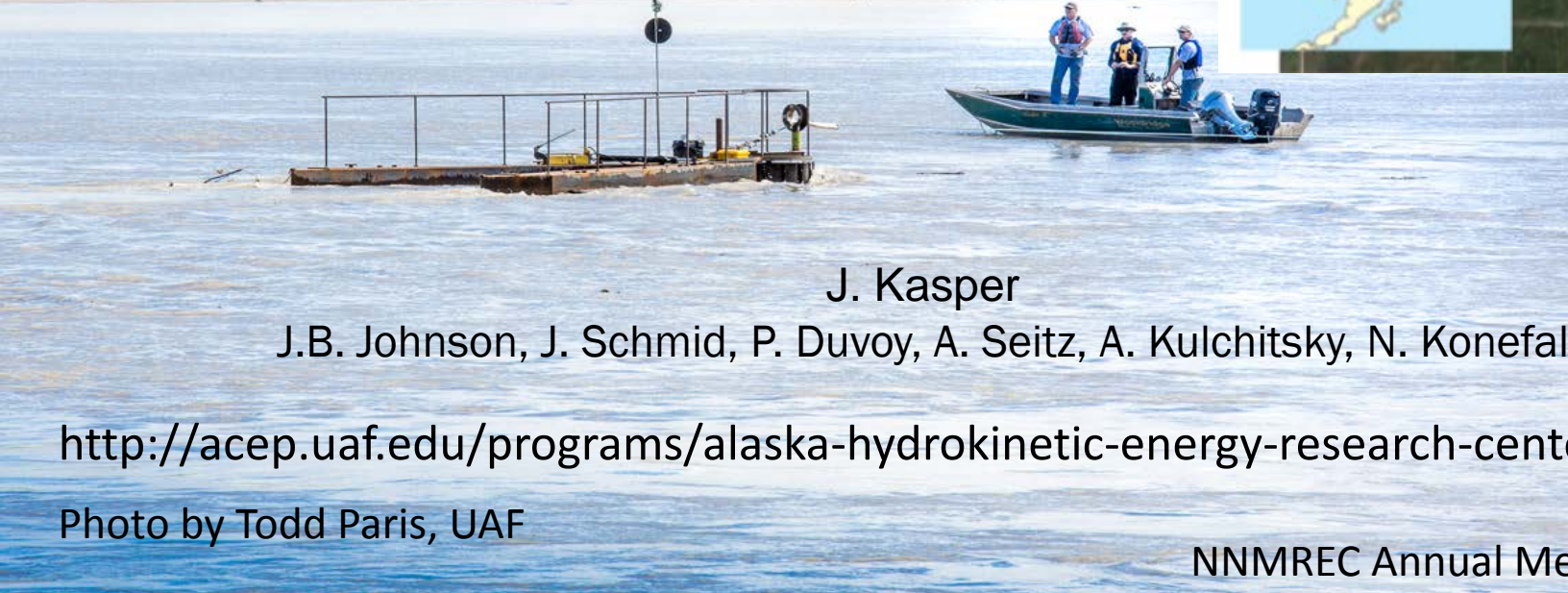
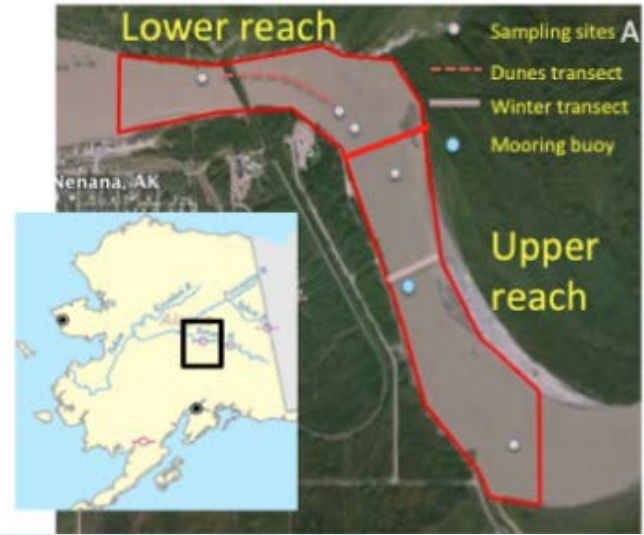


