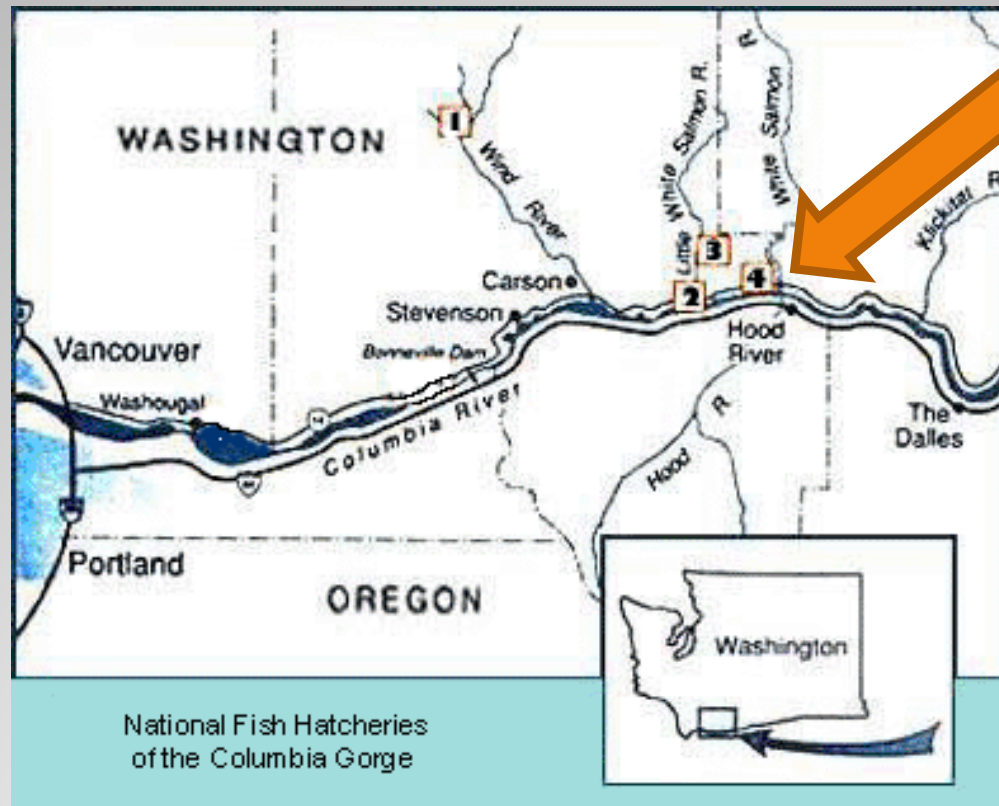


Improving Salmon Aquaculture and Saving Money in a Water-Reuse Hatchery System with **AquaMats®**



