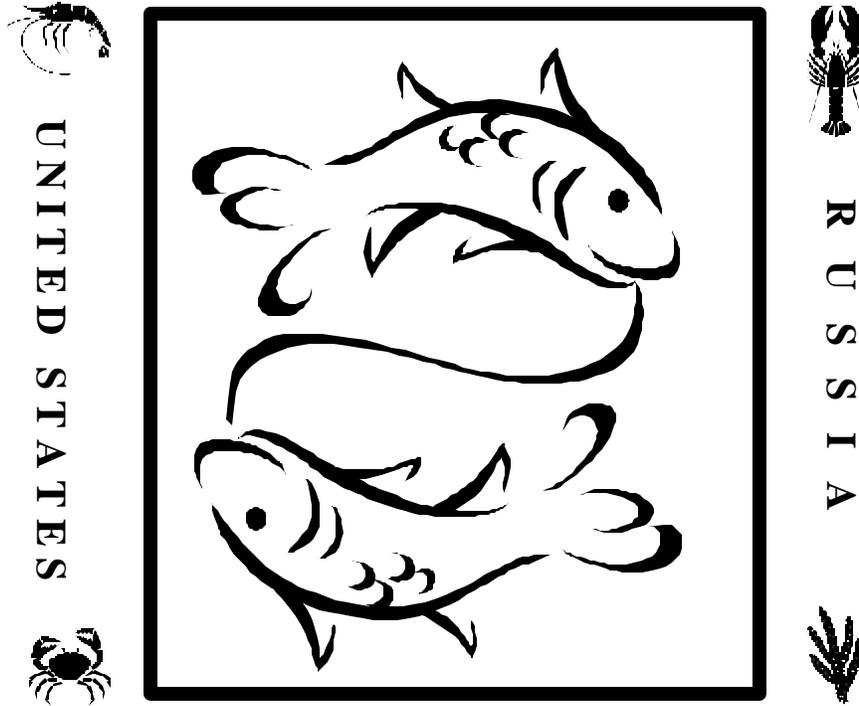


**2003 SECOND BILATERAL CONFERENCE**



**AQUATIC & MARINE ANIMAL HEALTH**

**Clarion Inn and Conference Center  
Shepherdstown, West Virginia**

**21 – 28 September 2003**



**National Fish Health Research Laboratory  
Kearneysville, West Virginia, U.S.A.**

## Foreword

Approximately 27 years ago, an agreement was initiated between the former Soviet Union and the United States of America to increase bilateral emphasis and collaboration on issues of environmental conservation and protection. In 1982, this program was amended by the addition of Project 02.05-81, which specifically concentrated in "Ichthyology and Aquaculture." The program is administered through the Russian Federation Inter-Department Ichthyological Commission, the Russian Academy of Sciences, the Ministry of Agriculture and Foodstuffs of Russia - Department of Fisheries, and the U.S. Department of the Interior. Bilateral interactions in the area of fish health/disease have been principally achieved through collaborations between the Laboratory of Ichthyopathology of the All Russian Research Institute of Freshwater Fisheries (ARRIFF; Rybnoe, Russia) and the National Fish Health Research Laboratory (NFHRL) of the Department of the Interior - United States Geological Survey (Kearneysville, WV, USA). In 1998, the first bilateral conference, *Aquaculture and Fish Health*, was hosted by the ARRIFF, Laboratory of Ichthyopathology in Rybnoe (Russia). The National Fish Health Research Laboratory is proud to reciprocate the hospitality of our Russian colleagues and host the second bilateral conference: *Aquatic and Marine Animal Health 2003* at the Clarion Inn in Shepherdstown (West Virginia).

