State of Alaska

Department of Natural Resources

Division of Mining, Land, and Water

Uganik River Reservation of Water
LAS 23806 & 29880

From river mile 0.0 at the mouth of the Uganik River where it discharges into the East Arm of Uganik Bay at the closing line, upstream approximately 4.9 river miles to the outlet of Uganik Lake.

Application by the United States Fish and Wildlife Service for the Reservation of Water, Under AS 46.15, the Alaska Water Use Act

Finding of Facts, Conclusions of Law, and Decision

INTRODUCTION

On September 27, 2001, the Alaska Department of Natural Resources (ADNR, Department) accepted an application from the United States Fish and Wildlife Service (USFWS) under AS 46.15.145 and 11 AAC 93.141, to reserve a specified portion of the stream flows within Uganik River near Kodiak, Alaska from river mile 0.0 at the mouth of the Uganik River where it discharges into the East Arm of Uganik Bay at the closing line, upstream approximately 4.9 river miles to the outlet of Uganik Lake. Hydrology was reevaluated and revised to reflect accurate gage data which was at the request of ADNR when the adjudication commenced. This reevaluation/revision is the reason for the change in flow requests time period breakouts. Flows that were granted above the original requested flows due to the revision will receive the priority date of March 20, 2012, while granted flows not increased above the original requests will retain the original priority date of September 27, 2001.

A reservation of water, sometimes referred to as a reservation in this document, is an appropriation of water that remains within the river for any one, or a combination of four purposes authorized by statute. These purposes include the protection of fish and wildlife habitat, migration, and propagation; recreation and park purposes; navigation and transportation purposes; or sanitary and water quality purposes. The reservation of water requested here is for the purpose of protecting fish and wildlife habitat, migration, and propagation for which the Commissioner of Natural Resources may "reserve sufficient water to maintain a specified instream flow...in a specified part of a stream, throughout a year or for specified times..." under AS 46.15.145 (a)(1).

Under 11 AAC 93.141 (1), "protection of fish and wildlife habitat, migration, and propagation...means the quantity or level of water necessary to maintain suitable habitat conditions for the various life stages of fish,

other aquatic organisms, and wildlife including waterfowl and mammals, and their habitat, including water quality, depth, velocity, and temperature, substrate, or streamside vegetation."
Holders of water rights junior to an established reservation of water as well as other users may be unable to divert or withdraw significant amounts of water when stream flows fall below those required by the reservation. Senior water right holders will remain unaffected by a junior reservation.

This reservation application adequately described and quantified the requested flows. Public and agency notice of the application was given consistent with the requirements of 11 AAC 93.145, 11 AAC 93.080, and AS 46.15.133. Below, the proposed reservation is summarized and specific findings of fact and conclusions of law are described.

DESCRIPTION OF PROPOSED RESERVATION; LAS 23806

Proposed Reach Description: Lower Uganik River and its floodplain, beginning at the Uganik Lake outlet within Section 13, Township 29 South, Range 26 West, Seward Meridian. The stream segment is approximately 4.5 river miles in length, and ends at the mouth of the Uganik River where it discharges into the East Arm of Uganik Bay, within Section 3, Township 29 South, Range 26 West, Seward Meridian (Map 1a-b). Said portion of Uganik River is located within:

Township	Range	Sections
29 South	26 West	2, 3, 10, 11, 12, 13, 14

All within the Seward Meridian (See Map 1 a-b).

Requested Reservation Flows:

Time Period	Flow Rate (cfs)
January	250
February	250
March	250
April	170
May	720
June	1460
July	1160
August	690
September	600
October	400
November	275
December	250

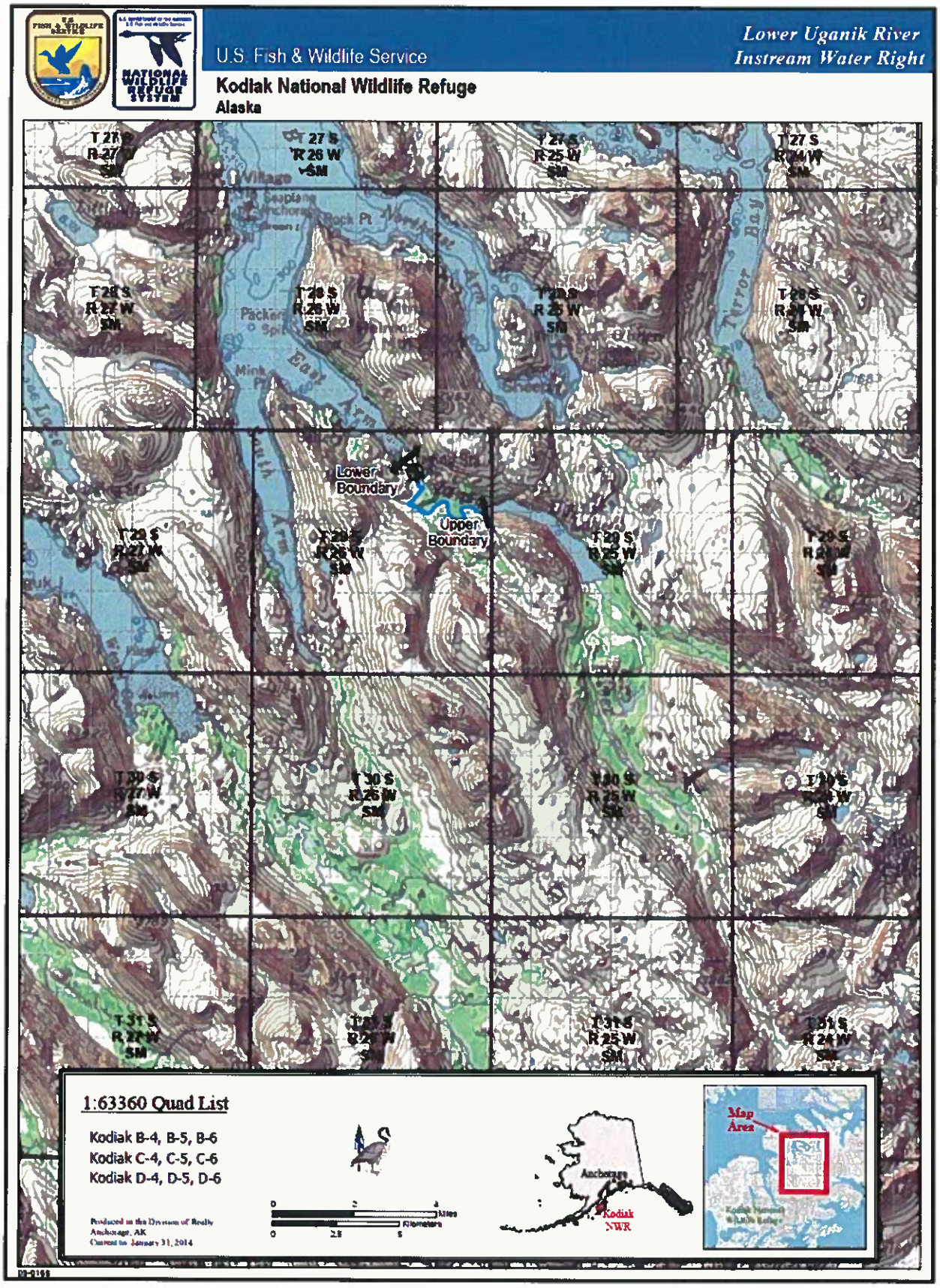
cfs = cubic feet per second

Discussion: Time periods and reservation flows have been requested by USFWS based on their review and analysis of the data regarding the life cycles of the many species of fish in the area and the effects of that flow level on fish and wildlife habitat, migration, and propagation. According to the Instream Flow Councils 'Instream Flows for Riverine Resource Stewardship'[1],

