

Interagency Hydrology Committee for Alaska

Fall 2009 Meeting Minutes

November 16-17, 2009

Anchorage, Alaska

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**Attendees:**

Mike Knapp- AKDOT&PF  
Steve Frenzel – USGS  
Larry Rundquist – NWS  
Crane Johnson –COE  
Rick McClure – NRCS  
Amy Tidwell – UAF  
John Trawicki- USFWS  
Tom Cappiello-ADF&G  
Trey Simmons-NPS  
Roy Ireland - AKDNR

**Guests:**

Christopher Estes – ADF&G

**Announcements:**

- Next IHCA meeting will be in Fairbanks at the National Park Service Office scheduled tentatively for the third week in April, 2009. A final date will be confirmed in February. The Corp of Engineers has offered to give an agency tour of the Chena River Lakes Flood Control Project on the afternoon of the second day of the meeting.

**Old Business:**

- Spring 2009 meeting minutes approved.

**New Business:**

- National Fish Habitat Initiative:

Christopher Estes from the Alaska Department of Fish and Game presented the 'National Fish Habitat Action Plan (NFHAP) Initiative'. Christopher serves as the NFHAP State Fish and Wildlife Agencies Coordinator/Liaison. The National Fish Habitat Plan is focused on locally-driven efforts that build private and public partnerships to improve fish habitat. Details on this initiative including the action plan are available online at: <http://fishhabitat.org/>. Christopher encouraged all IHCA members to become familiar with this initiative and to seek opportunities for involvement where appropriate.

- The IHCA bylaws were revised and approved unanimously.
- A discussion was held on the location of the historical IHCA records.

- Each member agency should determine what historical IHCA records they may have and report to the group at the spring 2010 meeting.
- Roy Ireland gave an overview of the State of Alaska Well Log Tracking System (WELTS). There is some concern that loss of staff to retirement could impact the future of this system.
- Steve Frenzel gave an update on the USGS Yukon River Flats study. Currently there are two stream gages planned for Beaver Creek and one gage planned for the Porcupine River. The hydrologic research for this study is being conducted by the National USGS lab out of Boulder, CO.
- The 2009 spring breakup flooding was discussed. Taunnie pointing out that no single agency has the responsibility to measure/document high water marks. These data are important for future planning efforts. An observer flood data sheet was developed by IHCA and made available by the NWS: [http://aprfc.arh.noaa.gov/forms/flood\\_data\\_sheet.pdf](http://aprfc.arh.noaa.gov/forms/flood_data_sheet.pdf). It was noted that National Flood Safety Awareness Week will be March 15-19, 2010 ([www.weather.gov/floodsafety/](http://www.weather.gov/floodsafety/)).

**Legislative Updates (See attached State and Federal Legislative Updates):**

**Agency Reports: (See attached):**

## Federal Bills (111<sup>th</sup> Congress)

(November 16, 2009 search results from THOMAS  
<http://thomas.loc.gov/home/thomas.html> )

1. To establish the Twenty-First Century Water Commission to study and develop recommendations for a comprehensive water strategy to address future water needs. [H.R.135](#)
2. To implement a National Water Research and Development Initiative, and for other purposes. [H.R.1145](#)
3. To ensure safe, secure, and reliable marine shipping in the Arctic including the availability of aids to navigation, vessel escorts, spill response capability, and maritime search and rescue in the Arctic, and for other purposes. [H.R. 2865](#); [S. 1514](#); [S. 1561](#)
4. To amend the National Dam Safety Program Act to establish a program to provide grant assistance to States for the rehabilitation and repair of deficient dams. [H.R.1770](#); [S. 732](#)
5. To encourage research, development, and demonstration of technologies to facilitate the utilization of water produced in connection with the development of domestic energy resources, and for other purposes. [H.R.469](#)
6. To amend the Federal Water Pollution Control Act to authorize appropriations for State water pollution control revolving funds, and for other purposes. [H.R.1262](#)
7. To encourage water efficiency. [H.R.2368](#)
8. To amend the Coastal Zone Management Act of 1972 to authorize the Secretary of Commerce to make grants to coastal states to support voluntary State efforts to initiate and complete surveys of coastal waters to identify potential areas suitable for the exploration, development, and production of renewable energy, and for other purposes. [H.R.1690](#)
9. A bill to provide for the conduct of an in-depth analysis of the impact of energy development and production on the water resources of the United States, and for other purposes. [S.531](#)
10. A bill to authorize the acquisition of interests in undeveloped coastal areas in order better to ensure their protection from development and for other purposes. [S.170](#)

**Below find particulars of 10 bills listed above, and others.**

H.R.135 : To establish the Twenty-First Century Water Commission to study and develop recommendations for a comprehensive water strategy to address future water needs.

**Sponsor:** Rep Linder, John [GA-7] (introduced 1/6/2009) Cosponsors (8)

**Committees:** House Transportation and Infrastructure; House Natural Resources

**Latest Major Action:** 2/4/2009 Referred to House subcommittee. Status: Referred to the Subcommittee on Water and Power.

H.R.585 : To direct the President to enter into an arrangement with the National Academy of Sciences to evaluate certain Federal rules and regulations for potentially harmful impacts on public health, air quality, water quality, plant and animal wildlife, global climate, or the environment; and to direct Federal departments and agencies to create plans to reverse those impacts that are determined to be harmful by the National Academy of Sciences.

**Sponsor:** Rep Lee, Barbara [CA-9] (introduced 1/15/2009) Cosponsors (5)

**Committees:** House Science and Technology; House Transportation and Infrastructure; House Natural Resources; House Agriculture; House Energy and Commerce

**Latest Major Action:** 4/23/2009 Referred to House subcommittee. Status: Referred to the Subcommittee on Department Operations, Oversight, Nutrition and Forestry.

H.R.276 : To direct the Administrator of the Environmental Protection Agency to convene a task force to develop recommendations on the proper disposal of unused pharmaceuticals, and for other purposes.

**Sponsor:** Rep Miller, Candice S. [MI-10] (introduced 1/7/2009) Cosponsors (1)

**Committees:** House Transportation and Infrastructure

**Latest Major Action:** 1/7/2009 Referred to House subcommittee. Status: Referred to the Subcommittee on Water Resources and Environment.

H.R.469 : To encourage research, development, and demonstration of technologies to facilitate the utilization of water produced in connection with the development of domestic energy resources, and for other purposes.

**Sponsor:** Rep Hall, Ralph M. [TX-4] (introduced 1/13/2009) Cosponsors (1)

**Committees:** House Science and Technology; Senate Energy and Natural Resources

**Latest Major Action:** 2/12/2009 Referred to Senate committee. Status: Received in the Senate and Read twice and referred to the Committee on Energy and Natural Resources.

H.R.631 : To increase research, development, education, and technology transfer activities related to water use efficiency and conservation technologies and practices at the Environmental Protection Agency.

**Sponsor:** Rep Matheson, Jim [UT-2] (introduced 1/22/2009) Cosponsors (1)

**Committees:** House Science and Technology; Senate Environment and Public Works

**Latest Major Action:** 2/12/2009 Referred to Senate committee. Status: Received in the Senate and Read twice and referred to the Committee on Environment and Public Works.

H.R.1145 : To implement a National Water Research and Development Initiative, and for other purposes.

**Sponsor:** Rep Gordon, Bart [TN-6] (introduced 2/24/2009) Cosponsors (15)

**Committees:** House Science and Technology; Senate Environment and Public Works

**House Reports:** 111-76

**Latest Major Action:** 4/23/2009 Referred to Senate committee. Status: Received in the Senate and Read twice and referred to the Committee on Environment and Public Works.

H.R.1262 : To amend the Federal Water Pollution Control Act to authorize appropriations for State water pollution control revolving funds, and for other purposes.

**Sponsor:** Rep Oberstar, James L. [MN-8] (introduced 3/3/2009) Cosponsors (14)

**Committees:** House Transportation and Infrastructure; Senate Environment and Public Works

**House Reports:** 111-26

**Latest Major Action:** 3/16/2009 Referred to Senate committee. Status: Received in the Senate and Read twice and referred to the Committee on Environment and Public Works.

S.1561 : A bill to ensure safe, secure, and reliable marine shipping in the Arctic, including the availability of aids to navigation, vessel escorts, oil spill response capability, and maritime search and rescue in the Arctic, and for other purposes.

**Sponsor:** Sen Begich, Mark [AK] (introduced 8/3/2009) Cosponsors (None)

**Committees:** Senate Commerce, Science, and Transportation

**Latest Major Action:** 8/3/2009 Referred to Senate committee. Status: Read twice and referred to the Committee on Commerce, Science, and Transportation.

S.1041 : A bill to amend the Oil Pollution Act of 1990 to modify the applicability of certain requirements to double hulled tankers transporting oil in bulk in Prince William Sound, Alaska.

