



9th International Crustacean Congress  
**FINAL PROGRAM**





9<sup>TH</sup> INTERNATIONAL  
CRUSTACEAN CONGRESS (ICC9)  
WASHINGTON, DC, USA | MAY 22-25, 2018



# FINAL PROGRAM

## Smithsonian Institution

Freer Gallery of Art  
1050 Independence Ave. SW  
Washington, DC

## S. Dillon Ripley Center

1100 Jefferson Drive, SW  
Washington, DC

## Renaissance Hotel

999 Ninth Street NW  
Washington, DC

## 2018 Organizing Committee

Keith Crandall      Christopher Tudge  
Rafael Lemaitre      Amanda Windsor  
Brian Tsukimura

## The Crustacean Society

1313 Dolley Madison Blvd., Suite 402  
McLean, VA 22101  
Phone: 703-790-1745 - 800-955-1236  
FAX: 703-790-2672  
Email: [tcs@burkinc.com](mailto:tcs@burkinc.com)  
Web: [www.thecrustaceansociety.org/](http://www.thecrustaceansociety.org/)

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# Welcome to Washington DC

## Message from TCS President

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On behalf of The Crustacean Society, I congratulate the Organizing Committee of the 9th International Crustacean Congress (ICC9) as it is no small feat to stage this event in Washington, D.C. As mentioned in the Welcome message from the Organizing Committee, ICC9 is an inaugural meeting-of-sorts, as it is the first time that one of our international carcinological congresses is to be held in the Americas! In addition, I cannot think of a better venue to host the ICC9 than at the historical Smithsonian Institution premises, whereby participants can imbibe the rich research culture.

A review of the ICC9 scientific program shows that we are in for an enriching academic discourse on a wide variety of topics as there is sufficient diversity to cater to all our conference participants' interests. In addition, extra treats such as the tour of the Smithsonian Institution Rare Book Collection, tour of the Smithsonian Crustacea collections, weekend birding expeditions, field trips to the Smithsonian Environmental Research Center in Edgewater, and the Maryland coastal plains for fossil enthusiasts, are meticulously planned by the organizers to enrich the congress experience!

Last but not least, we should acknowledge the hard work of each and everyone of the ICC9 Organizing Committee as it is through their selfless dedication and commitment that such a great program is put together for all of us. I look forward to meeting you all in D.C.!



Shirley Lim  
*President*  
The Crustacean Society

# Welcome to Washington DC

## Message from the Organizing Committee

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Dear Colleagues,

On behalf of the Organizing Committee it is an honor to welcome you to the 9th International Crustacean Congress (ICC9) in Washington DC. The tradition of holding international crustacean congresses began in India in 1965, then called "Symposium on Crustacea". The eight previous congresses have taken place at intervals varying from 4 to 15 years, and at venues spread across six countries on three continents. ICC9 will be the first such congress to be held in the Americas, and thus the first in Washington DC. It is fitting that this congress is finally hosted by the Smithsonian where a strong carcinological research has existed since the early founding of the Institution in the 19th century.

The meeting will begin on Tuesday with the start of registration and evening social. The 3-day scientific program that will follow (Wednesday at the Smithsonian's Freer Gallery of Art and Ripley Center, and Thursday and Friday at the Renaissance Hotel), includes a plenary talk each day by a notable scientist, followed by parallel sessions of contributed talks covering a wide range of topics, and 14 diverse symposia dealing with Extant and fossil crustaceans. For the first time, papers on marine chelicerates (a group historically associated closely with crustaceans) are included under a special symposium. Wednesday will include a popular talk, "Citizen Science – Crustacean Research for Everybody", followed in the evening by the poster exhibits and social. Friday evening is the closing dinner. There will be a student competition for the best oral and poster presentation. Special tours will take place to the Smithsonian Libraries, and the Crustacea Collections, as well as field trips to the Smithsonian Environmental Research Center, and nearby paleontological sites (please check the ICC9 website).

We trust you will enjoy your time at the congress while partaking and discussing crustacean research with your 260+ colleagues attending from all over the world, and also take the opportunity to visit the many Smithsonian museums (all free!), the attractions and monuments on the National Mall, and generally beautiful Washington DC during the spring.

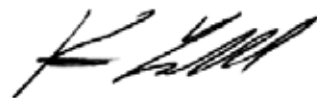
We wish you an enjoyable stay and a fruitful congress.



