie	*Pica hudsonia*
Common Merganzer	*Mergus merganser*	Common Raven	*Corvus corax*
Red-breasted Merganzer	*Mergus merganser*	Horned Lark	*Eremophilla alpestris*
Osprey	*Pandion haliaetus*	Tree Swallow	*Tachycineta bicolor*
Northern Harrier	*Circus cyaneus*	Violet-green Swallow	*Tachycineta thalassina*
Golden Eagle	*Aquila chrysaetos*	Bank Swallow	*Riperia riparia*
Bald Eagle	*Haliaeetus leucocephalus*	Cliff Swallow	*Petrochelidon pyrrhonota*
Sharp-shinned Hawk	*Accipiter striatus*	Black-capped Chickadee	*Poecile hudsonica*
Northern Goshawk	*Accipiter laingi*	Boreal Chickadee	*Parus hudsonica*
Red-tailed Hawk	*Buteo jamaicensis*	Red-breasted Nuthatch	*Sitta canadensis*
Rough-legged Hawk	*Buteo lagopus*	Brown Creeper	*Certhia Americana*
American Kestrel	*Falco sparverius*	Winter Wren	*Troglodytes troglodytes*
Merlin	*Falco columbarus*	American Dipper	*Cinclus mexicanus*
Perigrine Falcon	*Falco peregrines*	Golden-crowned Kinglet	*Regulus saatrapa*
Gyrfalcon	*Falco rusticolus*	Ruby-crowned Kinglet	*Regulus calendula*
Spruce Grouse	*Falcipennis canadensis*	Arctic Warbler	*Phylloscopus borealis**
White-tailed Ptarmigan	*Lagopus leucura*	Northern Wheatear	*Oenanthe oenanthe*
Rock Ptarmigan	*Lagopus muta*	Gray-cheeked Thrush	*Catharus minimus*
Willow Ptarmigan	*Lagopus lagopus*	Swainson's Thrush	*Catharus ustulatus*
Lesser Sandhill crane	*Grus canadensis*	Hermit Thrush	*Catharus guttatus*
Black-bellied Plover	*Pluvialis squatarole*	Varied Thrush	*Ixoreus naevius*
American Golden Plover	*Pluvialis dominica*	American Robin	*Turdus migratorius*
Pacific Golden Plover	*Pluvialis fulve*	Eastern Yellow Wagtail	*Motacilla flava tschutschensis*
Semipalmated Plover	*Charadrius semipalmatus*	American Pipit	*Anthusrubescens*
Lesser Sand Plover	*Charadrius mongolus**	Bohemian Waxwing	*Bombycillagarrulus*

Common Name	Scientific Name	Common Name	Scientific Name
(Mongolian Plover)			
Black Oystercatcher	*Haematopus bachmani*	Orange-crowned Warbler	*Vermivora celata*
Greater Yellowlegs	*Tringa melanoleuce*	Yellow-rumped Warbler	*Dendroica coronata*
Lesser Yellowlegs	*Tringa flavipes*	Townsend's Warbler	*Dendroica townesndi*
Wandering Tattler	*Heteroscelus incanus*	Blackpoll Warbler	*Dendroica striata*
Solitary Sandpiper	*Tringa solitaria*	Yellow Warbler	*Dendroica petechia*
Spotted Sandpiper	*Actitis macularius*	Wilson's Warbler	*Wilsonis pusilla*
Whimbrel	*Numenius phaeopus*	Northern Waterthrush	*Seiurus noveboracensis*
Bristle-thighed Curlew	*Numenius tahitiensis*	American Tree Sparrow	*Spizella arborea*
Black-tailed Godwit	*Limosa lapponica*	Fox Sparrow	*Passerella iliaca*
Hudsonian Godwit	*Limosa haemastica*	Savannah Sparrow	*Passerculus sandwicensis*
Black Turnstone	*Arenaria melanocephala*	Lincoln's Sparrow	*Melospiza lincolnii*
Ruddy Turnstone	*Arenaria interpres*	Song Sparrow	*Melospiza melodia*
Surfbird	*Aphriza virgata*	White-crowned Sparrow	*Zonotrichia leucophrys*
Rock Sandpiper	*Calidris ptilocnemis*	Golden-crowned Sparrow	*Zonotrichia atricapilla*
Red Knot	*Calidris canutus**	Slate-colored Junco	*Junco hyemalis*
Sanderling	*Calidris alba**	Lapland Longspur	*Calcarius lapponicus*
Dunlin	*Calidris alpine*	Snow Bunting	*Plectrophenax nivalis*
Semipalmated Sandpiper	*Calidris pusilla*	McKay's Bunting	*Plectrophenax hyperboreus**
Western Sandpiper	*Calidris pusilla*	Rusty Blackbird	*Euphagus carolinus*
Least Sandpiper	*Calidris minutilla*	Red Crossbill	*Loxia curvirostra*
Baird's Sandpiper	*Calidris bairdii**	White-winged Crossbill	*Loxia leucoptera*
Long-toed Stint	*Calidris subminuta**	Pine Grosbeak	*Pinicola enucleator*
Red-necked Stint	*Calidris ruficollis**	Pine Siskin	*Carduelis pinus*
Pectoral Sandpiper	*Calidris melanotos**	Gray-crowned Rosy Finch	*Leucosticte tephrocotis*
Sharp-tailed Sandpiper	*Calidris acuminate**	Common Redpoll	*Carduelis flammea*
Buff-breasted Sandpiper	*Tryngites subruficollis**	Hoary Redpoll	*Carduelis homemanni*

Table 3.7. Table of Marine Invertebrate Species of Subsistence or Recreational Interest Present at Coastal Locations Potentially Present in the Bay Planning Area (ADF&G CPDB 2005, Mountaineers 1994, Foster 1991)

