

**30th Annual
Eastern Fish Health Workshop**

**13 – 17 June, 2005
Clarion Inn and Conference Center
Shepherdstown, West Virginia**

**National Fish Health Research Laboratory
USGS - Leetown Science Center
11649 Leetown Road
Kearneysville, West Virginia 25430**



Monday , June 13

5:00 – 7:30 pm

Registration And Reception

Hors d'oeuvres and Cash Bar
Clarion Ballroom, Salon C

8:00 pm

Review Of Judging Criteria For Student Presentations

Clarion Board Room

9:00 pm

Why Antietam?

(Background information of what led up to the battle
and prelude to the battlefield tour.)

Clarion Board Room

Tuesday, June 14

7:00 **Breakfast**

*Fresh fruit cocktail, scrambled eggs, bacon, pancakes, home fries,
assorted bakery items, coffee, tea, and milk*

General Session 1 - Clifford Starliper, moderator

8:00	Toby Lowry	<i>Mycobacterium</i> sp. Infection In Cultured Cobia (<i>Rachycentron candum</i>)	1
8:15	Mark Sokolowski	Mycobacterium Infections In New York Striped Bass And Bluefish	2
8:30	Chris Ottinger	Mycobacterial Infections In Striped Bass (<i>Morone saxatilis</i>) From Delaware Bay	3
8:45	John Lumsden	Coldwater disease caused by <i>Flavobacterium psychrophilum</i> in Ontario; characterization of strains and antimicrobial resistance	4
9:00	Virginia Harper	Detection Of Flavobacteria On Gills And Skin Of Salmonids by PCR And DGGE	5
9:15	Roselynn Stevenson	Application Of DGGE Techniques As A Potential Approach To Non-Lethal Testing For Fish Pathogens	6
9:30	Indervesh	Signature-Tagged Mutants For Studies Of Pathogenic Mechanisms Of <i>Yersinia ruckeri</i> In Rainbow Trout	7
9:45	Greg Wiens	Estimation Of The Genome Size Of <i>Renibacterium salmoninarum</i> ATCC 33209 By Pulsed-Field Gel Electrophoresis	8
10:00	Morning Break	<i>Coffee, tea</i>	

Emerging Disease Concerns in Canadian Fisheries - David Groman, moderator

10:30	Dave Groman	An Introduction To Canadian Aquaculture	9
10:45	Jan Lovy	The Current Status Of <i>Loma salmonae</i> , Disease And Control In Farm-raised Chinook Salmon, <i>Oncorhynchus tshawytscha</i>	10
11:00	Daryl Whelan	Emerging Infectious Diseases of Atlantic Cod (<i>Gadus morhua</i>), Haddock (<i>Melanogrammus aeglefinus</i>) And Halibut (<i>Hippoglossus hippoglossus</i>)	11
11:15	Michael Beattie	Multiple Drug Resistance In <i>Aeromonas salmonicida</i> Infected Salmon Fry And An Update On Infectious Salmon Anemia In The Bay Of Fundy Region, Atlantic Canada	12
11:30	Molly Kibenge	Identification of a new HPR group of infectious salmon anemia virus in New Brunswick: What does it mean?	13
11:45	Rod Penney	Current Status Of Canada's National Aquatic Animal Health Program (NAAHP)	14
12:00	Lunch	<i>House salad, vegetable lasagna, vegetables, rolls, coffe, ice tea</i>	
1:00	Frank Panek Bill Palmisano	Welcome To The 30 th EFHW	
1:10	Jill Rolland	The National Aquatic Animal Health Plan: Briefing And Update	15

Health Of Native And Introduced Oysters In Chesapeake Bay - Gene Burreson, moderator