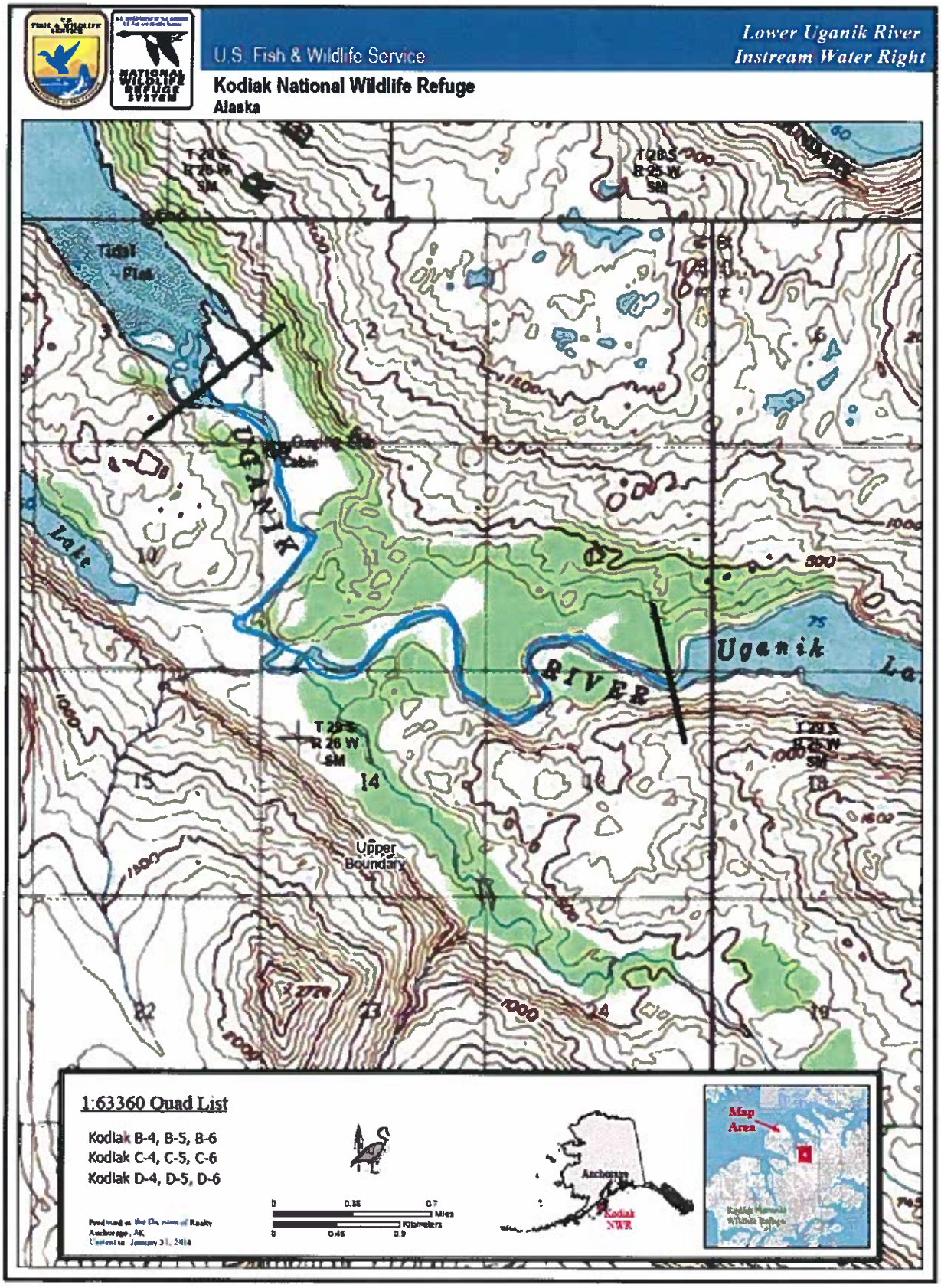
> Typically, providing a healthy aquatic community involves attention to the magnitude and duration of the natural flow regime's seasonal patterns (Poff et al. 1997). Flow conditions that vary in a manner similar to natural conditions will establish a variety of habitats and diverse fish communities. Different flow needs can be met by providing them all-separated by time. Variable conditions allow different species to flourish at different times. A temporal and spatial mosaic is a necessary component of riverine ecosystem integrity.
>
> River ecosystems are complex and require variable flows. For example, high flows form and maintain the shape and characteristics of the river channel and floodplain, flush sediment from spawning gravels, maintain riparian vegetation and stream bank stability, provide habitat critical to the life history of certain fishes, and provide cues that initiate fish migration and spawning. The life history of all aquatic organisms have adapted to naturally occurring seasonal flow regimes.
>
> Providing suitable hydraulic habitat for aquatic organisms is a necessary part of any instream flow prescription...Habitat defined through hydraulic characteristics (such as water depth and velocity) and channel characteristics (such as substrate, cover, stream width) is sometimes referred to as hydraulic habitat. Aquatic organisms select habitat based, in part, on the physical characteristics of their surroundings. To evaluate existing hydraulic conditions as they relate to aquatic organisms, the relation of stream flow to habitat must be quantified over time.
>
> The objective of an instream flow prescription should be to sustain, rehabilitate, or restore ecosystem processes through inter- and intraannual variable flow regimes to the greatest extent possible. Instream flow prescriptions should provide inter- and intraannual variable flow patterns that mimic the natural hydrograph (magnitude, frequency, duration, timing, rate of change) to maintain or restore processes that sustain natural riverine characteristics.

[1] Annear, T., I. Chisholm, H. Beecher, A. Locke, and 12 other authors. 2004. Instream flows for riverine resource stewardship, revised edition. Instream Flow Council, Cheyenne, WY. Pp. 9, 22, 23, 101.

Map 1a. Reservation of water application reach map (See 'Reach Description' for specific reach location)



Map 1b. Reservation of water application reach map (See 'Reach Description' for specific reach location)



AREA BACKGROUND

River: Uganik River[2] begins in the mountains and flows northwest 27 miles (through Uganik Lake) to East Arm Uganik Bay, on the north coast of Kodiak Island. Approx. location: 57°41'N, 153°25'W. *Variant Names:* Uganuk River.[3]

River Basin Area: At USGS gaging station #15296000 [UGANIK R NR KODIAK AK], the basin area is 123 mi^2. At the inlet into Uganik Bays East Arm, the watershed area is 128 mi^2.