**Sponsor:** Sen Murkowski, Lisa [AK] (introduced 5/14/2009) Cosponsors (1)

**Committees:** Senate Commerce, Science, and Transportation

**Latest Major Action:** 5/14/2009 Referred to Senate committee. Status: Read twice and referred to the Committee on Commerce, Science, and Transportation.

S.732 : A bill to amend the National Dam Safety Program Act to establish a program to provide grant assistance to States for the rehabilitation and repair of deficient dams.

**Sponsor:** Sen Akaka, Daniel K. [HI] (introduced 3/26/2009) Cosponsors (6)

**Committees:** Senate Environment and Public Works

**Latest Major Action:** 3/26/2009 Referred to Senate committee. Status: Read twice and referred to the Committee on Environment and Public Works.

H.R.2368 : To encourage water efficiency.

**Sponsor:** Rep Holt, Rush D. [NJ-12] (introduced 5/12/2009) Cosponsors (23)

**Committees:** House Energy and Commerce; House Oversight and Government Reform; House Armed Services

**Latest Major Action:** 6/8/2009 Referred to House subcommittee. Status: Referred to the Subcommittee on Readiness.

H.R.1690 : To amend the Coastal Zone Management Act of 1972 to authorize the Secretary of Commerce to make grants to coastal states to support voluntary State efforts to initiate and complete surveys of coastal waters to identify potential areas suitable for the exploration, development, and production of renewable energy, and for other purposes.

**Sponsor:** Rep Capps, Lois [CA-23] (introduced 3/24/2009) Cosponsors (12)

**Committees:** House Natural Resources

**Latest Major Action:** 3/30/2009 Referred to House subcommittee. Status: Referred to the Subcommittee on Insular Affairs, Oceans and Wildlife.

S.1035 : A bill to enhance the ability of drinking water utilities in the United States to develop and implement climate change adaptation programs and policies, and for other purposes.

**Sponsor:** Sen Reid, Harry [NV] (introduced 5/13/2009) Cosponsors (3)

**Committees:** Senate Environment and Public Works

**Latest Major Action:** 5/13/2009 Referred to Senate committee. Status: Read twice and referred to the Committee on Environment and Public Works.

H.R.1914 : To amend the Endangered Species Act of 1973 to provide for the suspension of each provision of the Act during periods of drought with respect to Federal and State agencies that manage Federal river basins that are located in each region affected by the drought.

**Sponsor:** Rep Deal, Nathan [GA-9] (introduced 4/2/2009) Cosponsors (3)

**Committees:** House Natural Resources

**Latest Major Action:** 4/13/2009 Referred to House subcommittee. Status: Referred to the Subcommittee on Water and Power.

H.R.3202 : To establish a Water Protection and Reinvestment Fund to support investments in clean water and drinking water infrastructure, and for other purposes.

**Sponsor:** Rep Blumenauer, Earl [OR-3] (introduced 7/14/2009) Cosponsors (22)

**Committees:** House Transportation and Infrastructure; House Energy and Commerce; House Ways and Means; House Science and Technology

**Latest Major Action:** 7/17/2009 Referred to House subcommittee. Status: Referred to the Subcommittee on Energy and Environment.

S.531 : A bill to provide for the conduct of an in-depth analysis of the impact of energy development and production on the water resources of the United States, and for other purposes.

**Sponsor:** Sen Bingaman, Jeff [NM] (introduced 3/5/2009) Cosponsors (1)

**Committees:** Senate Energy and Natural Resources

**Latest Major Action:** 3/10/2009 Senate committee/subcommittee actions. Status: Committee on Energy and Natural Resources. Hearings held. Hearings printed: S.Hrg. 111-19.

S.1215 : A bill to amend the Safe Drinking Water Act to repeal a certain exemption for hydraulic fracturing, and for other purposes.

**Sponsor:** Sen Casey, Robert P., Jr. [PA] (introduced 6/9/2009) Cosponsors (5)

**Committees:** Senate Environment and Public Works

**Latest Major Action:** 6/9/2009 Referred to Senate committee. Status: Read twice and referred to the Committee on Environment and Public Works.

S.170 : A bill to authorize the acquisition of interests in undeveloped coastal areas in order better to ensure their protection from development and for other purposes.

**Sponsor:** Sen Gregg, Judd [NH] (introduced 1/8/2009) Cosponsors (11)

**Committees:** Senate Commerce, Science, and Transportation

**Latest Major Action:** 1/8/2009 Referred to Senate committee. Status: Read twice and referred to the Committee on Commerce, Science, and Transportation.

## The Alaska State Legislature

Search on all bills containing the keyword "Water"

(We are now at the end of the "second" year of the process)

<a href="#"><u>Bill Root</u></a>	<a href="#"><u>Short Title</u></a>	<a href="#"><u>Long Title (scroll mouse over to see full title)</u></a>
<a href="#"><u>HB 134</u></a>	Cruise ship wastewater discharge permits	Relating to the terms and conditions of commercial passenger vessel permits for the discharge of gray-water, treated sewage, and other wastewater; establishing a science advisory panel on wastewater treatment and effluent quality in the Department of Environmental Conservation; and providing for an effective date.
<a href="#"><u>HB 179</u></a>	Expanding kenai river special mgmt area	"An Act adding certain state-owned land and water to the Kenai River Special Management Area."
<a href="#"><u>HB 198</u></a>	Access to fishing waterways	"An Act relating to access to fishing waterways."
<a href="#"><u>HB 200</u></a>	Clean water fund: linked deposits	"An Act relating to the Alaska clean water fund."
<a href="#"><u>HB 242</u></a>	Bristol bay: fisheries; mining	"An Act relating to the protection of wild salmon, wildlife, water, and other resources in or near the Bristol Bay Fisheries Reserve and to large-scale mining in the headwaters of the Reserve."
<a href="#"><u>HB 46</u></a>	Mixing zones/sewage systems	"An Act requiring the Department of Environmental Conservation to collect and make available to the public certain information relating to water pollution; prohibiting certain mixing zones in freshwater spawning waters; and requiring a public comment period for certain sewage system or treatment works modifications."
<a href="#"><u>HCR 10</u></a>	Oppose fed. Control of state land & water	Urging the Governor to exercise all available legal options to restrain the United States Department of the Interior, National Park Service, from intruding on the sovereign right of the state to exercise jurisdiction over navigable water and submerged land and urging the Governor to allocate sufficient resources to the Department of Law, the Department of Natural Resources, and the Department of Fish and Game to defend the state's right to manage the public use of its navigable water.
<a href="#"><u>HCR 15</u></a>	Bristol bay mining study	Directing the Legislative Council to contract for an assessment of environmental and socioeconomic consequences of large-scale mineral extraction in the Bristol Bay area watershed.

<a href="#">HJR 28</a>	Oppose restrictions on oil/gas activities	Urging the President of the United States and the United States Congress not to adopt any policy, rule, or administrative action or enact legislation that would restrict energy exploration, development, and production in federal and state waters around Alaska, the outer continental shelf within 200 miles of shore, and elsewhere in the continental United States; urging the President of the United States and the United States Congress to encourage and promote continued exploration, development, and production of domestic oil and gas resources.
<a href="#">SB 164</a>	Water access easement width/notice	"An Act relating to an easement or right-of-way necessary to provide access to navigable or public water."
<a href="#">SCR 3</a>	Oppose fed. Control of state land & water	Urging the Governor to file an action to restrain the United States Department of the Interior, National Park Service, from intruding on the sovereign right of the state to exercise jurisdiction over navigable water and submerged land and urging the Governor to allocate sufficient resources to the Department of Law, the Department of Natural Resources, and the Department of Fish and Game to defend the state's right to manage the public use of its navigable water.
<a href="#">SCR 6</a>	Bristol bay mining study	Directing the Legislative Council to contract for an assessment of environmental and socioeconomic consequences of large-scale mineral extraction in the Bristol Bay area watershed.
<a href="#">SJR 14</a>	Exemption for hydraulic fracturing	Urging Congress not to remove the exemption for hydraulic fracturing from the provisions of the Safe Drinking Water Act.
<a href="#">SJR 16</a>	Offshore oil & gas revenue	Expressing support for responsible development of the oil and gas resources in federal waters offshore of Alaska's coast as a means to ensure energy independence, security for the nation, and jobs for Alaskans; and urging the United States Congress to provide a means for consistently sharing with all coastal energy-producing states, on an ongoing basis, revenue generated from oil and gas development on the outer continental shelf, to ensure that those states develop, support, and maintain necessary infrastructure and preserve environmental integrity.

Brief notes on Pebble Lawsuit:

- 1) Suit filed by Nunamta Aulukestai (a consortium of several village corporations and a number of individuals), with Trustees for Alaska representing them.
- 2) They argued that SOA TWUPs (temporary water use permits) violate the state constitution because of a lack of public notice,
- 3) They filed for a preliminary injunction to stop permitting water use and exploratory drilling at Pebble,
- 4) They were opposed and appealed against by Pebble Limited Partnership (PLP) who also requested a site inspection by the courts, and finally,
- 5) November 27<sup>th</sup> set as hearing date for the preliminary injunction, by the judge.

