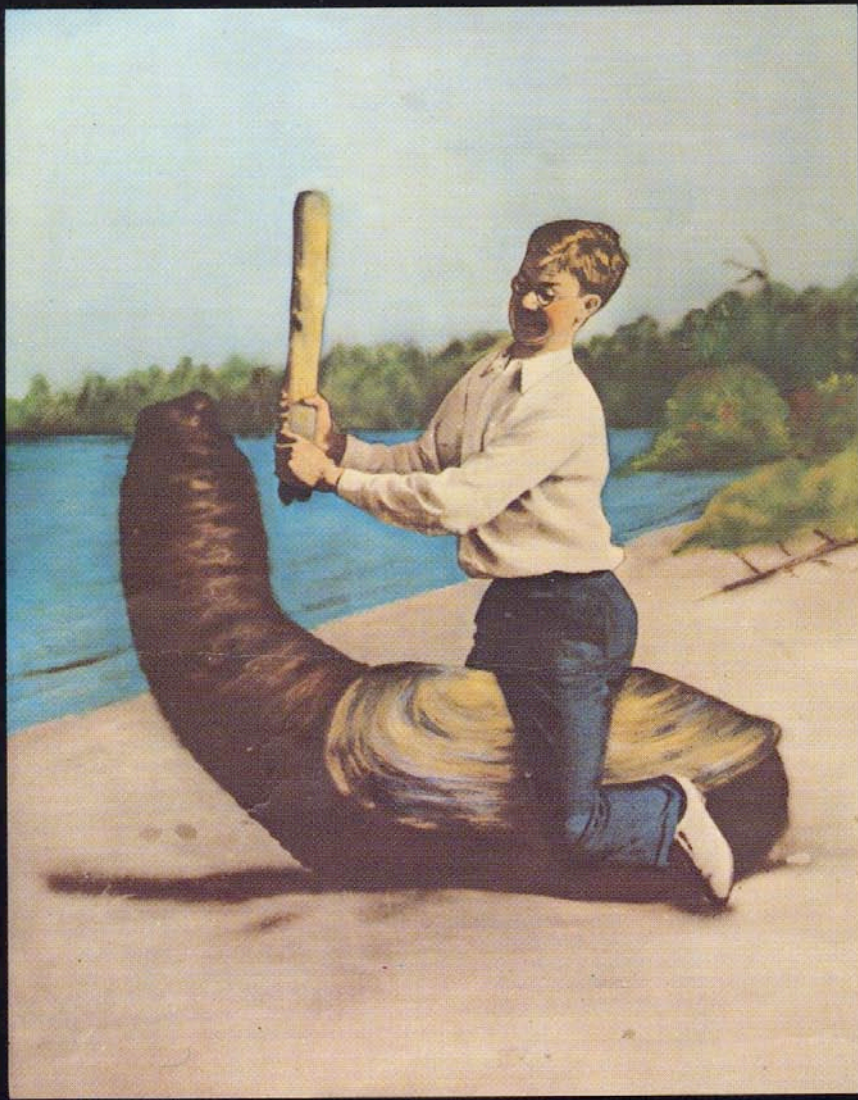


BIVALVE AQUACULTURE



AND THE ENVIRONMENT

SEATTLE • SEPTEMBER 13TH - 14TH, 2007



The **GEODUCK** (Panope Generoso)
Native of Puget Sound, often reaches great
size. Geoduck hunting is a very popular
sport in the neighborhood of
HOOD CANAL—WASHINGTON

© J. Boyd Ellis
Arlington, WY

Workshop focus:

What is the current state of knowledge regarding on-bottom intertidal bivalve aquaculture and its interactions with the environment?

What are future research and information needs?



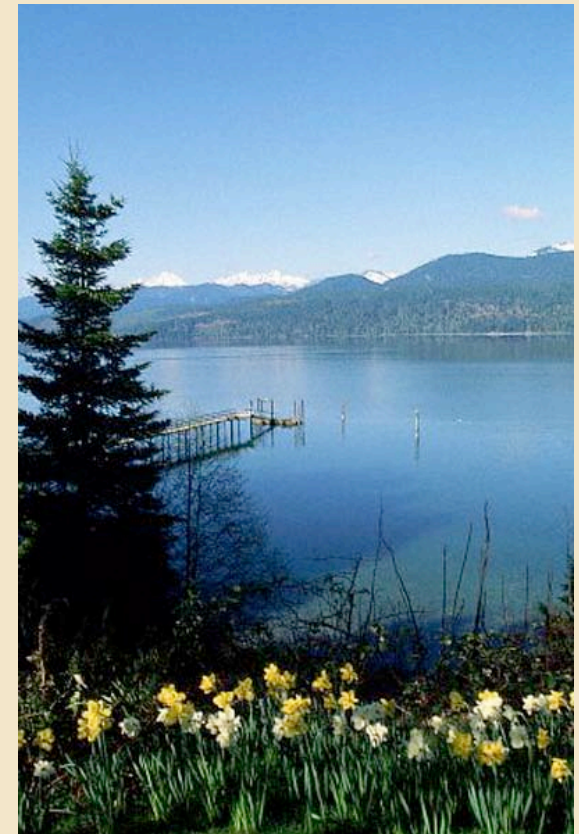
Online Survey of Research and Information Needs

47 responses from diverse individuals with interest in shellfish aquaculture

89% from Washington, 2% from British Columbia and 1 other

Respondent aquaculture interests:

- 16 (34%) Natural resource managers
- 8 (17.0%) Aquaculture industry employees
- 6 (13%) Scientists
- 6 (13%) Residents or property owners
- 2 (4%) Public interest group representatives
- 9 (19%) Others