Spring Creek NFH

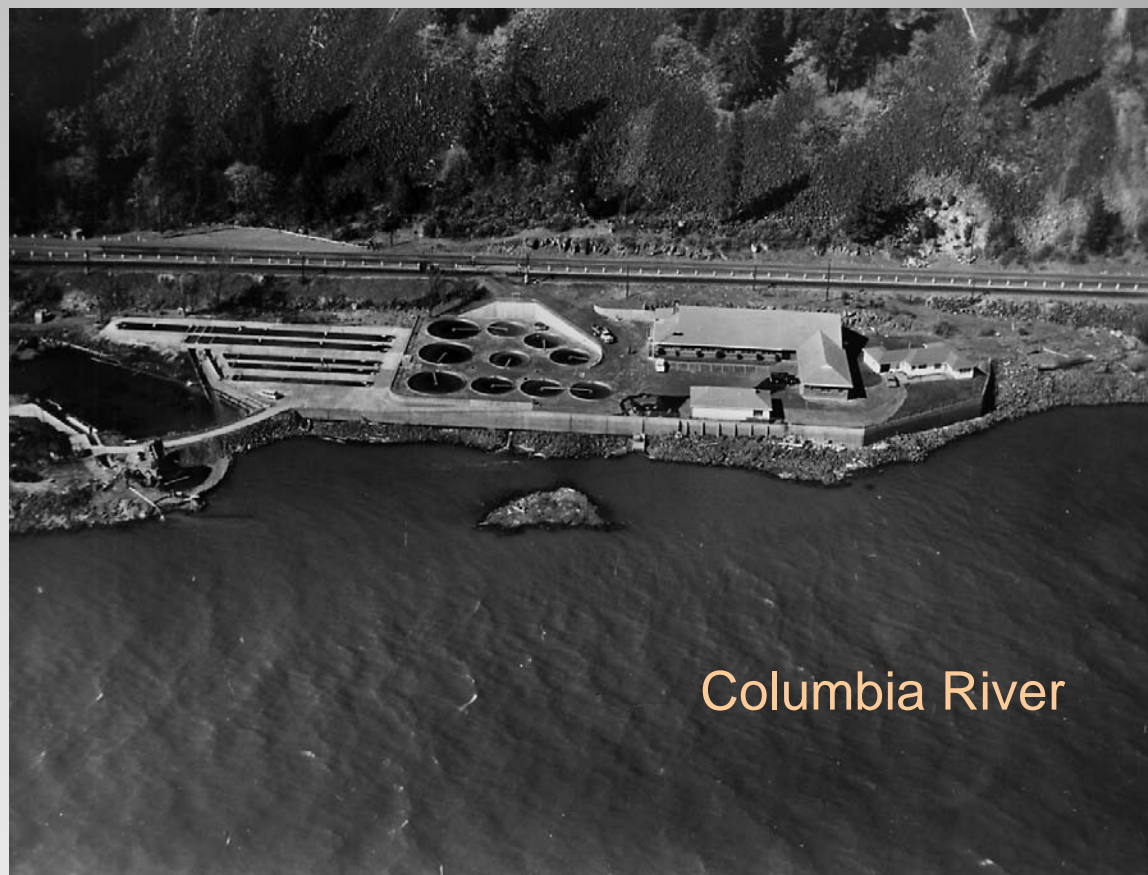


National Fish Hatcheries
of the Columbia Gorge

Spring Creek NFH – early 1900's



Spring Creek NFH –1940 – 1972



Columbia River

Spring Creek NFH - current



Spring Creek NFH Production

- Tule Fall Chinook (Mitigation Mitchell Act & USACOE funded)
- 12.2M fry (10.5M smolts 1.7M fry transfer)
- 3.0M Eyed-Eggs transferred
- 44 Burrows Ponds >> Initial Load 350,000/pond
- Density Reduced at Marking 235,000/pond



AQUAMATS What Are They?



HIGH PERFORMANCE AQUATIC TECHNOLOGY

Fish Hatchery Model 24020 2005 Pricing and Specifications Sheet

AquaMats® for Fish Hatcheries provides surface deployed high surface area habitat for fish hatchery/nursery tank use for supplemental natural feed production, in-situ biofiltration and shelter. One unit per ton of capacity is recommended. Product supplied pre-configured in "M" shaped habitat configuration. Color Meridian blue upper sleeve with integral float device, white AquaMats strands to 36" water depth.



Innovations in hatchery operations are blazing a trail for biological advancement in the rearing and growout of finfish in modern aquaculture. AquaMats®, through extensive research and development with North America's leading federal, state, and private fish hatcheries, are proud to introduce AquaMats® for Fish Hatcheries. AquaMats® for Fish Hatcheries offer managers an otherwise impossible ability to improve survival, reproduction, and health, reduce stress and its associated disease and mortality, while simultaneously increasing stocking densities as much as 100%. A revolutionary combination of manageable aquatic structure, natural food production, and ideal spawning media makes AquaMats® the "High Performance Edge" in hatchery innovation for the new millennium.

A Wide Variety of Species Benefit from AquaMats® for Fish Hatcheries!

- Warmwater Finfish
- Salmonid Species
- Coldwater Species

USAGE RECOMMENDATIONS (MODEL 24020)

The benefits of AquaMats® for Fish Hatcheries generally require 1 unit per ton of capacity. For highly piscivorous species such as bass and grouper, 2 units per ton of capacity are recommended.

MODEL NUMBER - 24020	
Deployment Format	SDE
Suggested Retail Price each	\$ 73

PACKAGING INFORMATION AND OPTIONS	
OPTION 1	
Box Type	SMALL
Quantity Per Box	Six (6)
Pkg. Dimensions (LxWxH)	19x19x13
Pkg. Weight	13.9 lbs.
OPTION 2	
Box Type	GAYLORD
Quantity Per Box	Eighty (80)
Pkg. Dimensions (LxWxH)	58x41x45
Pkg. Weight	190 lbs.

