BA (Room ) George A. Bartholomew Award Lecture

**18:30 BA.** Gillooly, J.; *The George A. Bartholomew Award Lecture*: Linking Biological Currencies in Ecology and Evolution

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1 (Room Diamond) Feeding Behavior: Predation and Predator Evasion  
*Chair: J. Walker*

**08:00 1.1 (DNB)** FERRER, R.P., ZIMMER, R.K.; When prey becomes predator: an ontogenetic shift in the role of olfaction.

**08:20 1.2 (DAB)** GRANT, Jacqueline B.; Ontogeny of defensive behavior and adaptive coloration in larvae of the panic moth, *Saucrobotys futilalis*

**08:40 1.3** BASSETT, D.K., MONTGOMERY, J.C.; Ecological implications of different search strategies in nocturnal teleost predators

**09:00 1.4 (DVM)** WALKER, JA, GHALAMBOR, CK, GRISET, OL, MCKENNEY, DN; Do Faster Starts Increase the Probability of Evading Predators?

**09:20 1.5 (DVM)** GIBB, A. C., LIU, C., SWANSON, B. O.; Pre-hatching escape behavior in the rainbow trout

**09:40 1.6 (DIZ)** DAVIS, E.C.; No differences in mucus-trail following was detected in *Euglandina rosea* predation on local versus non-local gastropods

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2 (Room Diamond) Feeding Behavior: Foraging Behavior  
*Chair: J. Walker*

**10:20 2.1** GRAYSON, D. L., HARRISON, J. F., FEWELL, J. H.; Foraging Effort and Metabolism in European and African Honey Bees

**10:40 2.2 (DAB)** BREELAND, T. B.*, STRAUSS, R. E.; School and Shoal Distributions in a Freshwater Catfish Species, *Corydoras Paleatus* (Callichthyidae)

**11:00 2.3 (DEE)** KROCHMAL, A.R.; There's no such thing as a free lunch: on the adaptive value of scavenging in snakes

**11:20 2.4 (DCPB)** SHEEHY III, C. M., LILLYWHITE, H. B.; Foraging Behaviors of Insular Cottonmouth Snakes

**11:40 2.5** ENGESZER, RE, ALBERICI DA BARBIANO, L, RYAN, MJ, PARICHEY, DM; An analysis of shoaling preference in the zebrafish, *Danio rerio*

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3 (Room Sapphire) Effects of Metabolism on Performance I: High Altitude and Temperature Effects on Metabolism of Endotherms  
*Chair: M. Chappell*

**08:00 3.1 (DCPB)** RUSSELL, GA, CHAPPELL, MA, HAMMOND, KA; Effects of high altitude development and

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4 (Room Diamond) Feeding Behavior: Predation and Predator Evasion  
*Chair: J. Walker*

**11:40 4.5** WESTERMAN, E.L., HARRIS, L.G.; Environmentally caused changes in asexual reproduction rates in two invasive sea squirts: *Botryllus schlosseri* and *Botrylloides violaceus*

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5 (Room Emerald) Regulatory Biology: Aggression  
*Chair: W. Hopkins*

**08:00 5.1** GILL, S.A., ALFSON, E.D., HAU, M.; The myth of the passive sex: hormonal control of female aggression in a year-round territorial bird

**08:20 5.2** JAWOR, Jodie, RICHARDSON, Jennifer, KETTERSON, Ellen; Do hormones other than testosterone influence intrasexual aggression in female dark-eyed juncos (*Junco hyemalis*)?

**08:40 5.3 (DCE)** LANDYS, M.M., GOYMANN, W., SOMA, K.K., SLAGSVOLD, T.; Dehydroepiandrosterone (DHEA) and territorial aggression in the European nuthatch

**09:00 5.4** SCOTTI, M.L., DEMAS, G.E.; Seasonal aggression in female Siberian hamsters (*Phodopus sungorus*)

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6 (Room Emerald) Education, Policy, and Outreach  
*Chair: D. Kelly*


**09:40 6.2 (DVM)** KENNEDY, Natalia K., WORDEN, Kelly J., RUSSELL, Arlene A., FREKING, Fred F.; The GK-12 Program at the University of California, Los Angeles: Making Science Exciting for Students in Urban Schools

**10:20 6.3 (DIZ)** TANKERSLEY, R.A., WINDSOR, J.G., HANSELMAN, J.A.; InSTEP: Enhancing Science Education Through Graduate Student-Teacher Partnerships

**10:40 6.4 (DEE)** TIMMERMAN, BE, STRICKLAND, DC; Can peer review improve freshman lab reports and does experience with peer review improve students' scientific reasoning skills?

