

IIHR–Hydrosience & Engineering

# Overview

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# IIHR Core Areas



## Fluid Dynamics

- Ship hydrodynamics
- Renewable energy
- Multi-phase flow
- Heat and mass transfer
- Biofluid mechanics

## Environmental Hydraulics

- River hydraulics
- Hydraulic structures
- Wind energy and hydropower
- Nutrient and sediment transport
- Water quantity and quality modeling

## Air & Water Resources

- Hydrology
- Hydrometeorology
- Watershed monitoring
- Remote sensing
- Hydroinformatics

## Environmental Engineering & Science

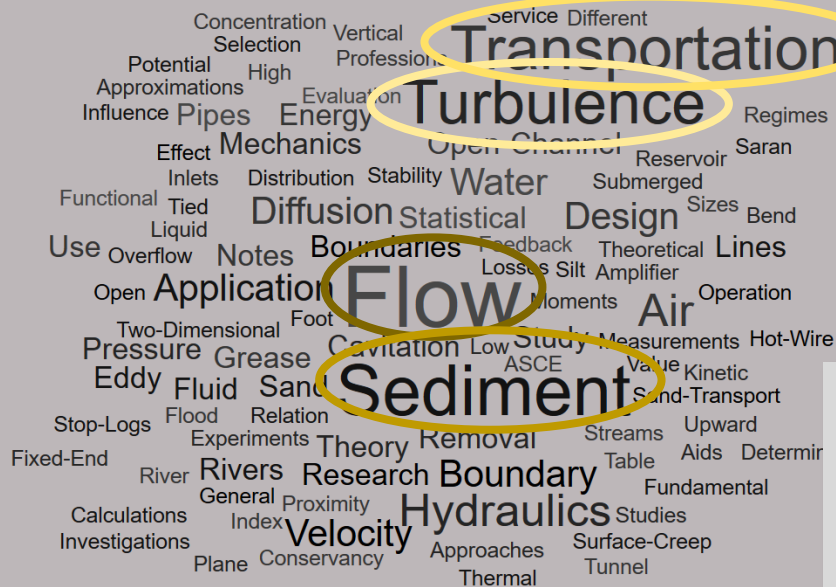
- Wastewater treatment
- Surface and groundwater chemistry
- Remediation
- Climate change
- Emerging and organic contaminants

## Water Sustainability

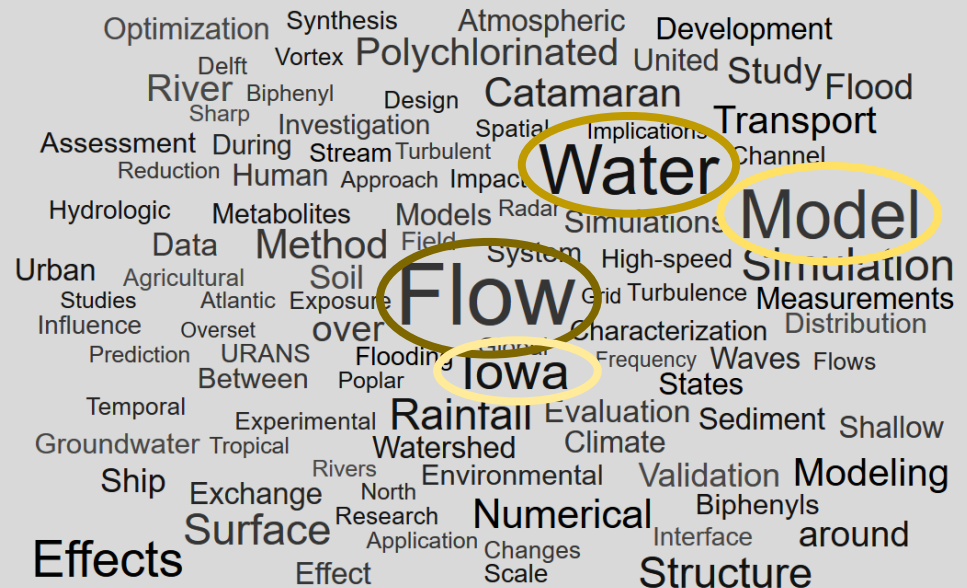
- Social vulnerability and resilience indicators
- Pollutant fate and transport
- Water chemistry
- Communication and public policy
- Occupational and environmental health