Common Name	Scientific Name	Common Name	Scientific Name
Nutclams	*Nucula tenuis*		*Clinocardium californiense*
	Nuculana minuta		*Serripes groenlandickus*
	Nuculana permula	Gapers and Surfclams	*Mactromeris polynyma*
	Nuculana radiate	Razor Clams	*Siliqua alta*
	Nuclana fossa	Tellins and Macomas	*Tellina modesta*
Yoldias	*Yoldia scissurate*		*Tellina lutea*
	Yoldia myalis		*Macoma calcarea*
Mussels	*Mytilus edulis*		*Macoma oblique*
	Musculus discors		*Macoma middendorffi*
	Musculus corrugatus		*Macoma moesta*
	Musculus olivaceous		*Macoma lama*
	Musculus niger		*Macoma inquinata*
	Modiolus modiolus		*Macoma balthica*
Scallops	*Patinopecten caurinus*	Venus Clams	*Liocyma fluctuosa*
	Chalmys rubida	Butter Clams	*Saxidomus giganteus*
Jingles	*Pododesmus macroschisma*	Turtons	*Turtona minuta*
Axinopsids	*Axinopsida serricata*	Softshells	*Mya arenaria*
Diplodons	*Diplodonta aleutica*		*Mya pseudoarenaria*
Kelllyclams	*Kellia suborbicularis*		*Mya truncate*
Mysellas and Montacutids	*Boreacola vadosus*	Hiatellas and Roughmyas	*Cyrtodaria kurriana*
	Mysella tumida		*Hiatella arctica*
	Pseudopythina compressa		*Panomya priapus*
Carditas	*Crassicardia crassidens*		*Panomya ample*
	Cyclocardia ovata		*Panomya arctica*
	Cyclocardia crebricostatta	Piddocks	*Zirfaea pilsbryi*
Astartes	*Astarte esquimalti*		*Penitella penita*
	Astarte alaskensis	Shipworms	*Bankia setacea*
	Astarte borealis	Thracias	*Thracia myopsis*
	Astarte montagui	Lyonsias	*Lyonsia arenosa*
Cockles	*Clinocardium ciliatum*	Pandoras	*Pandora glacialis*
	Clinocardium nuttalli		

As well as BLM-administered lands, two National Wildlife Refuges, two National Parks and Preserves, four NPS-administered Wild and Scenic Rivers, three State parks and special habitat management areas and two Western Hemispheric Shorebird Reserve Network (WHSRN) special management habitat areas are also present in the Bay planning area.

A wide variety of wildlife species are found in southwestern Alaska. Only those species of wildlife considered important as a subsistence resource, economically important to the region, or otherwise high profile, will be covered specifically.

The Bristol Bay region where BLM unencumbered lands are located is dominated by four major watersheds, the Kvichak River, the Alagnak River, the Naknek River, and the Nushagak River drainages. The Kvichak River flows from Lake Iliamna to Kvichak Bay in a west-southwest direction. Major tributaries include the Alagnak River, Ole Creek, Levelock Creek, Ben Courtney Creek, and Kaskanak Creek (Figures 1.1, 3.22, 3.25 and 3.20).

The Alagnak River is located to the south of the Kvichak River, and drains into it just above Cape Horn and immediately before the Kvichak empties into Kvichak Bay. The Alagnak is a designated Wild River by Title VI, Section 601(25) and 603(44) of ANILCA, which preserves the upper 56 miles of the river in a free-flowing condition. It is administered by the National Park Service. It originates from upland streams that

feed into Kukaklek and Nonvianuk Lakes, located near the northwestern corner of Katmai National Park and Preserve.

The Nushagak River begins in the Nushagak Hills and flows generally southward to tidewater at the head of Nushagak Bay. The valley floor of the Nushagak River is an abandoned flood plain sloping southward and is dotted with hundreds of small lakes. Large tributaries of the Nushagak include the Nuyakuk, Wood, Snake, and Igushik rivers. According to current usage, the mouth of the Nushagak River is considered to be directly east of Dillingham and just south of the mouth of the Wood River. However, only from Black Point, about 20 miles to the southeast, does the river begin to maintain a continuous downstream current. Tides affect the Nushagak as far upstream as the Keefer Cutoff, approximately 43 miles above the mouth of the river, where the Iowithla River flows into the Nushagak on its west side. Tidal waters, though having maxima of only 19 and 21 feet, respectively, at Clarks Point and Dillingham, pile up in the narrow waterways of the lower parts of the Wood and Nushagak Rivers and raise the water levels upstream several feet higher. The tidal currents are strong, the ebb bring the stronger on account of the current from the Nushagak and Wood Rivers (Mertie 1938).

The Nushagak is navigable at an average stage of water for small boats for more than 250 miles upstream (Mertie 1938). Other tributaries flowing into the Nushagak from the west include Koggiling Creek, Lower Klutuk Creek, the Mulchatna River, and Cranberry Creek. Tributaries entering the Nushagak from the east above the Iowithla include Koklong Creek, Upper Klutuk Creek, and Napatoli Creek.

The Naknek River is the southeasternmost major river in the Bay planning area. Its headwaters are in the western mountains of the Aleutian Range. It flows westward from Naknek Lake and empties into Bristol Bay. The communities of King Salmon, Naknek, and South Naknek are located on its shores. BLM lands in this vicinity are all either State- or Native-selected and are not expected to return to BLM.

The blocks of BLM unencumbered land in the Bristol Bay region can be found in Game Management Units (GMUs) 9(B), 9(C), 17(B) and 17(C). Uniform Coding Units (UCUs) are smaller units within GMUs (Figures 3.19 a, b, and c).