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7 (Room Emerald) Excretion and Acid Base  
*Chair: M. Gosell*

**11:00 7.1 (DCPB)** GROSELL, M., TAYLOR, J.R., GENTZ, J.; Marine teleost osmoregulation involves highly acidic and hyperosmotic fluid absorption by the intestine

cold acclimation on summit metabolism and organ mass in the deer mouse, *Peromyscus maniculatus*

**08:20 3.2 (DCPB)** CHAPPELL, M.A.*, RUSSELL, G.A., HAMMOND, K.A.; BMR is not repeatable over extended periods in deer mice

**08:40 3.3 (DCPB)** HAYES, JP, SEARS, MW, BANTA, MR, O’CONNOR, CS; Out in the cold: Physiological performance affects behavior of deer mice

**09:00 3.4** SZAFRANSKA, Paulina A., ZUB, Karol, KONARZEWSKI, Marek, SPEAKMAN, John R.; A positive association between resting and field metabolic rates in weasels

**09:20 3.5 (DCPB)** LIKNES, E.T., GUGLIELMO, C.G., SWANSON, D.L.; Fuel Storage And Mobilization Strategies Associated With Seasonal Acclimatization Of Resident Passerines

**09:40 3.6 (DCPB)** WOODS, H.A.; Causes and consequences of temperature-oxygen interactions in metabolism

4 (Room Sapphire) Growth and Form

**Chair: K. Angielczyk**

**10:20 4.1 (DEE)** ROBBINS, T.R., WARNER, D.A.; Fluctuations in the incubation environment: Does the pattern or magnitude influence egg survival and hatching phenotypes in a lizard?

**10:40 4.2 (DEE)** BUCKLEY, Christine R., ADOLPH, Steven C., IRSCHICK, Duncan J.; Persistence of incubation effects on the phenotypes of hatching western fence lizards, *Sceloporus occidentalis*

**11:00 4.3 (DVM)** ANGIELCZYK, K.D., PARHAM, J.F.; Geometric Morphometric Analysis of Plastron Shape in the Western Pond Turtle (*Emys marmorata*): Implications for Conservation and Paleontology

**11:20 4.4** SCHMIDT, K., STARCK, J.M.; Developmental plasticity vs. phylotypic constraints during early embryogenesis of zebrafish, *Danio rerio*

8 (Room Scotland A) Larval Ecology

**Co-chairs: R. Strathmann & J. Allen**


**08:40 8.2 (DIZ)** STRATHMANN, R. R., HYSERT, A., FOLEY, R.; Food Limited Growth, Plasticity in Loss and Gain of Metamorphic Competence, and Recruitment of the Cyphonautes Larva of a Bryozoan

**09:00 8.3 (DIZ)** ALLEN, Jonathan D, MCALISTER, Justin S; Testing rates of planktonic versus benthic predation in the field

**09:20 8.4** ROBERTSON, Bruce; A framework for understanding ecological traps and an evaluation of existing evidence

**09:40 8.5 (DIZ)** LÓPEZ-DUARTE, P.C., TANKERSLEY, R.A.; Endogenous Swimming Rhythms of Fiddler Crab Zoeae from Different Tidal Regimes

**10:20 8.6** MAHON, B.C., NEIGEL, J.E.; A real-time PCR assay for detection and quantification of crustacean larvae in plankton samples


**11:00 8.8 (DIZ)** PERNET, B.; Feeding by larvae of two different developmental modes in the annelid *Streblospio benedicti*

**11:20 8.9 (DIZ)** MCALISTER, J/S; Environmental heterogeneity and the evolution of plasticity in Panamanian echinoid larvae

**11:40 8.10 (DEE)** OYARZUN, F.X., HALANYCH, K., SWALLA, B.; Molecular Phylogeography and Reproductive success of the Poecilogonous Polychaetes *"Boccardia proboscidea"* and *"B. wellingtonensis"* (Polychaeta: Spionidae): Two worms and Two hemispheres

