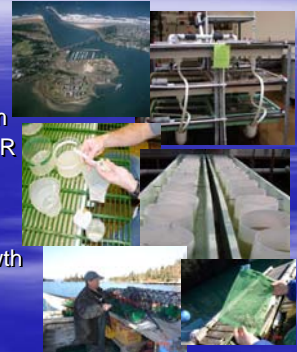


## IMPROVING OYSTER PERFORMANCE FROM BROODSTOCK TO HARVEST

Raymond RaLonde  
Alaska Sea Grant Marine Advisory Program  
to  
Financial Management Workshop  
November 1-2, 2007

## THE MOLLUSCAN BROODSTOCK PROGRAM

- USDA funded program
- Western Regional Aquaculture Consortium
- Hatchery in Newport, OR
- Growout facilities in Oregon, Washington, Alaska
- Purpose: Increase growth performance in Pacific oysters
- Website



<http://hmssc.oregonstate.edu/projects/mbp>

## MOLLUSCAN BROODSTOCK PROGRAM IN ALASKA

- PWS growout site in 1996
  - Funded by Alaska Science and Technology Foundation
- Moved to Kachemak Bay 2006
  - Funded by Alaska Sea Grant
- In the fourth generation
  - In second year of first growout trial in Kachemak Bay



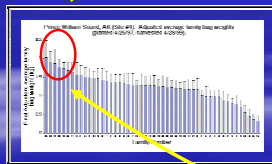
## PURPOSE OF MBP FOR ALASKA

- Increase growth rate and shorten growout time
- Reduce size variability
  - Increases FLUPSY efficiency
  - More uniformity of size at harvest
- Produce a consistent halfshell product
- Better control of growout research
  - Similar genotype for comparison of performance



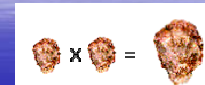
## DEVELOPING A BROODSTOCK Method One

- Pedigree crosses



## DEVELOPING A BROODSTOCK Method Two

- Inbred lines
  - Repeat same family member crosses
  - Produces runts
  - Cross the runts from different families
  - Create high performance offspring
    - Heterosis
    - Increased respiratory efficiency
  - Growout trials began spring 2008



Same age seed from standard and inbred lines

## EXPANDING THE PROJECT TO THE HALFSHELL PHASE

Post-harvest quality of selected molluscan broodstock oysters raised in Kachemak Bay, Alaska and comparison with other northwest U.S. locations

- Do the top 7 yielding families differ significantly in post-harvest product quality?
- Do families that have gone through selection for increased yield differ in post-harvest product quality from non-selected control families?
- How does growing environment affect post-harvest product quality and is there an interaction between family and environment?
- How does season affect post-harvest product quality and are there interactions between either family or growing environment and season?

## NEED HELP WITH MBP

- Site maintenance twice each year
- Help with final growout measurements



## THE CASE FOR LARGER SEED

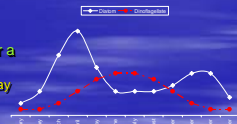
- FLUPSY seed growout leads to:
  - Larger seed
  - Consistent quality
  - Better survival
- What about growout?



Stocking Date	Initial Shell Height mm	Initial live Weight g	Shell Height on August 21	Live Weight on August 21
10/22/97	24.7	1.98	69.50	14.80
5/8/98	21.8	1.50	39.71	3.93

## WHY THE DIFFERENCE

- Plankton bloom continues through fall
- High quality plankton in fall bloom
  - Spring - Large *Chaetoceros* diatoms
    - Large spiny food for small seed
    - Nutritionally not the best
  - Fall - Small *Melosira*
    - Smaller and highly nutritious
- Paul et.al. unpublished data (1997) over a similar time period grew
  - Chaetoceros* dominant grew 0.08 mm/day
    - Gained 0.6 mm/day
  - Melosira* dominant grew 0.15 mm/day
    - Did not gain weight
- Reduce impact of fouling on small seed
  - Spring barnacle, Summer or fall mussels, Fall starfish



## NEED TO SUPPORT AN IN-STATE SHELLFISH HATCHERY

- Risky to totally rely on out of state seed sources
  - Unreliable delivery and quality
  - Disease
- No ability for producing native species
- Lack of access to MBP broodstock
- Secure stable income source for hatchery
- Need for research capability

