AQUACULTURE RESEARCH INSTITUTE:
ON-CAMPUS FACILITIES, RESEARCH, AND SERVICES

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AQUACULTURE RESEARCH INSTITUTE

- **Mission**: Advance sustainable aquaculture at state, regional, national and global levels.
AQUACULTURE RESEARCH INSTITUTE (ARI) SUBUNITS

Hagerman Fish Culture Experiment Station

- **UI Program and Researchers:**
  - Dr. Ron Hardy: ARI Director Emeritus, Fish Nutrition
  - Dr. Brian Small: Director HFCES, Fish Physiology
  - Dr. Matt Powell: Associate Director HFCES, Fish Genetics

- **USDA, ARS Trout Grains Project:**
  - Dr. Ken Overturf: Lead Scientist – Genetics and Selective Breeding
  - Dr. Tom Welker: Fish Physiology

- **Columbia River Intertribal Fish Comm.:**
  - Dr. Shawn Narum: Lead Geneticist
ARI SUBUNITS

Moscow Campus - Aquatic Animal Research Facilities

- UI-ARI Program and Researchers:
  - Dr. Ken Cain: ARI Associate Director, Fish Health/Immunology
  - Dr. Vikas Kumar: Research Assistant Professor, Fish Nutrition

- UI-Fisheries and Aquatic Science Faculty
  - Dr. Jim Nagler: Department Head Biology, Fish Reproduction
  - Dr. Chris Caudill: Associate Professor (FWS), Fish Migration and Ecology
  - Drs. Quist/Scarnecchia/Kennedy/Wilhelm (FWS), Fish Ecology/Behavior/Management and Limnology

University of Idaho
Aquaculture Research Institute
UI-CAMPUS - AQUATIC ANIMAL RESEARCH FACILITIES

- **New Aquatic Animal Research Laboratory (AARF)**
  - 4,000 ft\(^2\) wet lab (RAS and flow through), conference room, labs, and faculty/staff/student offices
  - Egg, larval/adult fish rearing and live feeds production:
    - *Freshwater and Marine species*
## AQUACULTURE RESEARCH INSTITUTE
### AQUATIC ANIMAL RESEARCH FACILITY

Completed 2019

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ARI Aquaculture Research Institute Project</th>
<th>DOLLARS</th>
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<tbody>
<tr>
<td>BP # 01</td>
<td>ARI BP # 01 Main Building Package</td>
<td>$2,628,500</td>
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<td>BP # 02</td>
<td>ARI BP # 02 FFE Equipment Hookup Package</td>
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<td>TOTAL</td>
<td>ARI Total CP Capital Project Cost</td>
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<td>ARI Central Admin and Facilities Funding</td>
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<td>ARI Research Office VLF Funding</td>
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UI-CAMPUS - AQUATIC ANIMAL RESEARCH FACILITIES

- New Aquatic Animal Research Laboratory (AARF)
UI-CAMPUS - AQUATIC ANIMAL RESEARCH FACILITIES

- **ARI – Cold water Research Laboratory**
- 8000 ft² wet lab (RAS and some flow thru): eggs to broodstock: *Salmon, trout, sturgeon, tilapia, etc.*
- Experimental trials, fish supply for research/teaching
UI-CAMPUS - AQUATIC ANIMAL RESEARCH FACILITIES

- Aquatic Animal Laboratory in the College of Natural Resources (CNR-AAL)
- Flow through: SPF de-chlorinated municipal water
- Isolation rooms (egg incubation and rearing, pathogen challenges, feed trials, and photoperiod/temp control)
UI-RESEARCH – CAIN LAB

Fish Health Research & Aquaculture Development

Fish Health/Immunology
- Focus on prevention
  - Vaccine development
  - Immune responses
- Emerging pathogens
- Fish Health/Nutrition

Aquaculture Development
- Burbot conservation aquaculture
- Commercial aquaculture feasibility
VACCINE DEVELOPMENT

Live attenuated Coldwater Disease (CWD) vaccine

- Developed and patented at UI
  - Effective immersion vaccine
  - Completing commercialization trials with industry partner
  - USDA regulatory approval and full licensing for US
    - Expected product release in 2021
FISH HEALTH RESEARCH
(product development)

Diagnostic tools:
- Monoclonal antibody development
  - Anti-Flavobacterium psychrophilum antibody
  - Licensed technology: Immunoprecise, Inc.
  - Widely used for rapid diagnosis of Coldwater disease

Probiotic discovery:
- Enterobacter sp. (C6-6) in feed: reduces impact of Coldwater disease
  - Discovered and patented at UI (2013)
  - Seeking Industry partners
1. Dietary requirements for organic and inorganic zinc in diploid and triploid rainbow trout
   ▪ Determine Zn requirements in a commercial strain of rainbow trout
2. Alternative approach to enhance the utilization of alternative oil sources in trout
   ▪ Dietary supplementation of bile salt
3. Effects of dietary bentonite on iron toxicity in rainbow trout
4. Effects on seed quality of white leg shrimp using microencapsulated and enhanced particle diets
UI-RESEARCH OPPORTUNITIES AND AVAILABLE SERVICES

Research/Services:

1. **In depth research projects**
   - Sponsored research agreements (industry/agency)

2. **Short term studies or product evaluation**
   - Diet testing/evaluation
   - Disease susceptibility testing
     - Diet ingredients (functional feeds, additives, immunostimulants)
     - Vaccine efficacy evaluation

3. **Disease Diagnostics**
   - Routine testing bacteriology/virology (not FH inspections)

4. **Other services upon request**
UI-RESEARCH OPPORTUNITIES
AND AVAILABLE SERVICES

Student training:
1. Graduate students
   - Research experience and training for upper level or specialized positions
2. Undergraduate training (Fisheries/Aquaculture)
   - Fish culture and laboratory experience
     - Direct hire on research projects
     - Work study program
     - Internships (always looking for sponsorship)
2019 AQUACULTURE RESEARCH INSTITUTE – MOSCOW TEAM
QUESTIONS?