9 (Room Scotland C) Development: Regulation of Development

**Chair: S. Secor**

**08:00 9.1 (DCPB)** OLSON, Christopher R., VLECK, Carol M., VLECK, David; Temperature and metabolic rate: embryonic birds depart from an Arrhenius relationship
08:20 9.2 (DCPB) SECOR, Stephen M.; Heart position in snakes, ontogenetic shifts and correlation with other organs

08:40 9.3 (DCPB) SOTHERLAND, P.R., KILLPACK, T.L., SELBO, B.G., DZIALOWSKI, E.M.; A change of heart in developing birds at the onset of endothermy

09:00 9.4 (DIZ) THOMPSON, J.T., SZCZEPANSKI, J.A., BRODY, J.H., CRESCENTI, L.M.; Ontogeny of isometric force production by the circular mantle muscles of loliginid squids and cuttlefishes.

09:20 9.5 (DCPB) MENZE, M.A., HAND, S.C.; Lessons in Apoptosis from an Invertebrate Extremophile, Embryos of *Artemia franciscana*

10 (Room Scotland C) Regulatory Biology: Stress I
Chair: C. L. Buck

10:00 10.1 WHITMAN, B.A., BREUNER, C.W., DUFTY, A.M.; Investigator Handling, Stress, and Nestlings: Should We be Concerned?

10:20 10.2 (DCE) HEIDINGER, Britt/J, NISBET, Ian/CT, KETTERSON, Ellen/D; Attenuation of the stress response may mediate an increase in reproductive performance with age in the common tern *Sternula hirundo*

10:40 10.3 WILLIAMS, C.T., KITAYSKY, A.S., BUCK, C.L.; Adrenocortical activity in tufted puffin nestlings varies with growth rates and fledging behavior

11:00 10.4 (DCE) DEMPSEY, T.D., ESMAILKA, L.R., HAGOOD, J.G., KITAYSKY, A.S.; Perception of food availability affects the adrenocortical stress response of Northern Shovelers


11 (Room Ireland A) Complementary Session to Biomechanics Symposium: Locomotion
Chair: M. Hyde

08:00 11.1 PARRA, Laura G., HYDE, Martha L.; Characterization of Bipedal Locomotion While Feeding in Kangaroo rats in the Natural Habitat

08:20 11.2 (DVM) HYDE, Martha L., PARRA, Laura G.; Theoretical Aspects of Bipedal Locomotion in Kangaroo Rats: Comparison of Field and Laboratory Locomotion with Respect to Neural Control Mechanisms

08:40 11.3 (DIZ) UYENO, T.A., KIER, W.M.; The muscle articulation in polychaetes and cephalopods: joints made of multifunction muscle

09:00 11.4 (DCPB) REVZEN, S., KODITSCHEK, D.E., FULL, R.J.; Testing Feedforward Control Models In Rapid Running Insects Using Large Perturbations

09:20 11.5 (DCPB) DUDEK, DM, DASTOOR, S, FULL, 10 (Room Ireland C) Comparative Morphology I
Chair: M. McHenry

08:00 14.1 ELZAY, S.P.; Sexual Dental Dimorphism in Four Species of Skates From The Western Gulf Of Maine

08:20 14.2 (DVM) KAJIURA, Stephen M, FORNI, Jesica B, SUMMERS, Adam P, TYMINSKI, John P, WILLIAMS, Audrey T; Sexual dimorphism in elasmobranch fishes

08:40 14.3 (DDCB) BOND, C; Comparative Time-Lapse Studies of Two Different Sponge Designs

09:00 14.4 (DVM) KLEY, NJ; Form and function of the hyolinguinal apparatus in blindsnakes (Serpentes: Scolecoïphidia)

09:20 14.5 (DVM) RIVERA, G; Morphological variation in a species of freshwater turtle (*Pseudemys concinna*) inhabiting different flow regimes

09:40 14.6 (DVM) LANDRY, S.O.; Venous Drainage in Short- and Long-faced Mammals

10:20 14.7 (DVM) CORNETT, A.D.; Ecomorphology of Shark Electroreceptors

10:40 14.8 (DVM) MCHENRY, MJ, VAN NETTEN, SM; The mechanical design of the superficial neuromast in zebrafish