Lakes: The Uganik River basin contains about 20 lakes with a combined area of 2.24 mi^2. The largest of these lakes are Uganik Lake and Mush Lake.

Map Coverage: USGS 1:250,000 Kodiak Island

General Area Description: The Uganik River basin is located on Kodiak Island. The basin is to the west of Mount Glottof and is within a primarily mountainous region. It contains many peaks and small streams, as well as a few lakes. The highest point in the basin is an unnamed peak that is 4,039 feet high.

Channel Description: The Uganik River begins on an unnamed peak at the southeast edge of the watershed. It flows northwest 27 miles into the East Arm of Uganik Bay. The average gradient of the river is 86.5 feet per mile. At the start of the river, the channel is 100 feet wide, and at the inlet into the East Arm of the Uganik Bay, the river channel is 180 feet wide.

Reach Description: Uganik River, from the Ordinary High Water Mark (OHWM) of the outer bank (of the outside braid, where braided) of the left bank up to the OHWM of the outer bank (of the outside braid, where braided) of the right bank, including any sloughs, braids, or channels which carry water and are an integral part of the river from river mile 0.0 at the mouth of the Uganik River where it discharges into the East Arm of Uganik Bay at the closing line, upstream approximately 4.9 river miles to the outlet of Uganik Lake (Map 1). This description does not limit the quantities of water (flow rate) reserved by this decision and certificate to quantities (flow rates) within said OHWM boundaries.

Climate: The Uganik River lies within the Southern Alaskan maritime climate zone, which is characterized by cool summers and moderated by the Gulf of Alaska. The closest weather station is located within Uganik Bay and is summarized in Table 1.

[2] Completed by Alex Whitehead, Alaska Hydrologic Survey, DNR, 5/31/2012
[3] Orth, Donald J., (1967) *Dictionary of Alaska Place Names*, USGS Professional Paper 567

Table 1. Weather Station Summary from Uganik Bay, Alaska[4].

	Uganik Bay, AK; 509511								8/5/1951 to 3/31/1965				
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Max. Temp. (F)	35.7	36.9	39.0	44.0	52.8	60.9	64.4	64.6	56.9	47.5	40.2	33.8	48.1
Avg. Min. Temp. (F)	24.2	23.7	25.0	29.4	35.6	42.3	47.2	48.3	42.5	33.2	27.9	22.0	33.4
Avg. Total Precip (in)	4.09	3.02	2.94	3.31	2.75	1.76	2.12	1.81	3.81	6.42	5.94	4.61	42.58
Avg. Total Snowfall (in)	13.8	7.7	9.4	3.4	0.0	0.0	0.0	0.0	0.1	0.7	3.2	12.1	50.4
Avg. Snow Depth (in)	7	9	6	1	0	0	0	0	0	0	0	4	2

Available Streamflow Data: Discharge data for USGS station #15296000 [Uganik R NR Kodiak AK] was operated from May 23, 1951 to September 30, 1978.[5]

Table 2. USGS discharge data for gage #15296000 [Uganik R NR Kodiak AK]

USGS Discharge Data [15296000; UGANIK R NR KODIAK AK]												
YEAR	Monthly mean in ft3/s (Calculation Period: 1951-06-01 -> 1978-09-30)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1951						2,120	923.6	685.5	529.1	308.1	418.2	106.3
1952	75.4	59.0	62.5	85.9	537.1	1,034	1,562	498.4	497.7	1,453	849.4	407.2
1953	263.2	165.4	134.8	383.4	913.0	2,697	1,494	821.9	500.2	754.7	202.4	147.5
1954	97.0	80.0	76.0	158.8	953.1	1,610	1,160	586.3	253.9	933.3	1,129	180.2
1955	120.0	110.0	143.5	131.3	664.9	1,266	1,735	924.7	781.2	579.5	171.4	94.8
1956	53.0	50.0	53.0	180.9	935.2	1,517	1,904	1,048	421.6	187.7	152.7	119.5
1957	87.8	87.9	137.8	280.1	976.3	1,700	698.9	383.9	1,523	790.7	1,097	274.0
1958	315.0	298.5	244.1	346.5	806.5	2,216	1,325	836.5	312.0	336.2	300.2	232.5
1959	138.7	130.7	125.2	282.1	1,077	1,978	994.3	681.3	502.7	903.2	1,378	345.8
1960	410.2	233.0	150.8	185.8	1,396	2,084	1,647	943.0	903.3	487.7	436.8	490.7
1961	581.0	196.0	108.8	213.9	1,258	1,728	1,740	1,002	740.0	358.7	360.7	310.9
1962	230.0	140.0	120.0	250.0	706.1	1,539	789.0	444.6	623.4	486.2	1,328	432.1
1963	1,108	341.1	215.4	134.9	543.4	1,124	944.5	946.2	1,083	724.3	214.3	574.2
1964	226.7	126.6	86.9	214.3	503.6	2,038	1,309	1,232	618.1	551.4	230.2	125.1
1965	128.2	85.9	631.1	285.3	709.9	1,445	1,513	640.9	932.4	964.7	128.0	131.5
1966	211.0	122.3	76.7	205.5	507.2	2,189	1,401	793.8	1,352	504.5	161.5	110.6
1967	85.2	60.5	66.5	258.1	1,002	1,302	457.3	579.1	1,399	653.9	646.7	532.3
1968	225.8	442.4	303.5	247.0	1,011	1,418	1,304	929.5	526.1	383.6	515.0	121.5
1969	74.4	74.6	137.7	378.0	1,319	2,885	1,322	686.7	1,098	2,106	395.3	620.0
1970	149.8	295.2	270.9	256.6	777.9	1,710	1,732	1,274	878.5	573.4	1,086	279.3

