

Program of the:

**32nd Annual
Eastern Fish Health Workshop**

**18 – 22 June, 2007
Eisenhower Inn and Conference Center
Gettysburg, Pennsylvania**

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



Monday , June 18

5:00 – 8:30 pm **Registration And Reception**
Lee/McClellan/Grant Salons

Hors d'oeuvres and Cash Bar

8:00 Welcome to the 32nd Annual Eastern Fish Health Workshop

8:30 Unusual Diagnostic Experiences, chaired by Andy Noyes and Mark Matsche

Longstreet Salon

8:30	Jones	Esocid Lymphosarcoma In Lake Champlain	1
8:40	Bowser	The Case Of A Worm In A Bottle	2
8:50	Lumsden	'Bloat' - The Most Abused Term In Fish Health?	3
9:00	Dove	Not Your Average Patient: Whale Shark Medicine 101	4
9:10	Groman	Unusual Myocardial Pathology Of Farm Reared Atlantic Halibut (<i>Hippoglossus hippoglossus</i>)	5
9:20	Wolf	A Walk on the Wild Side: Selective Histopathologic Findings From Endocrine Disruption Studies	6
9:30	Warg	An Epizootic Of Cyprinid Herpesvirus 2 (Goldfish Herpesvirus) In A Goldfish-Koi Production Farm	7
9:40	Walker	Right Treatment; Wrong Results	8
9:50	Knight	Pigmented Tumors In Gizzard Shad From The Black Warrior River, Alabama	9
10:00	Durborow	Online Fish Diseases Course At Kentucky State University	10
10:20	Bakal	Current Status Of The U.S. National Aquatic Animal Health Plan	11
10:40	Adjourn		

Tuesday, June 19

7:00 **Breakfast** **Lee/McClellan/Grant Salons**
*Assorted fruit, chilled juice, country scrambled eggs, bacon, fruit crepes, pancakes with syrup,
assorted biscuits and muffins, cold cereals, coffee, tea, and milk.*

Proceedings Sheridan/Longstreet Salons

Emerging Disease Problems in Crustaceans, chaired by Jeff Shields

8:00	Shields	Comparison Of The Biology Of <i>Hematodinium</i> Infections In Blue Crabs (<i>Callinectes sapidus</i>) And Snow Crabs (<i>Chionoecetes opilio</i>)	12
8:15	Ratzlaff	Characterization Of <i>Panulirus argus</i> Virus 1 From The Caribbean Spiny Lobster	13
8:30	Li	Primary Culture Of Hemocytes From The Caribbean Spiny Lobster, <i>Panulirus argus</i> And Their Susceptibility To <i>Panulirus argus</i> Virus 1 (PaV1)	14
8:45	Messick	Ailments In Captive Crabs	15
9:00	Kiryu	Parasites And Diseases Of The Blue Crab <i>Callinectes sapidus</i> From Tampa Bay, Florida	16
9:15	Schott	Aspects Of The Molecular Biology Of <i>Hematodinium</i> sp.	17
9:30	Burge	Shrimp Hemocyte Immunity: Peroxinectin Expression In Response To <i>Vibrio</i> Infection	18

9:45	Chistoserdov	The Role Of Microorganisms In Development Of Epizootic Shell Disease In The American Lobster	19
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10:00 **Morning Break** *Coffee, tea*

General Session 1 - Gretchen Messick, moderator

10:30	Sharp	Effects Of Lipopolysaccharide On Total Hemocyte Counts Of The Blue Crab, <i>Callinectes sapidus</i>	20
10:45	McLaughlin	An Overview Of Clam Health In The Chesapeake Bay	21
11:00	Xu	Antimicrobial Peptides From The Suppression Subtractive Hybridization cDNA Library Of Zebra Mussel (<i>Dreissena polymorpha</i>) Byssus Glands	22
11:15	Winters	Identification Of Microbial Communities Associated With The Zebra Mussel (<i>Dreissena polymorpha</i>)	23
11:30	Knight	Health Evaluations Of Impinged Fishes At Steam Generating Power Plants	24
11:45	Bebak	Strategies For Field Sampling When Large Sample Sizes Are Required	25

12:00 **Lunch** **Lee/McClellan/Grant Salons**
Open faced turkey sandwich, green beans almandine, rolls, butter, carrot cake, coffee, tea, and iced tea.

