Hatchery Setup
Broodstock collection & care
Large scale larval culture

Celeste Leroux
University of Alaska Fairbanks
School of Fisheries and Ocean Sciences
Alaska Sea Grant College Program
Hatchery Setup

- Water Treatment
- Dry Lab
- Algae Culture
- Workshop
- Office

Main Floor
- Geoducks
- Cockles
- Scallops
- Oysters

Mariculture Technical Center

Seward Marine Center
Alutiiq Pride Shellfish Hatchery
Broodstock Collection

- Captured in field, taken to Kodiak / St. Paul harbor
- Packed in coolers with ice packs and burlap to chill and insulate
- Shipped via air to Seward
- Unpacked at Seward Marine Center, placed in tanks
Red King Crabs – Kodiak Island

ADFG Fish Resource Permit No. CF-06-032

• From Alitak Bay, July 2006
  R/V Resolution, ADF&G
  annual trawl surveys
• 16 females, 16 males collected

S. Persselin and B. Stevens, Kodiak AK

Red king crab eggs, Seward AK
Blue King Crabs – St. Paul Island

ADFG Fish Resource Permit No. CF-06-085

28 blue king crabs, St. Paul Harbor

F/V Aleutian Beauty, November 2006
Broodstock maintenance

- Chilled tanks at Seward Marine Center
- Fed mixed diet
- Egg development, tank temp. and salinity monitored
- Effluent monitored for hatching
- Hatching females isolated at APSH

BKC female with extruded eggs
Muscle tissue from RKC & BKC:
Broodstock
Zoeae stage I
Glaucothoe

Plankton assay samples to
National Marine Fisheries Service

Samples submitted to ADF&G for future analysis

Photo: Carin Bailey, UAF/SFOS
Sampling - Pathology

- Samples of 15+ tissues taken from broodstock RKC and BKC.
- Training with ADF&G Pathology staff
- Baseline for future comparisons
- Samples submitted to ADF&G Pathology Laboratory
Timeline

**Red King Crab**
- Hatch: mid-February
- Larval rearing: March/April
- Glaucothoe: April

**Blue King Crab**
- Hatch: Late April to early May
- Larval rearing: May/June
- Glaucothoe: June
Larval Culture

• Water supply
• Module setup
• Tank setup
• Handling
• Maintenance
Larval Culture – Water Treatment

- Deep water intake 270+ ft.
- Sand and cartridge filtration to 1 μm
- Glycol heating
- Ultraviolet sterilization & additional filters
- Broodstock tanks
- Algae culture
- Larval rearing tanks
- Chlorinated effluent
Hatchery Setup – Post Flood
November 2006

Before

After
Larval Culture – Tank setup

- Water enters from above
- Exits through banjo filter
- Circulation with air stones
- Conical bottom tanks
- Cover over window, fluorescent lights on in daytime

Flow rates:
- RKC- 5-6 L/min 4 hours/day
- BKC- 1-2 L/min 24 hours/day
Larval Culture - Handling

- Tank drained through drop screen and rinsed into known volume
- Sub-sampled or all larvae counted
- Stress minimized
Maintenance

• Banjo filters and air stones cleaned regularly
• All tanks fed newly hatched *Artemia* sp. once daily and enrichment species as warranted
• Water changed at least once daily
• Drained tanks rinsed with fresh water
• Regular monitoring of temperature, salinity, survival and feeding times.