1:30	Eugene Burreson	The Proposed Use Of The Non-Native Oyster <i>Crassostrea ariakensis</i> In Chesapeake Bay	16
1:45	Kimberly S. Reece	Detection And Identification Of Oyster Herpes Viruses (OsHV) And <i>Perkinsus</i> Species From Oysters In Asia: Relevance To Chesapeake Bay	17
2:00	Ryan Carnegie	Epizootiology Of <i>Bonamia</i> sp. In Non-Native Oysters, <i>Crassostrea ariakensis</i> , In North Carolina, And Implications For Aquaculture	18
2:15	Corinne Audemard	Salinity Effects On The Persistence Of <i>Bonamia</i> sp. In <i>Crassostrea ariakensis</i>	19
2:30	Ryan Carnegie	Polydora-Associated Shell Disease: Recent Distribution In Native And Non-Native Oysters, And Implications For A <i>Crassostrea ariakensis</i> Introduction	20
2:45	Eugene Burreson	Recent Trends In Distribution And Abundance Of <i>Haplosporidium nelsoni</i> (MSX) And <i>Perkinsus marinus</i> (Dermo) In Native Oysters In Chesapeake Bay	21

3:00 **Afternoon Break** *Coffee, tea, sodas*

Coral Reef Health - DeEtta Mills, moderator

3:30	DeEtta Mills	Coral Diseases: An Overview And Update On Black Band Disease In The Bahamas And The Florida Keys	22
3:45	Geoffrey Cook	Comparison Of Bacterial Communities Between Geographically Separated Corals Infected With White Plague Type II	23
4:00	Kathryn Sutherland	Prevalence And Potential Origin Of The Acroporid Serratiosis Pathogen In The Florida Keys	24
4:15	Garriet Smith	The Role Of <i>Vibrio</i> spp. In Coral Disease: From Normal Microbiota To Pathogens	25
4:30	Elizabeth Remily	Use Of Fluorescence <i>In Situ</i> Hybridization For Identification Of <i>Aurantimonas coralicida</i> In Environmental Samples	26
4:45	John Lisle	Coral Mucous And Indigenous Bacteria: A Possible First-Line Defense Against Coral Disease Pathogens	27
5:00	Andrew Routh	Customs-Confiscated Corals: Gift-horses Requiring Oral Examination	28
5:15	Kathy Price	Preparation Of Coral Tissue For Histological Examination: A Primer On Fixation And Decalcification	29
5:30	Adjourn		
6:30	Leetown Barbecue	<i>Fried chicken and ribs with the "fixins"</i>	

Wednesday, June 15

7:00 **Breakfast** *Fresh fruit cocktail, wester style eggs, sausage, French toast, home fries, assorted bakery items, coffee, tea, and milk*

Control And Treatment Of Parasitic Infestations - Drew Mitchell, moderator

8:00	Drew Mitchell	The Control Of Fish Parasites And The Eradication Of Asian Tapeworm Infections In Grass Carp Using Praziquantel Bath Treatments	30
8:15	Michael Pietrak	Sea Lice Control In The Maine Aquaculture Industry	31
8:30	Ed Noga	The Role Of Antimicrobial Polypeptides In Resistance To Parasitic	32

Diseases Of Fish

8:45	Linda Pote	Further Elucidation Of The Life Cycle And Pathology Of The Digenetic Trematode, <i>Bolbophorus damnificus</i>	33
9:00	Al Camus	Evaluation Of Copper Sulfate To Control Snail Numbers In Catfish Ponds Affected By <i>Bolbophorus</i> Trematodes	34
9:15	Michael Boogaard	Integrated Control Program For The Sea Lamprey, <i>Petromyzon marinus</i> , Macroparasite Of The Great Lakes	35
9:30	Susan Marcquenski	Control Measures For <i>Heterosporis</i> Species	36
9:45	Walter Burak	Some Effects Of <i>Philometra saltatrix</i> On Bluefish Ovaries	37
10:00	Morning Break	<i>Coffee, tea</i>	

Diagnostic Case Reports: Part 1 - Paul Bowser and Mohamed Faisal, moderators

10:30	Cynthia Stine	Gross Observations From A Chesapeake Bay Fish Survey	38
10:40	Stephanie Grimmett	Spinal Deformity In Triploid Grass Carp <i>Ctenopharyngodon idella</i>	39
10:50	Lester Khoo	Deaths Associated With Vascular Pathology In Hybrid Striped Bass	40
11:00	Mohamed Faisal	Widespread Deformities In An Inland Yellow Perch Population In Michigan	41
11:10	Sal Frasca	An Extreme Example Of Common Seahorse Diseases	42
11:20	Paul Bowser	Pathology Associated With Large Cavernous Lesions In Chinook Salmon From Lake Ontario	43
11:30	Gregory A. Wooster	A Case Of Mistaken Sexual Identity And Function: Pitfalls Of Methyl-Testosterone Sex-Reversal In Aquaculture	44
11:40	Thomas Loch	Mass Mortalities In The Brook Stickleback (<i>Culaea inconstans</i>) Exhibiting Abnormal Abdominal Tumors	45
11:50	Ana Baya	Life Is Never Dull At College Park	46
12:00	Lunch	<i>House salad, chicken marsala, potatoes, vegetables, rolls, coffee, tea</i>	