Each of our delegates was specifically invited based on their scientific contributions to the field of marine and aquatic animal health. We are indeed honored to host this distinguished group of scientists. You will each have the opportunity to review your individual area of expertise and collectively deliberate upon issues associated with feral, commercial, and aquaculture populations of aquatic and marine animals of importance to Russia and the United States. Topics will include presentations on the epidemiology, diagnosis, control, treatment, prevention and management of pathogens, as well as environmental and toxicological parameters cultured and feral aquatic and marine animal health. Further reviews will address mitigation and restoration fisheries, endangered species, and invasive or non-indigenous species. Abstracts for the conference will be published in a proceedings book and review articles for each of the individual presentations will be published in a peer-reviewed, special-issue of *Aquaculture/Annual Review of Fish Diseases*. It is our sincere hope that the time we spend together this week will create new friendships and inspire future collaborative research efforts between our countries.

*Rocco C. Cipriano*

Department of the Interior, U.S.G.S.  
National Fish Health Research Laboratory  
American co-chairman

*Igor S. Shchelkunov*

All Russian Research Institute of Freshwater  
Fisheries - Laboratory of Ichthyopathology  
Russian co-chairman



## An Open Letter to Delegates

It is with great pleasure and pride that I welcome each of you to Leetown, West Virginia and the National Fish Health Research Laboratory. As delegates to the *Second United States and Russia Bilateral Symposium on Fish Health and the Environment* you each bring unique scientific credentials and experiences to share with colleagues from the United States and Russia. Over the course of the next week you will each have the opportunity to present the results of your investigations in various aspects of fish and aquatic animal health, to share your experiences and wisdom. But perhaps more importantly, we all have the opportunity to learn from one another and to take back to our respective institutions new insights in our approaches to fish and aquatic animal health.

It is also my hope that over the course of this conference that you will develop new friendships and professional relationships that will continue well beyond the short time that we have together here in West Virginia. It is the development of professional associations and our collective abilities to collaborate on future fish and aquatic animal health issues and research that will be the lasting testament to the success of this conference. This is the driving force behind our long-standing relationship with the Laboratory of Ichthyopathology of the All Russian Research Institute of Freshwater Fisheries (ARRIFF; Rybnoe, Russia). It is in this regard that I personally thank Dr. Alexey M. Bagrov of the All Russian Research Institute of Freshwater Fisheries and Sergey I. Nikonorov of the Interagency Ichthyological Commission (Moscow) for their support and cooperation in organizing this bilateral conference.

The conference could also not have been possible without the generous support of the Khaled Bin Sultan, Living Oceans Foundation. Serving as the principal sponsor, the Foundation provided the logistical and travel support for the delegates and will support the publication of articles from the conference in a special-issue of *Aquaculture/Annual Review of Fish Diseases*. I truly expect that the publication will become a classic example of successful international cooperation in fish and aquatic animal health research.

On behalf of the staff of the National Fish Health Research Laboratory I want to wish you success in your conference proceedings and hope that you enjoy your stay in West Virginia.

**Frank M. Panek, Ph.D.**

Scientific Director

National Fish Health Research Laboratory

**Organizing Committee:**

**Dr. Rocco C. Cipriano**, co-chairman, Senior Research Microbiologist, United States Geological Survey, National Fish Health Research Laboratory, 11700 Leetown Road, Kearneysville, WV 25430

**Dr. Igor S. Shchelkunov**, co-chairman, Senior Researcher - All Russian Research Institute of Freshwater Fisheries, Laboratory of Ichthyopathology, Rybnoe, Dmitrov Region, Moscow Oblast, 141821 Russia

**Dr. Mohamed Faisal**, Professor, Department of Pathobiology and Diagnostic Investigations, Michigan State University, College of Veterinary Medicine, A-532 East Fee, Hall, East Lansing, MI 48824

**Dr. Frank M. Panek**, Scientific Director - United States Geological Survey, National Fish Health Research Laboratory, 11700 Leetown Road, Kearneysville, WV 25430

**Sergey I. Nikonorov**, Deputy Executive Director, Interagency Ichthyological Commission, Ulitsa Tverskaya 27, Moscow, 125009, Russia

