Intensive Rearing of Arctic Grayling

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“You are not a real fish culturist until you kill 100,000 fish”

Dr. Steven Flickinger
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Arctic Grayling at Fort Richardson

- Program came from Clear Hatchery in 1998
- Start up rearing had mixed success
  - BioKyowa feed imported from Japan
- '01 Started in 4’ circular tanks
- ‘02 Highest survival of fry
  - Mad Cow in Japan
- ‘03 BioKyowa feed blocked from import
- ‘04 Moore Clark Nutra Mash through a coffee grinder
- ‘05 Gemma from France

% survival ponding to release
- 39% & 62%
- 59%
- 79%
- 42%
- 17%
- 7%
’06 Experimentation

- Split incubation into 2 lots, 6° and 10° C
- **Artemia** - Pumped continuously with a metering pump.
- **Cyclopeeze** - Fed on a belt feeder and by hand fed.
- **Aquarium Light** - 24 hour photoperiod, on the tanks
- Lots of worrying and fretting
- 49% Rearing survival with the highest production release 130,000 Fingerling
- First known release of triploid grayling
Arctic Grayling at Fort Richardson

- Program came from Clear Hatchery in 1998
- Start up rearing had mixed success 39% & 62%
  - BioKyowa feed imported from Japan
- ’01 Started in 4’ circular tanks 59%
- ’02 Highest survival of fry. 79%
  - Mad cow in Japan
- ’03 BioKyowa feed blocked from import 42%
- ’04 Moore Clark Nutra Mash through a coffee grinder 17%
- ’05 Gemma from France, did not meet stocking goals 7%
- ’06 Incubated at 6° & 10° C, Artemia and Cyclopeeze, surplus grayling, Triploids, highest production release 139,600 49%
- ’07 Artemia and Cyclopeeze, surplus grayling, Triploids 60%
31.5 eggs/ml

3.5 mm diameter
Eyeballs and a Tail

L = 14mm
Artemia Hatching Cones

- 16 liters
- 2 g cysts / liter
- 28° C
- 28 ppt salinity
- 24 hours incubation
Platinum Artemia

330,000 cysts per gram

10.5 Million Artemia per day
- Artemia & Cyclopeeze fed for 10 days
- BioVita Mash mixed with Cyclopeeze
- Artemia fed for a total of 21 days
- 35,000 Ponded in 7"
- 1 gpm
- 800 micron screen
- 12.5° C
Factors Affecting Grayling Start Up

- Hatch then swim up as larval fry
- .01 gram vs. .45 gram Chinook
- Must have food 24 hours a day
- Three days to get feeding
- Everything looks great until 7-10 day post ponding
The Black Ring of Death
The Pay Off

15 Kg/m³
.7 grams
57 days post ponding,
Future Directions

- Reduce egg request to relieve pressure on wild stock
- Increase stocking goals of both 2N and 3N
- Experiment with Cyclopeeze and Artemia fed separately
- Different feed rates
- Different ponding densities
- “Good Bye, Black Ring of Death”