

28th Annual Eastern Fish Health Workshop

Proceedings of the:



**28th Annual Eastern
Fish Health Workshop**

April 21 - 25, 2003

Eisenhower Inn and Conference Center
Gettysburg, PA



Sponsored by:

National Fish Health Research Laboratory

United States Geological Survey
11700 Leetown Road
Kearneysville, West Virginia 25430

Editorial Note

On behalf of the National Fish Health Research Laboratory, it is a pleasure to welcome you to historic Gettysburg, Pennsylvania. Certain events achieve monumental proportions and remain in national memory long after those events have occurred. Ever since 1863, Gettysburg has been such a place. Here, on July 1 of that year, the Army of Northern Virginia commanded by General Robert E. Lee attacked the Army of the Potomac under General James Meade. Southern forces attacked Northern troops occupying McPherson's Ridge, west of town. Despite a valiant delaying action, the Northerners were swept from the ridge and fled in great disarray through the streets of town. They would reform in the safety of the high ground on Cemetery Hill, south of town. The morning of July 2 dawned with both armies a mile apart on parallel ridges; the North on Cemetery Ridge and the South on Seminary Ridge. General Lee would renew the attack by striking at both Union flanks. General James Longstreet led the Confederate First Corps against the Union left, leaving the base of Little Round Top in shambles. Northern and Confederate dead were strewn about the Wheatfield, the Peach Orchard, the Valley of Death and the Devil's Den. On the Federal right, General Richard Ewell, commanding part of the late Stonewall Jackson's Second Corps, struck the Union on the rugged terrain of East Cemetery and Culp's Hills. Battle raged into the evening with little gain on either side and it is said that blue and gray met again that night to drink together from the waters of Spangler's Spring. On day 3, Lee's artillery under General Edward Porter Alexander bombarded Federal lines on Cemetery Ridge and Cemetery Hill with a thunderous, two-hour barrage. Steadily, 12,000 Southerners stepped from the trees on Seminary Ridge and began a march that lives forever in the annals of military history as "Pickett's Charge". The gray line advanced across a mile-long killing field, plowed by Union artillery, which absorbed the lifeblood of hopes, dreams, and desires.

Unlike any other place, Gettysburg embodies the essence of America's Civil War and exemplifies the great struggle to preserve the Union. Dare not forget the tremendous sacrifices, the countless acts of bravery, nor the number of lives, hopes and dreams that were shattered on this field. In his personal reflections of those horrific days of battle, Joshua Lawrence Chamberlain wrote: *"In great deeds something abides. On great fields something stays. Forms change and pass; bodies disappear, but spirits linger, to consecrate ground for the vision-place of souls. And reverent men and women from afar, and generations that know us not and that we know not of, heart-drawn to see where and by whom great things were suffered and done for them, shall come to this deathless field to ponder and dream; And lo! The shadow of a mighty presence shall wrap them in its bosom, and the power of the vision pass into their souls."*

It is in the shadow of this great battlefield that we are proud to convene the 28th Annual

Eastern Fish Health Workshop. The very first workshop traces its roots to a small group of federal researchers, who gathered together on the Eastern Shore of Maryland to share their research, discuss issues, plan new studies, and enjoy the fellowship of each other. That first meeting was originally inspired by Dr. Stanislaus Snieszko of the Eastern Fish Disease Laboratory (predecessor to the National Fish Health Research Laboratory) of the Department of the Interior and Drs. Carl Sinderman and Aaron Rosenfeld of the National Oceanic and Atmospheric Administration Laboratory of the Department of Commerce at Oxford, Maryland. Both laboratories were somewhat close geographically and both researched problems associated with fish disease, but their emphasis differed between the freshwater and marine environment. Early workshops fostered communication between the two facilities and provided staff members with opportunities to plan and conduct collaborative studies. Within a few years, fish disease research became well established in the graduate programs of several major universities in the eastern United States and participation in the workshop evolved beyond its original intent. Although the title of the workshop appears to be exclusive for fish, the workshop encourages broad participation in all aspects of aquatic animal health from invertebrates to mammals. Contributions from researchers, resource managers, biologists, and university personnel working within both marine and freshwater environments are encouraged. Even though the Workshop has occasionally been held in conjunction with other organizations such as the Fish Health Section of the American Fisheries Society and the International Association of Aquatic Animal Medicine, it is not affiliated with any parent organization and the meeting is an entity unto itself. Today, the National Fish Health Research Laboratory is extremely proud to continue the tradition of the Eastern Fish Health Workshop and serve as its annual host. The staff of the National Fish Health Research Laboratory welcomes you to the 28th Annual Eastern Fish Health Workshop here at the Eisenhower Inn and Conference Center of historic Gettysburg, Pennsylvania. We hope that you will find the sessions to be interesting, informative, and productive. We also hope that you will have time to explore the sites, sounds, and history of the national treasure that is Gettysburg, today!