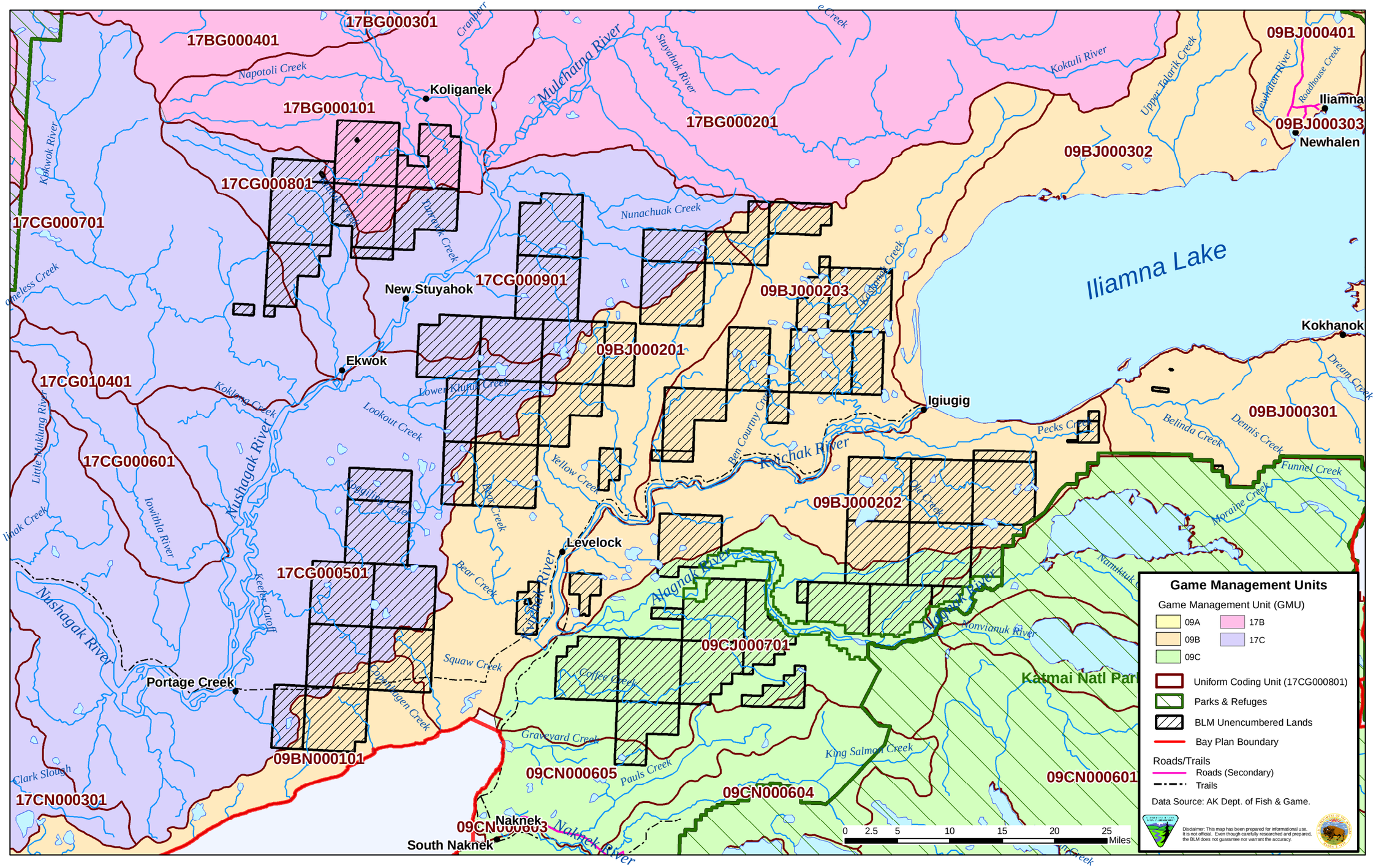

Fig. 3.19a - Game Management Units, Uniform Coding Units for planning blocks
Klutuk Creek, Yellow Creek, Koggiling Creek, Kvichak, Alagnak, Iliamna West

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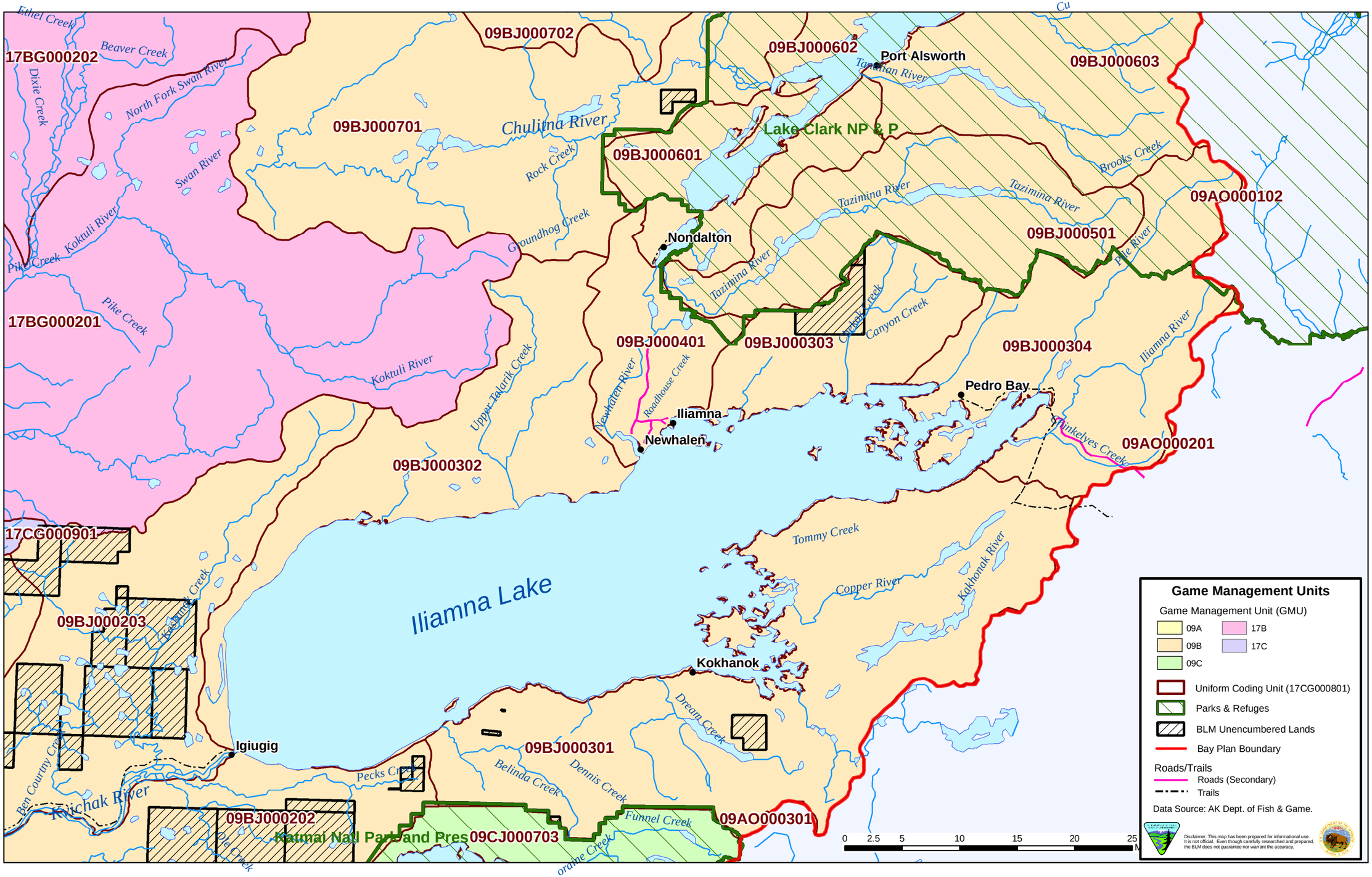

Fig. 3.19b - Game Management Units, Uniform Coding Units for planning blocks Iliamna East and Iliamna West.