General Session 2 - Phil McAllister, moderator

1:00	Sndrew Sutherland	Effects Of Elevated Suspended Sediment On Stress, Growth And Gill Condition Of The Spottfin Chub And The Whitetail Shiner	47
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1:15	Emmenegger, Evi	Infectious Hematopoietic Necrosis Virus In Atlantic Salmon Seapens In British Columbia Lanie Bilodeau	48
1:30	Phil McAllister	Virulence, Monoclonal Epitope, And Genome Analyses: A Conjoined Assessment Of Infectious Pancreatic Necrosis Virus Isolates Endemic And Exotic To The Great Lakes Basin	49
1:45	Vanessa Kirsipuu	Largemouth Bass Virus In New York State: An Update	50
2:00	Jeff Terhune	First Report Of Koi Herpesvirus In Wild Common Carp In The Western Hemisphere	51
2:15	Andrew Goodwin	Diagnosis Of Goldfish Hematopoietic Necrosis (<i>Cyprinid Herpesvirus 2</i>) By Quantitative PCR	52
2:30	Igor Shchelkunov	Spring Viremia Of Carp Virus In Rainbow Trout: Possible But Uncommon	53
2:45	Raghu Shivappa	<i>In Vitro</i> Sensitivity And Specificity Analysis Of Spring Viremia Of Carp Virus Diagnostic Tests	54
3:00	Afternoon Break	<i>Coffee, tea, sodas</i>	

Diagnostic Case Reports: Part 2 - Paul Bowser and Mohamed Faisal, moderators

3:30	Jo Sadler	Cutaneous Infection Of Channel Catfish By Microscopic Nematodes	55
3:40	Thomas Loch	Widespread Skin Ulcerations In The Yellow Perch Population Of Lake St. Claire	56
3:50	Paul Bowser	A Moribund Lake Sturgeon From The Niagara River, New York	57
4:00	Stephanie Grimmett	A Fish Kill Of Common Carp In New York State And An Unusual Koi Herpesvirus	58
4:10	Sal Frasca	Encounters With Fungi In Sygnathid Fish	59
4:20	Alaa Eissa	Furunculosis In The Sea Lamprey (<i>Petromyzon marinus</i>) In Lake Ontario	60
4:30	Al Dove	Lesions Caused By <i>Pomphorhynchus</i> spp. (Acanthocephala) In Bluefish And Striped Bass	61
4:40	Scott Fitzgerald	An Outbreak Of Phaeohyphomycosis In Hatchery-Reared Chinook Salmon Fingerlings	62
4:50	Jeffrey Wolf	Livid Lesions In Lumpfish (<i>Cyclopterus lumpus</i>) Associated With A Fungus <i>Exophiala pisciphila</i>	63
5:00	Julie Bebak-Williams	Coldwater Disease Outbreak At A West Virginia Rainbow Trout (<i>Oncorhynchus mykiss</i>) Farm: An Unusual Presentation	64

5:10 Christine Densmore Probable Branchiomycosis Among A Captive Population Of Horseshoe Crabs , *Limulus polyphemus*, From Delaware Bay 65

5:20 **Adjourn**

Antietam National Battlefield Tour

5:30 Car pool departs from the front door of the Clarion Inn at 5:30 sharp
9:00 Approximate end of tour, car pool returns to hotel

Thursday, June 16

7:00 **Breakfast** *Fresh fruit cocktail, scrambled eggs, ham, pancakes, home fries, assorted bakery items, coffee, tea, and milk*

General Session 3 - Chris Ottinger, moderator

8:00 Stephen Kaattari The Role Of The Anterior Kidney In Generating Long-Term Immunity 66