PRODUCT CONSTRUCTION

1. Height (Strands In Water) - 36" Tall, Strand Width - 1"
- Strands hang downward in water column
2. Length - 6' 5" Long
- Pre-Filled upper sleeve that rests on water surface

PRODUCT FEATURES & OTHER BENEFITS

1. Specialized Habitat for Increased Survival - AquaMats® provide places for animals to hide and feed with engineered high surface area substrate that is "pre-configured" into ideal fish habitat. With AquaMats®, freshwater and marine hatcheries can increase survival and production to the limits of their systems.
2. In-Situ Biofiltration - Utilizing our exclusive manufacturing process, known as UltraWeave™ Technology, AquaMat surfaces are precision-engineered to encourage healthy bacteria and benthic algae that can substantially increase the biofiltration capability and stability of culture systems.
3. 2-Yr Warranty

IMPORTANT INFORMATION

1. Distributors MUST order by the pallet. NO MIXING of product lines is permitted.
2. Individual pallets may contain ONE (1) Gaylord or SIXTEEN (16) Boxes.
3. FREE SHIPPING IN USA for ONE (1) Gaylord or FOUR (4) pallet minimum.

CONTACT INFORMATION

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www.aquamats.com info@aquamats.com

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Prices and availability subject to change without notice.
AquaMats® are manufactured under US Patent No.'s 6,060,153, 6,171,686, 6,230,654, 6,244,218 & Patents Pending Worldwide.

AQUAMATS What Are They?

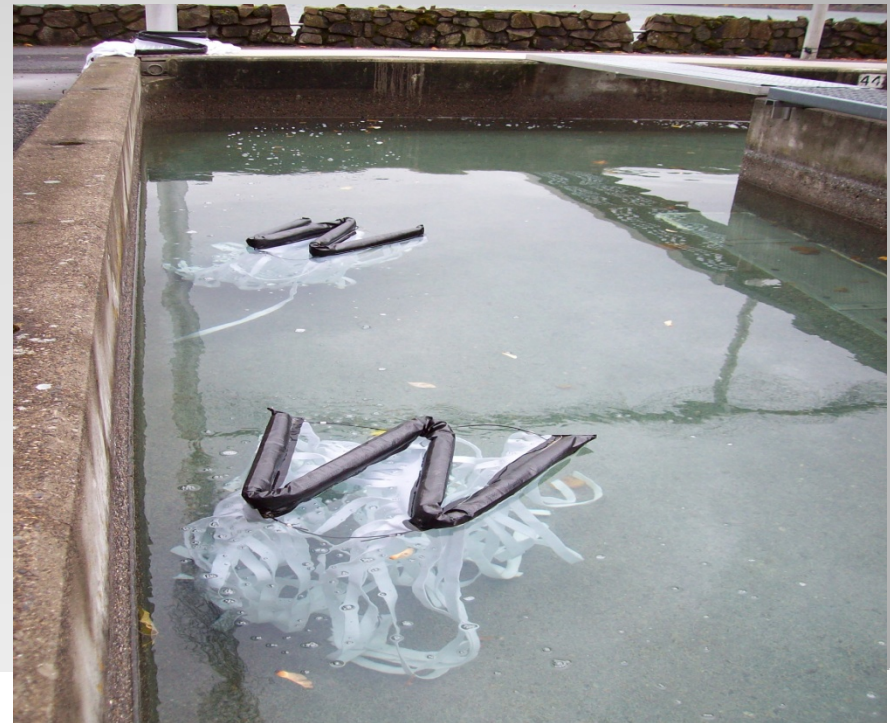


AQUAMATS What Are They?



What's it Doing ?

- ◆ Floats
- ◆ Flows with Current
- ◆ Drags Bottom
- ◆ 5 per pond



What's it Doing ?

- ◆ Good Bacteria setup on them as well
- ◆ We add these bacteria as normal practice with Biofilter Ammonia Control



Background

♦ Research Idea '01/'02

- ♦ Nature's Type Rearing
- ♦ Primary Production
- ♦ Inconclusive Results



Background

♦ Research Idea '01/'02

- ♦ Nature's Type Rearing
- ♦ Primary Production
- ♦ Inconclusive Results

♦ But...

