47 (Room Diamond) Cladistics/Phylogenetic Analysis
Chair: A. Schulze

08:20 47.1 CLAMP, J.C.; The phylogenetic position of *Lagenophrys* (Protista, Ciliophora, Peritricha) inferred from the sequence of the gene for 18S small subunit rRNA

08:40 47.2 (DIZ) SCHULZE, A, CUTLER, E.B., GIRIBET, G.; Molecular and Morphological Evolution in Sipunculan Worms

09:00 47.3 (DSEB) MOTT, TAMI; Molecular Systematics of Brazilian amphibiaenids (Reptilia, Squamata, Amphibiaenidae)

09:20 47.4 ZHONG, M., HALANYCH, K. M.; Mitochondrial Genomes of Three Terebelliformia Annelids

48 (Room Diamond) Development: Invertebrate Evolution and Development
Chair: D. Munson

10:20 48.1 (DEDB) DUNN, CW, WAGNER, GP; The evolution and development of colony-level organization in the Siphonophora (Cnidaria, Hydrozoa)

10:40 48.2 (DEDB) MATUS, DQ, PANG, K, THOMSEN, GH, MARTINDALE, MQ; Signaling pathway complexity in the development of an anthozoan cnidarian

11:00 48.3 (DEDB) IRVINE, Steven Q; Genomic regulation of the *Dll-A/B* gene cluster in *Ciona intestinalis*.

11:20 48.4 (DEDB) RYCHEL, A.L., SWALLA, B.J.; Evolution of Pharyngeal Gill Bars in the Deuterostomes

49 (Room Sapphire) Digestion and Excretion: Comparative Digestive Strategies in Flying Endotherms
Chair: C. R. Tracy

08:00 49.1 (DCPB) LAVIN, S.R., MCWHORTER, T.J., KARASOV, W.H.; Differences in paracellular absorption: a function of solvent drag or pore size?

08:20 49.2 (DCPB) MCWHORTER, T.J., HARTMAN BAKKEN, B., KARASOV, W.H., MARTINEZ DEL RIO, C.; Hummingbirds fuel high metabolism with both paracellular and carrier-mediated intestinal glucose absorption

08:40 49.3 (DCPB) WELCH, KC, BAKKEN, BH, SUAREZ, RK; Use of Dietary Sugar by Hummingbirds as Revealed by Stable Isotope and Respiratory Analysis

09:00 49.4 (DCPB) PODLESAK, D. W., MCWILLIAMS, S. R.; Birds metabolically route exogenous nutrients to rebuild digestive organs after fasting

09:20 49.5 (DCPB) TRACY, C.R., WOJCIECHOWSKI, M.S., MCWHORTER, T.J., YOSEF, R., KARASOV, O:

52 (Room Scotland C) Comparative Evolutionary Morphology I
Co-chairs: D. Hulsey & E. Hoffman (10:30 am)

08:00 52.1 (DSEB) HILL, R.I.; Morphology and locomotor mimicry in ithomiine butterflies (Nymphalidae)

08:20 52.2 (DVM) MCELROY, EJ, REILLY, SM; The evolutionary relationship between foraging mode and locomotor functional morphology in lizards

08:40 52.3 (DVM) COLLAR, D.C.*; Testing the bass fishermen's hypothesis: Does reaching an adaptive peak limit diversification of the feeding apparatus in *Micropterus* (Teleostei: Centrarchidae)?

09:00 52.4 (DCPB) PAPASTAMATIOU, Yannis P., LOWE, Christopher G., HOLLAND, Kim N.; Variations in the response of gastric acid secretion during periods of fasting between shark species

09:20 52.5 (DVM) HULSEY, CD, STREEELMAN, JT; Cichlid Pharyngeal Jaw Fusion: Is Suturing the Key to Unparalleled Trophic Divergence?