DNA, RNA, Protein Technologies: Not just for CSI; Fish can use them too, chaired by Laura Brown

1:00	Brown	Genomics And Proteomics: What Do These Add To Fish Health Research?	26
1:15	Rise	Genomic Approaches For Studies Of Fish Responses To Pathogens And Pollutants	27
1:30	Gomez-Chiarri	Application Of Genomics To Study Host-Pathogen Interactions In Oysters	28
1:45	Fast	Real-Time Immunology: Analysis Of Gene Expression To Determine Fish Health	29
2:00	Nash	DNA Microarrays To Study Bacterial Pathogenesis In Fish Health Research	30
2:15	Dacaynay	Metabolomics; Continuing Post-Genomics refinement	31
2:30	Robertson	Expression of Antimicrobial Peptide Genes (Hepcidin 1 And 2) In Largemouth And Smallmouth Bass	32
2:45	Discussion		
3:00	Afternoon Break	<i>Coffee, tea, sodas</i>	

General Session 2 - Stephen Smith, moderator

3:30	Russell	Immunohistochemical Localization Of Two Putative Defense Lectins, Rainbow Trout Ladderlectin And Intellectin In Diseased Rainbow Trout (<i>Oncorhynchus mykiss</i>) Tissue	33
3:45	Jaso-Friedmann	Analysis Of A Novel And Phylogenetically Conserved Pattern Recognition Receptor (PRR)	34
4:00	Connor	A Novel Pattern Recognition Receptor On Nonspecific Cytotoxic Cells Has Bimodal Functions Of Membrane Expression And Bactericidal Activity	35
4:15	Machen	Immune Response Of Hybrid Striped Bass (<i>Morone saxatilis x M. chrysops</i>) To A Commercial Vibrio Vaccine	36
4:30	Kane Salierno	Girlie Boyz: Low-Level Endocrine Disruption In Fatheads	37
4:45	Lupica	Assessment Of Environmental Nitrate Stress Effects In Fishes	38

5:00 **Adjourn**

6:30 **Country Cookout Reception and Dinner with the 2nd South Carolina String Band**

Lee/McClellan/Grant Rooms

6:30 Reception with Cash Bar

7:30 Dinner

Steamship round of beef, fried chicken, barbecued country pork ribs, chili and crackers, baked potatoes, cole slaw, ambrosia, corn on the cob, corn bread and biscuits, butter and honey, dessert table, coffee, tea, and iced tea.

Music of the 2nd South Carolina

Wednesday, June 20

7:00 **Breakfast** **Lee/McClellan/Grant Salons**

Assorted fruit, chilled juice, Western scrambled eggs, bacon, sausage links, French toast with syrup,, assorted biscuits and muffins, cold cereals, coffee, tea, and milk

Proceedings

Sheridan/Longstreet Salons

Diving Deeper: The pursuit of truth in aquarium medicine, chaired by Charlie Innis

8:00	Nyaoke	Advances In Our Understanding Of Phaeohyphomycosis	39
8:15	Frasca	Histopathologic Interpretation Of Lesions In Cephalopods	40
8:30	Weber	Microbiology Testing For Aquatic Systems: Findings And Potential Implications	41
8:45	Gargan	Phagocytosis In Nurse Shark (<i>Ginglymostoma cirratum</i>) Peripheral Blood Leukocytes	42
9:00	Corwin	Head And Lateral Line Erosion Syndrome (HLLES) In Ocean Surgeonfish, (<i>Acanthurus bahianus</i>), Current Efforts To Determine Etiologies	43
9:15	Hadfield	Gas Supersaturation In A Large Artificial Reef Exhibit: An Unusual Presentation And Resolution	44
9:30	LePage	Retrospective Summary Of Diseases Affecting Captive Seahorses At The Toronto Zoo	45
9:45	Poll	Surgical Treatment Of Lymphoma In A California Moray Eel, <i>Gymnothorax mordax</i>	46
10:00	Morning Break	<i>Coffee, tea</i>	