Online Survey of Research and Information Needs

Theme areas:



1. Genetics and Disease
2. The Effects of Aquaculture Structures
3. Water Column Effects
4. Benthic Effects
5. Other



1. Genetics and Disease

Likelihood of genetic interaction and disease transmission between cultured, wild geoducks examining:

- reproductive timing and success
- larval dispersal
- culture density
- broodstock source

Effects, if any, of cultured geoducks on wild genetic diversity including local adaptations and population resilience

Potential to minimize risks through:

- hatchery protocols
- development of sterile (triploid) animals
- understanding of geoduck biology

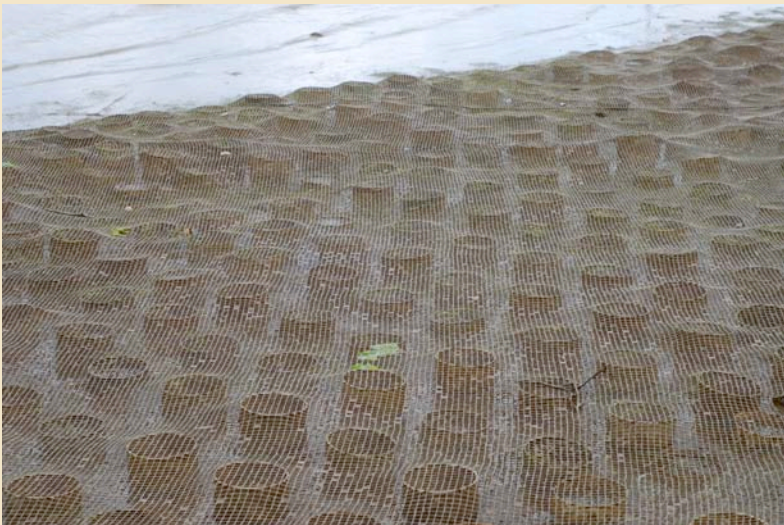




2. Effects of Aquaculture Structures

Positive and negative effects of exclusion devices on:

- sediment dynamics
- habitat availability and quality
- benthic community diversity
- other species like salmon, birds, crabs, algae



Impacts of aquaculture-generated marine debris

Potential to minimize risks through alternative technologies



3. Water Column Effects

How water column characteristics (turbidity, nutrient levels, contaminants, etc.) are affected by

- filtration and presence of cultured shellfish
- planting and harvesting methods
- culture density
- seasonal cycles

Relationship of above factors to different flushing rates





4. Benthic Effects



Ecological effects on biodiversity and on other species that rely on benthos from:

- presence of structures, cultured animals
- culture density
- seasonal cycles

Shoreline, substrate and habitat considerations for siting shellfish farms

Biological and physical impacts of and recovery from harvesting methods (e.g. use of “stinger”)

Potential to detect and assess disturbance and physical impacts and differentiate from natural and other human-induced change



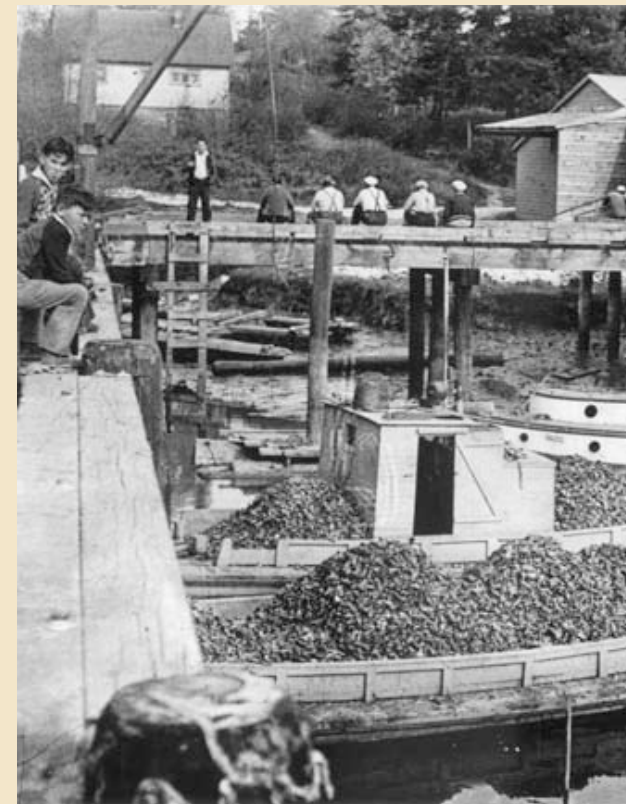
5. Other

Ecological interactions with and management implications for:

- Cumulative impacts of human activities
- Carrying capacity
- Wild stock fisheries
- Invertebrate and fish species spawning and recruitment
- Estuarine habitats like eel grass, kelp and sand dollar beds
- Predator and other wildlife populations

Economic and social impacts

- Aesthetic and recreational effects
- Comparative economic benefits of alternative tideland uses



An aerial photograph of a coastal wetland or estuary at sunset. The sky is a vibrant mix of orange, yellow, and red, with some light clouds. The water is dark, reflecting the colors of the sky. The land is silhouetted against the bright sky, showing various shapes of islands and peninsulas. In the background, a range of mountains is visible under the sunset sky. Overlaid on the center of the image is a white logo of a bird in flight, with its wings spread. Below the logo, the text "Sea Grant" is written in a large, white, serif font. Underneath "Sea Grant", the word "Washington" is written in a smaller, white, sans-serif font.

Sea Grant
Washington