Brian Tsukimura  
*Professor*  
California State University, Fresno



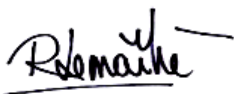
Christopher Tudge  
*Associate Professor*  
American University



Keith Crandall  
*Director, Computational Biology Institute*  
George Washington University



Amanda Windsor  
*Commissioner's Fellow*  
U.S. Food & Drug Administration



Rafael Lemaitre  
*Research Zoologist/Curator of Crustacea*  
Smithsonian Institution

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# Meeting Highlights/Social Events

Events take place in the Freer & Sackler Gallery of Art or The Renaissance Hotel, unless otherwise noted

## Tuesday 22 May

### Registration

Congressional Ballroom Foyer, Renaissance  
4:00 pm – 6:30 pm

### Welcome to Washington DC Opening Reception

Congressional Ballroom Foyer, Renaissance  
6:00 pm – 7:30 pm  
The Crustacean Society welcomes you to Washington DC with a reception. Light snacks and cash bar will be provided.

## Wednesday 23 May

### Registration

Freer Gallery Lower Level  
7:45 am – 4:00 pm

### Welcome and Opening

Freer Gallery, Meyer Auditorium  
8:30 am – 9:00 am  
Delegates should arrive early to allow time to go through the security check-point. Please be seated by 8:30 am to start the welcome/opening remarks and announcements.

### Plenary Session

**Crustaceans in the Tropics: Still Much to Discover**  
Freer Gallery, Meyer Auditorium  
9:00 am – 10:00 am

### Poster Session

Grand Ballroom South, Renaissance  
7:00 pm – 9:00 pm  
Please join us for a reception and poster session. Heavy snacks and cash bar will be provided.

## Thursday 24 May

### Registration

Congressional Ballroom Foyer, Renaissance  
8:30 am – 4:00 pm

### Plenary Session

**Evolution and Development Of Novel Forms: Insights from Crustacean Limbs**  
Grand Ballroom South, Renaissance  
9:00 am – 10:00 am

### TCS Board Meeting

Meeting Room 7  
12:00 pm – 1:00 pm

### JCB Editorial Board Meeting

Meeting Room 7  
6:00 pm – 7:30 pm

## Friday 25 May

### Registration

Congressional Ballroom Foyer, Renaissance  
8:30 am – 4:00 pm

### Plenary Session

**Climate Change Enhances Disease Outbreaks in Crabs and Lobsters**  
Grand Ballroom South, Renaissance  
9:00 am – 10:00 am

### TCS General Business Meeting

Grand Ballroom South, Renaissance  
12:00 pm – 1:00 pm

### Closing Ceremony

Grand Ballroom South, Renaissance  
6:00 pm – 6:15 pm

### Congress Dinner *(separate ticketed event)*

Mount Vernon Room, Renaissance  
6:30 pm – 8:30 pm

# General Information

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## Final Program

ICC does not assume responsibility for any inconsistencies or errors in the abstracts for contributed paper and poster presentations. We regret any possible omissions, changes and/or additions not reflected in this final program.

## Speaker Presentation Check-In

All presenters are asked to upload their oral presentations no later than Monday, May 21, using a link that will be sent by email. It is critical that all delegates giving an oral presentation on Wednesday at the Smithsonian Freer Gallery or Ripley Center upload their files by that date. Alternatively (but not preferred), presenters can check in at the registration desk to load their presentation on a central computer at least 1 day before the presentation is to take place. Each presentation will be loaded onto a master file for each session. It is highly recommended that you preview your presentation prior to your presentation time to guarantee that it will work properly. Your fifteen minute time slot does not include time for set-up and testing. There will be conference staff available at the registration desk to assist you during the following hours:

Tuesday 22 May	4:30 PM – 6:00 PM
Wednesday 23 May	7:45 AM – 4:00 PM
Thursday 24 May	8:00 AM – 4:00 PM
Friday 25 May	8:00 AM – 12:00 PM

## Coffee Breaks

Coffee break service is available Thursday and Friday, and will be located in the Congressional Ballroom Foyer.

Thursday 24 May	10:00 AM – 10:30 AM 3:00 PM – 3:30 PM
Friday 25 May	10:00 AM – 10:30 AM 3:00 PM – 3:30 PM

On Wednesday, coffee and food are not included. They must be obtained outside as no food or drinks are allowed on the Smithsonian museum premises.

## Registration Hours

The ICC9 Registration/Information area will be located in Congressional Ballroom Foyer at the Renaissance on Tuesday, Thursday and Friday. On Wednesday, the ICC9 Registration/Information area will be located at the Freer Gallery Lower Level. The Registration Desk will be open during the following hours:

Tuesday 22 May	4:00 PM – 6:30 PM
Wednesday 23 May	7:45 AM – 4:00 PM
Thursday 24 May	8:30 AM – 4:00 PM
Friday 25 May	8:30 AM – 4:00 PM

# Announcements

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## Ray & Lilly Manning Memorial Crustacean Bazaar

As has been popular at past TCS meetings, a table will be available at the Renaissance Hotel for purchasing, or bidding via silent auction, for fun and collectable crustacean kitch, knick knacks or memorabilia. Past bazaars were primarily stocked with crustacean kitch from the outstanding collections of the late Ray and Lilly Manning, generously donated to TCS by their daughter, Marian Bragg. Some of this material is still remaining and will be at this table, but feel free to bring any crustacean memorabilia you are wishing to part with to add to this event. As in the past all proceeds from this bazaar go to TCS and will be used to fund student scholarships and travel grants.