10:00 52.6 TODT, C., TYLER, S.; Comparative studies on the pharynx simplex of Acoela

10:20 52.7 (DIZ) SWEENEY, A., DES MARAIS, D.L.,
### 50 (Room Sapphire) Digestion and Excretion: Effects of Feeding and Digestion on Metabolism

**Chair: S. Secor**

- **10:20 50.1** ROARK, Alison M., BJORN DAL, Karen A.; Experimentally imposed patterns of food availability and their effects on metabolic rate in Indian stick insects, *Carausius morosus*
- **10:40 50.2** CURTIS, D.L.*, MCGAW, I.J.; Feeding and digestion in response to low salinity in the Dungeness crab, *Cancer magister*
- **11:00 50.3** HERNANDEZ, R/A, SECOR, S/M, ESPINOZA, R/E; Is a dietary jack of all trades a master of none? Adaptability of gut form and function in an omnivorous lizard.
- **11:20 50.4** BRITT, E.J., HICKS, J.W., BENNETT, A.F.; The energetic consequences of prey specialist and generalist populations of three species of garter snake (*Thamnophis elegans*, *T. couchii* and *T. ordinoides*).
- **11:40 50.5** OTT, BD, SECOR, SM; Postprandial Upregulation of Intestinal Morphology and Function in *Python*

### 51 (Room Scotland A) Coral Reef Biology

**Co-chairs: N. Chadwick & V. Weis**

- **08:00 51.1** RODRIGUEZ-LANETTY, Mauricio, WEIS, Virginia M, PHILLIPS, Wendy S; Transcriptome analysis of a cnidarian - dinoflagellate mutualism reveals complex modulation of host gene expression
- **08:20 51.2** BERTIN, M.J., POMPONI, S.A., ELLINGTON, W.R.; Creatine and Arginine Kinases are Widespread in the Porifera
- **09:40 51.4** PINSHOW, B.; Carbohydrate absorption in migrating blackcaps, upon arrival and after refeeding, at a stopover in southern Israel
- **10:40 51.8** TRACY, C.R., MCWHORTER, T.J., KORINE, C., PINSHOW, B., KARASOV, W.H.; A mystery solved: how the Egyptian fruit bat absorbs sugar

### 52 (Room Scotland B) Regulatory Biology: Comparative Endocrinology

**Chair: D. Buchholz**

- **08:20 52.1** MCCORMICK, Stephen D., O’DEA, Michael F., MOECKEL, Amy M.; Are we missing a mineralocorticoid in fish? Effect of corticoids and receptor inhibitors on salinity tolerance of Atlantic salmon.
- **08:40 52.2** NORBECK, L., KITTILSON, J., SHERIDAN, M.A.; Nutritional Regulation of the Somatotropic Axis of Rainbow Trout (*Oncorhynchus mykiss*).
- **09:00 52.3** MOORE, Brandon C, COOK, Robert W, CHUNG, Koo Whang, ALVERS, Ashley L, WOODRUFF, Teresa K, GUILLETTE, Louis J; Ovarian Response to Gonadotropin in Alligator Neonates
- **09:20 52.4** SEABURY SPRAGUE, R.*, BREUNER, C.W.; Timing of fledging, body condition, and corticosterone binding globulin in Laysan Albatross
09:40 53.5 (DCE) SILVER, M.R., SOWER, S.A.; Characterization of an ancestral type II GnRH receptor: function and pharmacological profile of the sea lamprey GnRH receptor

10:20 53.6 (DCE) BUCHHOLZ, D.R., PAUL, B.P., SHI, Y.-B.; Gene-specific changes in promoter occupancy by thyroid hormone receptor during frog metamorphosis: Implications for developmental gene regulation

10:40 53.7 (DVM) SERRAT, M.A., LOVEJOY, C.O., KING, D.; Age- and site-specific decline in IGF-I receptor expression and growth plate activity in the mouse hindlimb

11:00 53.8 (DCPB) HYNDMAN, K/A, EVANS, D/H; Endothelin receptors in the killifish, Fundulus heteroclitus, gill

11:20 53.9 CHRISTIANS, Julian K, HOEFLICH, Andreas, KEIGHTLEY, Peter D; Investigation of the causal gene underlying a quantitative trait locus (QTL) contributing to genetic variation in growth