Rocco C. Cipriano, ed.

Monday, April 21

5:00 - 7:30 **Registration, social reception, and cash bar**
Dinner on your own

Tuesday, April 22

7:00 **Breakfast**

General Session I – Clifford Starliper, moderator

8:00	Boyd	Importance Of Pili For Virulence Of <i>Aeromonas salmonicida</i> In <i>Salmo salar</i>	1
8:15	Dacanay	An Increase In Immunoglobulin Diversity In <i>Aeromonas salmonicida</i> -Exposed Atlantic Salmon (<i>Salmo salar</i> L); An Immunomic View	2
8:30	Bullock	Establishment Of <i>Aeromonas salmonicida</i> And <i>Yersinia ruckeri</i> In Fluidized Sand Biofilters Of A Recycle Culture System And Subsequent Transmission Of These Pathogens To Newly Stocked Salmonids	3
8:45	Bowser	Concurrent Infection Of Hybrid Striped Bass (<i>Morone chrysops</i> X <i>Morone saxatilis</i>) With Three Bacterial Pathogens: A Case Report	4
9:00	Nusbaum	Prospective Evaluation Of Four Handling Models Of <i>Columnaris</i> Induction	5
9:15	Gauger	<i>Vibrio harveyi</i> as a dominant instestinal flora of summer flounder	6
9:30	Melka	Survey Of Bacteria Isolated From Aquacultured Catfish, Salmon, Tilapia And Trout Fillets	7
9:45	Kaattari, S.	Uses And Abuses Of ELISA Diagnostics: Reading Too Little Or Too Much From Your Hard-won Data	8

10:00 **Break**

10:30 Fijan **Keynote Address:** Fifty Years Of Research On Aquaculture, Biology, And Pathology Of Fish 9

Unusual Diagnostic Cases – Stephen Smith, moderator

11:00 Bowser Friday Afternoon In The Fish Disease Diagnostic Laboratory: Never A Slow Day 10

11:15 Pasnik Rancid Food For Thought 11

11:30 Khoo Visceral Toxicosis Of Catfish - An Emerging Disease 12

11:45 Wolf A Bad Case Of Zebras 13

12:00 **Lunch**

Lobster Health – Richard Robohm, moderator

1:00 Hsu Carapace Erosions And Bacteria From Shell Disease Lesions In American Lobsters 14

1:15 Frasca Molecular Characterization Of The Amoeba Associated With Paramoebiasis In American Lobster (*Homarus americanus*) By Small Subunit Ribosomal Gene Analysis 15

1:30 Robohm Effects Of Stressors On Mortality Rates In Lobsters (*Homarus americanus*) Infected With A Bacterial Pathogen 16

1:45 Anderson Production Of Cytotoxic Oxygen Species By Lobster Hemocytes 17

2:00 Paterson Induction And Dynamics Of Elevated Phagocytosis And Protective Immunity In The American Lobster 18

2:15 De Guise Effects Of Pesticides In The Long Island Sound Lobster Mortality 19