PMEC : Tanana River Test Site



J. Kasper

J.B. Johnson, J. Schmid, P. Duvoy, A. Seitz, A. Kulchitsky, N. Konefal

<http://acep.uaf.edu/programs/alaska-hydrokinetic-energy-research-center.aspx>

Photo by Todd Paris, UAF

NNMREC Annual Meet, Oct. 2014



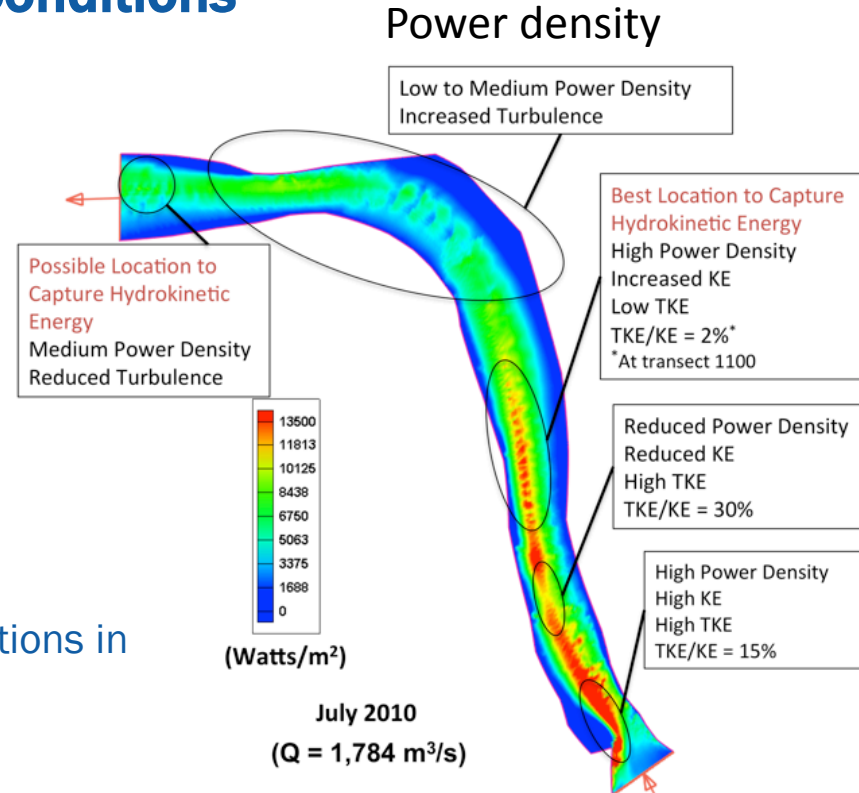
Permitted Site for Hydrokinetic Research and Testing in Natural Alaskan River Conditions

Complete site characterization

- Hydrodynamic measurement & modeling
 - Discharge, velocity, sediment, turbulence
- Endemic fish species
- Debris (size, type, frequency, location)

Technology development and testing

- Debris modeling and mitigation
- River energy converter testing
 - Fish interaction monitoring
- Infrastructure anchoring, deployment and operations in remote communities with islanded grids



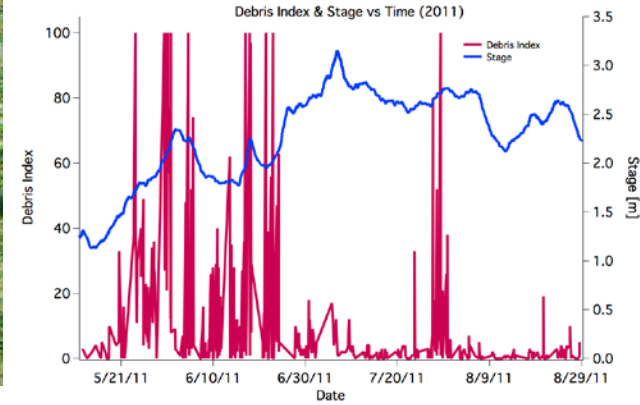
(Modified from Duvoy and Toniolo, 2012)