**Acknowledgments:**



The members of the organizing committee, as well as the conference delegates, are especially grateful to the Khaled Bin Sultan Living Oceans for serving as the principal financial sponsor of this conference. We are also grateful to the United States Fish and Wildlife Service Office of International Affairs for funding the airfare travel of some of the Russian delegates. This conference would not have been possible without the profound financial sponsorship of these two organizations. We deeply appreciate the administrative assistance of Dr. Mohamed Faisal (Director) and Mrs. Sharon Burrell (Administrative Assistant) of the Khaled Bin Sultan Living Oceans Foundation for their personal assistance with the travel arrangements of the conference delegates and their

contributions to the development of the scientific and social programs. We also appreciate the sustained programmatic support and guidance of Peter Ward and Stephen Kohl, who administer Project 02.05-81 "Ichthyology and Aquaculture" for the USFWS, Office of International Affairs. The committee and delegates are also grateful for the hospitality of the directors and staff at the National Aquarium in Baltimore for hosting a group social excursion to this world-class facility.

## **Conference Program:**

### **Sunday, 21 September:**

- 4:00 **Registration** Clarion Inn, Shepherdstown, WV
- 6:30 **Welcome Reception and Dinner**
- National Fish Health Research Laboratory  
Kearneysville, West Virginia
- Panek Scientific Director, National Fish Health Research Laboratory  
Leetown, WV
- Faisal Director, Living Oceans Foundation;  
Michigan State University, East Lansing, Michigan
- Shchelkunov Russian, co-chairman, Laboratory of Ichthyopathology  
All-Russian Research Institute of Freshwater Fisheries
- Cipriano American Co-Chairman  
National Fish Health Research Laboratory – Leetown, West Virginia
- Dinner** Boneless chicken breast with white wine garlic sauce, grapes and mushrooms, beef tips burgundy over noodles, mashed potatoes, honey glazed carrots, French cut waxed green beans, variety of salads, deserts, coffee, iced tea, soft drinks

### **Monday, 22 September:**

- 7:00 **Breakfast** Fresh fruit cocktail, scrambled eggs, bacon, pancakes breakfast potatoes, assorted bakery items, butter, jelly, jams, syrup, coffee, tea, milk
- 8:30 Bullock A Brief History Of The Leetown West Virginia Laboratory 1
- 9:00 Karaseva Pathologies Of Demersal Fishes In The Barents Sea And Adjacent Waters 2
- 9:30 Lartseva The Volga Delta And Northern Caspian Sea: Fishing, Fish Health 3

## Aquatic and Marine Animal Health

		And Disease	
10:00	<b><u>Break</u></b>	Coffee and Tea	
10:30	Karmanova	Health Of Pacific Salmonids Held Under Natural And Artificial Conditions Of Reproduction In Kamchatka	4
11:00	Kuznetsova	Diseases of Whitefish (Coregonidae) In The Russian North-West And North Caucasus	5
11:30	Shchelkunov	Aquaculture And Fish Diseases In Russia And Former Soviet Union: Recent History And Current Situation	6
12:00	<b><u>Lunch</u></b>	Vegetable Lasagna, house salad, starch and vegetable, rolls, butter, coffee, iced tea	
1:30	Cipriano	Atlantic Salmon Restoration In New England: Significance Of Certain Diseases	7
2:00	Ottinger	Mycobacteriosis And Chesapeake Bay Striped Bass: An Integrated Cooperative Research Program	8
2:30	Hawke	Diagnosis And Management Of Bacterial Diseases In Warmwater Aquaculture	9
3:00	<b><u>Break</u></b>	Coffee, Tea, and Iced tea	
3:30	Faisal	Health And Disease Issues Associated With Populations Of Fish In The Great Lakes	10
4:00	Meyers	Disease Transmission From Cultured Salmonids To Wild Fish Stocks: Perspectives Of The Alaskan Hatchery Program	11
4:30	Miller, O.	United States Department of Agriculture Services Related To Infectious Salmon Anemia And Spring Viremia Of Carp Aquatic Animal Health Programs	12
5:00	<b><u>Adjourn</u></b>		
7:00	<b><u>Dinner</u></b>	Clarion Inn  Breast of Chicken Kiev, spinach salad with Catalina or peppercorn ranch dressings, vegetable and starch, fruit pie coffee and tea	