Pending action and legal overhead (including misunderstanding of court issued documents) has lead to a voluntary delay by PLP and , consequently, an effective stalling of further activities due to now inclement weather.

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Budget decisions will only become apparent sometime after 15<sup>th</sup> December and we can only report on the following:

- 1) The 3 Year MATSU Ground Water study was funded for one year, FY 2009, only and not funded for FY 2010 or later; funding for subsequent years has been applied for.
- 2) There is a request to obtain funding to facilitate the development of alternate statewide energy sources, including hydro power production.
- 3) The funding for enhancement of the WELTS-Online database has been delayed for at least one additional year.
- 4) Additional information will (probably) become available in the next few weeks.

## BLM AGENCY REPORT: FALL 2009 IHVS MEETING

### Alaska State Office:

The Watershed Boundary Dataset (WBD) for all areas in Alaska has been completed to the 5<sup>th</sup> and 6<sup>th</sup> Hydrologic Unit Codes. The Dataset was sent to the Natural Resources Conservation Service, National Cartography & Geospatial Center the National WBD Steward in Fort Worth, Texas. (See attached transmittal letter.) Any technical questions on the delineation process should be directed toward the USGS in Utah, Karen Hanson (801)908-5038.

This dataset was produced digitally on screen in ArcMap referencing the Digital Raster Graphics for the method of delineation. As the dataset evolved, and especially in the southeastern portion of the state, the National Hydrography Dataset along with imagery to assist with interpretation, and NOAA data, provided very useful information as a reference for determining breaks in braided stream networks, outlets, glacial, and coastal areas.

Three Subregions have the new WBD coastal standard applied and have been heavily coordinated with in state partners. Three other Subregions will have the coastal process applied post-certification. Edgematching with Canada will be ongoing through 2012, and as better acquisition of base reference products, such as LiDAR, are available, and as funding permits, data will continue to be improved during Stewardship. Worked planned for FY 2010 is to update the watershed in NPR-A to match the detail in IFSAR DEMS, available for most of NPRA.

The WBD is currently being merged with NHD and a new tool for editing both of them should be available in March or April, 2010. Required training will be offered in Denver and possibly in Alaska. The next step is to develop a formal WBD Stewardship Committee (possibly combined with NHD) and an MOU between State and federal agencies. Contact Lee Koss, 907-271-4411, [lkoss@blm.gov](mailto:lkoss@blm.gov) for information.

### Alaska Field Office (AFO):

- Stream and Riparian Proper Functioning Condition survey completed on the South Fork of Campbell Creek.
- New river gauge installed on the Salmon River in Platinum in partnership with the FWS.
- Continuing dialog with partners and the operator of the XS Platinum Mine on the re-establishment of fish passage and future reclamation actions at the mine site. Two survey trips occurred in 2009 and winter meetings are planned to coordinate strategies.
- Tim Sundlov, AFO fisheries biologist, has transferred to the Glennallen Field Office to manage the fisheries program.
- Chuck Denton, AFO hydrologist, has be transferred to the USFS in Phoenix.
- AFO will be filling behind both the fisheries biologist and hydrologist positions ASAP.
- Two restoration projects were completed on the South Fork of Campbell Creek adjacent to the Campbell Creek Science Center. Removable metal stairs were installed to facilitate student access and willow shoots were planted to re-establish streamside vegetation.
- Social trail removal and re-vegetation actions were implemented along the length of the Salmon Run Trail along Campbell Creek.
- Biomass assessments were completed on the South Fork of Campbell Creek and Little Campbell Creek utilizing volunteers.
- Water Discovery Days educational activities presented by the Campbell Creek Science Center and partners reached over 1000 local students.
- Tim Sundlov and ADF&G partners conducted field work that resulted in significant contributions to the Anadromous Waters Catalog in the Bay and BSWI planning areas.
- Basic hydrology education programs were presented to 1800 students during Outdoor Week activities presented by the Campbell Creek Science Center.

- Utilizing ARRA trail materials and Job Corps work-based learning students, the recreation staff resurfaced 1000' of trail adjacent to the South Fork of Campbell Creek.
- Plans are being developed for the use of the SAGA Trail crew to perform additional riparian restoration the South Fork of Campbell Creek and Little Campbell Creek during the summer of 2010. -Water Discovery Days and Outdoor week activities are being planned for 2010.
- ADF&G, the Native Village of Unalakleet, and BLM will be partnering in the installation of a weir on the Unalakleet River to begin data collection on the health of king salmon runs in 2010.
- Continued operation of real-time transmitters for stream gage data (stage, water temp., air temp., and precip.) at the outlet of Paxson Lake and on the Delta River near Garrett Creek.
- Continued operation of gages on the Delta River near Black Rapids and two tributaries to the Gulkana River (Hungry Hollow and Twelve Mile Creek)
- Continued monitoring for fecal coliform on the Gulkana River.
- PFC assessments in the Delta WSR corridor (80 miles of tributaries and 500 acres of wetland).

## **Fairbanks District Office (FDO)**

**SNOW SURVEYS IN THE FORTYMILE RIVER AREA** This is an ongoing annual project to monitor winter snowpack in the Fortymile River Area. The Fairbanks District Office monitors four snow courses (Boundary, Chicken Airstrip, Lost Chicken Hill, and Mt. Fairplay) in the Fortymile Area in a cooperative program with the Natural Resources Conservation Service, as part of their nationwide interagency compilation of State and Federal snow survey work.

**SNOW SURVEY WHITE MOUNTAINS NATIONAL RECREATION AREA** This is an ongoing annual project to monitor winter snowpack in the White Mountains National Recreation Area (WMNRA). The Fairbanks District Office monitors four WMNRA snow courses (Fossil Cr., Borealis, Wolf Run, Windy Gap) in a cooperative program with the Natural Resources Conservation Service, as part of their nationwide interagency compilation of State and Federal snow survey work.

**INSTREAM FLOW WATER RIGHTS – WEST FORK FORTYMILE R. AND O’BRIEN CREEK** This is an ongoing project for obtaining State of Alaska Instream Flow Water Rights for the West Fork-Dennison Fork of Fortymile River and O’Brien Creek tributary to the Fortymile National Wild and Scenic River. BLM expects to submit Instream flow applications in FY10 or FY11. In cooperation with the USGS, BLM has collected streamflow data for the main stem of the Fortymile River as well as several tributaries within the Wild and Scenic River corridor.

**INSTREAM FLOW WATER RIGHTS FOR SOUTH FORK KOYUKUK R.** This is an ongoing project to complete an Instream Flow Application for the South Fork Koyukuk River, near mile 157 of the Dalton Highway. The goal of this project is State of Alaska Water Rights on three rivers in the Dalton Highway Corridor: Jim River, Kanuti River, and the South Fork Koyukuk River. An application for Instream Flow water rights for Jim River was filed with the State of Alaska in FY07.

**NOME CREEK STREAM GAGE:** BLM plans to continue FY10 operation of real-time transmitter for stream gage data (stage, water temperature, air temperature, and precipitation) at the Nome Creek Admin site near the headwaters of Beaver Creek. Data is posted on a Weather Service web site at <http://aprfc.arh.noaa.gov/>.

**BIRCH CREEK STREAM GAGE:** BLM plans to continue FY10 funding for USGS operation of the Birch Creek above 12 Mile Creek stream gage recording (stage, water temperature, air temperature, and precipitation). The stream gage is near the headwaters of Birch Creek at Steese Highway mile 94. Data is

posted on a USGS web site at

[http://waterdata.usgs.gov/ak/nwis/uv/?site\\_no=15392000&PARAMeter\\_cd=00065,00060](http://waterdata.usgs.gov/ak/nwis/uv/?site_no=15392000&PARAMeter_cd=00065,00060)

#### FY2009 Work Completed:

Continued monitoring stage/discharge & continuous water quality (Temp, turbidity, Spec Cond, pH, DO) in 5 small (1st order) Arctic tundra streams.

Monitoring water level and temperature in 5 Arctic lakes within the 5 tundra stream watersheds that are being gaged.