11:00 14.9 (DVM) JORDAN, L.K.; Ecomorphology of
**RJ: RAPID RECOVERY FROM AN IMPULSE PERTURBATION TO A LEG IN RUNNING INSECTS**

**09:40 11.6 (DCPB) GOLDMAN, Daniel I., CHEN, Tao C., FULL, Robert J.; A Template for Rapid Vertical Climbing**

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<tr>
<th>Time</th>
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<th>Title</th>
<th>Authors</th>
<th>Abstract</th>
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<tr>
<td>10:20</td>
<td>DAB</td>
<td>Control of left-right steering in <em>Manduca sexta</em></td>
<td>SPRAYBERRY, J. D. H., DANIEL, T.;</td>
<td>The control of left-right steering in <em>Manduca sexta</em> demonstrates a complex neural mechanism to achieve uniformity in flight.</td>
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<td>11:00</td>
<td>DCPB</td>
<td>The flexible halteres of the cranefly <em>Holorusia rubiginosa</em></td>
<td>MYHRVOLD, C., SANE, S., DANIEL, T.;</td>
<td>The study of cranefly halteres reveals their flexibility and role in flight control.</td>
</tr>
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<td>11:20</td>
<td>DVM</td>
<td>Three-dimensional wing kinematics of erratic flight in free-flying butterflies</td>
<td>HORISAWA, S., DUDLEY, R.;</td>
<td>The investigation of wing kinematics in free-flying butterflies highlights the complexity of flight mechanics.</td>
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<tr>
<td>11:40</td>
<td>DCPB</td>
<td>Testing neural control models for antenna-based tactile navigation in cockroaches</td>
<td>SPONBERG, S., SPENCE, A., FULL, R.J.;</td>
<td>The study of neural control models for cockroach antennae explores their role in tactile navigation.</td>
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**12 (Room Ireland A) Complementary Session to Biomechanics Symposium: Flight and Navigation**

*Chair: T. Daniel*

**13 (Room Ireland B) Mammal Locomotion**

*Co-chairs: J. Bertram & D. Lee*

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<th>Abstract</th>
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<tbody>
<tr>
<td>08:00</td>
<td>DVM</td>
<td>Lucy's diminutive legs.</td>
<td>CARRIER, D/R;</td>
<td>The study of Lucy's small legs explores their implications for locomotion and mobility.</td>
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<td>08:20</td>
<td>DVM</td>
<td>Effects of fore-aft body mass distribution on acceleration</td>
<td>WALTER, RM, CARRIER, DR;</td>
<td>The effects of body mass distribution on locomotion are analyzed in a laboratory setting.</td>
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**Stingray Mechanosensory and Electrosensory Systems (Elasmobranchii: Batoidea)**

**11:20 14.10 (DVM) FERRY-GRAHAM, L.A., GIBB, A.C.; Do teleost fishes with different mechanisms of premaxillary protrusion produce functionally similar behaviors?**

**11:40 14.11 (DVM) ADRIAENS, D, GEERINCKX, T, HUYSENTRUYT, F, SCHAEFER, SA, HERREL, A; Evolution of trophic specialisations in Neotropical catfishes: more than a mouthful**

**15 (Room Great Hall East) Life History Evolution I**

*Co-chairs: J. Kingsolver & A. Welch (10:20 am)*

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<th>Abstract</th>
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<tr>
<td>08:00</td>
<td>DEE</td>
<td>The physiological regulation of simultaneously selected life history traits.</td>
<td>DAVIDOWITZ, G., ROFF, D.A., NIJHOUT, H.F.;</td>
<td>The study of physiological regulation explores the interplay between life history traits.</td>
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<td>08:20</td>
<td>DEE</td>
<td>Breaking the temperature-size rule: Rapid population divergence in thermal reaction norms</td>
<td>KINGSOLVER, J.G., MASSIE, K.R., RAGLAND, G.J., SMITH, M.H.;</td>
<td>The investigation of temperature-size rule divergence in populations provides insights into evolutionary responses.</td>
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<td>08:40</td>
<td>DCE</td>
<td>Growth and Reproduction During a Transitional Life History Stage</td>
<td>BOWDEN, R.M., JANZEN, F.J.;</td>
<td>The study of growth and reproduction during a transitional stage reveals critical life history dynamics.</td>
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<tr>
<td>09:00</td>
<td>DEE</td>
<td>Effects of sex and castration on growth of Yarrows Spiny Lizards (<em>Sceloporus jarrovii</em>) are reduced or absent in laboratory common-garden experiments</td>
<td>COX, Robert, BARRETT, Michele, ZILBERMAN, Viktoriya, JOHN-ALDER, Henry;</td>
<td>The study of sex and castration effects on lizard growth highlights the importance of common-garden experiments in ecological studies.</td>
</tr>
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</table>
HEULIN, B., STEWART, J.R., SURGET-GROBA, Y., BELLAUD, P., JOUAN, F., LANCIEN, G.; Histology and histochemistry of the uterine glands and eggshell of the reproductively bimodal lizard, *Lacerta vivipara*