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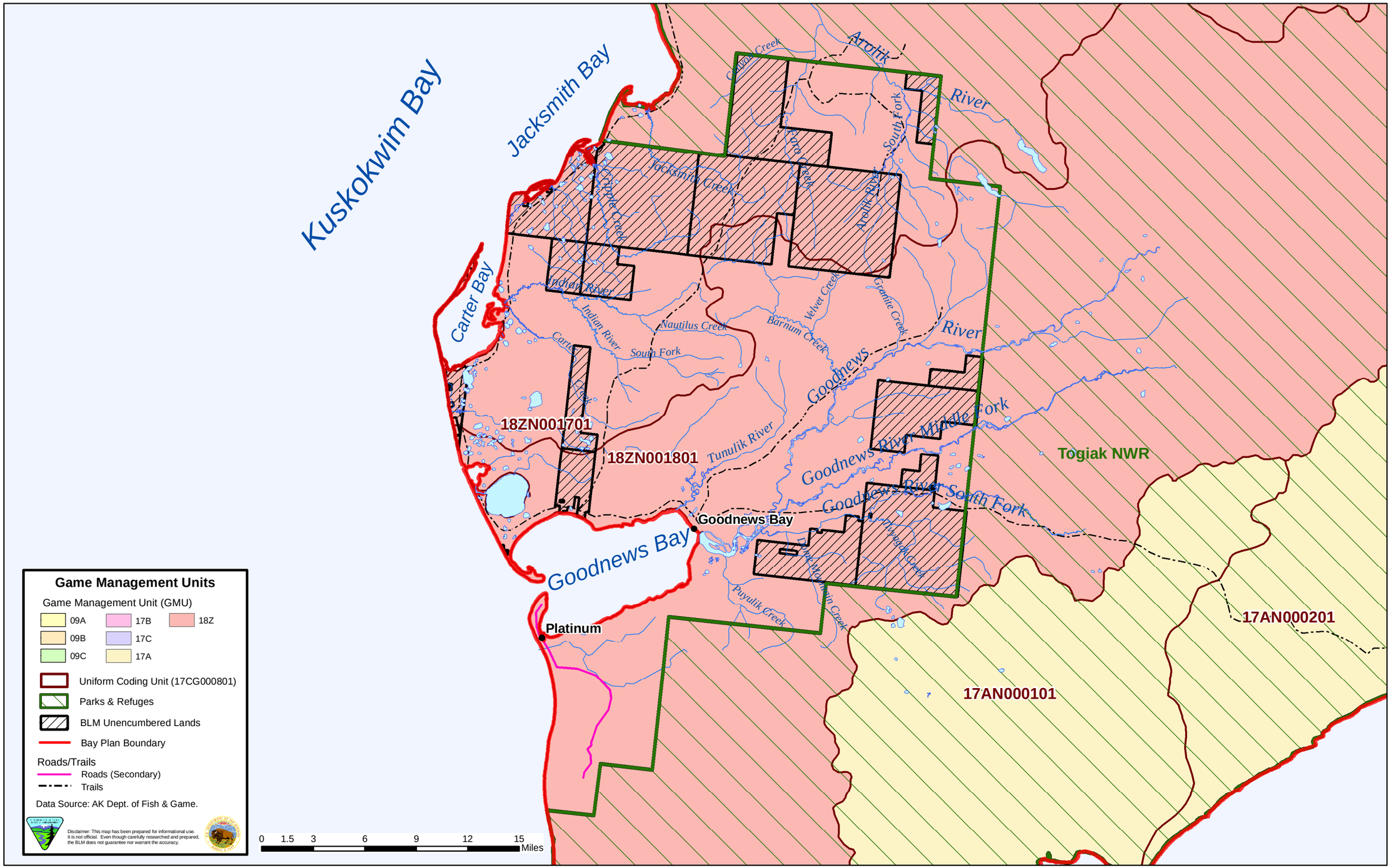

Fig. 3.19c - Game Management Units, Uniform Coding Units for Goodnews planning block.

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GMU 9(B) is located just west of Lake Iliamna, and is 2,004,000 mi². It is dominated by the Kvichak River and its tributaries, all three of which cross BLM-administered lands and provide drainage for them. Thousands of large and small shallow lakes and ponds dot the landscape and provide riparian habitat, summer water-dependent vegetative habitat, and tundra. BLM-administered lands in this GMU are nearest to the communities of Port Alsworth, Nondalton, Pedro Bay, Iliamna, Newhalen, Kokhanok, Igiugig, and Levelock.

A portion of GMU 9(C) is in the Bay planning area. In its entirety, 9(C) is 818,000 mi². Unencumbered BLM-administered lands in this GMU are located adjacent to the Alagnak Wild River on the south side of the river. To the east, elevations rise to as much as 2,085 feet asl at Sugarloaf Mountain. BLM lands in the area are drained by a large number of small streams that empty into the Alagnak River, and the entire area is interrupted by numerous large and small lakes. Vegetation is predominantly wet tundra. The southernmost extent of BLM lands crosses into the Naknek River drainage at the headwaters of deciduous brush-lined Pauls Creek. GMU 9(C) includes the communities of Naknek, King Salmon, and South Naknek.

GMU 17(B) is drained by the Nushagak and Mulchatna rivers, their tributaries, lakes and ponds. BLM-administered lands in this important GMU are limited to the southcentral portion of the unit near the community of Koliganek. This area is part of the extensive glacially defined Bristol Bay Plain. BLM-administered lands sit at elevations of from 200 to 600 feet asl, and are drained primarily by Klutuk Creek and other streams that empty into the Nushagak River. The rolling terrain has many kettle lakes, and is covered with wet tundra.

GMU 17(C) is contiguous to 17(B), extending southward and westward. It includes BLM-administered lands in the middle and lower Nushagak river drainage and its tributaries, nearest the communities of Koliganek, New Stuyahok, Ekwok, and Portage Creek. At a slightly greater distance, but still within their subsistence use areas, are the communities of Ekuk, Clarks Point, Dillingham, Aleknagik, and Manokotak. Many small lakes and ponds dominate the landscape in this region that is a continuation of the Bristol Bay Plain. To the north, north of the Iowithla River, are the Muklung Hills. North of Dillingham and Aleknagik are the headwaters of the Wood River and the Wood-Tikchik lakes.

b) The Role of Fish and Wildlife Habitats in the Bay Planning Area

Salmon is the single most important subsistence food in the diets of Bay planning area residents in 25 communities, who practice a mixed subsistence-cash economy lifestyle based largely on traditional subsistence hunting and fishing and commercial fishing (ADF&G 2005a) (Figures 3.32 a, b, c, and d). Alaska's 2005 commercial exports to other countries were led by Alaskan seafood at 53% of the state's total exports. Southwest Alaska is the home to the most productive and well-managed fisheries in the world (SWAMC 2005). In a recent 5-year average from 2000 to 2004 of salmon harvests for selected Alaska commercial salmon fisheries, Bristol Bay, the Alaska Peninsula and the Aleutian Islands ranked a close second to Southeast Alaska and Yakutat. During this period, Bristol Bay, the Alaska Peninsula, and the Aleutian Islands brought in 153,057,263 pounds of salmon worth $69,765,000, or 30% of the total value of the state fishery (Woodby et al. 2005).