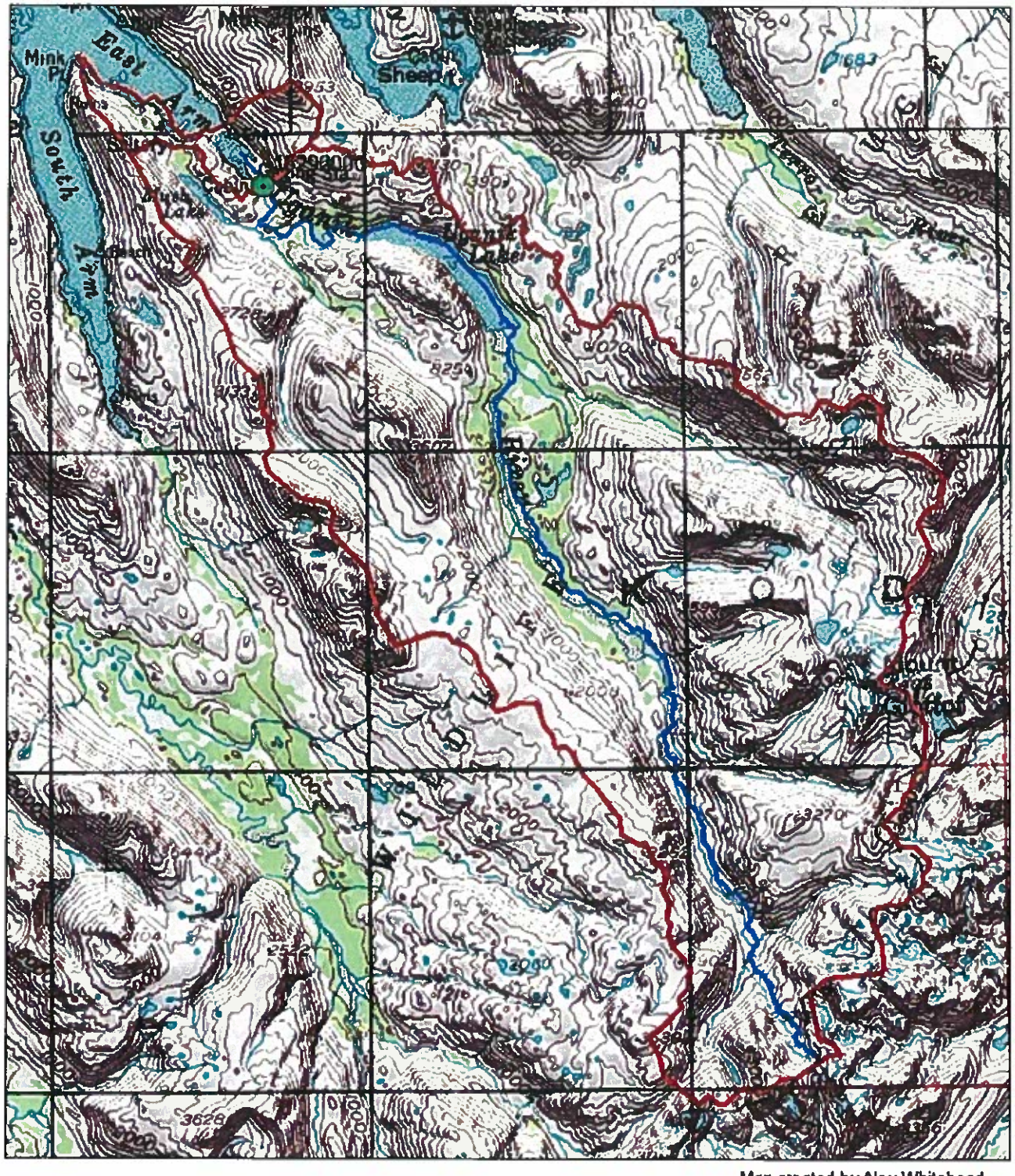
[4] Western Regional Climate Center. 2013. National Climate Data Center Cooperative Station – Uganik Bay, Uganik Alaska (509511). Period of Record Monthly Climate Summary; accessed 7/31/2014.

[5] USGS, *National Water Information System: Web Interface*, Retrieved 5/31/12, http://waterdata.usgs.gov/ak/nwis/inventory

1971	198.4	273.2	150.0	200.0	473.2	1,705	2,426	1,308	807.1	663.8	447.3	210.6
1972	126.0	47.9	26.1	69.2	728.6	1,326	1,362	887.0	589.7	501.1	423.9	218.0
1973	95.0	85.2	86.6	213.0	1,503	1,787	1,841	830.6	889.3	162.2	100.0	81.6
1974	74.8	68.2	162.3	323.7	772.5	1,626	1,114	744.5	1,183	636.7	381.3	135.2
1975	135.8	125.7	101.6	203.0	760.5	1,665	1,982	978.5	768.4	725.7	265.2	202.6
1976	181.3	121.4	117.1	144.0	749.8	1,710	1,819	1,269	1,938	746.6	553.0	409.9
1977	762.8	522.7	131.9	216.2	592.0	2,329	2,580	1,907	468.3	758.7	204.6	85.2
1978	107.3	159.6	137.4	258.0	1,011	1,727	1,688	1,221	1,180			
Mean of monthly Discharge	232	167	150	226	859	1,770	1,460	896	832	675	503	258

Data Adequacy: Twenty seven years of USGS approved and published discharge data is an adequate amount of data to complete a reservation of water.

Map 2. Map of Uganik River watershed.



Navigability: Uganik River is considered unknown for navigability, according to the State of Alaska (for Title purposes)[6]. Please contact the Public Access, Assertion, and Defense Unit Manager for more information (907-269-5515; scott.ogan@alaska.gov).

EXISTING LAND USE PLANS, VALUES, AND USES

Discussion: Staff reviewed an area plan and comprehensive plans. Recommendations provided in these documents were considered in determining if the flows and time periods for the reservation of water requested are in the public's best interest. ADNR uses the criteria in AS 46.15.080 and AS 46.15.145 to help determine the appropriate balance of the proposed reservation with those of other existing and potential users. These plans help ADNR have a better understanding of potential future water needs.

There are three documents used to better assess the needs of current and future plans in the Uganik River watershed. These are:

1. *Kodiak Area Plan* – ADNR (December 2004)
2. *Revised Comprehensive Conservation Plan, Kodiak National Wildlife Refuge* – U.S. Fish & Wildlife Service (August 2008)
3. *Kodiak Island Borough Comprehensive Plan Updated* – Kodiak Island Borough (January, 2008)

While the land surrounding the Uganik River is federally owned, one of the intents of the Kodiak Area Plan (State of Alaska) is to designate and provide management intent:

> 'Certain rivers and lakes within the Refuge are considered significant for their habitat and recreational values. For example, streams with high bear concentrations are important for their habitat value and as popular viewing areas. The navigable portions of these waterbodies are co-designate Habitat and Public Recreation – Dispersed. The Habitat designation converts to the land use classification of Wildlife Habitat Land and the designation of Public Recreation – Dispersed, to Public Reaction Land.
>
> Rivers: Karluk, Ayakulik, Red Creek, Falls Creek, O'Malley, Uganik, and Sturgeon.'[7]

Within the Kodiak National Wildlife Refuge Revised Comprehensive Conservation Plan (KNWR Plan), there are several goals that lead to the need for a reservation of water. They include[8]:

> 'Goal 2: Ensure that Kodiak brown bears continue to flourish throughout the Refuge and congregate at traditional concentration areas.
>
> Goal 7: Conserve the abundance of natural salmonid populations for continued human and wildlife use, and ensure the diversity of species as indicators of the health of the Refuge's ecosystem.

