

**Mackenzie R. Gavery**  
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## **EDUCATION**

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### **UNIVERSITY OF WASHINGTON**

**M.S.** School of Aquatic & Fishery Sciences, Summer 2011 (expected)

- Research Interests: Using molecular techniques to characterize relationships between oysters and their environment.
- Thesis: Pacific oysters as bioindicators of ecosystem health.
- Advisor: Dr. Steven Roberts

### **SEATTLE UNIVERSITY**

**B.S.** Biology (*magna cum laude*), received February 2001

- Relevant coursework: Marine Biology, Invertebrate Physiology, Genetics
- Honors: Trustee Scholarship for Academic Excellence Recipient, Dean's list 8 academic quarters, President's list 4 academic quarters

### **SEATTLE PACIFIC UNIVERSITY**

Coursework, Blakely Island Field Station, 1999 and 2000 (Summer)

- Relevant coursework: Marine Ecology, Marine Botany

## **HONORS & AWARDS**

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- Student Scholarship Award for Applied Science, Pacific Coast Shellfish Growers Association, 2009
- Best Graduate Student Presentation, Pacific Coast Shellfish Growers Association, Portland, OR, 2009
- Student Endowment Travel Award, National Shellfisheries Association, 2009 & 2010
- Victor and Tamara Loosanoff Fellowship & John G. Peterson Scholarship, School of Aquatic and Fisheries Science, University of Washington 2009/2010
- William H. Pierre Sr. Fellowship, School of Aquatic and Fisheries Science, University of Washington, 2008/2009

## **RESEARCH & LABORATORY EXPERIENCE**

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### ***Graduate Research Assistant, School of Aquatic & Fishery Sciences***

UNIVERSITY OF WASHINGTON, Seattle, WA

- 2008 – present
- Characterize Pacific oyster response to environment using differential gene expression analysis, DNA methylation profiling and transcriptome analyses.
  - Develop and implement molecular tools to monitor environmental threats and assess associated effects on shellfish.

### ***Quality Control Analyst III***

SEATTLE GENETICS CORPORATION, Bothell, WA

- 2006 – 2008
- Designed and performed validation of cell-based bioassay to assess potency of monoclonal antibody therapy in use in Phase II clinical trials.
  - Performed inter-laboratory transfer and optimization of size-exclusion and cation-exchange HPLC methods.
  - Directly supervised two analysts.

**RESEARCH & LABORATORY EXPERIENCE, CONTINUED**

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***Quality Control Analyst,***

TARGETED GENETICS CORPORATION, Seattle, WA

2001 – 2006     *Senior Quality Control Analyst - Stability Lead (2005 - 2006)*

- Analyzed data and prepared concise technical reports for long-term stability studies for recombinant AAV product in Phase I & II clinical trials.
- Directly supervised two analysts.

*Quality Control Analyst II (2003-2005)*

- Developed identity assays for stably transformed cell lines using Southern blots.
- Optimized assay to detect adenovirus impurities in rAAV drug products using Western blotting techniques.
- Responsible for training analysts on a variety of test methods including qPCR, Western Blotting, tissue culture.

*Quality Control Analyst I (2001-2003)*

- Performed release and stability testing of recombinant AAV product candidates. Methods utilized: real-time qPCR, Western blot analysis, LAL assays, cell-based infectivity assays, ELISA.

**TEACHING EXPERIENCE**

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***Graduate Teaching Assistant,***

UNIVERSITY OF WASHINGTON SCHOOL OF AQUATIC & FISHERY SCIENCES

Fall 2009     *Integrative Environmental Physiology (FISH 441/541)*

- Instructed weekly labs in molecular techniques and reviewed student's on-line laboratory notebooks.
- Guided students' independent 5 week research projects that examined aquatic organisms' response to environmental stress using molecular techniques.

Spring 2009     *Biology of Shellfish (FISH 310).*

- Hands-on instructor for semi-weekly labs.
- Responsible for grading weekly lab reports and tests.

Winter 2008     *Integrative Environmental Physiology (FISH 441/541)*

- Prepared protocols for weekly molecular techniques labs.
- Prepared reagents and stocked supplied for molecular labs.

***Volunteer Lab Instructor***

GEAR-UP WASHINGTON

Summer 2009     *Summer Institute Session - Puget Sound Threats and Processes*

- Developed and led a hands-on laboratory for high school students for GEAR-UP Summer Institute at UW.
- Students learned ways to examine aquatic systems by performing bivalve dissections, filter-feeding experiments, and using microscope techniques.

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**TEACHING EXPERIENCE, CONTINUED**

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***Mentor***

ASSOCIATION OF WOMEN IN SCIENCE, Seattle Chapter

2007 - Present *Girls in Engineering, Math and Science*

- Mentor middle school girls in a science enrichment program designed to encourage, maintain and broaden their interest in science.
- Provide hands-on support for students who performed laboratory and field work in diverse fields of science and mathematics.

***Undergraduate Teaching Assistant***

SEATTLE UNIVERSITY

Winter 1999 *General Biology II (BIOL166)*

- Responsible for instructing labs and grading weekly lab reports.

1999 - 2001 *Biology Tutor, Seattle University Learning Center*

- Provided one-on-one tutoring for undergraduate students in general biology courses.
- Read biology and zoology textbooks on tape for visually impaired students.

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**PRESENTATIONS & POSTERS**

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- Beyond the Genome: Epigenetic Regulation in the Pacific Oyster. Plant and Animal Genome Conference. Jan 2011. San Diego, CA. Poster Presentation.
- DNA Methylation Patterns & Epigenetic Regulation in the Pacific Oyster. PCSGA Annual Meeting. September 2010. Oral Presentation.
- Pacific oysters & ecosystem health. Aquaculture 2010 / National Shellfisheries Association, 102<sup>nd</sup> Annual Meeting. March 2010. San Diego, CA. Oral Presentation.
- Pacific oysters and ecosystem health. SAFS Graduate Student Symposium. Nov 2009. Seattle, WA. Oral Presentation.
- Pacific oysters as indicators of ecosystem health. PCSGA Annual Meeting. September 2009. Oral Presentation.
- Characterization of prostaglandin pathway genes of the Pacific oyster (*Crassostrea gigas*): Evidence for a role in immune response. National Shellfisheries Association 101<sup>st</sup> Annual Meeting. March 2009. Savannah, GA. Poster Presentation.
- Characterization of prostaglandins in the Pacific oyster *Crassostrea gigas*: evidence for a role in the immune response. SAFS Graduate Student Symposium. Nov 2008. Seattle, WA. Oral Presentation.

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**PUBLICATIONS**

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Gavery M, Roberts SB: DNA methylation patterns provide insight into epigenetic regulation in the Pacific oyster (*Crassostrea gigas*). *BMC Genomics* 2010, 11:483.

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**MEMBERSHIPS**

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- National Shellfisheries Association
- Association of Women in Science – Seattle Chapter

**SUMMARY OF LABORATORY SKILLS**

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- **Molecular Biology:** Isolation of DNA/RNA, PCR techniques: conventional, real-time quantitative and reverse transcription, cloning in chemically competent cells, cDNA library preparation, DNA radiolabeling/hybridization
- **Cell Biology:** aseptic culture of various mammalian cell types, infectivity and cell-proliferation bioassays, isolation and plating of oyster hemocytes
- **Immunology:** protein and cell-based ELISA systems, Western blot analysis
- **Biochemistry.** Gel electrophoresis (including SDS-PAGE), UV/Vis Spectrophotometry, size-exclusion HPLC, cation-exchange HPLC, reversed-phase HPLC