

# AQUACULTURE 2010

## PHYSIOLOGICAL INSIGHTS TOWARDS IMPROVING FISH CULTURE II

Chair: Kurt Gamperl, B. Small, M. Rise, Curry Woods

Wednesday, March 03 08:30 - 4:30 Pacific Salon 1

### GROWTH AND NUTRITION – MODERATOR: B. SMALL

**08:30 Mark Sheridan**

PERIPHERAL REGULATION OF THE GROWTH HORMONE (GH)-INSULIN-LIKE GROWTH FACTOR-1 (IGF-1) SYSTEM IN FISH

**09:00 Beth Cleveland, Gregory Weber**

NUTRIENT AND HORMONAL REGULATION OF PROTEOLYSIS THROUGH FOXO SIGNALING PATHWAYS IN RAINBOW TROUT

**09:15 Eugene Won, Matt Picha, Christina Strom, Russell Borski**

ENDOCRINE DYNAMICS OF METABOLIC AND GROWTH-REGULATORY HORMONES DURING COMPENSATORY GROWTH IN A TELEOST MODEL, THE HYBRID STRIPED BASS

**09:30 Alejandro Buentello, Heath Gasier, Stephen Previs, Camilo Pohlenz, James Fluckey, Delbert Gatlin**

A NOVEL APPROACH FOR ASSESSING PROTEIN SYNTHESIS IN CHANNEL CATFISH *Ictalurus punctatus*

**09:45 Brian R. Beckman, J. Adam Luckenbach, David C. Metzger, Munetaka Shimizu, Jon T. Dickey**

ENDOCRINE CONTROL OF GROWTH IN COHO SALMON: VALIDATION OF A MULTIPLEX GENE EXPRESSION ASSAY AND QUANTIFICATION OF RELATIONS BETWEEN MESSENGER RNA LEVELS AND PROTEINS DURING FEEDING AND FASTING CONDITIONS

**10:00 BREAK**

**10:30 Peggy Biga, Elizabeth Braschayko, Nicholas Galt**

A NOVEL DOWNSTREAM TARGET OF MYOSTATIN AS A FOCUS FOR UNDERSTANDING THE INTERACTION BETWEEN GROWTH AND IMMUNITY: AKIRIN

**10:45 Ken Overturf**

IDENTIFICATION OF NUTRIENT FACTORS AFFECTING METABOLISM AND MUSCLE ACCRETION

**11:00 Nicholas Galt**, Ben Meyer, Peggy Biga  
THE EFFECTS OF HIGH-FAT DIETARY INTAKE ON THE MUSCLE GROWTH AXIS  
IN RAINBOW TROUT

**11:15 Barry N. Madison**, John W. Heath, Daniel D. Heath, Nicholas J. Bernier  
EFFECTS OF BREEDING STRATEGY AND EARLY-REARING ENVIRONMENT ON  
THE GROWTH PERFORMANCE AND STRESS RESPONSIVENESS OF JUVENILE  
CHINOOK SALMON *Oncorhynchus tshawytscha*

**11:30 Helene Volkoff**  
THE ENDOCRINE REGULATION OF FEEDING IN FISH MODELS: CURRENT VIEW  
AND POTENTIAL APPLICATIONS IN AQUACULTURE

**11:45 Sarah M. Tuziak**, Helene Volkoff  
UNRAVELLING THE ROLE OF MELANIN-CONCENTRATING HORMONE (MCH)  
AND GONADOTROPIN-RELEASING HORMONE (GNRH) IN APPETITE  
REGULATION AND REPRODUCTION IN WINTER FLOUNDER *Pleuronectes  
americanus*

**12:00 Leah Hoskins**, Helene Volkoff  
DAILY PATTERNS OF APPETITE-REGULATING NEUROPEPTIDES IN FISH: A  
COMPARISON BETWEEN GOLDFISH *Carassius auratus* AND ATLANTIC COD *Gadus  
morhua*

**12:15 LUNCH**

#### **HEALTH AND DISEASE – MODERATOR: M. RISE**

**1:30 Chris Secombes**  
CYTOKINES AND DISEASE RESISTANCE IN FISH

**2:00 Ian Bricknell**, Campbell Pert  
DO ALL SEA LICE COME FROM FISH FARMS?

**2:15 Delbert Gatlin**, J. Alejandro Buentello  
NUTRITIONAL INFLUENCES ON FISH HEALTH

**2:30 Brian Peterson**, Natha Booth, Frederic Barrows, Bruce Manning  
EFFECTS OF MANNANOLIGOSACCHARIDES ON GROWTH AND IMMUNE  
FUNCTION IN CHANNEL CATFISH CHALLENGED WITH *Edwardsiella ictaluri*