Conducted water resources inventory work (bathymetry, water quality) in 15 Arctic lakes (Yellow-billed loon breeding lakes)

#### FY2010 Plans

Pending funding, BLM in Alaska intends to accomplish the following in NPRA: Continue all FY 2009 work described above plus the following:

**UMIAT SNOW SURVEYS AND METEOROLOGIC STATION** At least once a year snow surveys will be performed near the Umiat Airport tower and one at the USGS Global Terrestrial Network for Permafrost (GTN-P) site located on the hillside two miles north of the airport. BLM is operating the Umiat Airport RAWs station. It currently transmits its data via radio telemetry and GOES satellite. Two webcams near the airport (oriented north and south) transmit images every 10min. Webcam and weather data is available from the following website: [http://www.colville-watershed.org/stations/Umiat\\_Air/Umiat\\_Air.shtml](http://www.colville-watershed.org/stations/Umiat_Air/Umiat_Air.shtml)

BLM is also operating a radio telemetry node in Umiat which can be used to access numerous weather stations in NPR-A NE. Access to these stations can be found at <http://www.colville-watershed.org/stations/colville-diag.html>

#### NPR-A RIVER GAGES

JUDY CK NR NUIQSUT: HUC 19060205 Stage (GOES), water/air temp, precipitation

UBLUTUOCH R NR NUIQSUT: HUC 19060205 Stage (GOES), water/air temp, precipitation

FISH CK NR NUIQSUT: HUC 19060205 Stage (GOES) water/air temp, wind speed/direction, precipitation

IKPIKPUK R BL FRY CK: HUC 19060204 Stage, (GOES) water/air temp, wind speed/direction, precipitation

MEADE R AT ATQASUK: HUC 19060203 Stage (GOES), water/air temp, precipitation

BLM discontinued funding the USGS to operate the gages in NPR-A listed above. Real time data will continue to be available at the NWS website: <http://aprfc.arh.noaa.gov/> Historical data is posted on a USGS web site at <http://waterdata.usgs.gov/ak/nwis/>

OTUK CK NR IVOTUK: HUC 19060301 Stage (GOES) water/air temp, wind speed/direction, precipitation <http://aprfc.arh.noaa.gov/> and at <http://amazon.nws.noaa.gov/hads/charts/AK.html>

SEABEE CK AT UMIAT: HUC 19060303 Stage, water temp. Data will be archived in the BLM Water Resource Catalog

PRINCE CK AB MOUTH: HUC 19060302 Stage, water/air temp Data will be archived in the BLM Water Resource Catalog.



# United States Department of the Interior



BUREAU OF LAND MANAGEMENT  
Alaska State Office  
222 West Seventh Avenue, #13  
Anchorage, Alaska 99513-7504  
<http://www.blm.gov/ak>

In Reply Refer To:  
7210 (AK-93112)

Jerry Harlow, Director  
National Cartography & Geospatial Center  
Natural Resources Conservation Service  
Fort Worth, Texas 76115

Dear Mr. Harlow:

The Watershed Boundary Dataset (WBD) for Alaska has been completed in accordance with the Federal Standards for Delineation of Hydrologic Unit Boundaries. This dataset has been posted, along with its metadata, for your retrieval, review, and certification at ftp site:

<ftp://ftpext.usgs.gov/pub/wr/ut/salt.lake.city/WBD/AK/FINAL/>. To accommodate review for certification, and because of the size of the data set, the data is being delivered in six different subregions. Ms. Laura Davenport, the National WBD Technical Coordinator at the National Cartography & Geospatial Center, will assist the review for the certification process.

The dataset was created by a coordinated effort between multiple agencies. The Bureau of Land Management (BLM) in Anchorage provided the oversight and did a major portion of the delineations and attribution prior to September 2008. Over the past 14 months, the U.S. Geological Survey (USGS) in Utah has managed funding from the BLM, USGS, Environmental Protection Agency (EPA), U.S. Forest Service, U.S. Fish and Wildlife Service, and National Park Service to readdress delineation and attribution for the entire state in order to bring it within the guidelines of the National Standards for Spatial Data Accuracy for the 1:63,360 scale. The USGS in Utah has managed multiple interagency teams in order to complete this work within a short time frame and ensure consistency and accuracy. Teams were made up of contractors from EPA, Utah State University, EPA Region 5, USGS in Utah, and the Wyoming Geographic Information Science Center. Any technical questions during the review for the certification process should be directed to Karen Hanson, Scientific Management Section, USGS Utah, 801-908-5038.

Final Quality Assurance/Quality Control was performed by USGS in Utah.

Sincerely,

Thomas P. Lonnie  
State Director

cc:  
Karen Hanson, WR, USGS  
931:LKoss:jlh:10/30/09:harlow:5477

## Agency Report – US Army CRREL

### **U.S. Army Cold Regions Research and Engineering Laboratory**

Report to the IHCA Fall Meeting, November 16-17, 2009 USGS Office, Anchorage

- Eagle River Flats White Phosphorous remediation project continues. Active pumping of large areas completed and now working on winter capping of hot spots. Test capping in March 2007, major capping in 2008 and 2009. Duck mortality in fall 2009 migration indicates that a few hot spots remain.
- Working with USACE Alaska District on permafrost studies at Shishmaref. Geophysical surveys (GPR, EMI, and resistivity) during April and September 2008 to determine Sarichef Island permafrost thickness (10-30 meters). Several thermistor strings installed to monitor thermal regime over time and during fall storm events.
- Jarvis Creek aufeis study nearing completion. No flooding this past spring attributed to low aufeis growth, trenching operations and mild spring thaw. 2-D flow modeling through Battle Area Complex (potential flow passage and training structures) and hydrologic modeling (determination of land use change effects on wetlands).
- Knik Arm sampling program to determine munitions constituent runoff from Eagle River Flats Impact Range (no detection over 5 years of sampling of either metals or explosives).
- Hubbard Glacier/Russell Fiord study (with USACE Alaska District and USFS) to determine effects of closure of Russell Fiord on Situk River flows. Hubbard Glacier reached within 100 meters of closure at end of June 2009. See <http://www.glacierresearch.com/>
- Initiative to construct a new permafrost tunnel at Fox, AK and a new permafrost research facility. Initial plus-up funding of \$500K in Defense Appropriations bill for FY10.
- Conducted Climate Change Impacts on Defense Assets in Alaska Workshop in Anchorage in July 2009. Final report to be published in late November/early December. Resulted in new FY11 Strategic Environmental Research and Development Program (SERDP) Statement of Need “Impacts of Climate Change on Alaskan Ecological Systems”. See for info and requirements: <http://www.serdp.org/funding/Core-Sons.cfm>



STATE OF ALASKA  
DEPARTMENT OF  
**COMMERCE**  
COMMUNITY AND  
ECONOMIC DEVELOPMENT

Division of Community and Regional Affairs

*Sean Parnell, Governor*  
*Emil Notti, Commissioner*  
*Tara Jollie, Director*

**Division Report to Interagency Hydrology Committee of Alaska  
Anchorage Meeting November 16 - 17, 2009**

**Multi-Hazard Map Modernization of State's Flood Insurance Rate Maps:**

As anticipated a tremendous amount of maps have been released for Alaska. Several Digital Flood Insurance Rate Maps (D-FIRM) have been released and six have been adopted. Others are in various stages of the process (see below).

**Anchorage** ~ Adopted new D-FIRM's

~ Restudy of California, Glacier, and Furrow Creeks continues and will be added to the D-FIRM's as a LOMR once completed.

~ [New Coastal study scoped for release in 2011.](#)

**Fairbanks, AK** ~ Preliminary map is released on June 30, 2009, comments are being accepted and determination of an appeal is in process.

**Juneau** ~ DFIRM, Coastal Study and Riverine Studies - Development continues and the scheduled preliminary issue date is unknown.

**Kenai Peninsula Borough (Kenai, Anchor & Ninilchik Rivers)** - Scheduled preliminary issue date is unknown. Awaiting data from the USACOE completion date is unknown.

**Kenai Peninsula Borough, AK (Homer)** ~ adopted new D-FIRM's

(Seward) ~ DFIRM production and studies continue - Scheduled preliminary issue date is estimated in late 2009 or early 2010.

(Seward) ~ [Coastal and Alluvial Fan study scoped for release in 2011.](#)

**Mat-Su Borough, AK** ~ Redelineation and DFIRM production - preliminary maps released on Sept 15, 2009. Final coordination meeting scheduled for Dec 9, 2009 and we are accepting comments.

**Sitka, AK** ~ DFIRM production - preliminary maps released on May 15, 2009. Final coordination meeting scheduled for Dec 10, 2009 and we are accepting comments.

**Other Alaska DFIRM Conversions (Chignik, Chignik Lake, Chignik Lagoon, Bethel, Emmonak, Togiak, Ft. Yukon, Hoonah, Kotzebue, Shishmaref, Nome)** - preliminary released for all communities with the exception of Kotzebue. Emmonak, Ft Yukon, Bethel have adopted the new DFIRM's. Lake and Peninsula Borough, Togiak, Hoonah, Shishmaref and Nome are in the adoption process. Kotzebue has completed aerial photography with topography; completion for this DFIRM is unknown.

## FEMA RISKMap ~ takes the place of Map Modernization:

Mapping priorities continued to be developed as FEMA transitions from Map Modernization to FEMA RISKMap. FEMA RISKMap has the capability of incorporating other hazards along with the primary layer of flooding. Additionally, where needed FEMA could fund base mapping with a coordinated partnership. This programs rollout has been emerging and additional details on implementation are in progress.

## Flood Mitigation Assistance (FMA), Repetitive Flood Claims (RFC), and Severe Repetitive Loss (SRL) Grant Programs

FMA, RFC, and SRL provide funding to assist communities in implementing measures to reduce or eliminate the long-term risk of flood (or erosion) damage to buildings insurable under the National Flood Insurance Program.

