

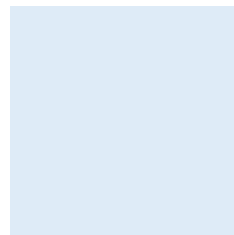
# MAPPING ALASKA'S WATER

THE ALASKA HYDROGRAPHY DATABASE

November, 18 2014  
Palmer, Alaska

Mat-Su Salmon Science & Conservation  
Symposium

**Kacy Krieger**  
[kacy.krieger@uaa.alaska.edu](mailto:kacy.krieger@uaa.alaska.edu)  
AK Hydro Database Coordinator





# ALASKA'S WATER

---

> 3,000,000  
Mapped Lakes and Ponds

---

> 847,000  
Length of Mapped Streams and Rivers in miles

---

47,000  
Length of Mapped Coastline in miles

---

1,980  
Length of the longest river, the Yukon, in miles

---

616  
Named Glaciers

---

40%  
Share of the Nation's Surface Water



# HYDROGRAPHY



# Hydrography Applications

---

CARTOGRAPHY

EMERGENCY PREPAREDNESS

FISHERIES MANAGEMENT

FLOOD MITIGATION

ENVIRONMENTAL PROTECTION

FORESTRY

POLLUTION MONITORING

WATER QUALITY

TRANSPORTATION

SCIENTIFIC ANALYSIS

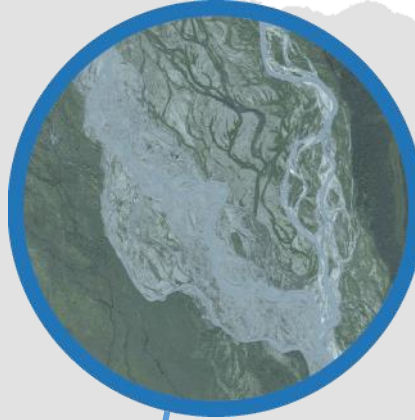
RESOURCE MANAGEMENT

AGRICULTURE

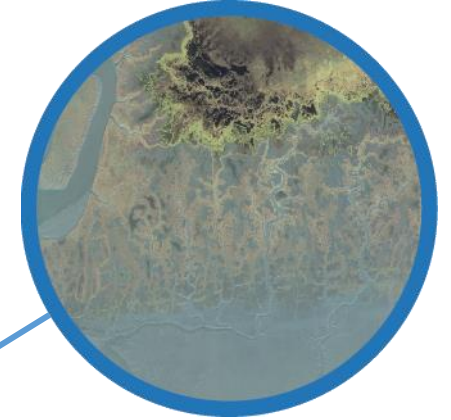
# HYDROGRAPHY CHALLENGES IN ALASKA



Rapidly Changing  
Coastline



Complex Channels



Extreme Tidal Ranges



Remote Locations