11:40 53.10 (DCE) KAJIMURA, S., AIDA, K., DUAN, C.; Understanding hypoxia-induced gene expression in early development: In vitro and in vivo analysis of HIF-1-regulated zebrafish IGFBP-1 gene expression

54 (Room Ireland A) Bone Form
Co-chairs: D. Frod & S. Reese

08:00 54.1 (DVM) DEVLIN, Maureen, LIEBERMAN, Daniel, LEDOUX, Nicole; Estradiol, strain, and periosteal bone growth

08:20 54.2 (DVM) DUMONT, E.R., GROSSE, I.R., COLETTA, C.E.; Applying muscle forces to finite element models of bone: How much modeling precision is necessary?

08:40 54.3 (DEE) FORD, D.K., HOLLIDAY, C.M.; An investigation into the effects of PCB 126 on bone density in turtles

09:00 54.4 (DVM) HORTON, Jaquan M., RANCHES, Gregory, SUMMERS, Adam P.; The morphology, mechanical properties, and composition of the acellular ribs in a teleost fish, Myoxocephalus polyacanthocephalus.


09:40 54.6 VANDEN BROOKS, J.M.; The development of Alligator mississippiensis under varying $pO_2$

10:20 54.7 (DCPB) REESE, Scott A., MOORE, Douglas, ULSCH, Gordon R., WARREN, Daniel E., JACKSON, Donald C.; Mechanical characteristics of bone change little during anoxic submergence at 3 °C in red-eared slider turtles, Trachemys scripta.

10:40 54.8 (DEDB) ZELDITCH, ML, MYERS, P,

10:40 56.2 (DCPB) VOGEL, S; Bioballistics: The Scaling of Prelaunch Acceleration and Subsequent Trajectories

11:00 56.3 MONEY, N. P., PRINGLE, A., PATEK, S. N., FISCHER, M., STOLZE, J.; Rapid Discharge of Mushroom Spores

11:20 56.4 (DVM) ESSNER, R.L., NAUWELAERTS, S., ROME, L.C.; Forelimb and caudopelvic function during takeoff in Rana pipiens

11:40 56.5 (DVM) JACKSON, B.E., DIAL, K.P.; Allometry of avian flight performance: contribution of legs and wings during maximal burst takeoff and vertical flight

57 (Room Ireland C) Physical Biology and Ecomorphology
Co-chairs: F. Thomas & S. Johnsen

08:20 57.1 THOMAS, F.I.M., BADGLEY, B.D., YUND, P.O., GRABOWSKI, R.C.; Linking field measurements of hydrodynamic conditions to the fertilization of the green sea urchin Strongylocentrotus droebachiensis

08:40 57.2 BADGLEY, BD, THOMAS, FIM, YUND, PO; The effects of hydrodynamics on fertilization success in the green sea urchin, Strongylocentrotus droebachiensis.

09:00 57.3 (DIZ) VON DASSOW, M; Influences of flow and feeding on colony organization in a bryozoan

09:20 57.4 AVENI-DEFORGE, Kyle, WETHHEY, David S; Fortuna dubia: Byssal function in marine mussel adaptation to seasonal changes in wave energy

09:40 57.5 (DIZ) WOLCOTT, TG, WOLCOTT, DL, KAMYKOWSKI, D, WATERS, L; Plankton mimicry: fake dinoflagellates to help understand real red tides.

10:20 57.6 (DVM) HILLENIUS, Willem/J, MADERSON, Paul/F; DOES PITH STRETCH A FEATHER? Does pith stretch a feather?

