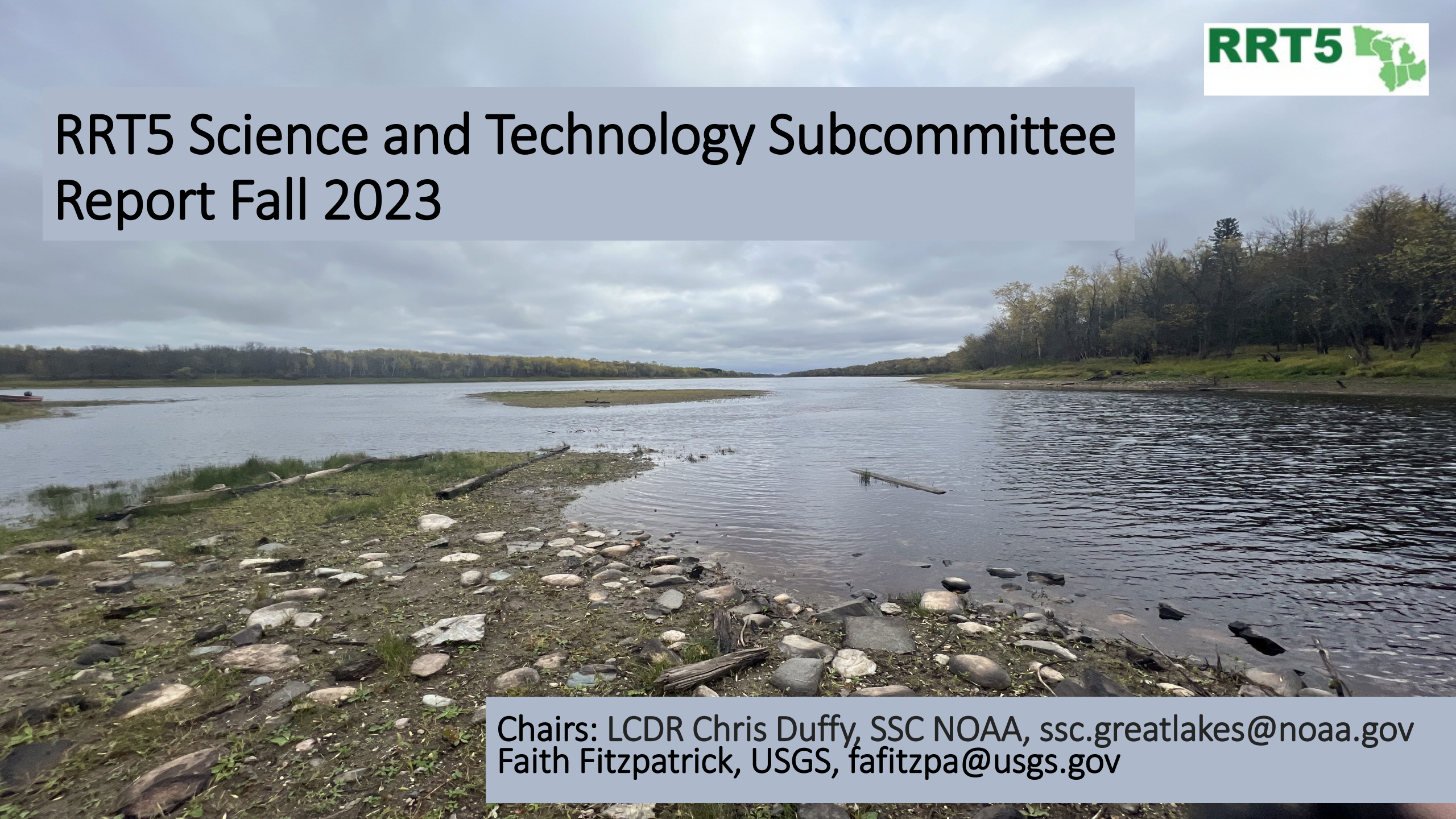
RRT5 Science and Technology Subcommittee Report Fall 2023



Chairs: LCDR Chris Duffy, SSC NOAA, ssc.greatlakes@noaa.gov
Faith Fitzpatrick, USGS, fafitzpa@usgs.gov

S&T Subcommittee Summaries

Great Lakes Center of Excellence (Sarah Bowman)

Coast Guard Research & Development 4 topics (Scott Binko)

EPA (Jon Gulch)