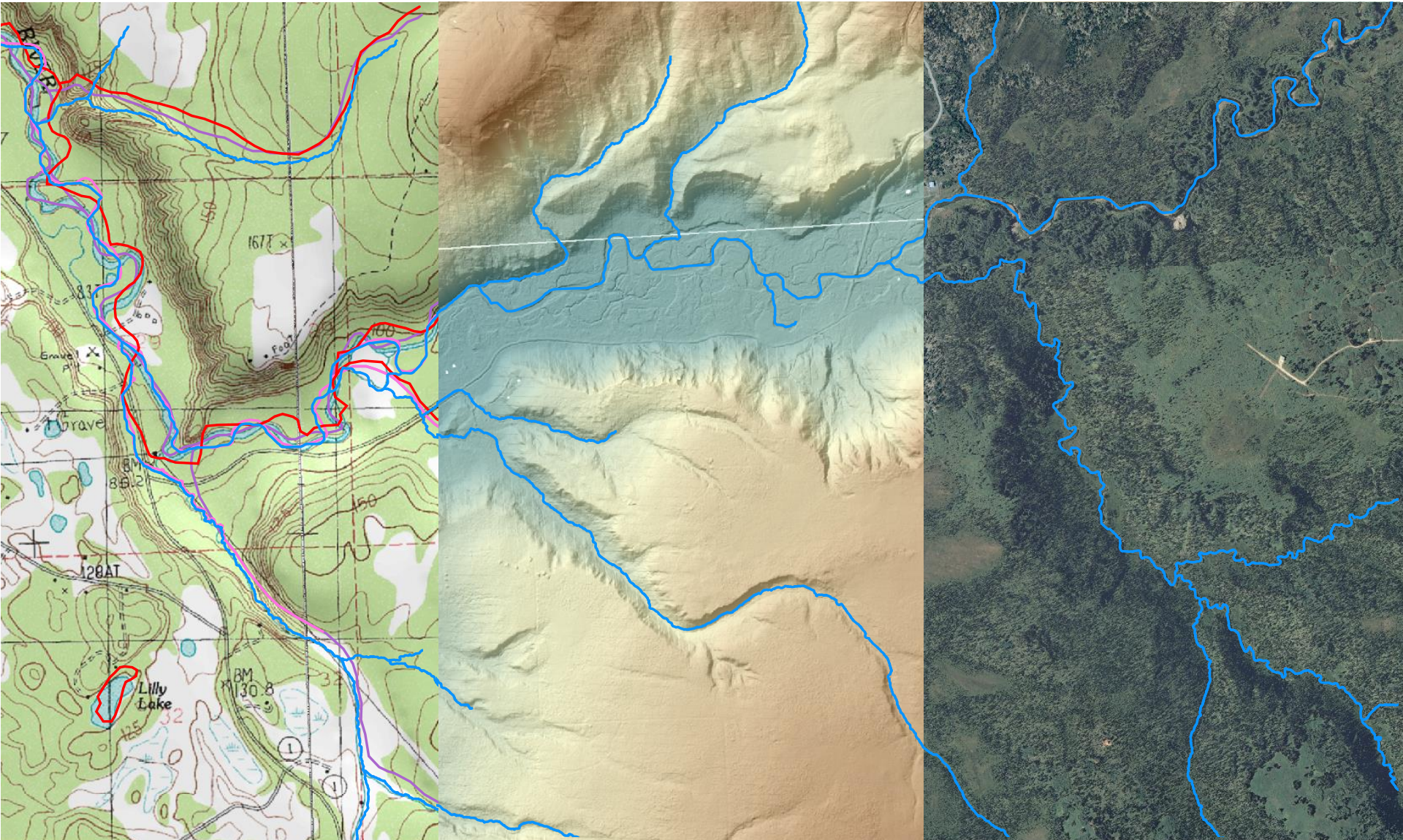


Expansive Wetlands



Disconnected Networks

# FIXING HYDROGRAPHY



# ALASKA HYDROGRAPHY TECHNICAL WORKING GROUP

Agency	Primary Member	Primary Email
Alaska Department of Environmental Conservation	Cliff Jones	cliff.jones@alaska.gov
Alaska Department of Fish and Game	J Johnson	j.johnson@alaska.gov
Alaska Department of Natural Resources	Wendy Steinberger	wendy.steinberger@alaska.gov
Bureau of Land Management	Matt Varner	mvarner@blm.gov
National Oceanic and Atmospheric Administration	Tim Smith	timothy.m.smith@noaa.gov
National Park Service	Joni Piercy	joni_piercy@nps.gov
University of Alaska	Kim Homan	kim.homan@uas.alaska.edu
U.S. Fish and Wildlife Service	Bill Rice	William_Rice@fws.gov
U.S. Forest Service	Erik Johnson	ejohnson02@fs.fed.us
U.S. Geological Survey	Becci Anderson	rdanderson@usgs.gov

# AK HYDRO

The Alaska Hydrography Database

---

Regional collaborative databases housed and managed by the University of Alaska and funded by federal and state partners; which is used to store local attributes and generate updates for the NHD.