8:15 Ilsa Kaattari Development Of *In Vitro* Methods To Determine Antibody Gene Specificity In Salmonids 67

8:30 Jianmin Ye Unique Mechanisms Employed By Fish To Generate Antibody Functionality 68

8:45 Erin Bromage Unique Difficulties In The Development Of Serological Reagents For Striped Bass Antibody Responses 69

9:00 Don Evans Mechanisms Of Antibacterial Resistance By Nonspecific Cytotoxic Cells 70

9:15 Liliana Jaso-Friedmann Effector Molecules Of Cell Mediated Cytotoxicity In Catfish And Tilapia NCC 71

9:30 Don Ourth Mannose-Binding Lectin Of Channel And Blue Catfish 72

9:45 Spencer Russell Plasma Proteomic Analysis Of The Acute Phase Response Of Rainbow Trout To Intraperitoneal Inflammation And LPS Injection 73

10:00 **Morning Break** *Coffee, tea*

Managing Health And Disease In Commercial Aquaria - Jill Arnold

10:30 Catherine Hadfield Cross-matching Of Elasmobranch And A Transfusion Trial Within Atlantic Stingrays (*Dasyatis sabina*) 74

10:45	Scott Weber	Reproductive Problems, Diagnoses And Treatments In Teleosts	75
11:00	Mohammad Alavi	Ecology Of The Fish Pathogen <i>Mycobacterium marinum</i>	76
11:15	Andrew Kane	Mycobacteriosis In Wild-Caught, Laboratory-Maintained Menhaden: A Case Study	77
11:30	Andy Aiken	Removal Of Chloramines From The Source Water At The National Aquarium - Baltimore	78
11:45	Brent Whitaker	Disaster Planning For Aquatic Animal Facilities	79
12:00	Lunch	<i>Trio plate of shrimp salad, tuna salad, and chicken salad on bed of greens garnished with sweet bread and cottage cheese, rolls, coffee, tea</i>	

General Session 4 – Stephen Smith , moderator

1:00	Patricia Barbash	Cooperative Investigations Of Suspect Disease Cases In Atlantic Sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>)	80
1:15	Rocco Cipriano	Assessing Susceptibility Of Atlantic Sturgeon (<i>Acipenser oxyrinchus</i>) To <i>Aeromonas salmonicida</i> , Cause Of Furunculosis	81
1:30	Karrie Young	Pathogen Binding Proteins In Plasma Of Salmonid Fish	82
1:45	Ahmed Darwish	Laboratory Efficacy Of Amoxicillin For The Control Of <i>Streptococcus iniae</i> Infection In Blue Tilapia	83
2:00	Gregory Broussard	Development Of A Tuberculosis Model Using The Small Fish Medaka (<i>Oryzias latipes</i>) And <i>Mycobacterium marinum</i>	84
2:15	Andrew Draghi	Localization By <i>In Situ</i> Hybridization Of A Chlamydia-Like 16S Ribosomal RNA Gene Sequence Within Branchial Epithelial Cells Of Cultured Arctic Char (<i>Salvelinus alpinus</i>) With Epitheliocystis	85
2:30	Xiguang Zhao	Quantitation Of Immobilization Antigen-Specific Antibody Secreting Cells In The Skin And Head Kidney Of <i>Ichthyophthirius multifiliis</i> Immune Channel Catfish Using ELISPOT Assay	86
2:45	Luke Iwanowicz	Intersex In Smallmouth Bass From The South Branch Of The Potomac River: Implications Of Endocrine Disruption	87
3:00	Afternoon Break	<i>Coffee, tea, sodas</i>	