The cutting edge of cutting fish: surgery and anesthesia, chaired by Greg Lewbart

10:30	Lewbart	Fish Sutures: Tying Things Together	47
10:45	Roberts	To Cut Is To Cure: Surgical Cases In Fish Medicine	48
11:00	Bakal	Endoscopic Sex Determination And Sterilization Of Gulf Sturgeon (<i>Acipenser oxyrinchus Desotoi</i>)	49
11:15	Innis	Ophthalmic Surgical Procedures In Public Aquarium Fishes	50

11:30	Klide	Anesthesia Of Fish: I Don't Want To Make The Wrong Mistake (Yogi Berra)	51
11:45	Clauss	Comprehensive Wound Care Management In A Cownose Ray (<i>Rhinoptera bonasus</i>) And A Blue Catfish (<i>Ictalurus furcatus</i>)	52
12:00	Lunch	Lee/McClellan/Grant Rooms <i>Sautéed beef tips with blended rice, honey glazed carrots, sherbet, coffee, tea, and iced tea.</i>	

General Session 3 - Renate Reimschuessel, moderator

1:00	Quinn	Comparison Of Lethal And Non-Lethal Sampling Techniques For The Detection Of <i>Aeromonas salmonicida</i> And Other Fish Pathogens In Populations Of Ontario Salmonids	53
1:15	Smith, S.	Efficacy Of Common Disinfectant Against <i>Aeromonas</i> spp. And <i>Edwardsiella</i> spp.	54
1:30	Wooster	Florfenicol Uptake And Depletion In Tilapia (<i>Oreochromis niloticus</i>) Of Various Sizes	55
1:45	Darwish	Minimum Inhibitory Concentration Testing Of <i>Flavobacterium columnare</i>	56
2:00	Welch	Sequence Analysis Of The <i>Yersinia ruckeri</i> Multidrug Resistance Plasmid pYR1	57
2:15	Nolan	Pharmacokinetics Of Oxytetracycline In The Horseshoe Crab	58
2:30	Yanong	Use Of 17-alpha-methyltestosterone For Masculinization Of Ornamental Fish	59
2:45	Kilgore	Preliminary Investigations Into The Use Of Metomidate Hydrochloride (Aquacalm [®]) In Ornamental Cichlids	60
3:00	Afternoon Break	<i>Coffee, tea, sodas</i>	

General Session 4 - Al Camus, moderator

3:30	Cassidy-Hanley	Gene Discovery In <i>Ichthyophthirius multifiliis</i> : A Complementary DNA Resource	61
3:45	Quinnell	Cormorants As Mechanical Vectors Of <i>Heterosporis</i> sp.	62
4:00	Smolowitz	Renal Trematodiasis Of Largemouth Bass And Development Of PCR Methods	63
4:15	Dill	Biology And Management Of A Monogenean Trematode (<i>Acolpenteron ureterocetes</i>) Infecting Largemouth Bass (<i>Micropterus salmoides</i>)	64
4:30	Schulz	Prevalence And Impact Of Leeches Parasitizing Fish Of Lake St. Clair, Michigan	65
4:45	Discussion		
5:00	Adjourn		
	Dinner on your own		
5:30	Gettysburg National Historic Battlefield Tour		

Thursday, June 21

7:00	Breakfast	Lee/McClellan/Grant Salons <i>Assorted fruit, chilled juice, country scrambled eggs, bacon, sausage links, pancakes with syrup, assorted biscuits and muffins, cold cereals, coffee, tea, and milk.</i>	
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Proceedings **Sheridan/Longstreet Salons**

Unraveling Complexities of Coral Pathogens and the Etiology of Coral Diseases, chaired by Laurie Richardson