The 2010 application period is open and eligible applicants can contact me for application procedures. *Applications are due.*

FMA funding rollover for FFY 2009 is \$20 million dollars. If you have an eligible project or eligible community please contact me, Taunie L. Boothby 269-4583. A letter will be going out to communities explaining the opportunity. Additionally, FFY 2010 FMA funding is also anticipated to have a rollover. Current application deadline for FFY 2010 funds is Dec 4, 2009.

## Floodplain Management & Erosion Related Activities

- Climate Change Sub-Cabinet - Continues to be an active participant in the working groups. Development of an impact statement on services is currently under development for a strategy meeting this week.
- State NFIP Coordinator actively working two Federal disasters for the 2008 Tanana Basin flood and the 2009 Yukon/Kuskokwim flood.
- High-water mark collection is critical for data analysis, regulation application and mitigation funding after a disaster.
  - Who is responsible for this?
  - Where is this data housed?
  - Is their easy access to this data?
  - Can we procedures for future events, including the small events?
  - How do we handle mudslides?

To capitalize completely on mitigation funding opportunities requires access to this data. Do we have a one stop shop for information? Including small events during the Benefit Cost Analysis (BCA) determination drives the positive result higher.

National Park Service water resources summary November, 2009

Trey Simmons  
Aquatic Ecologist  
Central Alaska Network

**Regional** – Wrangell-St. Elias NP&P has a CESU agreement with St. Mary's University to steward edits to NHD flowpaths for the park (as part of a Natural Resource Condition Assessment). The Alaska Regional Office of NPS is currently planning a similar stewardship agreement to get the NHD layers for other AK parks edited and get those edits incorporated into the NHD.

NPS is also in the process of hiring a regional hydrologist position.

**Inventory and Monitoring Networks** – All 4 I&M networks have some kind of ongoing development or implementation of water resource monitoring programs. The goals of each program differ somewhat, but generally include monitoring status and trends in surface hydrology, water quality and biodiversity in streams and lakes in network parks.

Central Alaska Network (Denali, Wrangell-St. Elias, Yukon-Charley Rivers).

The stream and river monitoring program started in 2006, really got going in 2007. The program has sampled 80 streams in Wrangell-St. Elias and Denali through 2009. Sampling of streams in Yukon-Charley Rivers NP will begin in 2010. Data collection includes field and laboratory water chemistry, instantaneous discharge, species composition and density of benthic macroinvertebrate and diatom communities, fish species presence, and geomorphological measurements (substrate size distribution, channel geometry, thalweg profile, reach slope). The sampling design includes a combination of index sites and a rotating set of probabilistic monitoring sites (chosen using the GRTS survey design). 25 streams have been sampled in at least 2 years, 12 in at least 3 years, 3 in all 4 years (few streams were sampled during the first year). 5 streams have also been sampled in multiple seasons/year. Starting in 2008, continuous temperature data have been collected in 15 streams; this year some units were left in place over the winter to see how they survive. Pressure transducers were installed at Jack Creek in Wrangell-St. Elias – currently we are developing a rating curve for that site. Temperature loggers and pressure transducers will be installed at additional sites in 2010. Eventually we hope to be able to monitor discharge at multiple locations in each network park.

The shallow lake monitoring program is now in its 6<sup>th</sup> year. The program collects data from small shallow lakes, including surface area, physical morphology, water quality, macroinvertebrate species composition, wetland vegetation, and thaw depth. Monitoring data will be used to track changes in lake number and surface area, water quality, macroinvertebrate composition, and plant composition. So far 85 lakes (30 in Yukon-Charley Rivers, 30 in Denali, 30 in Wrangell-St. Elias), selected using a GRTS

probabilistic survey design, have been established as long-term sites and sampled. 8 lakes are continuously monitored each season with thermistor chains and multiparameter sondes.

Periodically the program will conduct lake inventories, where lakes are sampled less intensively (fewer replicates) and for a reduced suite of parameters. These data will be used to evaluate spatial coherence and develop a lake classification for the park (So far only Denali has been inventoried). Catastrophic drainage of small lakes along the Yukon River has been observed in most years. Loss of lake surface area typifies some areas of the network, but overall lake surface area dynamics are highly heterogeneous, with extensive losses in some areas (e.g., NW portion of Wrangell-St. Elias, aeolian lowlands near Lake Mincumina) and little to no change in other areas.

#### Arctic Network (Gates of the Arctic, Western Arctic Parklands).

Installed 30 monitoring sites on shallow lakes in Kobuk Valley NP. Sites were selected using a GRTS survey design. Data were collected on water chemistry, macroinvertebrates, wetland vegetation and thaw depth. Field staff noted extensive permafrost thawing. Ten lakes were documented that had drained catastrophically. Extensive lake drying was observed along the sand sheet at Kobuk sand dunes. Work began on monitoring coastal lagoons in Cape Krusenstern National Monument. 4 lagoons were sampled in 2009.

#### **Individual parks –**

**Lake Clark NP** has begun a 3-year project (with USGS) to collect baseline hydrological and water quality data in the Chulitna River basin. A fixed station has been installed near the mouth of the Chulitna that will collect continuous discharge and water chemistry data. Beginning in FY10 instantaneous discharge and water quality data will also be collected from additional sites throughout the basin. This effort is tied to concerns about future mining activity upstream of the park; specifically the proposed Pebble Mine. Another emerging issue is the proposed hydropower project at Chakachamna Lake (on the NE boundary of the park).

**Denali NP** - Restoration plans have been developed and submitted for funding for Slate and Caribou Creeks (both 303(d) listed for suspended sediments; Slate also has elevated heavy metals). A major restoration effort began in 2009 on Glen Creek, including recontouring of tailings and the stream channel, removal of contaminated soil and mining equipment and riparian revegetation. Other streams are also in line for restoration if funding allows. Numerous streams in the Kantishna area have elevated metal concentrations, highly variable sediment loads and altered channels from historical placer mining.

A proposal to study the effects of runoff of calcium chloride (applied to sections of the park road as a dust palliative) on adjacent water bodies has been submitted for funding.

The WACAP study of airborne contaminants found elevated levels of mercury in fish from Wonder Lake – followup research is planned.

Numerous aquifers in the Denali frontcountry area are contaminated and are being monitored. The wastewater treatment plant is out of compliance with Alaska DEC standards – planning and design for replacing the plant are in progress.

BLM and NPS are evaluating navigability for parts of the Kantishna River in response to a request for navigability determinations.

NPS currently mines approximately 11,000 cubic yards of gravel from the Toklat River floodplain on an annual basis for road maintenance material. A major study began in 2009 to evaluate the effects of this activity on fluvial processes in the Toklat River, as well as the effects of other management impacts, including the installation of riprap (2009) to protect the rest area, and the long causeway blocking most of the channel.

Other issues of concern to the park are potential coalbed methane development outside the park, herbicide use by the Alaska Railroad, the potential north access road to Kantishna and the introduction of exotic species.

**Glacier Bay NP** has started continuously monitoring discharge and temperature in the Bartlett River (part of a 3-year study of sockeye escapement). This site will eventually become the principal long-term water quality monitoring site for the Southeast Alaska I&M Network.

A new run-of-the-river hydropower project on Falls Creek (just downstream of the park boundary) went on line in July. Park is currently monitoring Dolly Varden in Falls Creek using PIT tags – goal is to correlate fish movement with temperature and discharge (monitored by the hydropower project). Some concern over the effect of the intake reservoir.

**Klondike Gold Rush NHP** – The main concern for the park is the hydrology of the Taiya River. Seasonal flooding provides important western toad breeding habitat, and the natural hydrological regime is probably important for other species as well. The USGS operated a gage on the Taiya in the 1970's. In 2004 the park and USGS reopened the gage. Preliminary analyses of this incomplete record (St. Mary's University) suggest that fractional flows for May/June may be increasing and those for July/August may be decreasing. Also some indication of an earlier onset for spring runoff. The park is looking for help interpreting the data.

The Taiya River bridge, which is inside the park on a State ROW, was de-rated last year (weight limit reduced from 10 to 5 tons). Built in the late 40's, it is considered a major factor in altering channel migration, erosion patterns, and impacting NPS cultural resources. The bridge is now scheduled for a repair or replacement. Scoping on the bridge project will begin in a month or two.

**Kenai Fjords NP** paid for a GOES telemetry upgrade to the APRFC gage on the Resurrection River at the bridge, now have real-time discharge data. High water now reaches the bottom of the bridge periodically. Appears to be a result of the bridge effectively impeding flow and increasing aggradation. Mike Marshal (NPS Water Resources Division) consulted and suggested waiting

until there are physical problems since bridge is “the responsibility of the Federal Highway Administration” [? I assume they mean AKDOT]. Looking for insight/suggestions.