### **Tuesday, 23 September:**

7:00	<b><u>Breakfast</u></b>	Fresh fruit cocktail, scrambled eggs, sausage, French toast, breakfast potatoes, assorted bakery items, butter, jelly, jams, syrup, coffee, tea, milk	
8:30	Shchelkunov	Theory And Practice Of Establishing Long-Term Cell Lines From Fish And Shellfish	13

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9:00	Bowser	Retroviral Pathogens And Tumors In Coolwater Fish – Walleye Dermal Sarcoma	14
9:30	Buchatsky	Immune Sensor Based On Surface Plasmon Resonance For Express Control Of Fish Retroviral Infections	15
10:00	<b><u>Break</u></b>	Coffee and Tea	
10:30	Borissova	Isolation Of Infectious Pancreatic Necrosis Virus From Young Atlantic Salmon ( <i>Salmo salar</i> L.) In Russia	16
11:00	Rudakova	Infectious Hematopoietic Necrosis Virus (IHNV): Repetitive Isolation From Adult Sockeye Salmon ( <i>Oncorhynchus nerka</i> ) From the River Bolshaya-Bystraya (Kamchatka)	17
11:30	Kurath	Genetic Typing Of Infectious Hematopoietic Necrosis Virus	18
12:00	<b><u>Lunch</u></b>	Char-grilled beef kabob, house salad, rice pilaf, and vegetable, rolls, butter, coffee, iced tea	
1:30	Oreshkova	Diagnosis And Specific Prevention Of Spring Viremia Of Carp	19
2:00	Pichugina	First Report Of Spring Viremia Of Carp Virus At A Fish Farm In Moscow Province, Russia	20
2:30	Golovin	Intracytoplasmic Inclusions In Erythrocytes Of Pacific Salmonids	21
3:00	<b><u>Break</u></b>	Coffee, Tea, and Iced tea	
3:30	Hoffman	Keynote Talk: A historical perspective of fish parasitology	
4:30	Faisal	The Status And Future Of Aquaculture In Senegal	
5:00		<b><u>Adjourn</u></b>	
7:00	<b><u>Dinner</u></b>	Bavarian Inn  Sauerbraten, Choice Beef Roast marinated for one week in Vinegar and Spices with Red Wine Ginger Sauce, Potato Dumpling and Red Cabbage, Apple strudel, coffee and tea, iced tea	

**Wednesday, 24 September:**

7:00	<b><u>Breakfast</u></b>	Fresh fruit cocktail, western scrambled eggs, ham, Pancakes, breakfast potatoes, assorted bakery items, butter, jelly, jams, syrup, coffee, tea, milk	
8:30	Bell	The United States Fish And Wildlife Service's National Wild Fish Health Survey: A New Tool For Fisheries Management	22
9:00	Blazer	<i>Aphanomyces invadans</i> (=A. <i>piscicida</i> ): A Widespread Problem In Wild And Cultured Fishes	23

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9:30	Abt	Marine Mammal Stranding Response: Conservation Through Cooperation	24
10:00	<b><u>Break</u></b>	Coffee and Tea	
10:30	Dunn	A Brief Review Of Some Important And Emerging Bacterial Diseases Of Pinnipeds And Cetaceans	25
11:00	Whitaker	Emerging Challenges In Public Aquaria	26
11:30	<b><u>Lunch</u></b>	Roasted turkey served with a three mushroom sauce, house salad, fresh starch, and vegetable, rolls, butter, coffee, iced tea	
1:00	<b><u>Bus Trip</u></b>	National Aquarium and Inner Harbor, Baltimore, Maryland (Dinner on your own)	
8:00		Return to the Clarion Inn, Shepherdstown, West Virginia	