8:00	Richardson	Toxin Production And Virulence Factors In A Polymicrobial Disease Of Corals	66
8:15	Gantar	Antibacterial activity of cyanobacteria associated with black band disease	67
8:30	Polson	Comparison of Collection Methodology, Location, Coral Species, and Health Status on Acroporid Coral Microbial Community Composition	68
8:45	Smith, G.	Defense Mechanisms In Gorgonians Against Infections By <i>Aspergillus sydowii</i>	69
9:00	Peters	Histology Of White Plague-Diseased Corals	70
9:15	Cook	Large-Scale Geographical Comparisons Of Bacterial Communities Associated With Corals Exhibiting Signs Consistent With White Plague Type II	71
9:30	Beauchamp	Molecular Genetic Screening For Putative Antimicrobial Genes In Anthozoans: A Possible First-Line Defense Against Coral Disease Pathogen	72
9:45	Discussion		
10:00	Morning Break	<i>Coffee, tea</i>	

General Session 5 – Paul Bowser, moderator

10:30	Heami	Correlation Between API-ZYM And 16S rRNA-RFLP Profiles Of Ontario <i>Flavobacterium psychrophilum</i> Isolates	73
10:45	Yazdanpanah	Cold-Inducible Proteins Of <i>Flavobacterium psychrophilum</i> , The Cause Of Coldwater Disease	74
11:00	Good	A Prospective Case-Control Study Of Bacterial Gill Disease Outbreaks In Ontario, Canada Government Salmonid Hatcheries	75
11:15	Lowry	Unique Mycobacterial Resistance And Clearance In Channel Catfish (<i>Ictalurus punctatus</i>)	76
11:30	Williams	DNA Fingerprinting of <i>Edwardsiella ictaluri</i> Using Pulsed Field Gel Electrophoresis And Repetitive Sequence-PCR	77
11:45	Loch	Pseudokidney Disease In Captive Salmonine Broodstocks	78
12:00	Lunch	Lee/McClellan/Grant Salons <i>Lasagna with garlic bread. Red velvet cake, coffee, tea, and iced tea.</i>	

General Session 6 - John Lumsden, moderator

1:00	Yeh	Molecular Cloning, Expression And Genome Organization Of Channel Catfish (<i>Ictalurus punctatus</i>) Matrix Metalloproteinase-9	79
1:15	Al-Hussinee	Viral Hemorrhagic Septicemia Virus (VHSV) Type IV'b' Experimental Infection In Ontario Rainbow Trout	80
1:30	Groocock	Viral Hemorrhagic Septicemia In New York State	81
1:45	Faisal	Emergence And Spread Of VHSV In Michigan	82
2:00	Merrill	Federal Regulatory Issues Regarding Viral Hemorrhagic Septicemia (VHS)	83
2:15	Kibenge	Molecular Correlates Of Infectious Salmon Anemia Virus Virulence	84
2:30	Groman	Diagnostic Methodologies For Detection of Beta-nodavirus Infections Of Atlantic Cod (<i>Gadus morhua</i>)	85

2:45 Densmore Tadpole Edema Virus: Comparative Susceptibility Among Early Life Stages of the Fowler's Toad (*Bufo fowleri*) 86

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

Putting It All Together: A Manager's Perspective On Aquatic Animal Health, chaired by Frank Panek

3:30 Panek Pathogens Associated With Native And Exotic Trout Populations In Shenandoah National Park And The Relationships To Fish Stocking Practices 87

3:45 Wiggins Perspectives for Trout Management and Fish Health in the Batten Kill 88

4:00 Reeser CSI Shenandoah: The Importance Of Understanding Fish Health In A Riverine Fish Kill Investigation 89

4:15 Jacobs Bio-Indicators Of Estuarine Health: A Multi-Variate Approach Linking Source To Resource 90

4:30 Cipriano Evaluating Population Health Of Endangered Fishes By Non-lethal Analysis Of Microbial Diversity 91

4:45 Discussion

5:00 **Adjourn**

6:30 **32nd Annual EFHW Reception and Banquet**
Sheridan/Lee/McClellan/Grant Rooms

6:30 Cocktail reception (cash Bar)

7:00 *Sliced roast beef with mushroom sauce, oven baked chicken, sliced baked sugar cured ham, sliced roast turkey breast, pasta primavera, tossed salad, fruit salad, pasta salad, vegetable medley, parsley buttered potatoes, assorted pies, cakes and puddings, coffee, tea, and iced tea*

8:00 **Presentation of the Best Student Paper Award**
Banquet Dance (Cash Bar)

11:30 **Adjourn**