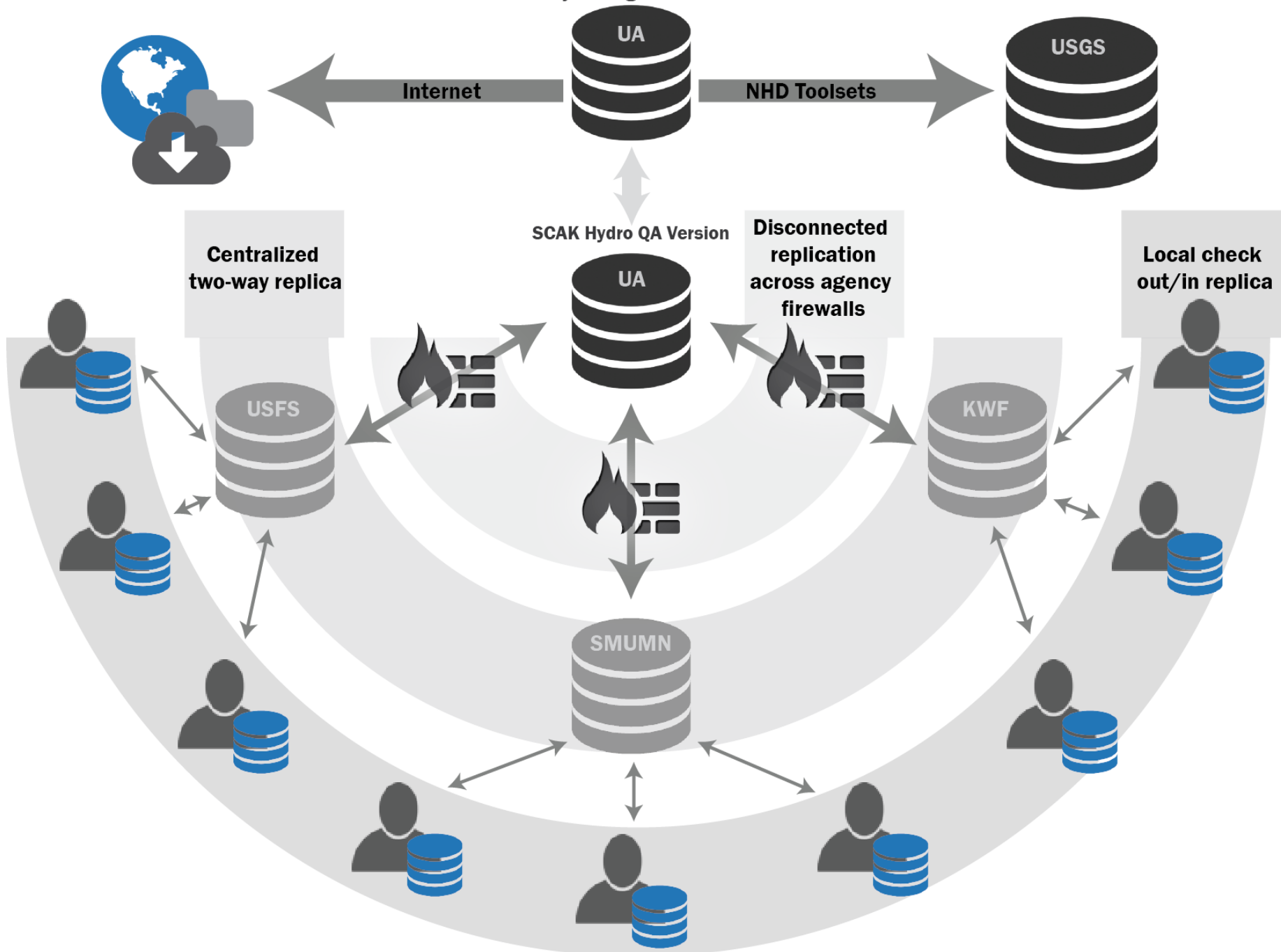
---

- Simplified workflow
- Basic editing requirements
- Elastic data model
- Shared update effort
- Centralized NHD stewardship
- Updating the NHD is the goal