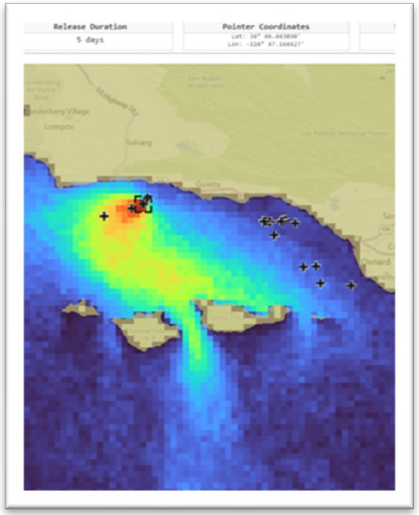
NOAA (Chris Duffy)

DOI and USGS (Jon Nelson and Faith Fitzpatrick)

Fate and Transport Modeling Workgroup (Planning and S&T)

Great Lakes Center of Excellence (Sarah Bowman)

- Partnering with USCG, NOAA, LSSU, and more out of Sault Ste. Marie and Ann Arbor locations email: SMB-GreatLakesCOE@uscg.mil
- Upcoming projects included:
  - Federal On-Scene Coordinator (FOSC) Ice Guide
  - Proof of Concept – Polaris Oil Spill Detection Systems (PODS)
  - NOAA Environmental Response Management Application (ERMA) enhancements
  - Enhancing Great Lakes Modeling
  - Great Lakes Trajectory Analysis Planner
  - Great Lakes UAS Capacity Building
  - UAS Oil Observation Guidance and Training
  - LSSU Research Infrastructure – Wave Tank Test Facility
  - ROV/UAS support within USCG District 9



- Fy2024 call for proposals included:
  - Detection of submerged oil, in situ oil sensors, nonconventional oil fate/transport
  - Decanting, advanced freshwater and frozen recovery applications, collection and recovery of suspended and submerged oil, uncrewed systems
  - Shoreline cleaners, spill herding agents, bioremediation, special monitoring of applied response technologies

Coast Guard Research and Development Updates

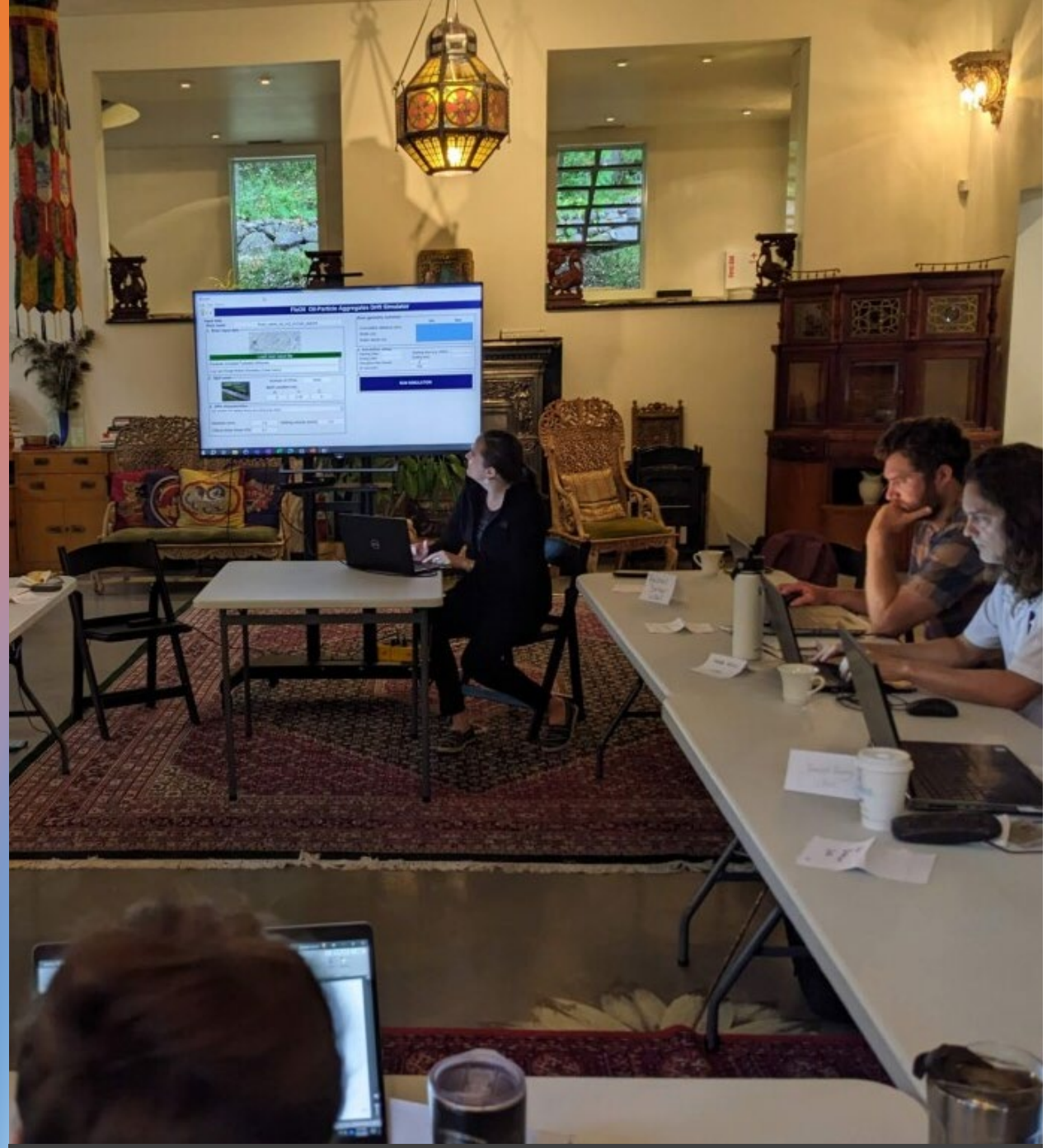
- Emerging Pollution Response Technology (mechanical recovery and containment) – Working toward brief(s) on evaluations, adsorbent report Jun 2023
- Hazardous substances pollution risk – literature review and identification of substance materials locations report due out soon.
- Behavior of diluted bitumen in fresh water (warm/cold) – guidance document on response close to release for public distribution.
- Nearshore and inland evaluation of the estimated recovery system potential (ERSP) calculator
  - NAS response review of inland ESRP (white paper) completed
  - Prototype and user guide (Sep 24)
- Advancing UAS and AUV capabilities for water column and surface oil in ice environs
  - Report on advancing detection capabilities for monitoring oil spills in ice environments due out soon.