Plans to initiate (in conjunction with Alaska SeaLife Center) a study of coho recruitment, movement, etc. in Resurrection River. Currently little or nothing is known, even though Resurrection Bay is one of the state’s largest recreational fisheries.

The main issue for **Sitka NHP** is suburban development in the Indian River Basin upstream of the park, including extensive water diversions. In 2007 the park (in conjunction with ADF&G and the city of Sitka) began operating 2 gages on the river, above and below the development (replacing discontinued USGS gages). Discharge data have shown that extraction substantially impacts river flow during salmon spawning. The park is also conducting a 3-year bioassessment of water quality using macroinvertebrate and diatom indices developed by ENRI.

**Wrangell-St. Elias NP** – Stream gage installed on Bonanza Creek (Kennicott) in 2006, currently operated jointly by NPS and USGS. Collection of baseline water quality data (USGS) along the McCarthy road occurred in 2008-2009. An EIS is in progress regarding the impacts of ATV use along the Nabesna Road. Mapping and assessment of all stream crossings began in 2008. Studies of the impacts of ATV use on wetland hydrology and water quality are ongoing (USGS and the Central Alaska Network).

**NATURAL RESOURCES CONSERVATION SERVICE AGENCY UPDATE**  
**IHCA – November 16-17, Anchorage, Alaska**

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**WATERSHED PROJECTS**

- Delta-Clearwater Watershed Project—originally intended to protect Clearwater River from sediment inputs during large scale flood events on Granite, Rhoads, and Sawmill Creeks. ARRA funding is being pursued for restoring this project site since there are not enough funds available to complete a functional project in the form of a dry dam. Should know if funding is secured by December 31, 2009. If so, anticipate construction completion by July 31, 2011.

**Emergency Watershed Protection**

- City of McGrath – This is a levee repair and riprap armoring project (approx. 1100 feet). Contract awarded in August 2008. Riprap bank protection completed. Levee placement/compaction hampered due to wet conditions in September/October. Levee work will be completed in spring 2010.
- Additional new EWP projects have been submitted for funding. Unsure when funding may be obtained at this point. Proposed projects are in McGrath and Fort Yukon.
- Relatively small scale EWP projects were completed in Napakiak, Stevens Village, Eagle, Tanana, and Emmonak. Most of these projects dealt with debris removal or structure relocation in response to erosion threats.

**SNOW SURVEY ACTIVITIES**

The Alaska Snow Survey Program hired a new Hydrologist in June. Daniel Fisher replaced James coming from Delta Junction.

NRCS Snow Survey appreciates the In-Kind Services provided annually to the Snow Survey Program from each of the agencies and private companies. The In-Kind contributions for personal, equipment and air charter are in excess of \$300,000 annually. Two new snow courses were established near Bethel, they are called Upper and Lower Kwethluk. Two new snow courses were established near Wrangell, Rainbow Falls at an elevation of 500 ft. and Institute Creek at an elevation of 1,350 ft.

The following is brief summary of the work for Alaska Snow Survey/Water Supply Forecasting Program (SS/WSFP) for fiscal year 2009.

- Three SNOTEL sites received retrofits this past summer, no new SNOTEL sites were installed. On the Kenai Peninsula, Middle Fork Bradley, McNeil Canyon School and Turnagain Pass received new shelters. In the Chena Basin, near Fairbanks, the Teuchet Creek SNOTEL site was moved to the original snow course and it received all new equipment and mostly new sensors.

- BLM/NRCS are upgrading the Alaska Meteor Burst Communication System (AMBCS) master station. Nine new antenna towers will be installed by BLM and NRCS will be purchasing and installing the new communications next Spring.
- The Alaska Snow Survey Program data records are on the National Water and Climate Center web site <http://www.wcc.nrcs.usda.gov/>. Many products are now available to use at this National web site.

The Alaska staff currently consists of a Hydrologist, Hydro-tech and Data Collection Officer (DCO). The staff oversees and QC's the collection of the data from 53 SNOTEL sites, 8 additional sites with on site data loggers recording daily data, and 232 snow courses that have monthly readings throughout the winter. From this data, we generate 129 volume Stream flow forecasts and Snowmelt Runoff Indexes.

# NOAA NWS Agency Report

Presented by

Larry Rundquist

Service Coordination Hydrologist

National Weather Service  
Alaska-Pacific River Forecast Center (APRFC)

<http://aprfc.arh.noaa.gov>

November 2009

## Management and Staff

Current staffing and contacts are as follows:

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### Weather Forecast Office Hydrology Contacts:

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Fairbanks - Ed Plumb, Service Hydrologist, 458-3714

Juneau - Mike Mitchell and Aaron Jacobs, Hydro Focal Points, 790-6824

## Operations/Flooding

The most significant flood of 2009 was the ice breakup flooding in May. Above normal snowpack and ice thickness combined with a significant warm weather system to produce disaster-generating ice jam flooding. Record flooding devastated Eagle due to two sequential ice jams downstream and major flooding also occurred in Stevens Village and Tanana due to downstream ice jams. Moderate flooding resulted from the high flows and ice jams at Circle, Fort Yukon, Russian Mission, Marshall, Emmónak, and Alakanak on the Yukon River; Red Devil, Aniak, Akiak, and Kwethluk on the Kuskokwim River; and along the upper Susitna River near Curry. Minor flooding occurred at numerous other villages due to high flows as the ice front passed the village.

Moderate flooding due to rain occurred in the Seward area on 29 July with significant damage to roads and bridges. There was also rainfall flooding in the northern panhandle in mid August.

## River/Rain Gauge Network

NWS made the following additions to our river gage network:

MACA2 - Maclaren River at Denali Highway (automated gage)

SUDA2 - Susitna River at Denali Highway (automated gage)

BRCA2 - Black River at Chalkitsik (new observer at new location)

PRCA2 - Porcupine River at Coleen River confluence (new observer at new location)

YHCA2 - Yukon River at Holy Cross (new observer at new location)

We had several field trips this past summer to take flow measurements to maintain the rating curves for NWS river gages.

No new ice thickness measurement observers were added to our network this year. We hope to continue to receive ice thickness data that are measured by other agencies during discharge measurements or other studies to augment ice data collected by our observers.

## **Projects**

The open-water months were primarily occupied by forecast operations and field work and little time was available for project work. However, some progress was made on further enhancements to our new products of gridded hydrologic forcings of precipitation, temperature, and freezing levels. The development season for this upcoming winter is expected to be dominated by the installation and configuration of our new operating environment called Community Hydrologic Prediction System (CHPS). The CHPS environment was developed rapidly due to our collaboration with Deltares and migration of the NWS model components into their Flood Early Warning System (Delft-FEWS) (<http://www.wldelft.nl/soft/fews/int/index.html>). This open shell operating system will allow us to access other hydrologic models and add new models easily. We are hoping that the configuration of the new system goes quickly and allows us to use the system during our 2010 operational season. Other development this winter will include projects on model calibration and recalibration of our hydrologic model, further development of techniques for producing gridded precipitation, temperature, and freezing level products, incorporating the new PRISM dataset, web site improvements, flood stage assessment, computer system maintenance, and staff training.

## **NOHRSC Activities for Alaska**

The airborne snow water equivalent program was conducted in April of 2009. Details of the 2010 flight planning are not yet available.

## **Precipitation Frequency Project For Alaska**

The University of Alaska, Fairbanks (UAF) is moving forward on the joint effort with NWS to update precipitation frequency estimates for Alaska. UAF continues with data collection, formatting, and quality control. Next steps in the process for the upcoming year are the extraction of annual maximum series (AMS); additional quality control and data reliability tests, regionalization, and frequency analysis. Details of the progress thus far will be provided by UAF. The scheduled completion date is September 2011.

## **Climate Reference Network**

The Sand Point and Port Alsworth CRN sites were installed this summer. These two sites join Barrow, Fairbanks, Sitka, and St. Paul as stations in the Alaska CRN. NWS has been working with partner agencies on potential locations for additional CRN sites that include Atkasuk, Red Dog Mine area, Glacier Bay area, Middleton Island, Sterling/Soldotna area, Galena, Talkeetna area, Alekganik area, Gulkana area, and North Slope.

## **Flood Safety Awareness Week**

The National Flood Safety Awareness Week is scheduled for March 15-19, 2010. Each day of the week will focus on a different hydrology element. APRFC will be supporting this in Alaska with outreach activities. The National Flood Safety Awareness Week webpage can be found at <http://www.weather.gov/floodsafety/>.



## CHENA RIVER LAKES FLOOD CONTROL PROJECT

- May 2009 Flood
  - Peak flow at project May 4<sup>th</sup> (8,130 cfs).
  - Project not operated.
  - Minor flooding along Chena (Typical).
  - Significant ice jam between the project and Fairbanks.
  - Debris at the dam reduced flow, project benefits realized
- Continue to upgrade remote data collection platforms with NRCS.
- Significant amount of project related studies planned for FY10+.