# Organizational Description

1940s



2010s

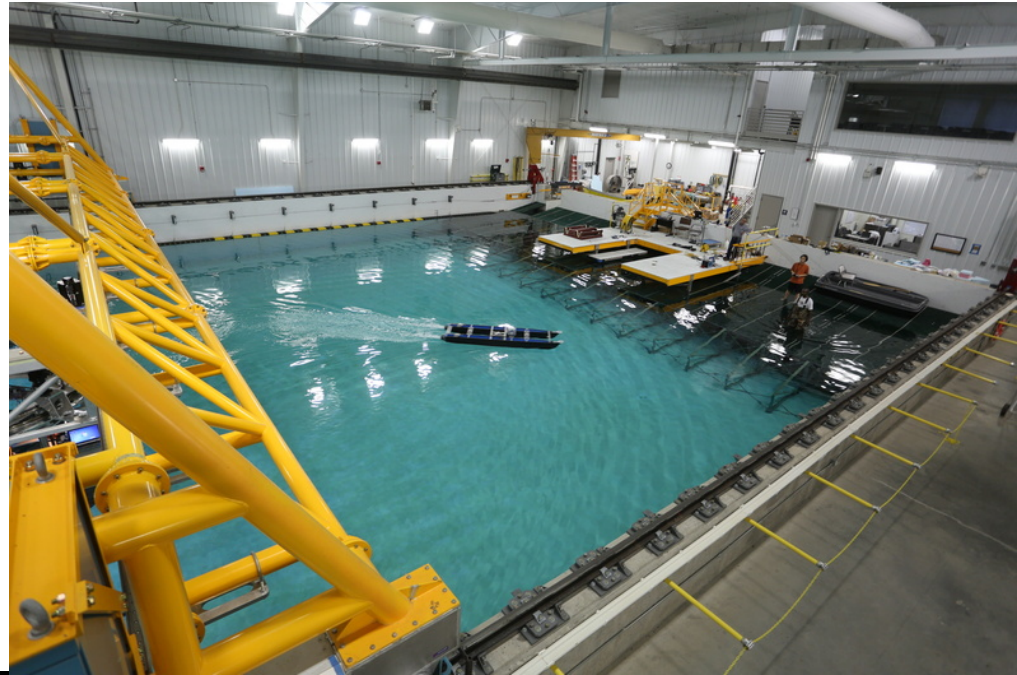
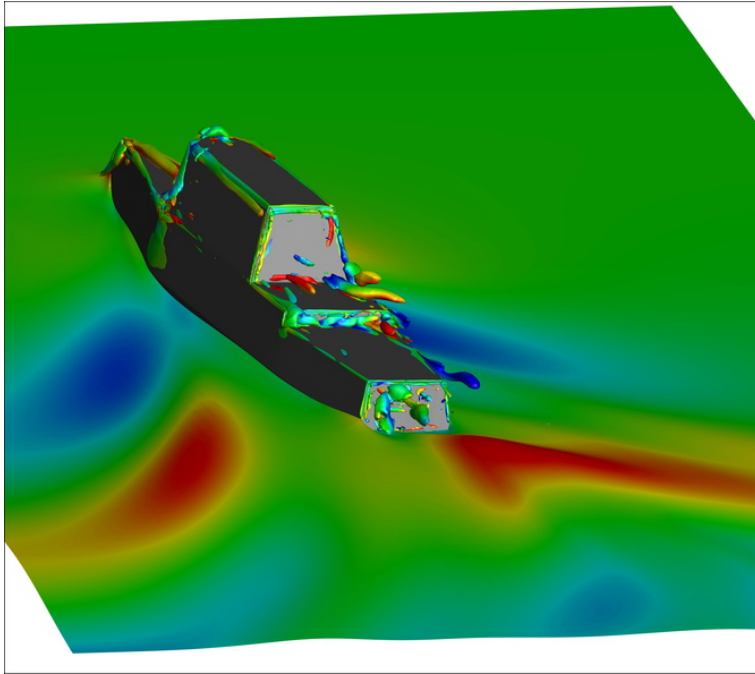