MILLER, Christine W., EMLEN, Douglas J.; Maternal effects shift the allometry of a sexually selected trait in the heliconia bug

KINDSVATER, HK, BONSALL, MB, MANGEL, M; Physical and Ecological Correlates of Longevity in Pacific Rockfishes (*Sebastes*)

BOBACK, S.M., GUYER, C.; A test of reproductive power in snakes

WELCH, A.M.; Heritability of lipid reserves in gray tree frog metamorphs

WALGUARNERY, J.W.; Nonrandom patterns of sex determination in *Anolis* lizards

FERRIS, M. T., BURCH, C. L.; Host range evolution of the bacteriophage Φ6: Are trade-offs required?

HANDRIGAN, G.R., HAAS, A., WASSERSUG, R.J.; Bony-tailed tadpoles: The form, function, and fate of supernumerary caudal vertebrae in anurans

KERNEY, Ryan; An unexpected role for the skeletal regulator Runx2 in anuran development

INFANTE, C.R.; Deiodinases and the control of metamorphosis in the carnivorous larvae of the anuran *Lepidobatrachus laevis*

RUGGIERO, R.P, VON KALM, L.; Genetic analysis of the intersection between ecdysone and intracellular signaling during *Drosophila* leg and wing morphogenesis

DAVIS, R. L., STEINMAN, M. , JOHNSON, K. B.; The Responses of Marine Invertebrate Larvae to Predator Chemical Cues in the Laboratory

DEAL, K. J., JOHNSON, K. B.; The Effects of Food Level and Trophic Copper on the Development and Metamorphosis of *Lytechinus variegatus* Larvae

LEHMAN, E.M.; Tetrodotoxin as a maternally-endowed defense against egg predation in the rough-skinned newt, *Taricha granulosa*

HUTCHINSON, Deborah A., SCHROEDER, Frank C., SAVITZKY, Alan H., MORI, Akira, MEINWALD, Jerrold, BURGHARDT, Gordon M.; Dietary Toxin Sequestration in Two Populations of a Toad-Eating Snake, *Rhabdophis tigrinus*
13:40 17.3 LEE, T., Ó FOIGHIL, D.; Placing the Floridian Marine Genetic Disjunction into a Regional Evolutionary Context Using the Scorched Mussel, Brachidontes exustus, Species Complex

14:00 17.4 (DIZ) MEYER, Christopher P., KOHN, Alan J.; Disparate evolutionary trajectories in two hyperdiverse tropical marine gastropod genera

14:20 17.5 (DIZ) ZARDUS, J.D., ETTER, R.J., CHASE, M.R., REX, M.A., BOYLE, E.E.; Genetic Divergence with Depth and Distance in a Deep-Sea Bivalve, Deminucula atacellana

14:40 17.6 WARREN, D.L., YOUNG, C., IGLESIAS, T.; Rerevaluating Claims of Ecological Speciation in Halichoeres bivittatus

18 (Room Emerald) Evolution of Limbs
Chair: M. Davis

13:40 18.1 ANGELINI, David R., JOCKUSCH, Elizabeth L.; Developmental mechanisms underlying divergent morphology in the antennae of Tribolium flour beetles (Coleoptera)

14:00 18.2 ROLIAN, C; Comparative growth plate kinetics in rodents: insights into the evolution and development of limb length allometry.