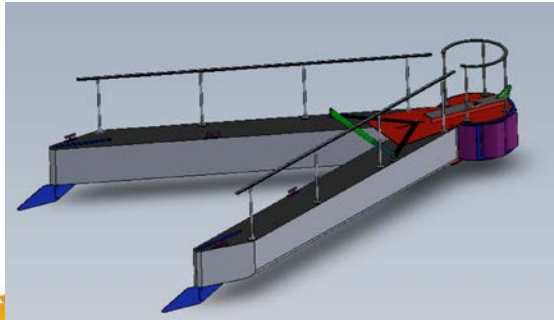
Interaction



Characterization



Mitigation Technology



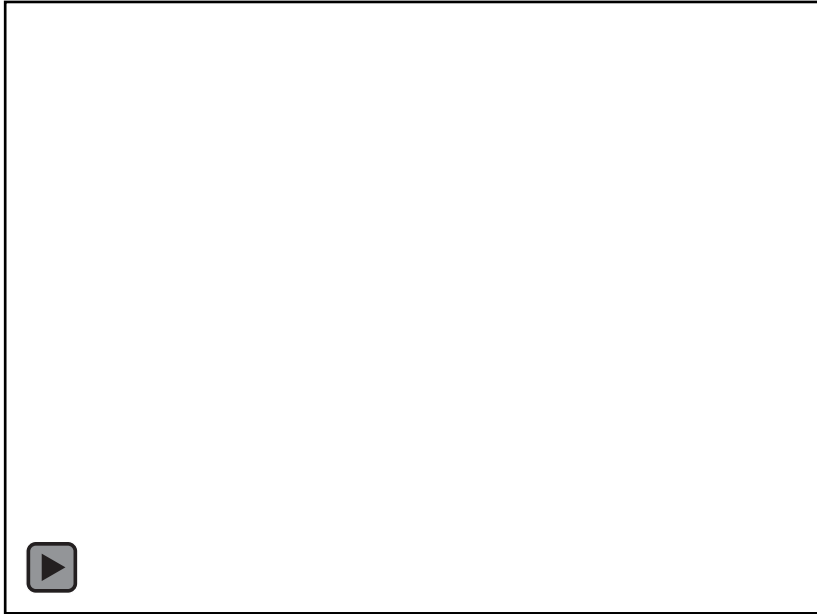
Debris Mitigation

Technology Testing

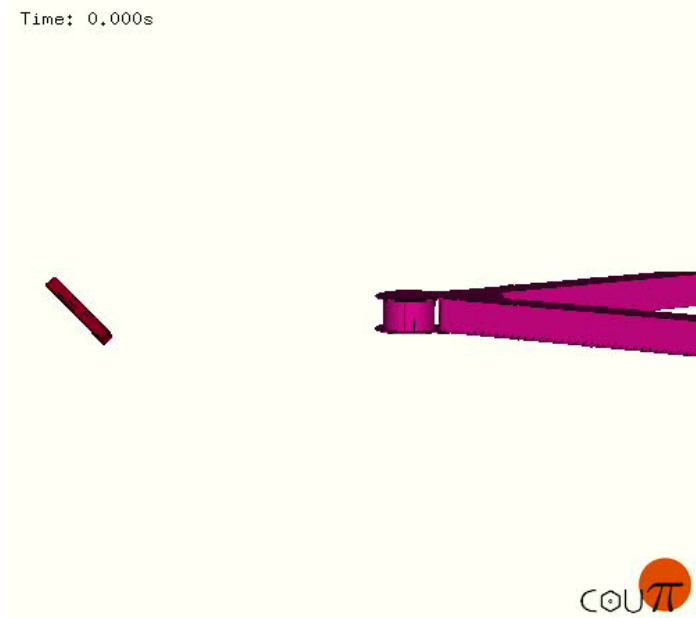


Debris Mitigation Technology Testing and Modeling

RDDP debris diversion test



RDDP/debris interaction



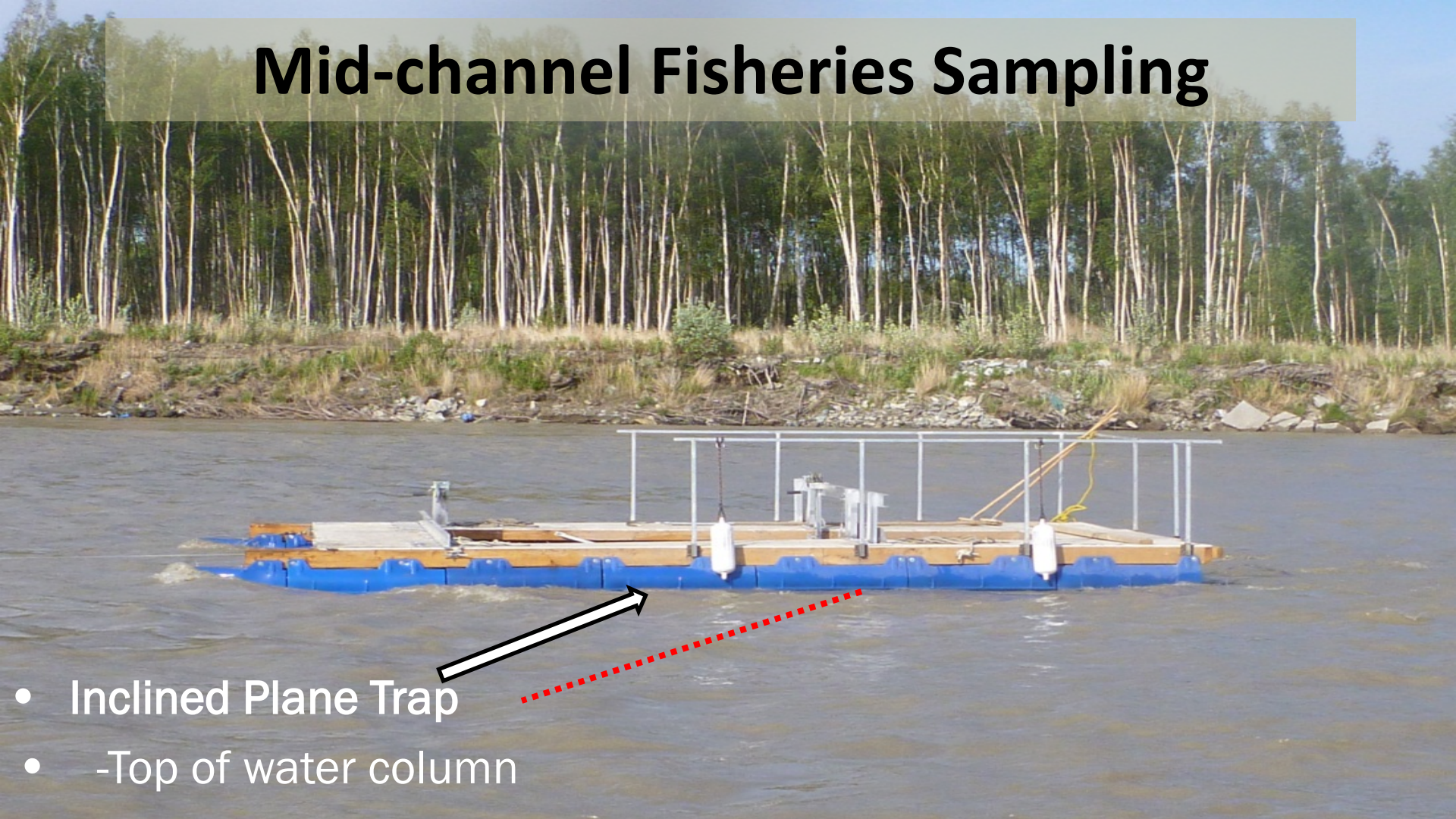
Mid-channel Fisheries Sampling



- **Frame Trawl**
 - Top of water column
 - Middle of water column
 - Bottom of water column

Mid-channel Fisheries Sampling

- Inclined Plane Trap
- -Top of water column



Information from pre-deployment studies

- First documented mid-channel sampling in large glacially influenced Alaskan Rivers
- Abundance and species composition of catches depends on river, and timing and location of sampling
- Some primarily captured in margins

Longnose sucker

Arctic grayling

Whitefish spp.

Chum salmon

Lake chub

Burbot

Inconnu

Slimy sculpin

Northern pike

Lamprey

- Some primarily captured in the middle of the channel

Chinook/coho salmon Chum salmon

Tanana River Test Site Summer 2014



Turbine Test at the Tanana River Test Site

Turbine Test Platform and RDDP

Oceana Turbine Testing



ACEP
Alaska Center for Energy and Power



Acknowledgements



A special thanks to: the City of Nenana, the Nenana Tribal Council, Jason Mayrand, Victor Lord, Robin Campbell, Inland Barge Service, Charlie Hnilicka, Ruby Marine Inc., Matt Sweetsir, Crowley Marine Services, Endil Moore, Jon's Machine Shop , Monty Worthington (ORPC).



M·J·Murdock
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