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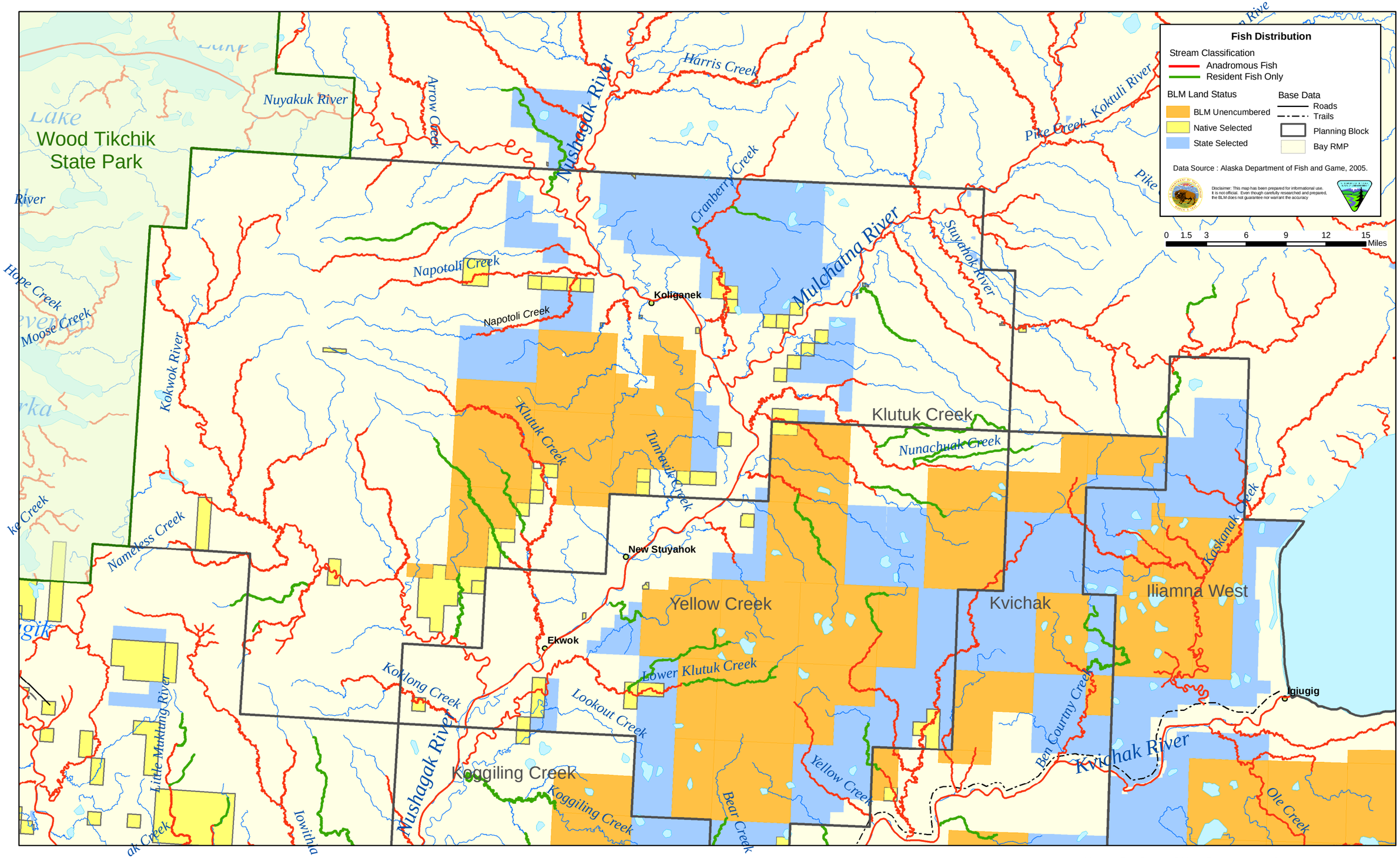

Figure 3.32a - Fish Inventory - Klutuk Creek, Yellow Creek, Kvichak, Iliamna West Planning Blocks

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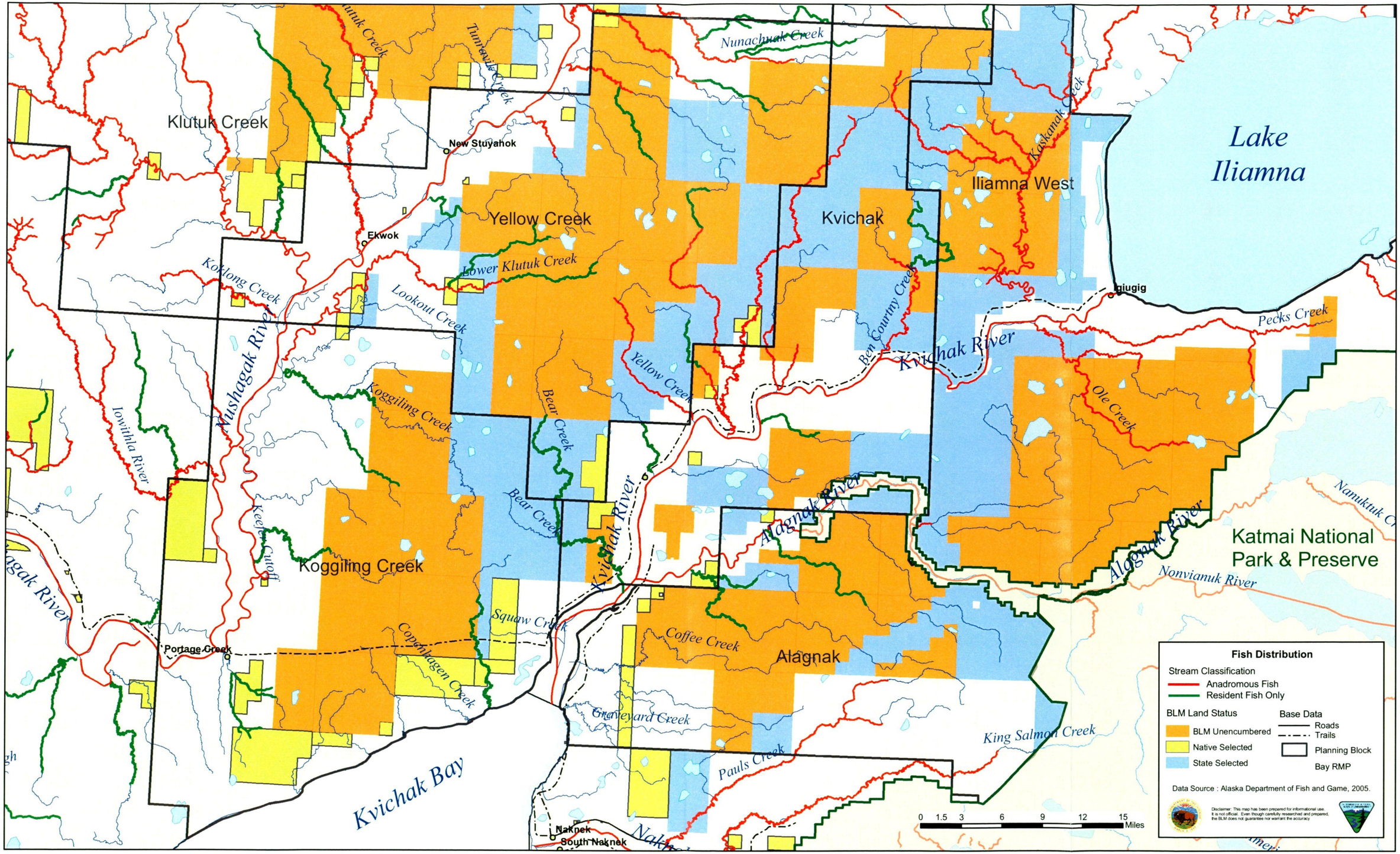