6 Alaska Department of Natural Resources, Division of Mining, Land, & Water, Navigable Waters Web Map. Http://www.navmaps.alaska.gov/navwatersmap/, accessed 3/27/2014
7 Kodiak Area Plan, ADNR (December 2008)
8 Kodiak National Wildlife refuge Revised Comprehensive Conservation Plan (August 2008)

> Goal 8: Provide the opportunity for local residents to continue their subsistence uses on the Refuge, consistent with the subsistence priority and with other refuge purposes.
>
> Goal 9: Improve baseline understanding of natural flowing waters on the Refuge and maintain the water quality and quantity necessary to conserve fish and wildlife populations and habitats in their natural diversity.
>
> Goal 10: Provide opportunities for quality public use and enjoyment of refuge resources through compatible fish and wildlife-dependent recreation activities, including hunting, fishing, wildlife observation, and photography.'

A portion of the KNWR Plan discusses water resource management and explains the way they plan on using instream water reservations as a management tool[9]:

> "The Alaska Region conducted a water-resources threats analysis (Harle 1994) for the purpose of guiding water resource investigations and protecting water resources by acquiring instream water rights protection. Based on the results of the threats analysis, the Service's regional office developed a strategic plan for systematically quantifying the surface water on refuges within Alaska (Bayha et al. 1997).
>
> Using existing data, or through the collection of hydrologic and biologic data, the Service applies to the State of Alaska for appropriative water rights for instream water reservations and for water withdrawals to meet the purposes identified in ANILCA and the Refuge System Improvement Act."

FINDINGS OF FACTS AND CONCLUSIONS OF LAW

Under Article VIII of the Alaska Constitution and Alaska Statute 46.15.030, naturally occurring water, except mineral and medicinal waters, is reserved to the people for common use and is subject to appropriation and beneficial use; AS 46.15.030 and AS 46.15.145 further provide for the reservation of instream flows in rivers and water levels in lakes. The Alaska Water Use Act, AS 46.15, and Title 11, Chapter 93 of the Alaska Administrative Code, contains the statutes and regulations under which ADNR manages the State's water resources.

A reservation of water is issued pursuant to the following authorities, including but not limited to:

Under AS 46.15.145 (c),

> "The commissioner shall issue a certificate reserving the water applied for under this section if the commissioner finds that,

[9] Kodiak National Wildlife Refuge Revised Comprehensive Conservation Plan (August 2008), pg. 2-52

(1) The rights of prior appropriators will not be affected by this reservation;
(2) The applicant has demonstrated that a need exists for the reservation;
(3) There is unappropriated water in the stream or body of water sufficient for the reservation; and
(4) The proposed reservation is in the public interest."

Under 11 AAC 93.146 (a),

> "The commissioner will issue a certificate of reservation of water if the commissioner finds that the reservation meets the requirements of AS 46.15.145."

Under 11 AAC 93.145 (d),

> "The commissioner's decision to grant, conditionally grant, or deny an application for a reservation of water will be summarized by written findings of fact and conclusions of law, including justification of any special conditions to which the reservation is subject. In determining whether the proposed appropriation is in the public interest, the commissioner will consider the criteria set out in AS 46.15.080 (b)."

ADNR makes the following findings of fact and conclusions of law in response to the above requirements:

AS 46.15.145 (c)(1): The rights of prior appropriators will not be affected by this reservation.

Based on a search of ADNR's water rights records, there are no prior appropriators within the specified reach of the Uganik River.

The reservation of water established by the Department's decision and certification does not affect other valid water rights with a senior priority date including water rights with a senior priority date that may be issued after the date this certificate reserving water is issued.

AS 46.15.145 (c)(2): The applicant has demonstrated that a need exists for the reservation.

Discussion: On August 14, 1941, President Franklin D. Roosevelt established Kodiak National Wildlife Refuge (NWR) by Executive Order 8857, and on December 2, 1980, President Carter signed into law the Alaska National Interest Lands Conservation Act (ANILCA). Section 393 (5)(B) of ANILCA declared the following purposes for which Kodiak NWR is established and shall be managed:

> *"(i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, Kodiak brown bears, salmonids, sea otters, sea lions, and other marine mammals and migratory birds;*
> *(ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats;*
> *(iii) to provide in a manner consistent with purposes set forth in subparagraphs (i) and (ii), the opportunity for continued subsistence uses by local residents; and*
> *(iv) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in subparagraph (i), water quality and necessary water quantity within the refuge."*

The primary purpose of the USFWS's reservation application is the protection of fish and wildlife habitat, migration, and propagation. The application states that this reservation of water is needed to protect fish and wildlife habitat, and to protect the natural biodiversity of the river segment. The Uganik River serves as a fish passage corridor between the marine environment and other portions of its watershed utilized for fish production. Additionally, the water reservation is needed to comply with the legal and management directives (as described previously). The Uganik River is within the external boundary of the Kodiak NWR, where the conservation of aquatic habitat and associated biota through the maintenance of water quantity is mandated by law.

The Uganik River supports chum salmon (*Oncorhynchus keta*), coho salmon (*O. kisutch*), pink salmon (*O. gorbuscha*), sockeye salmon (*O. nerka*), rainbow trout/steelhead (*O. mykiss*), and Dolly Varden (*Salvelinus malma*) for a portion of, or all of their spawning, incubation, rearing, and passage life phases.

The Uganik River is cataloged within the Anadromous Waters Catalog as #253-12-10020.

The Uganik River, along with other area watershed rivers, is considered an important source for fishes and contributes to commercial, subsistence, and sport fish users. In the judgment of USFWS, the proposed reservation is necessary to maintain the habitat that supports a rich and abundant biota within the Uganik River and will aid USFWS in carrying out its management objective to maintain the natural water quantity and quality at stream flows and water levels that will provide suitable habitat for brown bears, fish, migratory waterbirds, raptors, and other wildlife[10]. A reservation of water can protect fish production while still allowing for other appropriation of river flows in excess of the reservation amounts.

Additionally, the experience of other western states suggests that it is prudent to protect necessary instream flows early in order that these flows and the uses that depend upon them are fully considered later when available water may be more scarce.[11] "Fish and wildlife agencies face several critical underlying challenges to effectively manage water for fish and wildlife. The primary challenge is the fact that in the majority of situations (*except Alaska* and parts of Canada) most stream and lake water has already been committed to uses other than fish and wildlife. This situation has come about because most water laws were crafted by (and for) consumptive user groups over a century ago."[12]

In the International Instream Flow Program Initiative's (IIFPI) 'Protecting and Restoring Rivers and Lakes in North America' Summary, C. Estes states:

> Alaska is at a stage of development where the rest of America was approximately 170 years ago. When water was initially extracted from mighty rivers like the Colorado, dammed on the Columbia, and confined between levees on the Mississippi, our predecessors had little idea what was going to happen to fish and wildlife. But just as development pressures have taken and continue to take their

[10] Reservation of Water Application, p. 8

[11] Annear, T., I. Chisholm, H. Beecher, A. Locke, and 12 other authors. 2004. Instream flows for riverine resource stewardship, revised edition. Instream Flow Council, Cheyenne, WY.