**2:45 Gregory Wiens**, Roger Vallejo, Timothy Leeds, Yniv Palti, Jason Evenhuis, Timothy Welch,  
Caird Rexroad III  
INHERITANCE OF RAINBOW TROUT *Oncorhynchus mykiss* SPLEEN SIZE AND  
CORRELATION WITH BACTERIAL COLD WATER DISEASE RESISTANCE

**3:00 Linda D. Rhodes**, Steviebrooke Wallis, S. Ellen Demlow  
USING PATHOGEN GENETICS AND HOST RESPONSE IN DEVELOPING VACCINES  
AGAINST BACTERIAL KIDNEY DISEASE OF SALMONIDS

- 3:15** **Brian Dixon**, Suchita Nath, Juan Pérez-Casanova, Stewart Johnson, Kurt Gamperl  
REGULATION OF IMMUNE FUNCTION AT THE UPPER AND LOWER END OF THE  
PHYSIOLOGICAL TEMPERATURE RANGE
- 3:30** **Leandro Becker**, John Heath, Daniel Heath, Brian Dixon  
ENVIRONMENTAL AND GENETIC EFFECTS ON THE IMMUNE PERFORMANCE OF  
FARMED CHINOOK SALMON *Oncorhynchus tshawytscha*
- 3:45** **Frederick Goetz**, Simon MacKenzie  
NEW INSIGHTS INTO THE RECOGNITION OF GRAM NEGATIVE  
LIPOPOLYSACCHARIDES BY TROUT MACROPHAGES
- 4:00** **Matthew Rise**, Marije Booman, Charles Feng, Tiago Hori, Jennifer Hall, Marlies Rise, Kurt  
Gamperl, Sophie Hubert, Jennifer Kimball, Tudor Borza, Sharen Bowman, Stewart Johnson  
CHARACTERIZING FISH IMMUNOMES: TARGETED GENE DISCOVERY AND  
MICROARRAY-BASED STUDIES OF ATLANTIC COD RESPONSES TO PATHOGENS

# PHYSIOLOGICAL INSIGHTS TOWARDS IMPROVING FISH CULTURE II

Chair: Kurt Gamperl, B. Small, M. Rise, Curry Woods

Thursday, March 04 08:30 - 5:30 Pacific Salon 1

## STRESS AND ENVIRONMENTAL CHALLENGES – MODERATOR: K. GAMPERL

- 08:30 E. Gordon Grau, Tetsuya Hirano**  
FACTORS AFFECTING GROWTH AND OSMOREGULATION IN A EURYHALINE TELEOST FISH, THE TILAPIA *Oreochromis mossambicus*
- 09:00 Carl Schreck**  
UNDERSTANDING THE VARIATION IN HOW FISH RESPOND TO STRESS AND WHAT THAT MEANS FOR AQUACULTURE
- 09:15 Kevin M. Kelley**  
STRESS AND CONSEQUENCES IN MARINE FISH. ANTHROPOGENIC STRESSORS, GROWTH AND DEFENSE
- 09:30 Tiago Hori, Matthew Rise, Stewart Johnson, Luis Afonso, Kurt Gamperl**  
THE STRESS PHYSIOLOGY OF ATLANTIC COD *Gadus morhua* IN AQUACULTURE
- 09:45 Mathilakath Vijayan, Derek Alsop, Dinu Nesan, Maryam Kamkar, Mungo Marsden**  
DEVELOPMENT OF THE CORTISOL STRESS AXIS IN ZEBRAFISH
- 10:00 Nicholas Bernier, Marnix Gorissen, Gert Flik**  
HYPOXIA AND THE REGULATION OF FEEDING IN COMMON CARP *Cyprinus carpio*
- 10:15 Andrew Gracey**  
TRANSCRIPTIONAL RESPONSES OF TELEOST FISH TO ENVIRONMENTAL CHALLENGES
- 11:00 John Fleng Steffensen**  
THE EFFECT OF HYPOXIA ON THE MAXIMUM METABOLIC RATE AND SPECIFIC DYNAMIC ACTION IN ATLANTIC COD *Gadus morhua*
- 11:15 Thomas Torgersen, Ole Folkedal, Lars H. Stien, Tom Hansen, Tore S. Kristiansen, William H. Neill**  
EFFECTS OF ACCLIMATION AND HABITUATION TO SHORT- AND LONG-TERM VARIATIONS IN TEMPERATURE
- 11:30 Frode Oppedal, David Johansson, Øyvind Korsøyen, Tim Dempster**  
ENVIRONMENTAL PREFERENCES AND CONDITIONS EXPERIENCED BY ATLANTIC SALMON *Salmo salar L.* IN SEA CAGES
- 11:45 Kurt Gamperl, Corina Busby, Jason Bailey, Juan Perez-Casanova, Jennifer Hall**  
IMPROVING THE METABOLIC AND THERMAL PHYSIOLOGY OF CAGE-CULTURED ATLANTIC COD *Gadus morhua*