### **Thursday, 25 September:**

7:00	<b><u>Breakfast</u></b>	Fresh fruit cocktail, scrambled eggs, sausage, pancakes, breakfast potatoes, assorted bakery items, butter, jelly, jams, syrup, coffee, tea, milk	
8:30	Vaschenko	DDT In Bottom Sediments And Liver Of Plaice <i>Pleuronectes pinnifasciatus</i> : The Factor Affecting Fish Health In Amur Bay (Peter The Great Bay, Sea Of Japan)	27
9:00	Fisher	Global Climmate And Large-Scale Environmental Influences On Aquatic Animal Health	28
9:30	Lukin	Tumors Of Corregonid Fishes In The River Pechora	29
10:00	<b><u>Break</u></b>	Coffee and Tea	
10:30	Vaschenko	Disturbance Of Reproduction In Bottom Invertebrates And Fish Inhabiting Polluted Coastal Waters Near Vladivostok (Amursky Bay, Sea Of Japan)	30
11:00	Syasina	Tumors In Fish From Peter The Great Bay, Sea Of Japan	31
11:30	Blazer	Endocrine Disruption in Aquatic Environments: Effects on Fish Populations	32
12:00	<b><u>Lunch</u></b>	Trio salad plate: Shrimp, chicken and tuna salads on a bed of greens, garnished with sweet breads and cottage cheese, rolls, butter, coffee, iced tea	
1:30	Karmanova	Myxosporidia And Microsporidia From Salmon On Kamchatka	33

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2:00	Densmore	Whirling Disease in the United States: A Shifting Perspective in the 21 <sup>st</sup> Century Whirling Disease	34
2:30	Badmaeva	Pathological Morphology In Kidney Tissue Of Siberian Roach ( <i>Rutilus rutilus</i> Lacustris) Infected With Myxosporidians From Lake Baikal	35
3:00	<b><u>Break</u></b>	Coffee, Tea, and Iced tea	
3:30	Lartseva	Parasites Of Fish In The Volga-Caspian Region: Organisms Pathogenic For Humans And Animals	36
4:00	Boutorina	Similarities And Differences In Fauna Of Parasites Of Chars In The Palearctic (Eurasia) And Nearctic (North America)	37
4:30	Karaseva	Health Protection Of Fish In The European North Of Waters	38
5:00	<b><u>Adjourn</u></b>		
5:30	<b><u>Dinner</u></b>	LSC/NFHRL Fishing Derby Pavilion  Barbecued Ribs and Chicken, Macaroni and cheese, scalloped potatoes, corn, selection of salads, desserts, coffee, iced tea, and soft drinks	

## **Friday, 26 September**

7:00	<b><u>Breakfast</u></b>	Fresh fruit cocktail, scrambled eggs, bacon, French toast, breakfast potatoes, assorted bakery items, butter, jelly, jams, syrup, coffee, tea, milk	
8:30	Garrison	Disease On Coral Reefs – What We Know?	39
9:00	Smith	Recent Observations On Aspergillosis Of Gorgonians	40
9:30	Lartseva	Integrated Research Into Species Of The <i>Ctenophora</i> Family: <i>Beroe ovata</i> And <i>Mnemiopsis leidyi</i>	41
10:00	<b><u>Break</u></b>	Coffee and tea	
10:30	Kern	Introduced Invasive Species: Shrimp, Shrimp Diseases, And Their Impacts On Native And Cultured Shrimp	42
11:00	Burnett	Impacts Of Hypoxia On The Resistance Of Penaeid Shrimp To Bacterial Pathogens	43
11:30	Dixon	Possible Roles For The Enzymes Produced By The Intestinal Obligate Anaerobic Microflora Isolated From Shrimp <i>Litopenaeus vannamei</i>	44
12:00	<b><u>Lunch</u></b>	Breast of chicken served with three mushroom sauce, house salad, starch and vegetable, rolls, butter, coffee, iced tea	