[12] Annear, T., D. Lobb, C. Coomer, M Woythal, C. Hendry, C. Estes, and K. Williams. 2009. International Instream Flow Program Initiative, A status Report of State and Provincial Fish and Wildlife Agency Instream Flow Activities and Strategies for the Future, Final Report for Multi-State Conservation Grant Project WY M-7-T. Instream Flow Council, Cheyenne, WY (emphasis added)

toll on rivers and lakes in the lower 48 states, Alaska is in danger of moving along a similar path if preventative actions aren't taken.[13]

Determination: In light of the above factors, it is determined that USFWS, as applicant, has demonstrated that a need exists for the proposed reservation of water and that a reservation of water will assist the USFWS in fulfilling its duties as manager of Kodiak National Wildlife Refuge.

AS 46.15.145 (c)(3): There exists unappropriated water within the stream sufficient for the reservation.

Discussion: USGS records for the Uganik River, stream gage #15296000, have been analyzed to help determine whether there are sufficient unappropriated stream flows in the Uganik River to accommodate the proposed reservation.

The following table shows the flows available after the proposed reservation flows are met for the specified reach, during each listed period of the year, based on USGS flow data:

Table 3. Flow Table* [cfs = cubic feet per second; gpd = gallons per day]

TIME PERIOD	Mean Time Period Discharge (cfs)	Original Flow Requests (cfs)	Granted Reservation Flows (cfs)	Reservation Flows (gpd)	Remaining Flows for Appropriation (cfs)	Remaining Flows for Appropriation (gpd)
January	232	250	200	129,254,400	32	20,680,704
February	167	250	150	96,940,800	17	10,986,624
March	150	250	140	90,478,080	10	6,462,720
April	226	170				
April 1-14	172		140	90,478,080	32	20,680,704
April 15-30	274		245	158,336,640	29	18,741,888
May	859	720				
May 1-14	623		590	381,300,480	33	21,326,976
May 15-31	1049		960	620,421,120	89	57,518,208
June	1770	1460	1460	943,557,120	310	200,344,320
July	1460	1160	1160	749,675,520	300	193,881,600
August	896	690	690	445,927,680	206	133,132,032
September	832	600	600	387,763,200	232	149,935,104

[13] Madson, C., T. Annear, and D. Lobb. Protecting and Restoring Rivers and Lakes in North America: Trends, challenges, and opportunities for doing a better job. http://www.instreamflowcouncil.org/node/65. Retrieved 04/25/2013.

October	675	400	400	258,508,800	275	177,724,800
November	503	275	338	218,439,936	165	106,634,880
December	258	250	200	129,254,400	58	37,483,776

* For perspective, 1 cubic foot per second is equal to 646,272 gallons per day. An average family of four (for domestic use) is allotted 500 gallons per day.

Table 4. Duration chart showing the percent of time streamflows are equaled or exceeded and the mean monthly flow in cubic feet per second.

% Time Exceeded	January	February	March	April 1-14	April 15-30	May 1-14	May 15-31	June	July	August	September	October	November	December
5	761	471	350	320	571	1160	2030	3230	2740	2030	2500	1970	1430	750
10	438	325	250	278	452	1080	1690	2590	2340	1560	1590	1320	1040	500
15	300	300	200	250	401	993	1490	2290	2110	1320	1320	1010	794	400
20	250	230	160	236	362	940	1370	2160	1960	1150	1140	850	664	350
25	230	180	150	219	338	840	1270	2060	1800	1060	1000	725	574	300
30	210	160	140	206	310	792	1190	1950	1660	970	878	648	486	278
35	180	140	140	197	292	707	1140	1850	1590	900	800	584	430	250
40	160	140	130	179	270	655	1060	1770	1480	830	725	530	375	226
45	150	130	120	160	253	622	1010	1690	1400	780	660	480	338	200
50	130	120	120	140	245	589	958	1600	1330	730	600	438	298	180
55	120	110	110	135	229	449	920	1550	1260	698	560	406	271	161
60	120	100	107	129	206	528	870	1500	1200	648	506	374	250	150
65	110	95	100	123	198	399	822	1450	1130	606	471	344	226	140
70	95	85	90	119	175	382	763	1360	1050	560	418	320	200	122
75	90	75	80	111	153	341	704	1290	992	520	382	296	186	111
80	81	70	75	107	140	304	648	1210	926	463	347	262	170	110
85	80	60	65	99	128	278	599	1100	792	410	301	235	150	100
90	70	58	62	68	108	237	498	1000	642	358	255	204	124	90
95	65	50	53	60	97	206	400	841	506	310	212	170	100	80

The data described in Table 4 show flows which support the amount of water in this reservation application. While almost any allocation of water may experience periods of time during which the natural variability in flow will result in unavailability of water, there will be a reasonable proportion of time when the Uganik River flows will be sufficient for the proposed reservation.

Determination: It is determined that there exists unappropriated water within the Uganik River sufficient for this reservation. Further, the granted reservation flows stated in Table 3 is a reasonable amount of reservation. Based on USFWS's application which includes the professional judgment of trained staff[14], ADNR agrees that:

> 'Without adequate streamflow the salmon, Dolly Varden, and rainbow/steelhead habitat of lower Uganik River may be adversely affected by:
>
> - Alteration of preferred water temperatures, pH, dissolved oxygen, and chemical composition
> - Alteration of preferred water velocity and depth
> - Alteration of preferred stream morphology...
> - ...Increase in sedimentation and reduction in permeability of substrate
> - Reduction in food supply
> - Reduction in protective cover (e.g., overhanging stream banks or vegetation)'

In addition to those listed above, the habitat may also be adversely affected by a reduction in spawning and rearing habitat during different periods of seasonal flow.

Reserved flows leave water available for ADNR to allocate to new applicants, and are set at an amount that will contribute to maintenance of the fish and wildlife habitat based on available information, as described by USFWS in their application.

For the adjudication process, USFWS submitted flow recommendations that as stated previously, mimic the natural hydrologic variability to meet the needs of species life history stages. ADNR reviewed these flows and took into consideration the requested flows along with current and future impacts. This included senior water appropriations and potential near future uses that may benefit the people of the state. ADNR then adjusted flows that account for prior appropriators and maintain necessary flow for habitat maintenance and passage. If a future water use is of a significant quantity and competes with an existing reservation, then a review of the purpose and finding for the reservation of water can be performed. Lower flows, (which would be available a greater percent of the time (see Table 4), are considered by USFWS and ADNR to be inadequate for the purposes of this reservation, but would be subject for review upon challenge of a competing applicant.

[14] Reservation of Water Application, p. 14

AS 46.15.145 (c)(4) and 11 AAC 93.145 (d): The proposed reservation is in the public interest, considering the criteria set out in AS 46.15.080 (b).

AS 46.15.080 (b)(1): The benefit to the applicant resulting from the proposed reservation.

Discussion: Based on ANILCA and the National Wildlife Refuge System Improvement Act of 1997, USFWS has the responsibility to maintain adequate water quantity and water quality to conserve fish and wildlife and their habitat. USFWS has applied for the reservation for the primary purpose of sustaining fish habitat, migration, and propagation in Uganik River. The proposed reservation of water would contribute significantly to ensuring the continued viability of this resource.