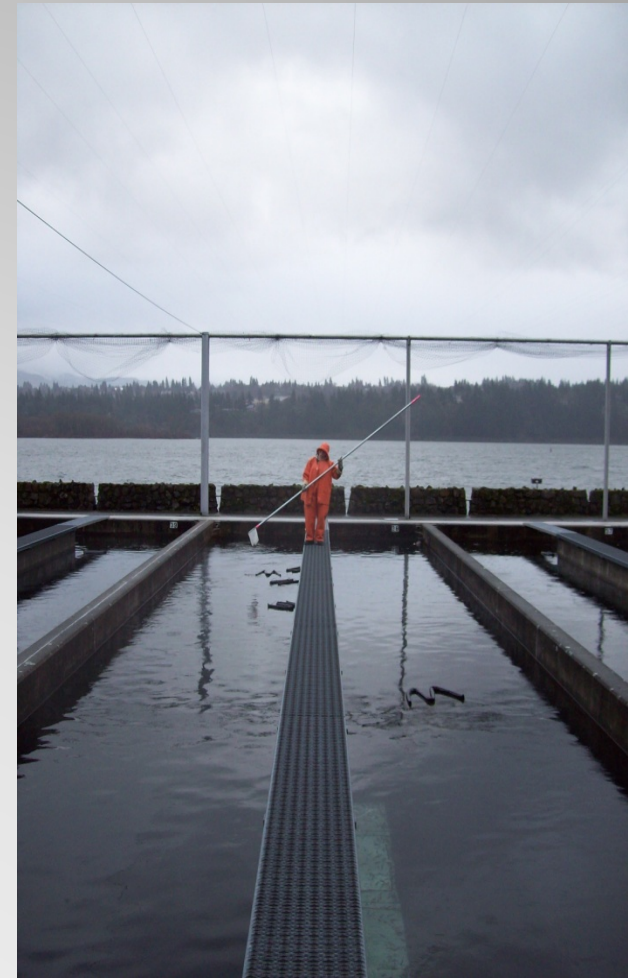
Observant
& Opportunistic
Fish Culturists



Aquamats Kept Pond CLEAN !

Our Progression in Applied Use

- ◆ One per Pond Initially ('03)
limited brush cleaning
- ◆ Three the following ('04)
almost no brush cleaning
- ◆ Five in third year 2005
NO brush cleaning
- ◆ Five the Magic number
- ◆ NO BRUSH CLEANING
- ◆ Yes, Longer Feeding Rearing
would require limited brush
cleaning



First Year

- ◆ Some brush cleaning required to keep up
- ◆ But, even one made a difference
- ◆ Kept eye fish health, aquamat cleanliness (so so, smelled a bit, some Roccal disinfection)



Second Year

- ◆ Little if any brush cleaning required to keep up
- ◆ Three really made a difference
- ◆ Kept eye fish health, aquamat cleanliness (so so, smelled a bit less, no disinfection until storage)
- ◆ Experimenting with Longer Length more drag, slower moving at low flows almost none



Third Year

- ◆ NO brush cleaning required to keep up, some screen algae
- ◆ Five made ALL the difference
- ◆ Kept eye fish health, aquamat cleanliness (so so, neutral smell, like clean low tide beach)
- ◆ Experimented with Shorter Length less drag, better moving at low flows almost none



Aquamats not the only Contributing Factor

- ◆ High Grade Feed, appropriate size
- ◆ Biofilter Backwash Cycle
- ◆ Chemistry Monitoring



Aquamats not the only Contributing Factor

- ◆ Experimenting with shorter length 36"
- ◆ Less drag, better moving at low flows almost none length too long 44"



Disinfection & Storage

- ◆ Chlorine 25ppm, all aquamats in single pond, like doing laundry
- ◆ Drain and Hang Dry in the Sun
- ◆ Built Storage Bins



Application at Other FWS Hatcheries

- ◆ Winthrop
- ◆ Kooskia & Dworshak



Winthrop's Foster-Lucas Ponds



(center standpipe drain)

3 Aquamats attached to hoop ring

Costs

- ◆ **\$73 each (US made, Montana)**
- ◆ **We're running a fleet of 220 = \$16,060**
- ◆ **Life Span 6+ years,
some wear out earlier but few**
- ◆ **Custom lengths for your ponds**
- ◆ **We've experimented with 36", 40", 44"**

Benefits

- ◆ **We're saving an estimated 1.5 FTE's with no brush cleaning**
- ◆ **Old cleaning regime used to be daily, cleaning all ponds 1-3 times per week approx. 60 man hours/week, and more as needed**
- ◆ **Can keep up with everything else**

Benefits

Aquamats.com >

“In-Situ Biofiltration – Utilizing our exclusive manufacturing process, known as UltraWeave™ Technology, AquaMat surfaces are precision-engineered to encourage healthy bacteria and benthic algae that can substantially increase the biofiltration capability and stability of culture systems.”

Our experience, 7 years successful use, fully supports this claim.

Benefits

- ◆ **Fish Health!**
Hugely Improved
- ◆ **Fish Stress**
Massively Reduced
- ◆ **Fish Exercise (avoid, swim-thru, added pond dynamics with more dynamic water flow as well)**
- ◆ **Water Quality & Biofilter cleanliness**
- ◆ **NPDES compliance, lower peak loads in cleaning**



Benefits

♦ Roger Burrows Dream

♦ THE SELF CLEANING POND DREAM



Important Info

- ◆ **Other Models/Styles available**
- ◆ **Ours is Model 24020 Surface Deployed**
- ◆ **Pre-configured “M” shape**

◆ **Aquamats.com**

◆ **Sterling Scott (301) 937-1240**