## STUDIES & PROJECTS

- **2009 Yukon/Kuskokwim River Floods**
  - High water mark surveys:
    - Eagle, Emmonak, Tanana, Akiak, Alukanuk, Russian Mission and Circle.
    - Provided FEMA assistance as needed.
- **Alaska Barge Landing System Design** – Working for Denali Commission to plan, design and construct barge and boat facilities throughout Alaska.
- **Tanana River Levee Certification:** Levee certified in June.
- **General Hydropower Investigation:** The Alaska Energy Agency (AEA) has entered into a 3 year Planning Assistance to States (PAS) agreement to investigate potential hydropower projects. The initial task will be to create a GIS database that can be accessed from the Department of Natural Resources Land Records Information Section Oracle Spatial database. This GIS product will allow users to access digitized reports that are currently available only in hard copy. Online database access expected next year. A draft list of all hydropower reports is available now. Report scanning complete.
- **Matanuska Watershed Study:** Watershed study initiated with several ongoing initiatives.
  - Wide area Lidar coverage (USGS - Lead, MatSu Borough, COE and others).
  - Wetlands mapping – Completed.
  - Wetland Functional Assessment – scoping needs with Matsu Borough.
  - Assisting Mat-Su Borough Planning Group.
  - Matsu Salmon Symposium Nov. 18<sup>th</sup> and 19<sup>th</sup>.
  - Tetra Tech performing data gap analysis for watershed study.

- **Flood Plain Information Reports:** Public meetings this summer to present results from Kenai Peninsula Studies. The Ninilchik River study extends from the river mouth to just upstream of the Sterling Highway. The Anchor River study extends from the mouth upstream of the Sterling Highway on both the North and the South Forks. The Kenai River study extends from Kenai Lake downstream past development in Cooper Landing.
- **Yakutat:** Alaska District and CRREL personnel collaborated to model the potential overflow flood of an ice-dammed Russell Lake into the Situk River. Continued remote monitoring of the Hubbard Glacier with laser rangefinder and time lapse photography. Real time images added to the DCP this summer. Working with AKDOT to develop contingency plan for the Airport.  
<https://rsgis.crrel.usace.army.mil/hubbard/hubbweb.hubbindex>
- **Whittier:** Initiated a hydro power reconnaissance study with the City of Whittier and Alaska Energy Authority.
- **Port of Anchorage:** Numerical and physical modeling of Upper Cook Inlet hydrodynamics complete. Sedimentation numerical modeling complete, final report later this fall.

#### **FY09 FUNDED USGS STREAM GAGES (13 Total)**

##### Chena River Lakes Project (Moose Creek Dam):

- Chena River MP40
- Chena River near Hunts Creek
- Chena River Below Moose Creek Dam
- Chena River Downtown Fairbanks
- Little Chena River
- Tanana River at Fairbanks

##### USACE Cooperative Stream Gaging Program (Sites cost shared with USGS):

- Spruce Creek, near Seward
- Kenai River, near Soldotna
- Kuskokwim River, near Crooked Creek
- Yukon River, near Stevens Village
- Tanana River, near Nenana

##### Project Funded Gages:

- Whittier Creek (Start up October of 2009) – Funded for two years
- Buskin River

#### **FY10 CHANGES TO STREAM GAGES**

- No gage on Spruce Creek
- Seasonal stage/discharge gage on the Kuskokwim at Lisky's Crossing (w/USGS)

- Seasonal stage gage on the Tanana River at the Chena Lakes Project (w/USGS)
- Seasonal stage gage on the Tanana at Big Delta (w/NWS)

## **COASTAL EROSION AND RELOCATION PROJECTS**

- **Corps Section 117 (Coastal Erosion) Authority was repelled in FY09 omnibus spending bill.**
- **New law passed for Alaska Coastal Erosion in FY09 (35% - 65% cost share)**
  - **Kivalina:** Construction of 1600' of coastal revetment complete. Final 400' to be completed in 2010.
  - **Shishmaref:** Revetment construction completed this summer (2700').
  - **Unalakleet:** Construction contract awarded in the Spring 2009 for 3400' of coastal revetment. Construction will be complete in 2010.
  - **Newtok:** Design of a road from the barge landing to the new town site complete.
- **Western Alaska Storm Surge Modeling:** The Alaska is currently collaborating with the Corps Engineering Design Research Center for storm surge modeling of Western Alaska (Dillingham to Point Hope) with a focus on the area from Kivalina through Norton Sound. Study complete, results to be available on the internet shortly. Website address: TBD.
- **Western Alaska Wave Hindcast:** The Alaska District is working with the Engineering Research and Development Center's Coastal Hydraulics Laboratory on a wave hindcast of the Bering Sea using a discrete spectral wave model (WAM). This study will provide wave, wind, and extremal information for points located on the western coast of Alaska. This study is complete. Results to be submitted to AOOS for distribution. Website address: TBD.

**2009 Alaska District construction projects: Port of Anchorage, Kivalina, Shishmaref, Unalakleet, Unalaska Harbor, St. Paul Harbor, Akutan Harbor, Cordova Harbor, Chevak, Kake and Chignik Harbor.**

# USGS Alaska Science Center

## Water Resources Office

### 2009 Fall Agency Report

## Scientific Accomplishments

**Providing streamflow information for the public:** The Alaska Science Center Water Resources Office provided real-time streamflow information at nearly 90 sites in 2009. These data are used by the public and resource managers for a variety of needs. The National Weather Service relies on this information to provide timely flood forecasting. Long-term records of streamflow are extremely valuable in understanding effects of climate change on the hydrologic cycle.

**Monitoring streambed scour at Alaska bridges:** In cooperation with the Alaska Department of Transportation and Public Facilities (ADOT&PF), the USGS monitors streambed scour in real time at 19 bridges in Alaska. Data from sonar equipment located at bridges deemed scour critical are transmitted to the USGS and ADOT&PF during the open-water season. Comparisons of streambed elevation at the bridge piers are made to footing elevations to determine whether the integrity of the pier potentially has been compromised. Multi-dimensional hydraulic models are being developed for specific, scour-critical bridges from bathymetric and velocity data collected during this project. Soundings are made at numerous bridges statewide annually that are not equipped for real-time monitoring.

**Understanding bank erosion on the Matanuska River:** Bank erosion along the glacial, braided Matanuska River in southcentral Alaska has periodically damaged or destroyed properties and structures for decades. Hydrologists are gaining an understanding of channel processes and variations in bank erodibility as part of an ongoing study to provide a basis for managing areas near such active rivers. Conceptual models of river formation, bank material mapping, and historical aerial photo research are guiding development of the project's goal of creating erosion hazard maps. Preliminary maps of the extent of the river's braid plain, the distribution of terraces, tributary fans, and other erodible features, and the location of erosion-resistant bedrock banks have proved essential tools for engaging land managers and agency representatives.

**Glaciers and climate in Alaska:** The USGS Benchmark Glacier Monitoring Program completed its 44<sup>th</sup> year of mass balance data collection at Gulkana and Wolverine Glaciers. Measurements of mass gains and losses describe the state of health of the glaciers making it possible to interpret each glacier's interaction with local climate conditions. Our research shows that both glaciers have undergone mass loss trends for over 100 years since the end of the Little Ice Age, with recent acceleration in mass loss between 30 to 50 percent. This program provides valuable data for understanding global ice volumes, which are required for socio-economic issues including water resources, sea level rise, ocean circulation, and recreation economy.

**Understanding freshwater ecosystems and partitioning natural variability from impacts due to global climate change and local land use:** Ongoing work on the lakes in the Arctic Coastal Plain is revealing how physical processes influence water supply and waterfowl habitat, specifically showing shifts in ice thickness and ice-out timing and complex hydrologic response due to extreme aridity observed in 2007. Projects were continued to study small headwater streams in the context of climate change and land use; one on the Arctic Coastal Plain where oil development may soon begin, and the other in Wrangell – St. Elias National Park where decisions support is needed for regulating trail uses. New work on the affect of climate change on the hydrology of wetlands in the Yukon Flats National Wildlife Refuge was begun this year.

**Describing water-quality conditions in National Parks:** Water-quality data were collected from sites in Denali and Wrangell-St. Elias National Parks. Two studies were conducted in Denali National Park, one focused on the physical and chemical characteristics in of Wonder Lake, and the second focused on streams in historically mined drainages in the Kantishna Hills area of the Park. In Wrangell-St. Elias National Park, streams along the McCarthy Road were examined for their physical, chemical, and biological characteristics that define baseline water-quality conditions.

**Understanding groundwater availability and movement in the Matanuska-Susitna Valley:** Groundwater levels were measured at 154 wells and surface elevations were monitored at 9 lakes to provide data necessary to construct a groundwater flow model for the area between Palmer and Big Lake, the most rapidly growing area of the state. Nearly all the area's residents rely on groundwater from individual wells for their domestic supply. There has been recent concern about declining groundwater levels and lake drying in areas of development.

## Outreach Activities

Janet Curran and Monica McTeague presented draft GIS products detailing bank erosion along the Matanuska River at the Matanuska River Watershed Coalition meeting on March 25, 2009.