Determination: The proposed reservation will benefit the applicant in the fulfillment of its responsibility to *conserve the Uganik fish populations and habitats in their natural diversity*. The proposed reservation will contribute to the maintenance of Uganik River fish populations by providing the appropriate quantities of water needed for fish habitat, migration, and propagation.

AS 46.15.080 (b)(2): The effect of the economic activities resulting from the proposed reservation.

Discussion: The Uganik River supports commercial, sport fishing, and subsistence uses.

'Residents of Port Lions and Ouzinkie fish and hunt bays and adjacent inland areas of northwest Kodiak Island, and have been reported as using the lower Uganik River area as a place of subsistence harvest.'[15]

Sport fishing provides significant economic benefits to Alaska. The American Sport Fishing Association estimated that the expenditures for sport fishing in Alaska in 2007 generated 15,879 jobs, and $545 million in wages and salaries. Anglers in Alaska spent nearly $1.4 billion on fishing trips, fishing equipment, and development and maintenance of land used primarily for the pursuit of sport fishing in Alaska.[16] Anglers in the southcentral region, which includes Prince William Sound, Cook Inlet, Anchorage area, Kodiak Island, and the Bristol Bay area to the west of Cook Inlet, spent $989 million in 2007, supported 11,535 jobs, and created $91 million in state and local taxes.[17]

The Uganik River provides the basis for subsistence, sport, and commercial fishing harvest in the watershed area. As reported by the plans and studies, this enables area residents to sustain their subsistence activities as well as stimulate elements of the local and regional economy.

Determination: While no detailed breakdown of the economic impacts of the Uganik River fishery has been submitted by USFWS, the protection of this fishery is likely of economic importance to the region. The proposed reservation will help protect this resource.

[15] Reservation of Water Application, p. 8
[16] Economic Impacts and Contributions of Sportfishing in Alaska (ADF&G, 2007)
[17] Economic Impacts and Contributions of Sportfishing in Alaska (ADF&G, 2007)

AS 46.15.080 (b)(3): The effect on fish and game resources and on public recreational opportunities.

Discussion: As previously described, the Uganik River supports four Pacific salmon species along with other resident fish species as well.

The primary purpose of this reservation is to protect the habitat, migration, and propagation of these fish. Reservation flows were allocated specifically to provide for the needs of fish populations at the times those populations utilize the river for their various life stage activities of spawning, incubating, rearing, and passage (See Table 5).

Table 5. Uganik River Fish Periodicity Chart[18]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sockeye Salmon												
passage												
spawning						XXXX	XXXX	XXXX				
incubation												
rearing												
Pink Salmon												
passage						X	XXXX	XXXX	XXX			
spawning							XX	XXXX	XXXX	X		
incubation	XXXX	XXXX	XXXX					XXXX	XXXX	XXXX	XXXX	XXXX
rearing			XX	XX								
Chum Salmon												
passage						X	XXXX	XXXX	XXXX			
spawning							XXXX	XXXX	XXXX			
incubation	XXXX	XXXX	XXXX				XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
rearing			XX	XX								
Coho Salmon												
passage								XX	XXXX	XX		
spawning												
incubation												
rearing	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Dolly Varden												
passage	XXXX	XXXX	XXXX	XXXX	XXXX	X	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
spawning								XX	XXXX	XX		
incubation	XXXX	XXXX	XX					XX	XXXX	XXXX	XXXX	XXXX
rearing	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Rainbow Trout												
passage												
spawning					XX	XX						

[18] Uganik River Reservation of Water Application; USFWS

incubation					XX	XXXX	XXXX					
rearing	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

(Source: Chatto, pers. Comm, 1997, 2001; Booth 1993, 1995; Kerr 2001; McCosh and Booth 1996; USFWS 1990)

X = one week presence of the species

Passage - immigration of anadromous adults or emigration or anadromous juveniles

Incubation - time period from egg deposition to emergence

Rearing - time period from emergence to maturity in resident species or from emergence to departure from natal stream in anadromous species

* Information unknown at the time of the table; flows are dependent on multiple species use during select life stage and timeing.

Specific reservation quantities were requested and recommended by USFWS. They were subsequently adjusted to better mimic the natural hydrologic and biologic requirements for Uganik River by combining statistical analyses of hydrologic variability and fish species periodicity (See Table 4, Table 5).

Adjustments were made based on these analyses and were reviewed and discussed with the applicant and with the Alaska Department of Fish and Game by ADNR. ADNR's decision to grant the specific water quantities and time periods provided for in this decision is based on and consistent with the current level of hydrologic and biologic knowledge, as well as consideration of current water right appropriations and potential near future uses. The reservation flows granted will contribute to fish habitat, migration, and propagation within the reservation reach.

While the primary purpose of the proposed reservation is to protect fish habitat, migration, and propagation, a reservation of these flows will help preserve quantities necessary for boating, sport fishing, hunting, and other recreational opportunities as well.

Determination: The proposed reservation will benefit the protection of fish resources and will enhance public recreational activities.

AS 46.15.080 (b)(4): The effect on public health.

Discussion: Maintaining flow quantities will help retain high water quality and has a positive health impact. There are no permitted surface water withdrawals from the Uganik River for drinking water purposes, but significant use of the water and waterway of Uganik River occurs by residents who live near the requested reservation reach area.

This reservation of water will help the quality of water in the Uganik River, and may provide positive public health impacts in the future. Maintaining these flows will also regulate water temperature and dilute contaminates in the system. [19]

Determination: The proposed reservation will generally contribute to the maintenance and protection of water quality by helping to ensure the instream flows of a volume of water that can buffer extreme

[19] Annear, T., I. Chisholm, H. Beecher, A. Locke, and 12 other authors. 2004. Instream flows for riverine resource stewardship, revised edition. Instream Flow Council, Cheyenne, WY.

temperature changes and dilute concentrations and thus reduce impacts of any pollutants or contaminants that may enter the river. Therefore, there should be a positive impact on public health attributable to granting the reservation.

AS 46.15.080 (b)(5): The effect or loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed reservation.

Discussion: At this time, research by ADNR has not identified any imminent proposed alternative uses of water or alternative uses which may be made within a reasonable amount of time. By establishing this reservation of water, the amounts described will be withdrawn from the amount available for appropriation or for temporary water use authorizations. Further, while the reservation allows for economic and recreational development activities compatible with the primary uses, any future development that depends upon water withdrawals may be limited if the amount of water available is not sufficient to meet reservation flows and any other senior water right holders during specified time periods. Future water right applicants may need to consider other options such as off-river storage and/or development of alternative water sources, in order to bridge the periods of flow equal to or less than reservation flows.