General Session 5 - Alistair Dove, moderator

3:30	Clifford Starliper	Bacteriological Studies On Freshwater Mussels: The Flora Present In Free-Ranging Animals And Pathogen Depuration By Two Species, <i>Ambelma plicata</i> And <i>Fusconaia ebena</i>	88
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3:45	Amanda Tribble	Roles Of Astaxanthin In The Pathobiology Of Lobsters, <i>Homarus americanus</i>	89
4:00	Ann Zulkosky	Toxicopathology Of Resmethrin In Larval And Juvenile American Lobsters (<i>Homarus americanus</i>)	90
4:15	Stephen Smith	Laboratory Culture And Health Care Of The Horseshoe Crab (<i>Limulus polyphemus</i>)	91
4:30	Earl J. Lewis	Histological Techniques For Marine Bivalve Mollusks And Crustaceans	92
4:45	Cathy Czerwinski	Plasma Cortisol In White Perch <i>Morone americana</i> : Associations With Sampling Method, Dissolved Oxygen, And Water Temperature	93
5:00	Adjourn		
7:00	Banquet and Bar	Two complimentary cocktails, <i>California green salad, Caesar salad, rotisserie style chicken, chef's hoice of vegetarian dish, carved roast top round of beef, vegetables, potatoes, rolls, coffee, tea pies, cake, mousse and fresh fruit</i>	
8:30	Presentation of Best Student Paper Award Dance and Cash Bar		
11:30	Adjourn		

Friday, June 17

For Registrants Of The Spring Viremia Of Carp Continuing Education Course Only

7:00	Breakfast	<i>Fresh fruit cocktail, western style eggs, bacon, French toast, home fries, assorted bakery items, coffee, tea, and milk</i>	
8:00	<u>Spring Viremia of Carp Continuing Education Course – Andy Goodwin</u>		

Presentors:

Andy Goodwin, University of Arkansas at Pine Bluff, An overview of SVCV in the United States and an introduction to some of the important questions without answers

Barry Hill, CEFAS, Weymouth, UK, Impacts, control and regulation of SVCV in wild and cultured fish in western Europe with a history of SVCV strains from China

Igor Shchelkunov, Russia, Impacts, regulation and control of SVCV on wild and cultured fish in Eastern Europe

David Stone, CEFAS, Weymouth, UK, Molecular biology and taxonomy of SVCV: relationships between SVCV (European and Asian), PFRV, and other similar rhabdoviruses

Andy Goodwin, University of Arkansas at Pine Bluff. Diagnosis of SVCV. PCR and serological tests. What they tell us and what they don't

Sue Marcquenski, Wisconsin, DNR SVCV and the wild fish of Wisconsin

Robert Bakal, USFWS, Warm Springs, GA, SVCV and the wild fish of North Carolina and Virginia

Jill Rolland, APHIS, The current and future regulation of SVCV in the United States

10:00	Morning Break	<i>coffee, tea</i>
12:00	Lunch	<i>House salad and dressing, char-grilled beef kabob served with rice pilaf, rolls, coffee, tea</i>
2:30	Afternoon Break	<i>Coffee, tea, sodas</i>
4:00	Adjourn	

Editorial Note

Once again, the staff of the National Fish Health Research Laboratory welcomes you to the 30th Annual Eastern Fish Health Workshop here at the Clarion Inn and Conference Center, Shepherdstown, West Virginia. Once again, we are happy to extend our hospitality to you in this beautiful facility. Once again, we are happy to convene this workshop in service to the scientific community and in friendship to each of you, who have joined us this year.

It has now been thirty years since a small group of federal researchers gathered on the Eastern Shore of Maryland to share their research, discuss problems, 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 Marine Fisheries Service 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. The early workshops were a focal point that fostered interactions between the two facilities and provided staff members with opportunities to plan and conduct collaborative studies. Within a few short 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.

Today, thirty years later, the workshop continues to thrive. It has witnessed the evolution of a profession and it has witnessed the comings and goings of so many individuals who have been vital to its success. The workshop prospers because it has evolved to provide a valuable scientific forum presented in an atmosphere of friendship. It has evolved from fish and shellfish to a broad participation in all aspects of aquatic animal health. Yet, the workshop remains true to its roots and encourages contributions from researchers, resource managers, biologists, aquarists, veterinarians, university personnel, and students working within both marine and freshwater environments. 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 continues to be an entity unto itself. Today, just like thirty years ago, the National Fish Health Research Laboratory is extremely proud to celebrate another chapter in the history of this workshop as we gather to celebrate its 30th Anniversary. We hope that you enjoy the proceedings, the friendship, and the beauty of the local surroundings. Should the past be prologue to the future, we anticipate many more such gatherings.

Rocco C. Cipriano