US EPA updates

- **ICWater** training completed for modeling river plumes. Can be used for planning, WCDs, and exercises. EPA inhouse staff can run the model. Model may switch from Arcgis to web based version.

NOAA Great Lakes resources (Chris Duffy)

- Gnome and Oilmap – looking at better representation of oil surface spreading, particularly by incorporating phase changes.
- Working on trajectory planner that includes probability outcomes.



September 2023 USGS FluOil Training hosted by the National Park Service at The Acreage at Osceola

DOI and USGS Inland Oil Spill Preparedness Program (IOSPP)

- Cellphone App with fluorescent machine learning technique was completed for analysis of oil concentrations in water (2-500 mg/L) (Lead: Jeff Steevens, USGS Columbia Environmental Research Center)
- Volatile Gas Remote Detection (Lead: Claire Bunch, USGS Arizona Water Science Center)
- Fluoil Oil Particle Aggregate Transport Model Training for the lower St. Croix River (Lead: Faith Fitzpatrick, USGS Upper Midwest Water Science Center)
- Interagency Spill fate/transport community of practice (Lead: Faith Fitzpatrick)
- Ice-over characterization on rivers near oil transportation infrastructure—automation process (Alex Headman, USGS)
- Fy24 proposal selection in final stages

Canada's Multi-Partner Research Initiative (MPRI)

- MPRI Phase 2 (Natural Resources Canada) https://natural-resources.canada.ca/energy/energy-offices-and-labs/canmetenergy/canmetenergy-devon/multi-partner-research-initiative/24679; starts 2023-2026
- Lake Superior State University's Center of Freshwater Research and Education Network "Our Waters of the North (OWN)" led by Ashley Moerke with multiple participating agencies and universities from Canada and the U.S. with special call out to indigenous communities.
  - Biological interactions in the coastal wetland environments
  - Oil-particle interactions (OPI-OWN USGS leading, starting Oct 2023)
  - Sensor testing
- Network building helps link with other inland and Great Lakes studies

Fate & Transport Modeling Workgroup

- Need for a fact sheet like help sheet that explains what models are available, applicable settings, and can be run in the first ~24 hrs of a spill, especially for rivers.
- RRT5 Planning and S&T subcommittees has workgroup forming.
- Need to start meeting early winter.
- Helpful to know publicly available links to local and current hydrologic conditions because of the day-to-day variability in river flows.

Questions/add ’l feedback

For more info contact the chairs or contributors to the slides:
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