# Ship Hydrodynamics Program

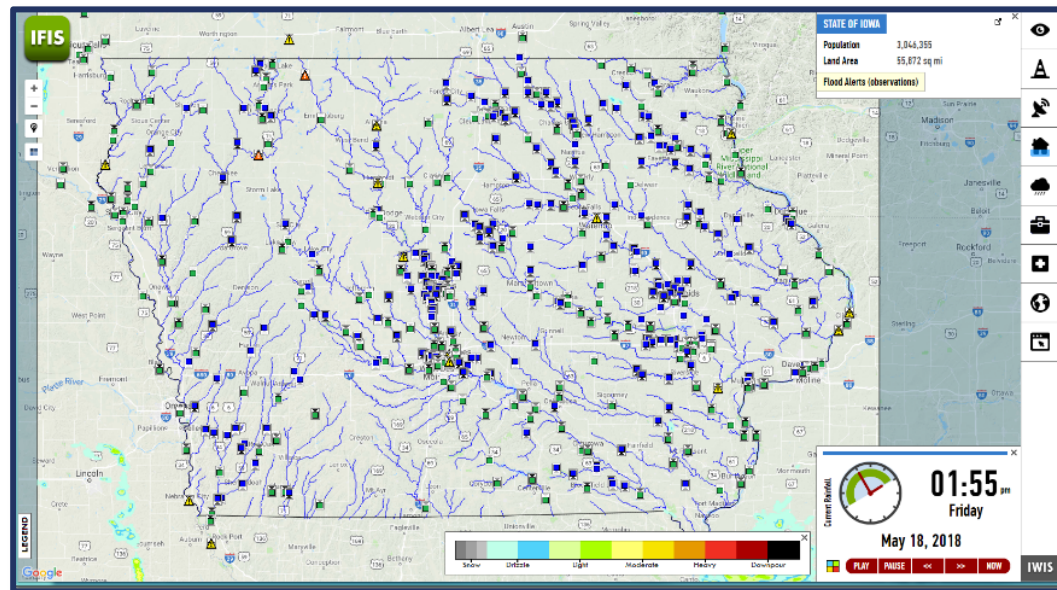
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IIHR is a recognized world leader in ship hydrodynamics research in computational and experimental fluid dynamics



# State-Funded Centers

- Iowa Flood Center
- Iowa Nutrient Research Center
- Iowa Geological Survey





# Iowa Nutrient Research Center

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It pursues science-based approaches to areas that include evaluating the performance of current and emerging nutrient management practices.





# Iowa Geological Survey

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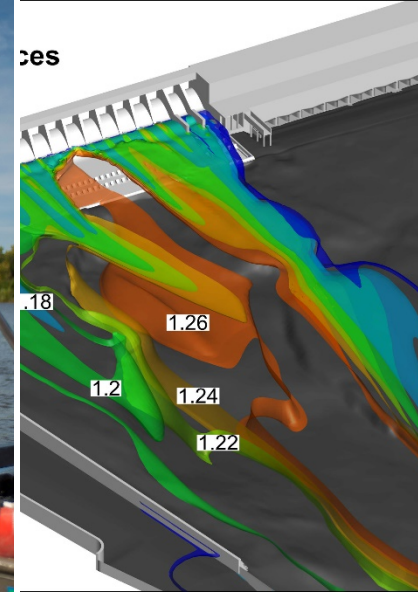
It focuses on general Iowa geology, geophysics and hydrogeology, geologic mapping, and groundwater modeling.