14:20 18.3 (DEDB) DAVIS, M.C., DAHN, R.D., SHUBIN, N.H.; Gene expression and function in the paired fins of basal actinopterygians

14:40 18.4 DAHN, Randall D., DAVIS, Marcus C., SHUBIN, Neil H.; Conserved Shh function and regulation in gnathostome appendage patterning

19 (Room Scotland A) Life History Evolution II
Chair: C. McFadden

13:00 19.1 BASOLO, A.L.; The Effect of Predation on the Evolution of Genetically Linked Life History Traits

AMSLER, C.D., PETERS, K.J., BAKER, B.J.; Feeding rates of common Antarctic gammarid amphipods on ecologically important sympatric macroalgae

14:20 21.5 PETERS, K.J., AMSLER, C.D., MCCINTOCK, J.B., BAKER, B.J.; Palatability and chemical defenses of Antarctic Peninsula sponges

14:40 21.6 SOTKA, E.E.; The evolution of herbivore offense in the sea: tropical versus temperate herbivores in feeding tolerance for chemically-rich seaweeds

22 (Room Ireland B) Behavioral Ecology
Chair: S. Schoech

13:00 22.1 (DCE) SCHOECH, S.J., HAHN, T.P.; Timing of reproduction and food supplementation: Are high latitude species less responsive than low latitude species to non-photic cues?

13:20 22.2 (DEE) WARNE, R, LIGHTFOOT, D, WOLF, BO; Lizard life history strategies and population dynamics under a regime of pulsed resources


14:00 22.4 (DEE) HUYGHE, K., VANHOODYDONCK, B., HERREL, A., VAN DAMME, R.; Ecological and behavioural correlates of colour polymorphism in a lacertid lizard, Podarcis melisellensis

14:20 22.5 (DCPB) WOLCOTT, DL, WOLCOTT, TG, HINES, AH, MEDICI, DA; Migration of female blue crabs from mating areas to spawning grounds.

14:40 22.6 (DAB) MARTIN III, Arthur/L, MOORE, Paul/A; The effects of shelter occupation on crayfish agonistic interactions

23 (Room Ireland C) Metabolism and Performance II
Chair: C. R. Tracy

13:00 23.1 DOWNS, C.J.*, HAYES, J.P., TRACY, C.R.; Temperature, Sampling Bias, and Scaling of BMR in Endotherms
13:20 23.2 JOST, JA, HELMUTH, BST; Thermal tolerance of Geukensia demissa: The effect of daily maximum temperatures on growth and mortality

13:40 23.3 (DVM) HERREL, A., JAMES, R.S., VAN DAMME, R.; Muscle physiology constrains behaviour in lizards: physiological basis for the fight vs. flight paradigm.

14:00 23.4 (DCPB) MCCLEARY, R. J. R., LILLYWHITE, H. B., MCCUE, M. D.; Foraging and Water Requirement in Terrestrial Cottonmouth Snakes

14:20 23.5 (DCPB) BLANK, J.M., FARWELL, C.J., MORRISSETTE, J.M., SCHALLERT, R.J., BLOCK, B.A.; Effects of temperature on metabolic rates of Pacific bluefin tuna, Thunnus orientalis

14:40 23.6 SEPULVEDA, C. A., GRAHAM, J.B., BERNAL, D.; Swimming performance studies of the mako shark, Isurus oxyrinchus

24 (Room Great Hall West) Complementary to Zebrafish Symposium: Morphology

Chair: T. A. Franz-Odendaal

13:00 24.1 (DSEB) SANTINI, F; Was the fish specific genome duplication the cause of the high diversity of teleost fishes?

13:20 24.2 (DEDB) BIRD, NC, HERNANDEZ, LC; Origin of complex structures: Zebrafish as the new model organism for investigating morphological innovation

13:40 24.3 ALBERTSON, R. Craig, STREELMAN, J. Todd, KOCHER, Thomas D., YELICK, Pamela C.; Integration and Evolution of the Teleost Mandible: The Molecular Basis of Alternate Feeding Strategies

14:00 24.4 (DVM) FRANZ-ODENDAAL, T.A.; Growth, development, constraint and variation of the skeletal elements within the teleost eye

14:20 24.5 (DNB) CROLL, RP, ROBERTSON, GN, MCGEE, CAS, SMITH, FM; Development of the swimbladder and its innervation in the zebrafish (Danio rerio)

14:40 24.6 (DVM) LIAO, James C., FETCHO, Joseph R.; Identification of sensory spinal interneurons by using optical, genetic, and electrophysiological techniques in larval zebrafish