10:40 57.7 (DCPB) JOHNSEN, S., KELBER, A., WARRANT, E.J., SWEENEY, A.M., WIDDER, E.A., LEE, R.L.; The color of night: twilight and nocturnal illumination and its effects on color perception

11:00 57.8 KINANE, S., THOMAS, F.I.M.; Bleaching in the coral Porites divaricata: effects of temperature, light, and water motion

11:20 57.9 (DEE) SCHNEIDER, KR, HELMUTH, BST; The effect of intertidal thermal environments on survival and growth: a comparison between an invasive and native mussel species

58 (Room Diamond) Biogeography and Biodiversity
Co-chairs: J. Williams & D. Wethey

13:00 58.1 WILLIAMS, J. D.*, MCDERMOTT, J. J., BOYKO, C. B.; A world-wide review of hermit crab parasites

13:20 58.2 (DEE) WETHHEY, DS, GILMAN, SE,
LUNDRIGAN, BL; Dietary consistency and the canalization of skull growth
11:00 54.9 (DVM) ESPINOZA, N.R.*, CIRILO, S.R., HILL, S., BLOB, R.W.; Limb Bone Strain in Jumping Frogs
11:20 54.10 (DVM) YOUNG, JW, FERNANDEZ, D; Ontogeny of limb bone geometry and bone strength in an arboreal primate (Cebus albifrons) 
11:40 54.11 (DVM) JACINTO, RD, NAGLE, L, PATEK, SN, SUMMERS, AP; Keeping an open mind: investigating poacher skeletal morphology

55 (Room Ireland B) Hydrodynamics - Locomotion I
Co-chairs: F. Fish & B. Chadwell
08:00 55.1 (DVM) CHADWELL, BA*, STANDEN, EM, LAUDER, GV; Dorsal and anal fin function during the C-start escape response in bluegill sunfish.
08:20 55.2 (DVM) TYTELL, E.D.; Median fin function in bluegill sunfish, Lepomis macrochirus: Streamwise vortex structure during steady swimming
08:40 55.3 (DVM) SCHAFFER, Justin T, KOOB, Thomas J, LONG, JR., John H; Bending mechanics of elasmobranch vertebral columns
09:00 55.4 (DVM) DANOS, N., BRAINERD, E.L.; Biomechanics of the skin during swimming in the American Eel, Anguilla rostrata.
09:20 55.5 (DVM) KOROBOV, N, BRAINERD, EL, MADDEN, P, LAUDER, GV; Novel pectoral fin kinematics during steady swimming in a benthic fish, the Longhorn sculpin, Myoxocephalus octodecimspinosus
09:40 55.6 (DVM) FISH, F.E., NUSBAUM, M.K., BENESKI, J.T., KETTEN, D.R., WILLIAMS, T.M.; Dolphin flukes as passively self-adjusting flexible propulsors

56 (Room Ireland B) Hydrodynamics - Acceleration
Co-chairs: F. Fish & S. Vogel

58 (Room Sapphire) Behavioral Plasticity
Chair: S. MacDougall-Shackleton
13:20 58.1 (DAB) CHRISTY, J.H., RISSANEN, J.R., BACKWELL, P.R.Y.; A One-day Pause in the Biweekly Courtship Cycle of a Tropical Fiddler Crab Allows Females to Avoid Releasing Larvae During Twilight
13:40 58.2 JOHNSON, M. A.; Does Where an Animal Lives Determine Its Behavior? The Role of Microhabitat in Lizard Territoriality
14:00 58.3 (DAB) FONTAINE, JOSEPH/J, MARTIN, THOMAS/E; Reproductive responses to experimentally reduced nest predation risk
14:20 58.4 (DAB) LEE, DN, TANG-MARTINEZ, Z; of Early Social Environment on the Physical Development of Prairie Voles
14:40 58.5 (DEE) SNELL-ROOD, Emilie C; Developmental costs of behavioral plasticity: exploration during oviposition-cue learning in butterflies (Lepidoptera: Pieridae)

60 (Room Emerald) Comparative Neurobiology
Chair: J. Newcomb
13:00 60.1 (DIZ) HOCHBERG, R; Immunohistochemistry and 3-D cerebral architecture in species of Asplanchna (Rotifera)
13:20 60.2  (DNB) BALTZLEY, MJ, LOHMANN, KJ; Evolution of a neural circuit in sea slugs
13:40 60.3  (DNB) NEWCOMB, J.M.*, KATZ, P.S.; Patterns of neural evolution in nudibranch mollusces: functional divergence of homologous neurons embedded in a common neural network
14:00 60.4  (DNB) TURNER, A.C., DASARI, S., COOPER, R.L.; Influence of the Dopamine and Serotonergic System on Physiology, Development and Behavior of *Drosophila melanogaster*
14:20 60.5  (DNB) VON DER OHE, C.G., DARIAN-SMITH, C, HELLER, H.C.; Neural Plasticity in Hibernation
14:40 60.6  (DNB) BELANGER, RM, MCDOWELL, KE, MOORE, PA, ZIELINSKI, BS; Reproductive significance and sensory hair morphology of the major chelae of male crayfish *Orconectes rusticus*