Figure 3.32b - Fish Inventory for Yellow Creek, Kvichak, Koggiling Creek, Alagnak, Iliamna West Planning Blocks.

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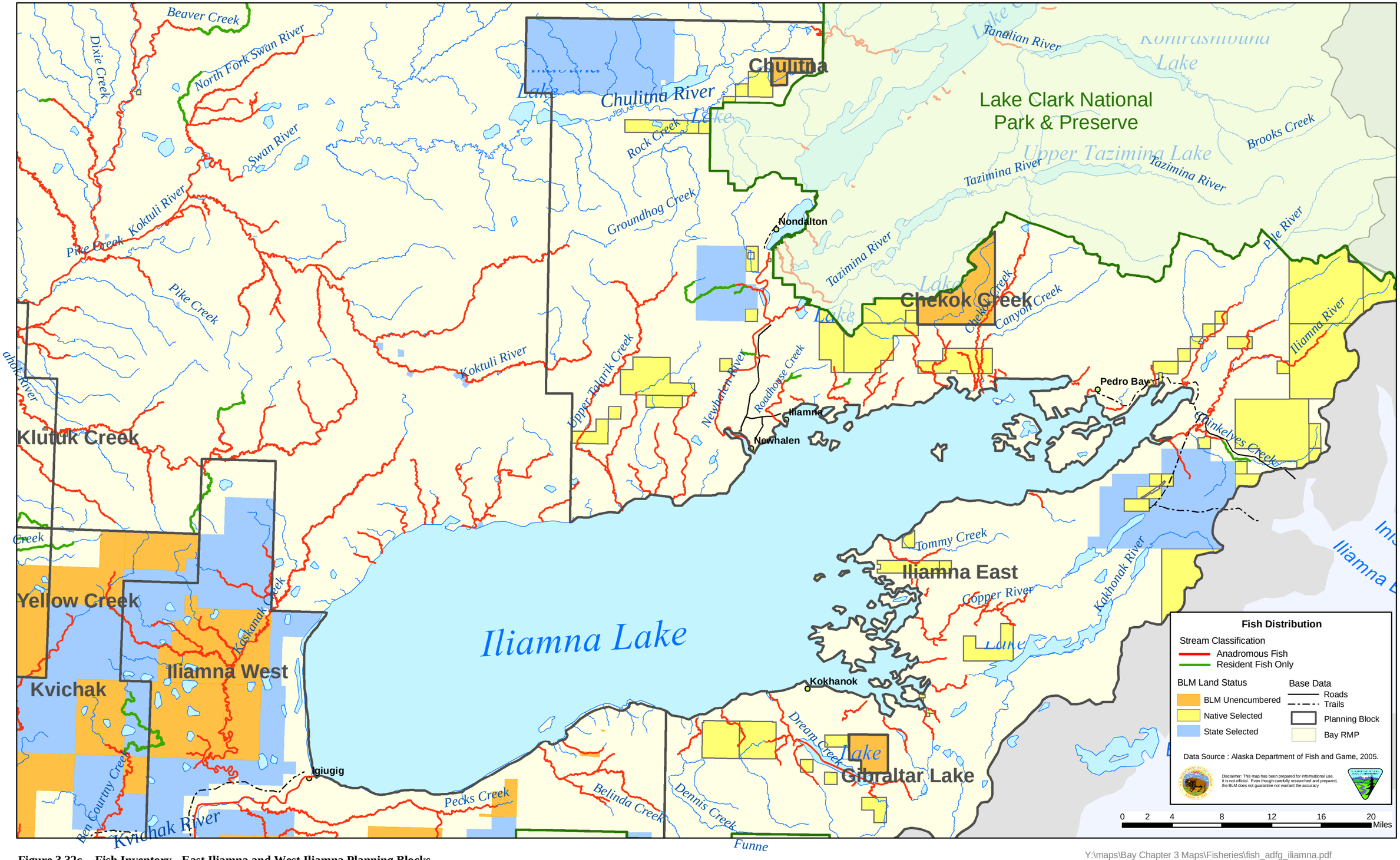