The Matanuska-Susitna Borough invited hydrologist Janet Curran to provide technical assistance to the development of the Matanuska River Management Plan, a planning effort to address chronic loss of properties and homes to bank erosion. As a featured speaker at the initial public meeting on May 14, she presented preliminary findings from a USGS study assessing bank erosion hazards along the braided, glacial Matanuska River. The USGS will use the results of this study to guide the planning team over a series of planning and community meetings in the next year.

## Publications (not reported in April, USGS authors in bold)

**Brabets, T.P.** and **Walvoord, M.A.**, 2009, Trends in Streamflow in the Yukon River Basin from 1944 to 2005 and the Influence of the Pacific Decadal Oscillation: *Journal of Hydrology*.

Briggs, M.A., Gooseff, M.N., **Arp, C.D.**, and Baker, M.A., 2009, A method for estimating surface transient storage parameters for streams with concurrent hyporheic storage, *Water Resources Research*, v. 45

**Curran, J.H.**, and Rice, W.J., 2009, Baseline channel geometry and aquatic habitat data for selected streams in the Matanuska-Susitna Valley, Alaska: U.S. Geological Survey Scientific Investigations Report 2009–5084, 24 p.

**Josberger, E.G., Bidlake, W.R., March, R.S., and O’Neel, S.R.**, 2009, Fifty-year record of glacier change reveals shifting climate in the Pacific Northwest and Alaska, USA: U.S. Geological Survey Fact Sheet 2009-3046.

## Scientific Presentations (USGS authors in bold)

**Arp, C.D., Jones, B.M., Urban, F.E.**, and Welker, J.M., 2009, Two distinct mechanisms of lake hydrological and chemical change along the Arctic Coastal Plain, Alaska: Poster presented at the American Society of Limnology and Oceanography Aquatic Sciences Meeting, January 25-30, 2009, Nice, France, and at the American Water Resources Association Spring Specialty Conference, Anchorage, AK, May 5, 2009.

**Brabets, T.P.**, 2009, Trends in Streamflow in the Yukon River Basin from 1944 to 2005 and the Influence of the Pacific Decadal Oscillation: presented at the American Water Resources Association Spring Specialty Conference, Anchorage, AK, May 5, 2009.

Finnegan, D.C., Lawson, D.E., Hanlon, G., **O’Neel, S.**, Kalli, G., 2008, Monitoring tidewater terminus dynamics using laser ranging and fixed photography: Hubbard Glacier, Southeast Alaska: presented at the American Geophysical Union Fall Meeting, Dec. 15-19, 2008, San Francisco, CA.

Hood, Eran, Smikrud, K.M., and **Neal, E.G.**, 2009, Estimates of mean annual freshwater discharge into the Gulf of Alaska (1960-1990): presented at the American Water Resources Association Spring Specialty Conference, Anchorage, AK, May 6, 2009.

LeBlanc, L.E., Larsen, C., West, M., **O’Neel, S.**, and Truffer, 2008, Time-series analysis of icequakes and ice motion, Bering Glacier, Ak: presented at the American Geophysical Union Fall Meeting, Dec. 15-19, 2008, San Francisco, CA.

Pfeffer, W.T. and **O’Neel, S.**, 2008, Time-lapse photogrammetric observations of Columbia Glacier, Alaska, in continued retreat: presented at the American Geophysical Union Fall Meeting, Dec. 15-19, 2008, San Francisco, CA.

## **Alaska Department of Transportation & Public Facilities**

### **AGENCY REPORT**

#### ADOT&PF endeavors related to hydrology:

Storm water management – DOT is still evaluating what level of design guidance from ADOT&PF is needed to meet federal, state, and local stormwater regulations on post-construction and permanent BMPs.

#### Research:

- River bend erosion protection – UAF is conducting research to evaluate two projects to control lateral channel migration.
  - ADOT&PF's Sagavanirktok River, Dalton Highway
  - Alyeska's Hess Creek, Trans-Alaska Pipeline.
- Foothills West Project – UAF is conducting hydrologic research for ADOT&PF on the following rivers:
  - Toolik River
  - Kuparuk River
  - Itkillik River
  - Anaktuvuk River
  - Chandler River
- Bridge deck drainage study – An ongoing research project with UAF on the subject of stormwater management on bridge decks in cold climates.
- Precipitation Frequency Estimate Updates – ADOT&PF is continuing to help fund the PFE update, collaboration between UAF & NOAA.
- Climate change/variability in South-Central AK – The department is continuing to fund a project to assess the effects of climate change/variability on flood frequency.

#### STIP ID# 12579 – Scour Monitoring and Retrofit Program

- ADOT&PF is continuing its bridge scour monitoring efforts with the assistance of the USGS.
- The assessment of bridges in the tidal environment and bridges for which the foundations are unknown remains a top priority.

#### STIP ID# 6450 – USGS Flood Frequency and Analysis

- This project helps to fund the Small Streams Program for the USGS.
- ADOT&PF is looking for collaboration opportunities, gage sites that might meet multiple objectives.

#### STIP ID# 6455 – Small USGS Hydrologic Investigations

Alaska Highway Drainage Manual (AHDM) – ADOT&PF is pursuing a number of chapter updates to this manual.

- Chapter 17 - Bank Protection guidelines. Funding secured.

IHCA – Fall 2009

- Chapter 16 - Erosion and Sediment Control Plans. Minor revisions requested. Reference to DEC Stormwater Guide.
- Chapter 13 - Storm Sewer System. Another update priority for my office.

Training – Course being considered for the next few years:

National Highway Institute (NHI) courses:

- 135041A – HEC-RAS River Analysis System
- 135067 – Practical Highway Hydrology
- 135027 – Urban Drainage Design
- 135065 – Introduction to Highway Hydraulics
- 135056 – Culvert Design
- 135071 – Surface Water Modeling System with FESWMS and SMS
- 135048 – Countermeasure Design for Bridge Scour and Stream Instability

Non-NHI:

- Ordinary High Water – Delineation and overview
- HEC 26 Design of Fish Passage for Bridges and Culverts



## ALASKA DEPARTMENT OF FISH & GAME IHCA AGENCY REPORT November 16-17, 2009

- ADF&G is funding and/or contributing to USGS to operate Montana Cr, Wasilla Cr, Moose Cr, Situk and Ophir gages and with the NPS for the Indian River gage. We are operating gages on Sheep Cr, Fish and Meadow Creeks in Southcentral and Sitkoh, Chilkoot, Cowee, and the Lost River in Southeast.
- Kim Sager was hired last fall to fill the instream flow position at DNR. The Klehini River reservation was recently adjudicated. Two appeals of the adjudication were filed and recently denied by DNR. The parties have the option to file an appeal with the Superior Court within 30 days of the decision.
- Hydropower interest remains strong statewide. Potential projects include Grant Lake on the Kenai Peninsula, Chakachamna across the inlet, Thomas Bay in SE and Susistna-lite. The numbers of potential hydrokinetic projects (tidal and river) have shown a decline but some projects remain active including Cook Inlet, Nenana, and Eagle (Yukon). We are recruiting for a new Hydropower Coordinator (FB IV) – see <http://workplace.alaska.gov> or contact Joe Klein at 267-2148 for more information.
- The National Fish Habitat Initiative (NFHI) was rolled out last year and a bill is in congress to provide additional funding. NFHI is a nationwide strategy to address fish habitat protection, restoration and enhancement through development of new partnerships. There are 3 partnerships in Alaska: Mat-Su, Southwest and Salmon in the City/Anchorage. For further information contact Christopher Estes at 267-2142.
- The Division of Sport Fish is currently revising its strategic plan. A draft copy can viewed at <http://www.sf.adfg.state.ak.us/StratPlan/> A final copy is expected to be posted soon.
- A report on the economic importance of sport fishing to Alaska was released last January. A brief summary report as well as the detailed technical report can be found on the ADF&G web site under "Economic Significance of Sportfishing in Alaska" at: <http://www.sf.adfg.state.ak.us/statewide/economics/>
- ADF&G, Division of Sport Fish applied rotenone to eradicate northern pike in Sand Lake this fall. Rotenone is a naturally occurring compound that is very commonly used to eliminate invasive fish species, and selectively targets fish and other animals with gills. There are no public health concerns with the use of rotenone in the concentrations used for fisheries management, although consuming fish that have been exposed to the treatment is not recommended. ADF&G is trying to remove all of the northern pike from Sand Lake to prevent the spread of northern pike into nearby water bodies and to rehabilitate the sport fishery in Sand Lake. Sand Lake will be monitored throughout the winter and spring to verify that pike have been eradicated. If so, rainbow trout and Arctic char will be stocked in the summer of 2010. For more information on these projects, please contact ADF&G biologists Dan Bosch (Anchorage) at 267-2153 or <http://www.sf.adfg.state.ak.us/statewide/invasivespecies/index.cfm/FA/rotenone.home>