SCAK Hydro Regional Database



# NATIONAL PARK SERVICE

---

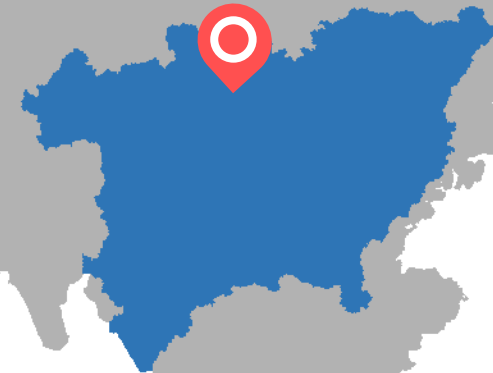
- Denali National Park & Preserve
- Bering Land Bridge National Park
- Cape Krusenstern National Monument
- Glacier Bay National Park
- Coastline updated in other parks
- 5m IfSAR elevation data and SPOT 5 orthoimagery



# NUSHAGAK & KVICHAK BASINS

---

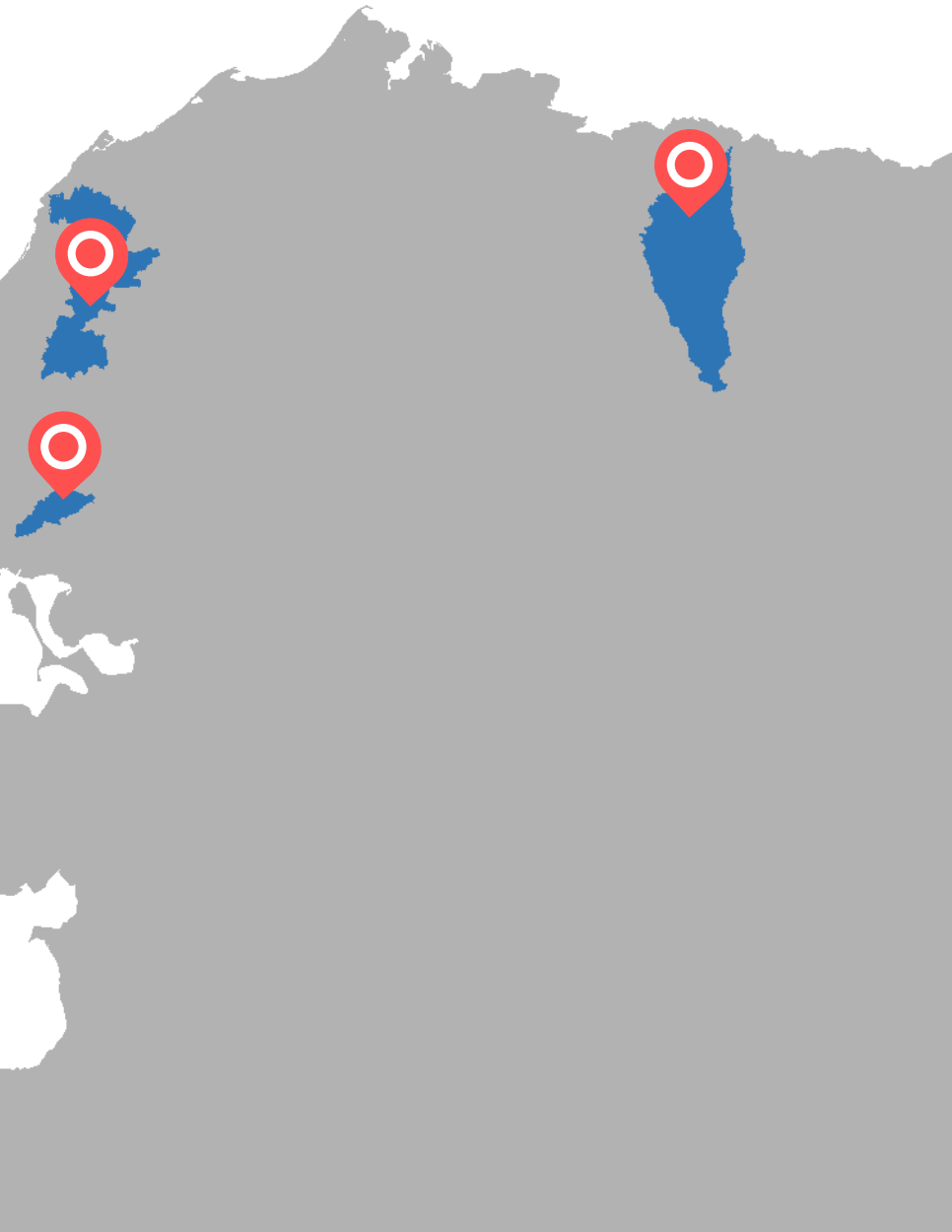
- Funded through WALCC and USGS
- 19,300 mi<sup>2</sup>
- 5 ½ HUC 8 sub-basins
- 34,000 stream miles
- Updated streamlines from TNC
- QA/QC work to be performed by UAA undergraduate interns
- Review data and update to national standards as required.