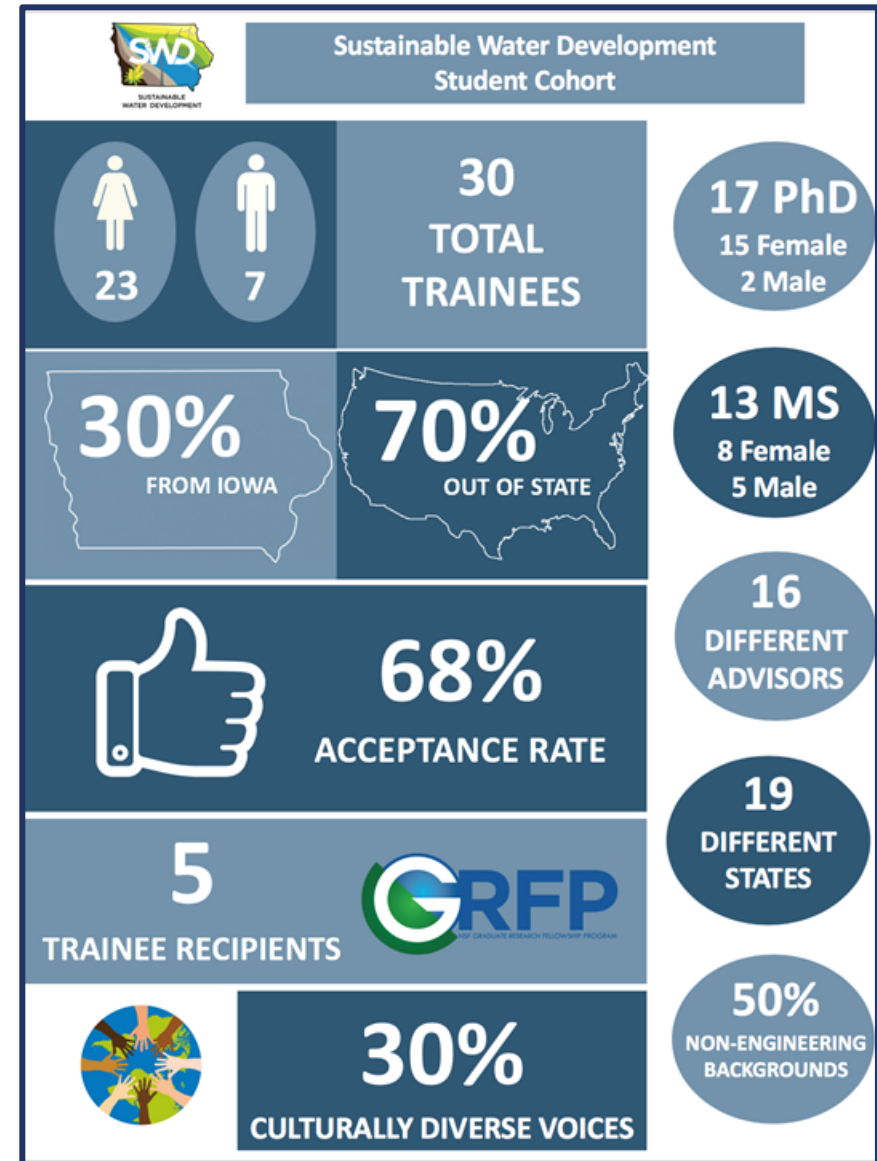
# IIHR Engineering Services

- Decades of practical experience
- In-house modeling expertise (physical and computational)
- Field data collection



# Sustainable Water Development

- Focused on food, energy, and water
- Customizable coursework fits student career goals

