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 amphisbaenids (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., WOCJIECHOWSKI, M.S., MCWHORTER, T.J., YOSEF, R., KARASOV,

08:40 51.3 (DEE) ERWIN, P. M., THACKER, R. W.; Incidence and Importance of Photosynthetic Symbionts in Shallow-Water Sponge Communities

09:00 51.4 (DIZ) COWART, J.D.*, PAWLIK, J.R.; Is there a trade-off between reproduction and growth form for two closely related Florida reef sponges?

09:20 51.5 (DEE) GOFFREDO, S., LASKER, H.R.; Modular Growth of a Gorgonian Coral Generates Predictable Patterns of Colony and Population Growth

09:40 51.6 (DIZ) LAPI D., CHADWICK, N. E.; Coral sweeper tentacles as probes to remotely detect competitors

10:20 51.7 (DEE) LEICHTER, J.J., HELMUTH, B., FISCHER, A.M.; What lies beneath the surface: quantifying complex thermal environments on corals reefs

10:40 51.8 (DCE) TARRANT, A.M., CORTÉS, J., BEZY, B, JOHANNING, K.J., CHIANG, T.C., VARGAS, J.A.; Identification and expression patterns of nuclear receptors in the coral Pocillopora damicornis

11:00 51.9 (DAB) TRESPALACIOS, D., BEULIG, A.; Coral Luminescent Banding as Environmental Indicator in Bocas del Toro, Panama

11:20 51.10 (DIZ) QUINN, NJ, KOJIS, BL; Assessing Enhancement Techniques to Increase Acropora cervicornis Populations and Increase Fish Biodiversity in Jamaica

11:40 51.11 (DEE) BASCH, L.V.; Marine Conservation Science: Examples in a Network of National Parks and Marine Protected Areas in Hawaii

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, STREELMAN, 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.,
W.H., PINSHOW, B.; Carbohydrate absorption in migrating blackcaps, upon arrival and after refeeding, at a stopover in southern Israel

**09:40 49.6 (DCPB)** TRACY, C.R., MCWHORTER, T.J., KORINE, C., PINSHOW, B., KARASOV, W.H.; A mystery solved: how the Egyptian fruit bat absorbs sugar

**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 (DIZ)** CURTIS, D.L.*, MCGAW, I.J.; Feeding and digestion in response to low salinity in the Dungeness crab, *Cancer magister*

**11:00 50.3 (DEE)** 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 (DCPB)** 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 (DCPB)** 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 (DEE)** 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 (DCPB)** BERTIN, M.J., POMPONI, S.A., ELLINGTON, W.R.; Creatine and Arginine Kinases are Widespread in the Porifera

BAN, A., JOHNSON, S.; Evolving Refractive Index: How Lens Protein Evolution Contributed to High-Resolution Squid Vision

**10:40 52.8 (DEE)** SISON-MANGUS, MP, BRISCOE, AD; Evolutionary origin of a blue opsin gene duplication in lycaenid butterflies

**11:00 52.9** HOFFMAN, Eric A., GOODISMAN, Michael A. D.; Genomic analysis of caste differentiation in yellowjacket wasps

**11:20 52.10** MAHLER, L., KEE RNEY, M.; The Palatal Dentition in Squamate Reptiles: Morphology, Development, Attachment, and Replacement

**11:40 52.11** EVANS, A.R., WILSON, G.P., JERNVALL, J., FORTELIUS, M.; New methods in 3D tooth shape analysis: a study of form and function in murine and sigmodontine rodents

**53 (Room Scotland B) Regulatory Biology: Comparative Endocrinology**

*Chair: D. Buchholz*

**08:20 53.1 (DCE)** 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 53.2 (DCE)** NORBECK, L., KITTILSON, J., SHERIDAN, M.A.; Nutritional Regulation of the Somatotropic Axis of Rainbow Trout (*Oncorhynchus mykiss*).

**09:00 53.3 (DCE)** 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 53.4** SEABURY SPRAGUE, R.*, BREUNER, C.W.; Timing of fledging, body condition, and corticosterone binding globulin in Laysan Albatross
09:40 53.5  \textit{(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  \textit{(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  \textit{(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  \textit{(DCPB)} HYNDMAN, K/A, EVANS, D/H; Endothelin receptors in the killifish, \textit{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  \textit{(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

\begin{center}
\textbf{54 (Room Ireland A) Bone Form}
\textit{Co-chairs: D. Frod & S. Reese}
\end{center}

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

08:20 54.2  \textit{(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  \textit{(DEE)} FORD, D.K., HOLLIDAY, C.M.; An investigation into the effects of PCB 126 on bone density in turtles

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


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

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

10:40 54.8  \textit{(DEBB)} ZELDITCH, ML, MYERS, P,

10:40 56.2  \textit{(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  \textit{(DVM)} ESSNER, R.L., NAUWELAERTS, S., ROME, L.C.; Forelimb and caudopelvic function during takeoff in \textit{Rana pipiens}

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

\begin{center}
\textbf{57 (Room Ireland C) Physical Biology and Ecomorphology}
\textit{Co-chairs: F. Thomas & S. Johnsen}
\end{center}

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, \textit{Strongylocentrotus droebachiensis}

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

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

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

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

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

10:40 57.7  \textit{(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 \textit{Porites divaricata}: effects of temperature, light, and water motion

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

\begin{center}
\textbf{58 (Room Diamond) Biogeography and Biodiversity}
\textit{Co-chairs: J. Williams & D. Wethey}
\end{center}

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  \textit{(DEE)} WETHEY, 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 albibrans)
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) SCHAEFER, 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 octodecimspinous
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

HEL MUTH, BS, HILBISH, TJ; Ecological hindcasting of biogeographic responses to climate change in intertidal ecosystems
13:40 58.3 (DEE) MARIONI, N. K., TRACY, C. R., ZIMERMAN, L. C.; Effects of declining lake levels on fish populations: Lahontan cutthroat trout and tui chub in Walker Lake, NV
14:00 58.4 (DEE) NISHIGUCHI, M.K., JONES, B.W.; Population dynamics of sepiolid squid-Vibrio mutualism from the Indo-west Pacific
14:20 58.5 (DSEB) WILSON, N.G., HALANYCH, K.M.; Underestimates of Antarctica's biodiversity: phylogeography of the Antarctic crinoid Promachocrinus kerguelensis

59 (Room Sapphire) Behavioral Plasticity
Chair: S. MacDougall-Shackleton
13:20 59.1 (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 59.2 JOHNSON, M. A.; Does Where an Animal Lives Determine Its Behavior? The Role of Microhabitat in Lizard Territoriality
14:00 59.3 (DAB) FONTAINE, JOSEPH/J, MARTIN, THOMAS/E; Reproductive responses to experimentally reduced nest predation risk
14:20 59.4 (DAB) LEE, DN, TANG-MARTINEZ, Z; of Early Social Environment on the Physical Development of Prairie Voles
14:40 59.5 (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 moluscs: 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
13:40 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,
Zac/A, BRUMFIELD, Robb/T, ROBERTS, Stephen/P;
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?

### 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, *Channallabes 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

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

*Chair: G. Giribet*

13:20 64.1 (DEDB) LIVINGSTON, BT, HARMON, M; Development of the skeletogenic mesoderm in the Ophiuroid *Ophiocoma wendtii*