**61 (Room Scotland C) Comparative Evolutionary Morphology II**  
*Chair: J. Hanken*

13:20 61.1  (DVM) GROSS, J.B., HANKEN, J.; Embryonic origin of adult cranial cartilages in *Xenopus*: A view from the crest.
13:40 61.2  (DVM) HANKEN, J., GROSS, J.B.; Fate maps evolve, too: neural crest derivation of the bony skull in frogs, revealed by transgenic labeling
14:00 61.3  (DVM) CLAESON*, Kerin M., LUNDBERG, John G.; Micro Catfish Micro CATscans
14:20 61.4  BLACKBURN, D.C.; The effect of miniaturization on skeletal morphology within the African frog family Arthroleptidae
14:40 61.5  MILLER, G., ANGIELCZYK, K.D.; Geometric Morphometric Analysis of Shell Kinesis in Emydine Turtles

**62 (Room Ireland A) Flight Aerodynamics II**  
*Co-chairs: S. Swartz & S. Combes*

13:00 62.1  (DVM) SWARTZ, S, GALVAO, R, IRIARTE-DIAZ, J, ISRAELI, E, MIDDLETON, K, ROEMER, R; Unique characteristics of aerodynamics of bat flight: evidence from direct visualization of patterns of airflow in the wakes of naturally flying bats
13:20 62.2  (DIZ) COMBES, S.A., DUDLEY, R.; Limits to maximum flight velocity: Pitch control and roll instability in orchid bees during fast, forward flight
13:40 62.3  BUNDLE, M/W, DIAL, K/P; Power requirements of bird flight with additional mass
14:00 62.4  (DVM) BERG, A.M., BIEWENER, A.A.; Differences among Ascending, Level, and Descending Flapping Flight
14:20 62.5  (DCPB) BREWER, Michael/L, CHEVIRON,
Altitudinal variation of wing shape in the Andean passerine Zonotrichia capensis.

**14:40 62.6 (DVM)** Padian, K., Dial, K.P.; Was there a "four-winged" transitional stage between dinosaurs and birds?

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### 63 (Room Ireland B) Feeding and Flow II

**Chair: P. Wainwright**

**13:00 63.1 (DVM)** Case, J.E., Marshall, C.D.; Using Morphology to Predict Feeding Behavior: A Preliminary Study of Juvenile Red Snapper (*Lutjanus campechanus*)

**13:20 63.2 (DVM)** Van wassenbergh, S, Herrel, A, Adriaens, D, Aerts, P; Terrestrial feeding in the eel catfish, *Channa labes apus*

**13:40 63.3** Markey, M. J., Main, R. P., Marshall, C. R.; *In vivo* cranial suture function and suture morphology in the extant fish *Polypterus*

**14:00 63.4 (DVM)** Day, S W, Higham, T E, Wainwright, P C; The Relation of Suction Pressure and Fluid Speed During Feeding in LargeMouth Bass

**14:20 63.5 (DVM)** Francis, A.W.; Phylogeny and Feeding Biomechanics of Pleuronectiform Fishes

**14:40 63.6 (DCPB)** Rice, Aaron N.; Evolution of Coordination in Fish Feeding: The Intersection of Functional Morphology and Ecology

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### 64 (Room Great Hall East) Complementary to Mesoderm Symposium

**Chair: G. Giribet**

**13:20 64.1 (DEDDB)** Livingston, BT, Harmon, M; Development of the skeletogenic mesoderm in the Ophiuroid *Ophiocoma wendtii*