Nevertheless, if a project applies for a new, competing, water right for waters from Uganik River, the law provides for a review of the water system usage, and allows an applicant to present additional information for a review of the reservation.[20] The intent of a reservation is not to prevent future developments requiring a water right, but rather to give the necessary quantities of water for protection of the purpose given, in this case, habitat, migration, and propagation of fish. Once a reservation is certificated, it is subject to AS 46.15.145 (f) and 11 AAC 93.147 (a) and (b), which provide for review and "a finding that the purpose, or part or all of the findings no longer apply to the reservation." ADNR may issue a revocation or amendment of a certificate of reservation in appropriate circumstances, after public notice and a hearing if appropriate, and a written determination that the revocation or amendment is in the best interest of the state.

Determination: Based on reservation amounts and remaining amounts of water for appropriation, the reservation quantities granted here leave a quantity of unappropriated Uganik River flows throughout the year, shown in Table 3, that ADNR believes is adequate for other uses that currently can be anticipated. Further, if the amounts of unappropriated water were to be found inadequate for any future uses of water, statutory provisions for review of this reservation could be implemented per 11 AAC 93.147. Therefore, it is determined that, at this time there are no existing or planned alternative uses of water that might be precluded or hindered by the proposed reservation.

AS 46.15.080 (b)(6): Harm to other persons resulting from the proposed reservation.

Discussion: ADNR received two comments in support within the commenting period during public and agency notice. There were no comments received which alleged harm to other persons, and from the review of the water records, it was determined that there should not be any potential harm as a result of the proposed reservation.

[20] Should such a development alternative arise, 11 AAC 93.147 provides authority for review of a reservation of water if circumstances warrant.

Reservations of water for instream flow purposes do not preclude the simultaneous use of that water for other purpose compatible with the reservation, and the proposed reservation is likely to reinforce the current uses of Uganik River. Under 11 AAC 93.920 (b), reserved water may be used in an emergency for the protection of life and property.

Determination: The proposed reservation thus is not expected to harm other persons.

AS 46.15.080 (b)(7): The intent and ability of the applicant to complete the reservation.

Discussion and Determination: The applicant has adequately described, justified, and quantified the proposed reservation and no further action on the part of the applicant is required to complete the reservation.

AS 46.15.080 (b)(8): The effect upon access to navigation or public water.

Discussion and Determination: The proposed reservation is not expected to have any negative effect on access to navigable or public water. However, the granted reservation can be expected to have some beneficial effects of assuring that water remains for navigation and access to any boating and rafting opportunities available on the Uganik River.

AS 46.15.080: Public interest determination.

As shown by the discussion and record described herein, there is evidence of public benefits and support, and at this time, there is unappropriated water available. Therefore, in light of the entire record, the proposed Uganik River reservation of water is determined to be in the overall public interest of the state. Water rights are subject to preferences among beneficial uses, and where there are applications for competing uses of water and there is not enough water for all uses, ADNR is required to balance the interests involved and give preference to the most beneficial use under AS 46.15.090 and the Alaska Constitution as described in the following regulatory language in 11 AAC 147.

RESPONSE TO AGENCY AND PUBLIC NOTICE

Public and agency notice was provided as required by 11 AAC 93.145, 11 AAC 93.080, and AS 46.15.133. Notice was published in the Kodiak Daily Mirror on August 1, 2014 as well as ADNR's public online website. Notice was also sent to Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, U.S. Fish and Wildlife Service, U.S. Forest Service, Kodiak Island Borough, City of Kodiak, Koniag Inc, Natives of Kodiak Inc, Kodiak Post Office, and all interested parties that requested notification.

Pursuant to the Prior Appropriations Doctrine (Alaska const. art. VIII, §13 and AS 46.15.050), flows that were granted above the original requested flows due to the revision/updates will receive the priority date of May 22, 2014 (when the amendment request was made), while granted flows not increased above the original requests will retain the original priority date of December 31, 1996 (See Table 3).

Two comments were received in support of the proposed Uganik River Reservation of Water. The Department acknowledges the comments and further states that the comments do not change the basis of this decision.

DECISION

The case file has been found to be complete and the requirements of all applicable statutes have been satisfied. Further, upon recommendation of the Natural Resource Specialist who has adjudicated this file, and after consideration of the above analysis, by authority delegated from the Commissioner of the Alaska Department of Natural Resources, I hereby find that the United States Fish and Wildlife Service has satisfied the requirements of AS 46.15.145 with respect to the application for reservation of water within Uganik River (LAS 23806 & LAS 29880). Therefore, pursuant to 11 AAC 93.145 (a), ADNR will issue a Certificate of Reservation in the amount, for the time periods, and for the reach description as described below:

Uganik River – LAS 23806 & 29880

Reservation of Water Reach Description: Uganik River, from the Ordinary High Water Mark (OHWM) of the outer bank (of the outside braid, where braided) of the left bank up to the OHWM of the outer bank (of the outside braid, where braided) of the right bank, including any sloughs, braids, or channels which carry water and are an integral part of the river from river mile 0.0 at the mouth of the Uganik River where it discharges into the East Arm of Uganik Bay at the closing line, upstream approximately 4.9 river miles to the outlet of Uganik Lake (Map 1 a-b). This description does not limit the quantities of water (flow rate) reserved by this decision and certificate to quantities (flow rates) within said OHWM boundaries. Said portion of Uganik River is located within:

Township	Range	Sections
29 South	26 West	2, 3, 10, 11, 12, 13, 14

All within the Seward Meridian.

Priority Date: September 27, 2001 & March 20, 2012 *[Flows that were granted above the original requested flows due to the revision will receive the priority date of March 20, 2012, while granted flows not increased above the original requests will retain the original priority date of September 27, 2001]*

Granted Reservation of Water Flows with a Priority Date of September 27, 2001 (LAS 23806):

Time Period	Granted Reservation Flows (cfs)
JANUARY	200
FEBRUARY	150
MARCH	140
APRIL 1-14	140
APRIL 15-30	170
MAY 1-14	590
MAY 15-31	720
JUNE	1460
JULY	1160
AUGUST	690
SEPTEMBER	600
OCTOBER	400
NOVEMBER	275
DECEMBER	200

cfs = cubic feet per second

Granted Reservation of Additional Water Flows with a Priority Date of March 20, 2012 (LAS 29880):

Time Period	Granted Reservation Flows (cfs)
APRIL 15-30	75
MAY 15-31	240
NOVEMBER	63

cfs = cubic feet per second

These applications are recommended for approval as described in the decision:

September 19, 2014

Kimberly Sager
Natural Resource Specialist III
Reservation of Water Program
Alaska Department of Natural Resources

Date

Applications Approved; Certificates to be issued forthwith:

9-19-14

David W. Schade, MPA
Chief, Water Resources Section
Division of Mining, Land, and Water
Alaska Department of Natural Resources

Date

A person affected by this decision may appeal it, in accordance with 11 AAC 01. Any appeal must be received within 20 calendar days after the date of issuance of this decision, as defined in 11 AAC 02.040 (c) and (d), and may be mailed or delivered to: Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska, 99501; faxed to 907-269-8918, or sent by electronic mail to dnr.appeals@alaska.gov. This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31st day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to superior court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.