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2:30	Dove	Calcinosis In Long Island Sound Lobsters During The Summer Of 2002	20
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3:30	Rolland	Relative Resistance Of Pacific Salmon To Infectious Salmon Anemia Virus	22
3:45	Crosby	Fish Health Problems In Virginia: A Decade of Casework	23
4:00	Matsche	Maryland Fish Health And Fish Kills In 2002	24
4:15	Break		
		<u>General Session III</u> – Paul Bowser	
4:30	Draghi	Molecular Characterization Of The Chlamydia-like Bacterium Associated With Epitheliocystis In Atlantic Salmon (<i>Salmo salar</i>)	25
4:45	Gieseke	An Experimental Infection Model Of Fungal Disease In Rainbow Trout, <i>Oncorhynchus mykiss</i>	26
5:00	Kosoff	Distribution Of Chytridiomycosis (<i>Batrachochytrium dendrobatidis</i>) Within Amphibian Populations Of The Ecuadorian Andes	27
5:15	Sokolowki	Investigations of Genetic Polymorphism Among <i>Anguillicola crassus</i> in Populations of <i>Anguilla rostrata</i>	28
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6:45	Optional:	Farnsworth Theater and Ghost Walk (Ticket required)	

Wednesday, April 23

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8:00 Plumb **Keynote** – My Perception Of Fish Health In The United States 29

Emerging Health Issues In Commercial Aquaria – Marty Greenwell, moderator

8:30 Greenwell Shark Transport: Knowns And Unknowns 30

8:45 Weber Treating Cancer In The Fish Patient 31

9:00 Tall Molecular Characterization Of Virulence Factors By Marine Vibrios 32

9:15 Cooper Project Piaba: Saving The Rainforest Through Fisheries 33

9:30 Arnold Hematology Of Elasmobranchs At The National Aquarium In Baltimore 34

9:45 Walker Recombinant Human Platelet-Derived Growth Factor Heals Dermal Ulcerations In *Phyllomedusa bicolor* 35

10:00 **Break**

General Session IV – Fred Kern

10:30 Walter Low Stress Acclimation For Freshly Caught Caribbean Fish Used In Public Display 36

10:45 Starliper Use Of Bacterial Flora Databases From Selected Unionids To Identify Disease Causing Agents 37

11:00 Lewis United States East And Gulf Coast Study Of *Cryptosporidium* In Shellfish – The Rest Of The Story 38

11:15 Earnhart Development And Characterization Of Monoclonal Antibodies Generated Against The Extracellular Products Of The Oyster 39

Parasite *Perkinsus marinus*

11:30 Hancock Investigations Into Humane Euthanasia Of Decapod Crustaceans Using The Green Crab (*Carcinus meanus*) As A Model 40

11:45 Wolf Updating The Registry Of Tumors In Lower Animals 41

12:00 **Lunch**

Spring Viremia Of Carp – Andrew Goodwin, moderator

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1:15 Way Atypical Spring Viremia Of Carp Virus Isolated From Carp Imported Into The United Kingdom: Evidence For A Number Of Distinct Sub-Groups 43

1:30 Lewbart Spring Viremia Of Carp And The Farmer: Communication, Compassion, And Diplomacy 44

1:45 Bakal Spring Viremia Of Carp: Findings And Impacts Of The North Carolina Episode 45

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		<i>Streptococcus iniae</i> Infection In Hybrid Striped (Sunshine) Bass	
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5:30	Adjourn	Dinner on your own	

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Emerging Issues In Coral Health – Virginia Garrison

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10:00 **Break**

Fish Health Issues In The Great Lakes – Mohamed Faisal, moderator

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		Great Lakes Salmonids	
11:30	Faisal	Bacterial Kidney Disease: Recent Findings and genotyping of <i>Renibacterium salmoninarum</i> isolates from Michigan	69
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12:00	Lunch		
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5:30	Adjourn		
7:00	Reception	Cash Bar	
7:30	Banquet	Entertainment - <u>The 2nd South Carolina String Band</u>	

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8:00	<u>Continuing Education Class: <i>Molecular Biology For Dummies</i></u> - James Casey and Theodore Clark, Instructors		
4:00	Adjourn		