Figure 3.32c - Fish Inventory - East Iliamna and West Iliamna Planning Blocks

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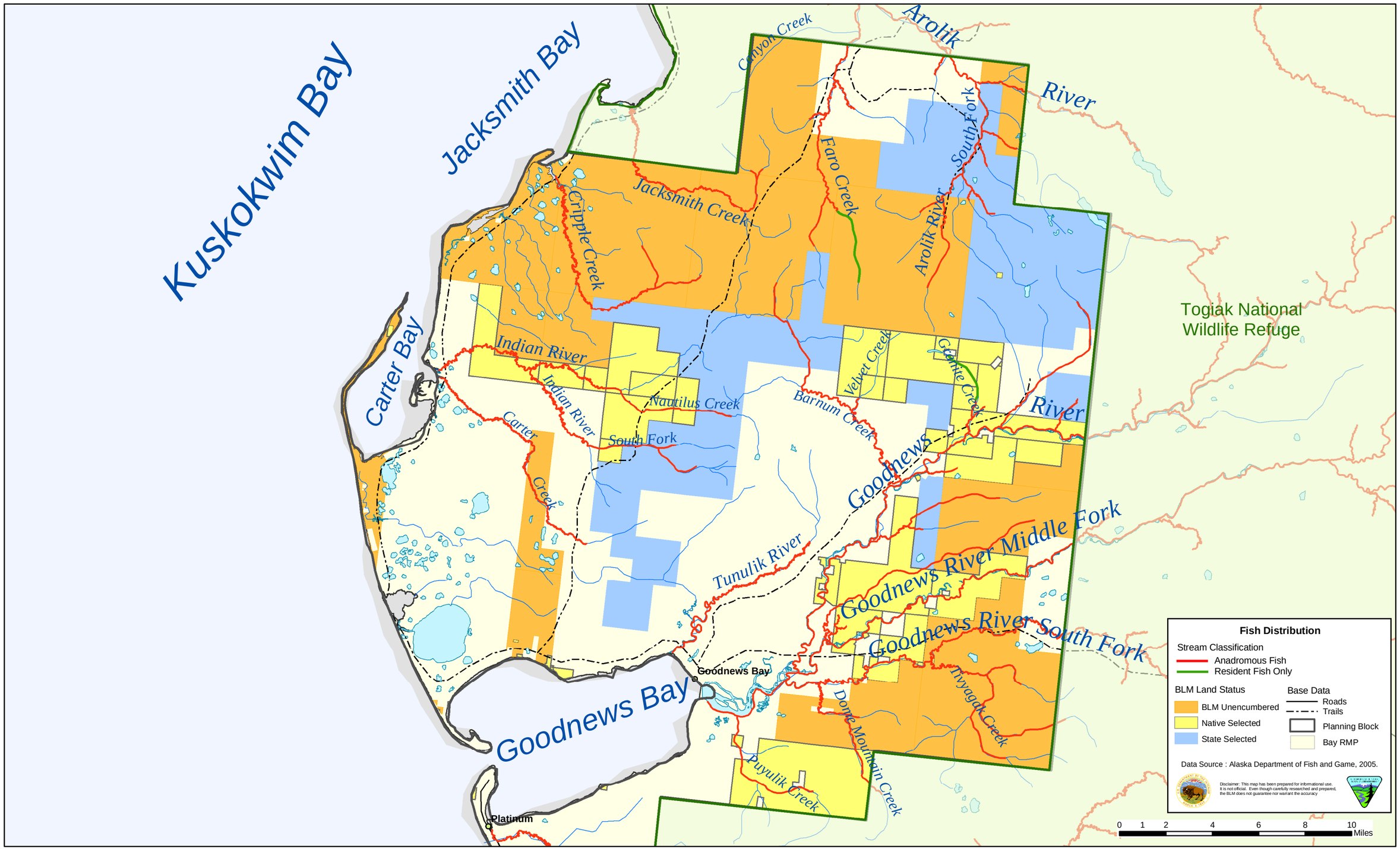

Figure 3.32d - Fish Inventory for Goodnews Planning Block

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The Bristol Bay commercial salmon district provided a harvest of approximately 26 million salmon of all kinds in 2005, at a value of over $93,000,000. The 1985-2004 average sockeye salmon harvest for the Naknek-Kvichak district was 7,800,000 fish, or approximately 33% of the total sockeye take in all of the Bristol Bay districts, and the average sockeye salmon harvest for the Nushagak district for the same time period was 4,000,000 fish or 17% of the total. The 2005 Naknek-Kvichak district harvest was slightly less than average at 6,7000,000 sockeye, and the Nushagak district harvest was more at 7,100,000 sockeye (ADF&G 2005c).

In addition to subsistence and commercial use of fish in the region, in 2004 there were 140 registered freshwater fishing guides on Bristol Bay freshwater streams and lakes, according to the Alaska Department of Fish and Game (ADF&G 2004). Recreational angler effort in this region has risen steadily from 1977 to the present. In 1995, angler effort in the South West Management Area was 4.6% of the total angling effort in Alaska (Minard et al. 1998 with references). Sockeye, Chinook and coho salmon are the most frequently harvested species, followed by Dolly Varden/Arctic char, rainbow trout, and Arctic grayling. Recreational fisheries in Southwest Alaska provide the angler with a unique combination of high quality salmon and rainbow trout fishing in a pristine wild and roadless setting. In 1997 the sport fishery was estimated at over $50,000,000 (Minard et al. 1998).

The State's Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes - Southwestern Region lists many of the streams and rivers that cross BLM lands in the Bay planning area (Johnson et al. 2004). In order to hatch and grow, fish require healthy watersheds, and BLM unencumbered lands in Bristol Bay are central to these important drainages.

In addition to their commercial value, in completing their life cycles anadromous fish bring back nutrients and deposit them in the terrestrial environment. Salmon are a keystone species in vertebrate communities (Willson and Halupka 1995). Salmon feeding in the ocean put on approximately 90% of their body weight there, incorporating and accumulating nutrients from the marine environment in their body tissues (Finney et al. 2000). A massive movement of marine-derived nutrients then occurs from ocean to freshwater and terrestrial ecosystems via their migrations (Levy 1997). After spawning, salmon die and their carcasses fertilize the freshwater systems with marine-derived nutrients which are important nutrient sources for riparian vegetation and terrestrial fauna such as bears, wolves, birds, and small mammals (Juday et al. 1932; Willson et al. 1998; Cederholm et al. 1999). "Anadromous salmon provide a rich, seasonal food resource that affects the ecology of terrestrial and aquatic consumers, and indirectly affects the entire food-web that knits the water and land together" (Cederholm et al. 2000).

Caribou are second in importance only to salmon in the subsistence diets of the residents of the Bay planning area (ADF&G 2005a). They are also important to hunters from other regions of Alaska and to guided and unguided hunters from outside of Alaska. According to ADF&G Harvest records for caribou from 1983-2002, Game Management Units (GMUs) 9 and 17 provided approximately 25% of all caribou harvested in the state. This is an impressive number for a largely roadless area. Unencumbered BLM lands in the planning area provide prime caribou habitat and comprise a small but vital portion of these GMUs (Figure 3.12).