# ARCTIC TEON WATERSHEDS

---

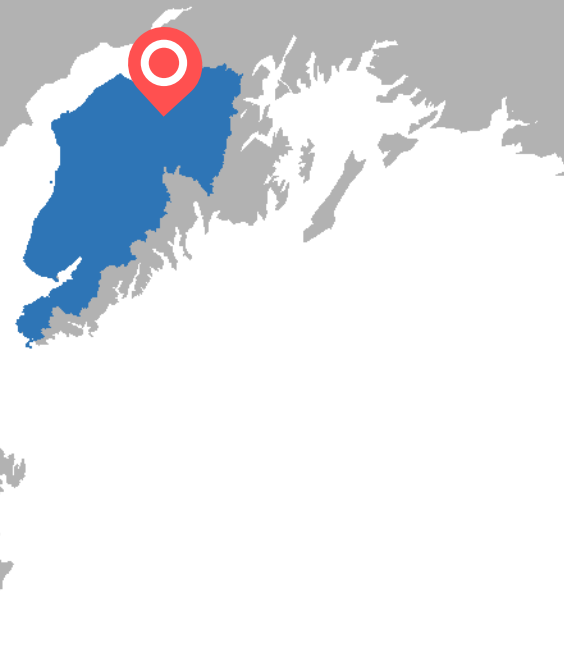
- Kokolik River Watershed
- Agashashok River Watershed
- Kuparuk River Watershed
- Update and densify 1D and 2D features
- Update using 2.5 m SPOT 5 orthoimagery (RGB and CIR), and 5-meter IfSAR elevation data
- Multi-Agency (LCC) effort



# KENAI PENINSULA

---

- Updates generated from LiDAR and aerial imagery,
- Validation involved outreach activities
- 1D features updated
- 2D feature updates in progress
- AK Hydro SCAK database used to conflate to NHD
- First round of updates performed by Kenai Watershed Forum
- Multiple funding partners



# TONGASS & CHUGACH NATIONAL FORESTS

---

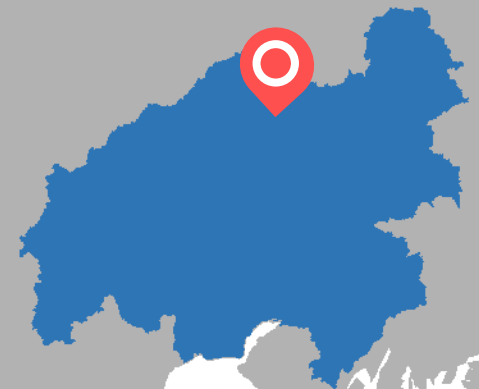
- Alaska NHD update and AK Hydro pioneers
- Continue to edit in Tongass and Chugach National Forests
- Updates conflated to NHD through AK hydro



# MATANUSKA – SUSITNA BASIN

---

- One of the most ambitious projects to date
- Entire Mat-Su Basin
- 25,500 mi<sup>2</sup>
- 6 HUC 8 sub-basins
- 1D and 2D features to be updated
- Elevation derived streams from IfSAR and LiDAR
- Extensive ground-truthing
- Collaborative project funded by many partners



# QUESTIONS

[http://seakgis.alaska.edu/projects/ak\\_hydro.html](http://seakgis.alaska.edu/projects/ak_hydro.html)  
<http://seakgis.alaska.edu/participate/ahtwg.html>

Kacy Krieger  
[kacy.krieger@uaa.alaska.edu](mailto:kacy.krieger@uaa.alaska.edu)  
(907) 786-7749

