

Designation of Cold-, Cool- and Warmwater Fish Species

Aquatic Animal Drug Approval
Partnership Program
Bozeman, MT

13th Annual Aquaculture Drug Approval Coordination Workshop

Objective

- **To aid CVM in classifying cultured fish species as cold-, cool-, or warmwater species**
 - **35% PEROX-AID[®] approval for coolwater finfish**
 - **What species are considered coolwater?**
 - **Establish representative species list for pre- and post-approval**

Several Possible Approaches

- **Spawning temperature**
- **Optimal or preferred growth temperature**
- **Thermal limits**
- **2005 Public Aquaculture Production database**

Current (Interim) Direction

- **Use 2005 Public Aquaculture Production database**
- **Why?**
 - **Variation in:**
 - spawning temperature ranges
 - Optimal/preferred growth temps
 - Temps reported for either field or hatchery

Classification Scheme

- Fish species reared
- Fish numbers
- Temperature reared at:
 - Coldwater < 12°C
 - Coolwater 12 - 18°C
 - Warmwater > 18°C
- Percentage of fish reared at each water temperature

Fish Species Classified as Coolwater...

| Fish Species | Family Name | Genus | Water Temp C° (as identified in 2005 Production Survey db) | % Fish at Water temp per Production db | Number of fish for water temp | Total Number of Fish |
|--------------------------|-----------------|-----------------------|--|--|-------------------------------------|-------------------------|
| Herring | Clupeidae | ---- | Coolwater 12 - 18°C | 100.0% | 735,000 | 735,000 |
| Sturgeon | Acipenseridae | ---- | Coolwater 12 - 18°C | 100.0% | 7,464 | 7,464 |
| White Sturgeon | Acipenseridae | <i>Acipenser</i> | Coolwater 12 - 18°C | 100.0% | 3,755 | 3,755 |
| Alewife Herring | Clupeidae | <i>Alosa</i> | Coolwater 12 - 18°C | 100.0% | 3,162 | 3,162 |
| Blueback Herring | Clupeidae | <i>Alosa</i> | Coolwater 12 - 18°C | 100.0% | 217,989 | 217,989 |
| June Sucker | Catostomidae | <i>Chasmistes</i> | Coolwater 12 - 18°C | 100.0% | 3,566 | 3,566 |
| Comanche Springs Pupfish | Cyprinodontidae | <i>Cyprinodon</i> | Coolwater 12 - 18°C | 100.0% | 283 | 283 |
| Bonytail Chub | Cyprinidae | <i>Gila</i> | Coolwater 12 - 18°C | 81.8% | 55,549 | 67,892 |
| Chihuahua Chub | Cyprinidae | <i>Gila</i> | Coolwater 12 - 18°C | 100.0% | 4,485 | 4,485 |
| Yellow Perch | Percidae | <i>Perca</i> | Coolwater 12 - 18°C | 82.6% | 4,338,558 | 5,251,058 |
| Colorado Pike Minnow | Cyprinidae | <i>Ptychocheilus</i> | Coolwater 12 - 18°C | 98.6% | 280,530 | 284,549 |
| Shovelnose Sturgeon | Acipenseridae | <i>Scaphirhynchus</i> | Coolwater 12 - 18°C | 100.0% | 709 | 709 |
| Saugeye | Percidae | <i>Stizostedion</i> | Coolwater 12 - 18°C | 99.6% | 39,127,321 | 39,275,371 |
| Razorback Sucker | Catostomidae | <i>Xyrauchen</i> | Coolwater 12 - 18°C | 85.2% | 48,170 | 56,538 |

Fish Species Classified at 2 Temperatures...

| Fish Species | Family Name | Genus | Water Temp C° (as identified in 2005 Production Survey db) | % Fish at Water temp per Production db | Number of fish for water temp | Total Number of Fish |
|-----------------|---------------|--------------------|--|--|-------------------------------------|-------------------------|
| American Shad | Clupeidae | <i>Alosa</i> | Coolwater 12 - 18°C | 58.6% | 9,055,922 | 15,466,973 |
| American Shad | Clupeidae | <i>Alosa</i> | Warmwater >18°C | 41.4% | 6,411,051 | 15,466,973 |
| Hickory Shad | Clupeidae | <i>Alosa</i> | Coolwater 12 - 18°C | 35.2% | 4,940,000 | 14,044,914 |
| Hickory Shad | Clupeidae | <i>Alosa</i> | Warmwater >18°C | 64.8% | 9,104,914 | 14,044,914 |
| Lake Sturgeon | Acipenseridae | <i>Acipenser</i> | Coolwater 12 - 18°C | 46.8% | 63,255 | 135,030 |
| Lake Sturgeon | Acipenseridae | <i>Acipenser</i> | Warmwater >18°C | 53.2% | 71,775 | 135,030 |
| Muskellunge | Esocidae | <i>Esox</i> | Coolwater 12 - 18°C | 51.4% | 1,222,375 | 2,376,906 |
| Muskellunge | Esocidae | <i>Esox</i> | Warmwater >18°C | 30.8% | 732,531 | 2,376,906 |
| Northern Pike | Esocidae | <i>Esox</i> | Coolwater 12 - 18°C | 76.3% | 6,506,170 | 8,522,478 |
| Northern Pike | Esocidae | <i>Esox</i> | Warmwater >18°C | 23.7% | 2,016,308 | 8,522,478 |
| Pallid Sturgeon | Acipenseridae | <i>Acipenser</i> | Coolwater 12 - 18°C | 69.5% | 67,961 | 97,835 |
| Pallid Sturgeon | Acipenseridae | <i>Acipenser</i> | Warmwater >18°C | 30.5% | 29,874 | 97,835 |
| Sauger | Percidae | <i>Sander</i> | Coolwater 12 - 18°C | 27.5% | 8,688,583 | 31,650,989 |
| Sauger | Percidae | <i>Sander</i> | Warmwater >18°C | 72.5% | 22,962,406 | 31,650,989 |
| Smallmouth Bass | Centrarchidae | <i>Micropterus</i> | Coolwater 12 - 18°C | 30.2% | 258,568 | 856,375 |
| Smallmouth Bass | Centrarchidae | <i>Micropterus</i> | Warmwater >18°C | 69.8% | 597,807 | 856,375 |

Where do we Stand?

- We've taken a first crack at tackling an ambitious task
- Solicited input from industry experts
- Provide CVM with product soon
- Continue collecting information relative to spawning temps, optimal growth temps, etc.

Questions/Comments?

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