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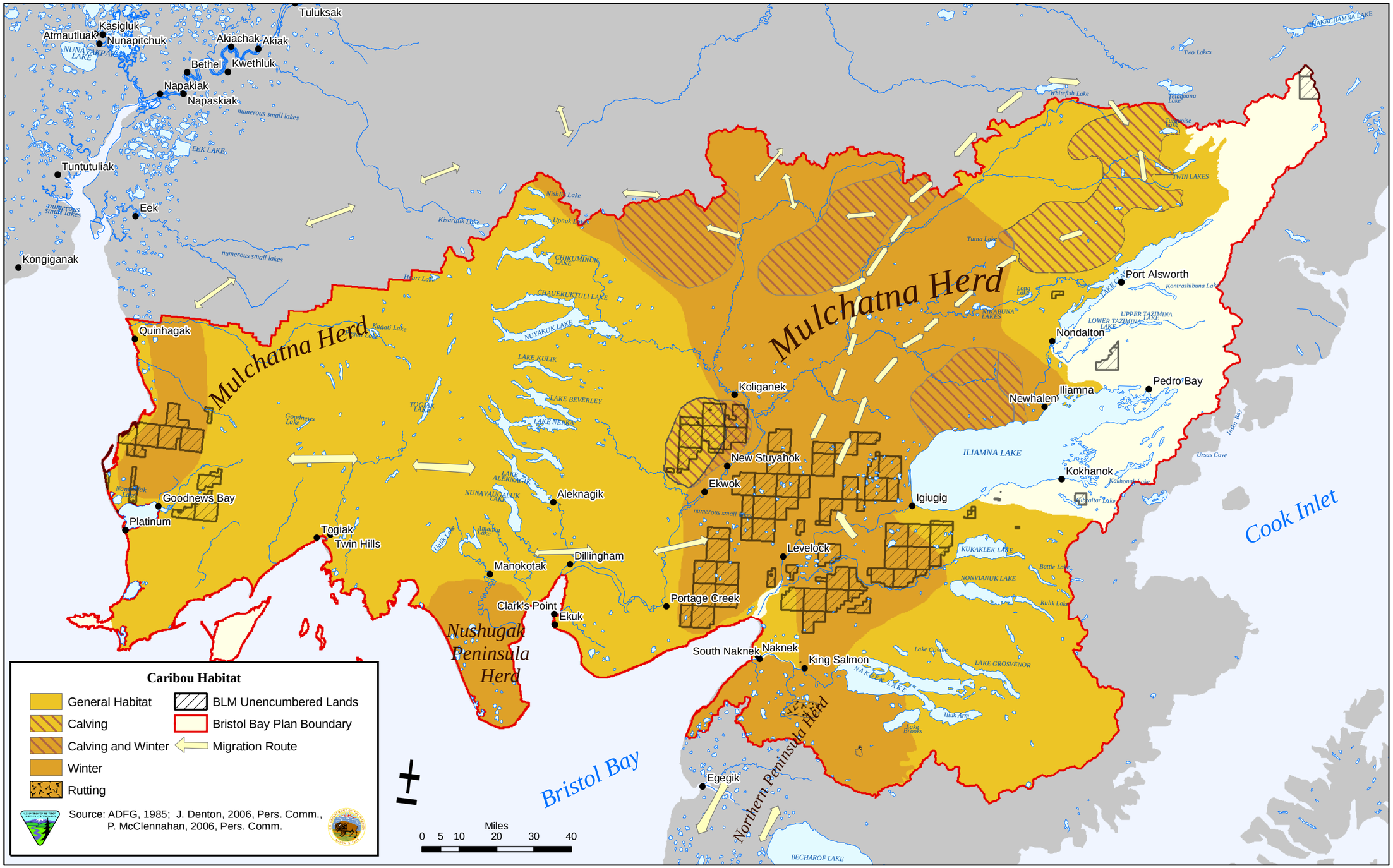

Map 3.12 Caribou Range and Migration Patterns

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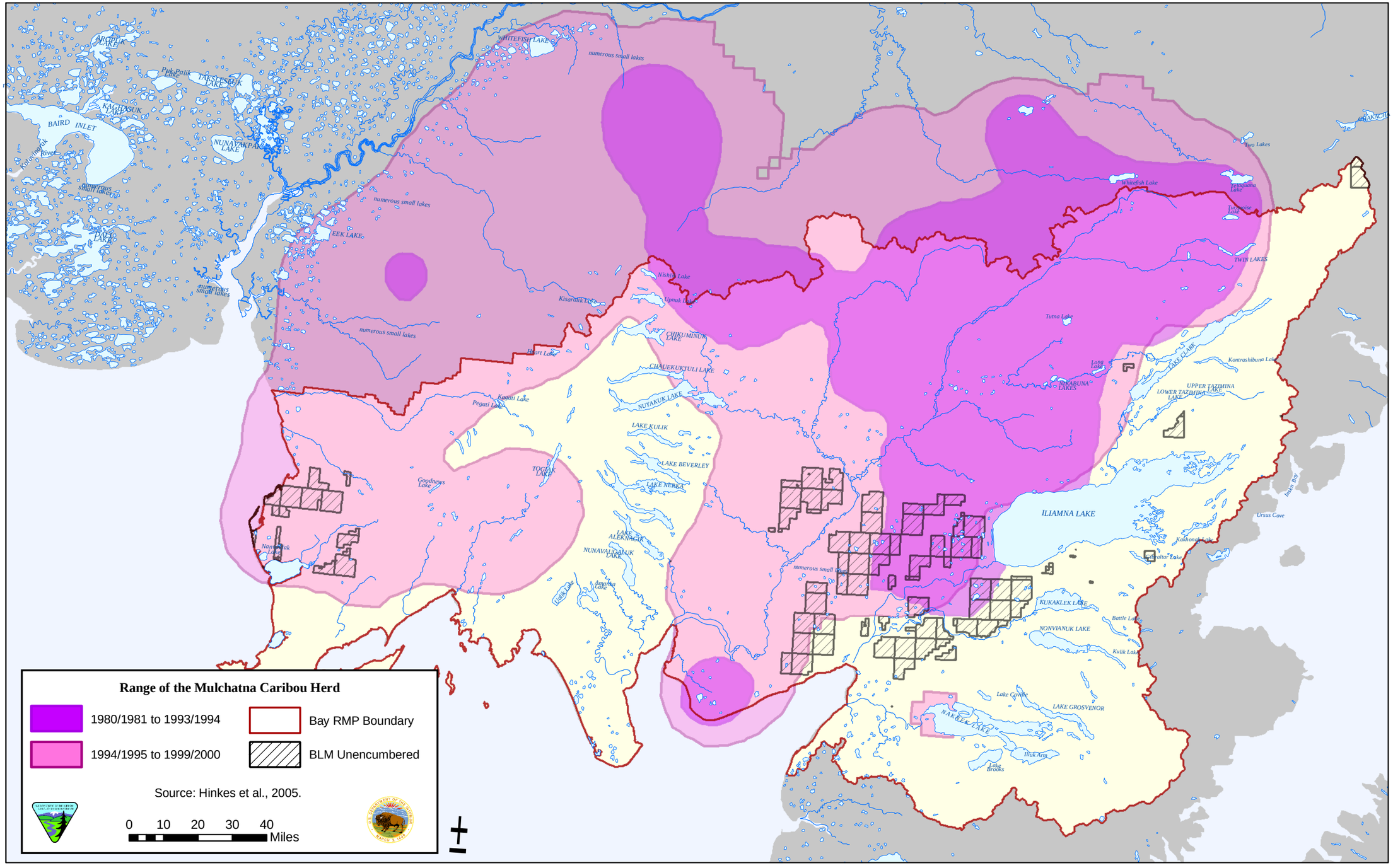

Map 3.13. Range (95% fixed kernel) of the Mulchatna Caribou Herd before and after the 1994 shift to the west, southwest Alaska, USA, 1980 - 2000

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