

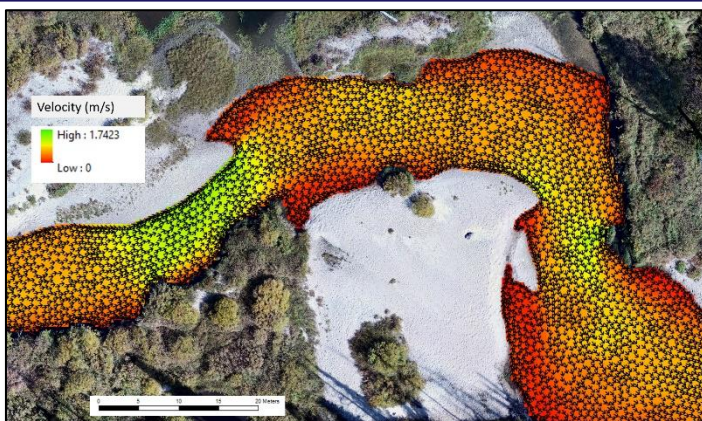


IDAHOVIEW 2022 - 2023

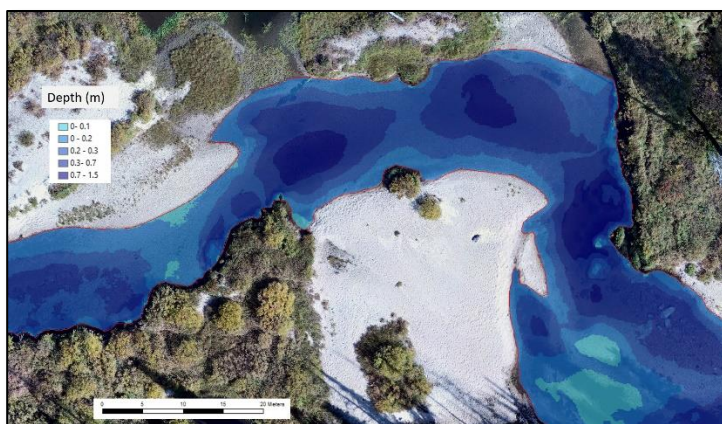
AmericaViewSM
Empowering Earth Observation Education
americaview.org

IDAHOVIEW 2022 - 2023 ACTIVITIES

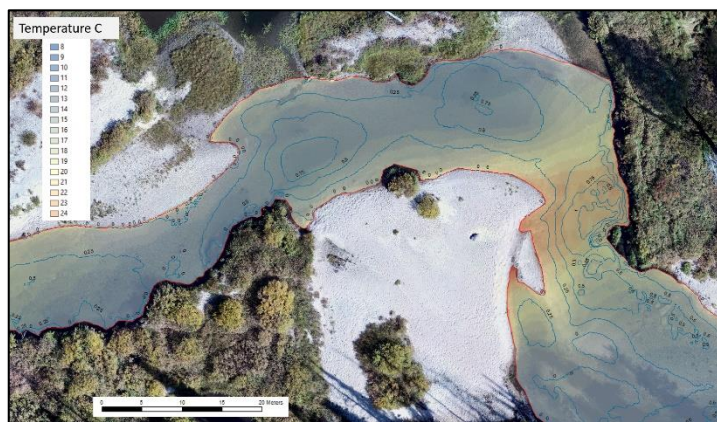
Spawning Chinook salmon choose sites for their egg nests (redds) based upon physical stream metrics that can be identified with thermal and RGB imagery. UAS imagery was collected over two rivers along two 1 kilometer reaches in the Frank Church Wilderness, Idaho, concurrent with Chinook spawning activity. Thermal imagery collected was acquired with a FLIR DUO Pro R camera. The water clarity allowed capture of stream bathymetry corrected for water diffraction by adding a correction factor for surfaces underwater. This small segment of the river dataset in the figures and to the right and below highlight stream metrics of depth, velocity, and



Stream Velocity along Elk Creek, Idaho. Arrows indicate flow direction



Depth map along Elk Creek, Idaho.



Temperature map along Elk Creek, Idaho.

temperature. Females dig the redds with their tails by striking the gravels or by creating strong currents to move the bed material a short distance downstream. In general, redds are oval shaped with loose gravel and sand flushed to the downstream side of the redd. Spring-run Chinook salmon have been shown to construct redds approximately 3.2 meters squared in size, with depths of redds from 7.6 cm to 50.8 cm. This project was completed in collaboration with the Shoshone Bannock Tribes. The Tribes maintain a monitoring program of salmon returns in the study area as the streams we have surveyed are important cultural areas. In addition to supporting student research in remote sensing this project is in alignment with NLRSEORA Objective 4 (Advance Education and Training, Technology Transfer, and Outreach) goals. This applied research project included both underrepresented graduate and undergraduate students in verification data collection, analysis of UAS data, and advanced modeling. The intent is to provide technology transfer to the tribal natural resources department so that they can utilize new technologies for surveys and long-term monitoring. This project will provide outreach opportunities for a key partner in the IdahoView network.

IdahoView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state. AmericaView is funded by USGS grant agreement G18AP00077.

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BENEFITS TO IDAHO

Engaging Students in STEM Activities

It is vital to Idaho's economy to educate a qualified workforce in Science, Technology, Engineering, and Mathematics (STEM) professions. Industries that require STEM are expected to increase in Idaho and across the nation. IdahoView actively engages graduate and undergraduate students in field data collection and the hands-on use of advanced sensors to address issues that impact Idaho's natural resources to aid decision making. Both undergraduate and graduate students are encouraged to participate in the research and communication of results to stakeholders through one-on-one interactions, posters and oral presentations.



Agriculture is an important contributor to Idaho's economy. We work to help growers with remote sensing to detect crop threats.

IdahoView actively works with local growers to assist in using remotely sensed data to identify crop threats and monitor crop health through the growing season. Several student lead projects using Landsat and Sentinel satellite imagery are helping to monitor crop vigor and providing information to growers to improve variable rate fertilization practices. Preliminary trials are underway to link vegetation indices with yield data shared by local farmers in southeast Idaho.



Undergraduate research for Landslide Hazard Mapping. GPS Data Collection along Idaho Transportation Corridors.

IDAHOVIEW CONSORTIUM MEMBERSHIP



**Idaho State
University**



University of Idaho

IdahoView partners:

- Promote the development of novel tools and techniques that allow translating remotely sensed data into information that is meaningful to decision makers
- Use remote sensing as a means to promote STEM interest and learning
- Seek to expand involvement to incorporate all higher education institutions in Idaho and any other interested parties
- Advance the availability and timely distribution of data by maintaining links to archives of publicly available satellite imagery for Idaho
- Encourage the use and scientific application of remotely sensed data from advanced sensors

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<http://www.idahoview.org>