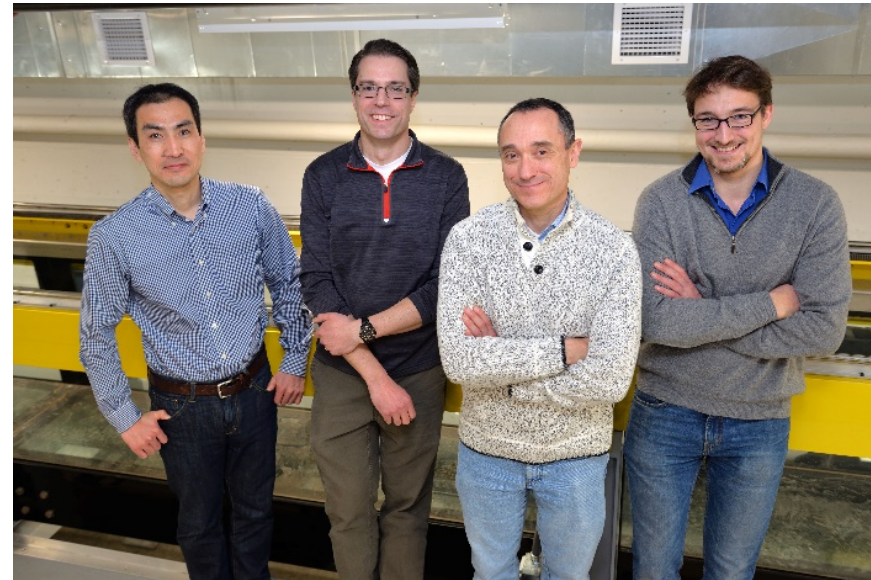
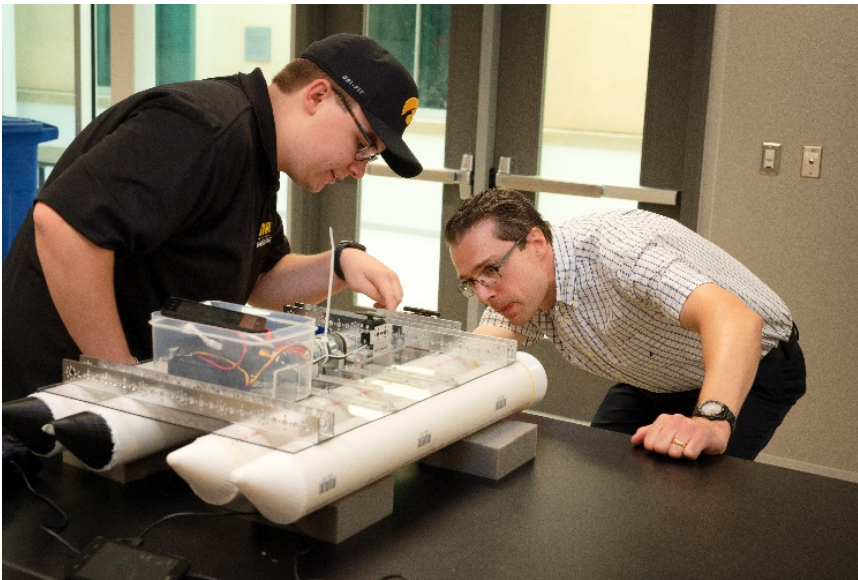
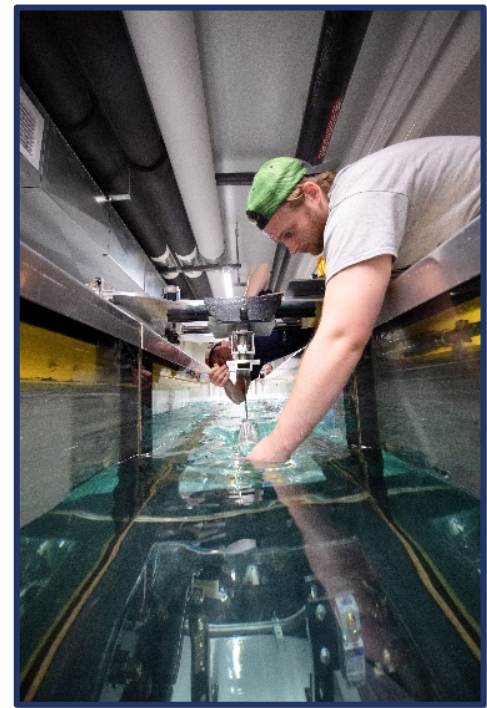




# Naval Hydrodynamics Certificate Program

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A new undergraduate program integrating IIHR's strengths in naval hydrodynamics and fluid mechanics has been established.





# Thank you!