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1:30	Robohm	Microbial Disease And Population Status Of The American Lobster ( <i>Homarus americanus</i> )	45
2:00	Starliper	Pathogen And Disease Issues Associated With Imperiled Populations Of Freshwater Mussels	46
2:30	Guseva	Monitoring <i>Flexibacter-Flavobacterium</i> Infections In Sturgeon	47
3:00	<b><u>Break</u></b>	Coffee, Tea, and Iced tea	
3:30	Asadchaya	Bacterial Diseases Of Herbivorous Fishes In Belarus	48
4:00	Sergeenko	Characterization Of Strains Of <i>Aeromonas salmonicida</i> subsp. <i>salmonicida</i> Isolated From Salmon Spawners In Fish Hatcheries On Kamchatka	49
4:30	Brown	Molecular Mechanisms Of Host-Pathogen Interactions Between <i>Aeromonas salmonicida</i> And Atlantic Salmon, <i>Salmo salar</i>	50
5:00	<b>Adjourn</b>		
7:00	<b><u>Banquet</u></b>	<b>Clarion Inn</b>  California Green salad with peppercorn ranch or raspberry vinaigrette Dressings, Beef bourguignonne, Seafood Newburg with rice, & carved roast top round of beef. Vegetable and starch, Assortment of Pies, cakes, mousse and fresh fruit, rolls, butter, wine, coffee, tea, iced tea  <u>Special guests:</u>  Dr. Charles Groat, Director, United States Geological Survey Mr. Steven Kohl, USFWS Office of International Affairs  <u>Dance</u>	
11:30	<b><u>Adjourn</u></b>		
<b><u>Saturday, 27 September:</u></b>			
7:00	<b>Breakfast</b>	Fresh fruit cocktail, western scrambled eggs, ham, pancakes, breakfast potatoes, assorted bakery items, butter, jelly, jams, syrup, coffee, tea, milk	
9:00	Kondratieva	Immune Parameters Of Common Species Of Aquatic Animals	51
9:30	Miller, N.	Advances In Fish Immunology: Identification And Characterization Of Natural Killer-Like Cells In Channel Catfish ( <i>Ictalurus punctatus</i> )	52

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10:00	<b><u>Break</u></b>	Coffee and Tea	
10:30	Kaattari	Vaccine Design And The Analysis Of Long-Lived Plasma Cell Production And Regulation	53
11:00	Golovin	Stress In Fishes: Diagnosis And Corrective Treatment With <i>Piscin</i>	54
11:30	Suprun	Aspects Of Application Of Vitamin-Coenzyme Fungal Complex At Early Stages Of Fish Ontogenesis	55
12:00	<b><u>Lunch</u></b>	Tenderloin of beef plate garnished with horseradish cream and herb green sauce, served with grilled roasted vegetables, rolls, butter, coffee, iced tea	
1:30	Chernysh	Metabolic Processes In The Livers Of Carp Cultured In Warm Water	56
2:00	Parkhomenko	Influence Of Fodder Additions That Lower Lipogenesis On The Development And Survival Of Fish Maintained In Warm Water	57
2:30	Honeyfield	Thiamine Deficiency Complex In Fish And Aquatic Animals	58
3:00	<b><u>Adjourn</u></b>		
6:30	<b><u>Dinner</u></b>	<b>Anvil Restaurant</b>  Choice of Prime Rib au jus, Maryland Crab Cakes, or Chicken picatta House salad, Chef's choice of starch and vegetable, coffee, tea, soft drinks, Choice of Key Lime pie, Kentucky Derby pie, Snicker's pie or Cheesecake	
8:30	<b><u>Ghost Tour</u></b>	Harpers Ferry, West Virginia	

**Sunday, 28 September:**

8:00	<b><u>Breakfast</u></b>	Fresh fruit cocktail, scrambled eggs, bacon, French toast, breakfast potatoes, assorted bakery items, butter, jelly, jams, syrup, coffee, tea, milk	
10:30	<b>Optional Tour of Washington DC</b>		

**Monday, 29 September**

12:00	<b>Final Departures for Airports</b>		
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