**12:00 Jesse Trushenski, Michael Schwarz, Ricardo Takeuchi, Brendan Delbos, Luis Sampaio**  
PHYSIOLOGICAL RESPONSES OF COBIA FOLLOWING EXPOSURE TO DIFFERENT  
EXPERIMENTAL STRESSORS

**12:15 Russell Borski, Christina Strom**  
SALINITY REGULATION OF PROLACTIN CELL PROLIFERATION AND APOPTOSIS  
IN THE EURYHALINE TILAPIA *Oreochromis mossambicus*

**12:30 LUNCH**

**REPRODUCTION AND DEVELOPMENT – MODERATORS: B. SMALL AND C. WOODS**

**1:30 Joseph Cloud, Goro Yoshizaki, Steven Patton, Wendy Lawrence, Shina Shikina, Penny Swanson**  
FISH GERM PLASM PRESERVATION: NEW POSSIBILITIES

**2:00 Ian A. E. Butts, Edward Trippel, Matthew K. Litvak**  
GAMETE STORAGE: TRICKS OF THE TRADE

**2:15 Craig Sullivan, Benjamin Reading, Naoshi Hiramatsu, Takashi Todo, Takahiro Matusbara, Sayumi Sawaguchi, Haruna Amano, Akihiko Hara**  
TELEOST EGG QUALITY: YOLK FORMATION AND MATURATION

**2:30 Yonathan Zohar**  
FISH AS A GONADOTROPIN RELEASING HORMONE (GNRH) STUDY MODEL:  
AQUACULTURE AND BEYOND

**2:45 Yoji Yamamoto, J. Adam Luckenbach, Frederick W. Goetz, Graham Young, Penny Swanson**  
EFFECT OF FEED RESTRICTION ON OVARIAN DEVELOPMENT: CHANGES IN  
CIRCULATING HORMONE LEVELS AND IDENTIFICATION OF DIFFERENTIALLY  
EXPRESSED OVARIAN GENES

**3:00 Brian Small, Kenneth Davis**  
SEASONAL DIFFERENCES IN STEROIDS AND MATURATION-RELATED GENES IN  
CHANNEL CATFISH UNDER NORMAL AND ACCELERATED THERMOPERIODS

**3:30 J. Adam Luckenbach, Penny Swanson**  
FOLLICLE-STIMULATING HORMONE REGULATION OF OVARIAN GENE  
EXPRESSION AND STEROIDOGENESIS IN PREVITELLOGENIC COHO SALMON

**3:45 James Nagler, Tim Cavileer, Sharon Hook, Irvin Schultz, George Craciun, Joe Verducci, William Hayton**  
PHOTOPERIOD EFFECTS ON THE RAINBOW TROUT OVARIAN TRANSCRIPTOME  
DURING THE REPRODUCTIVE CYCLE

**4:00 Joan Cerda**  
UNRAVELING THE MOLECULAR MECHANISMS MEDIATING MARINE FISH EGG  
HYDRATION: THE ROLE OF AQUAPORINS

- 4:15 Julien Bobe**, Juan Martin Traverso  
POST-GENOMIC ANALYSIS OF OOCYTE DEVELOPMENTAL COMPETENCE IN TELEOST FISH
- 4:30 Thomas Desvignes**, Christian Fauvel, Julien Bobe  
NME GENE FAMILY IN THE FISH OVARY
- 4:45 Scott Lankford**  
INTRAOVARIAN ROLES OF BONE MORPHOGENETIC PROTEINS AND ACTIVIN A IN RAINBOW TROUT: STEROIDOGENESIS AND OOCYTE MATURATION
- 5:00 Matthew Cook**, Scott Lankford  
THE EFFECTS OF RNA INTERFERENCE MOLECULES DIRECTED AGAINST BONEMORPHOGENIC AND ACTIVIN MEMBRANE-BOUND INHIBITOR ON GERMINAL VESICLE BREAKDOWN AND STEROIDOGENESIS IN RAINBOW TROUT *Oncorhynchus mykiss*
- 5:15 Matthew Hale**, Peng Xu, Lauren McIntyre, Julie Scardina, Paul Wheeler, Gary Thorngaard, Krista Nichols  
TRANSCRIPTOME PROFILING OF SEX AND DEVELOPMENT RATE DURING EMBRYOGENESIS IN RAINBOW TROUT *Oncorhynchus mykiss*