## Free Reprint Table

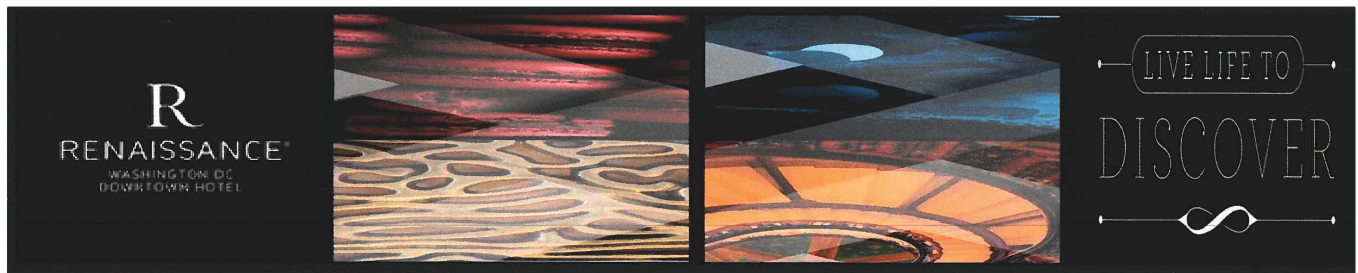
A table will be set up at the Renaissance Hotel to give away old reprints related to marine biology and carcin-ology. If you want to bring those redundant hard copy reprints you have laying around your lab or office to add to this table, please do so.

## Weekend Birding Expeditions for Cross-over Carcinologists

Any of you diehard carcinologists who also dabble in bird watching might be interested to know that Chris Tudge is willing to run free bird watching tours to his favorite spots around the greater Washington DC, Maryland and Virginia area on the weekend preceding and following the ICC 9 meeting. He has some spare binoculars and local bird guides to loan if you don't want to pack them. May is a prime time for many Neotropical migrants to pass through the Mid-Atlantic corridor and many local species will also abound. All trips will involve early starts (~6 am) and about 1 hour or less of car travel each way. I expect all trips to be concluded by 12 o'clock (noon). If you are interested in joining him (limited seats available) for these trips on the weekends, please contact him at [ctudge@american.edu](mailto:ctudge@american.edu).



# Dining Options



## Local Dining Options

AMERICAN			
Acadiana	901 New York Avenue, NW, Washington, DC 20001	(202) 408-8848	1 block
Corduroy	1122 9th Street, NW, Washington, DC 20001	(202) 589-0699	4 blocks
Founding Farmers	1924 Pennsylvania Avenue, NW, Washington, DC 20006	(202) 822-8783	1 mile
Kinship	1015 7th St NW, Washington, DC 20001	(202) 737-7700	3 blocks
Old Ebbitt Grill	675 15th Street, NW, Washington, DC 20004	(202) 347-4800	6 blocks
Sixth Engine	438 Massachusetts Avenue, NW, Washington, DC 20001	(202) 506-2455	4 blocks
The Dabney	122 Blagden Alley NW, Washington, DC 20001	(202) 450-1015	3 blocks
ASIAN-LATINO			
China Chilcano	418 7th St NW, Washington, DC 20004	(202) 783-0941	5 blocks
Zengo	781 7th Street, NW, Washington, DC 20001	(202) 393-2929	4 blocks
BARS / BREWERIES			
Capitol City Brewing Company	1100 New York Avenue, NW, Washington, DC 20005	(202) 628-2222	2 blocks
City Tap House	901 I Street, NW, Washington, DC 20001	(202) 644-9433	Next door
Fado Irish Pub	808 7th Street, NW, Washington, DC 20001	(202) 789-0066	1 block
Gordon Biersch	900 F St NW, Washington, DC 20004	(202) 783-5454	3 blocks
CHINESE / JAPANESE / PAN-ASIAN / THAI			
Mango Tree	929 H Street, NW, Washington, DC 20001	(202) 408 8100	1 block
Ming's Restaurant	617 H St NW, Washington, DC 20001	(202) 289-1001	3 blocks
Momofuku CCDC	1090 I St NW, Washington, DC 20001	(202) 602-1832	2 blocks
Ping Pong Dim Sum	900 7th Street, NW, Washington, DC 20001	(202) 506-3740	2 blocks
FRENCH			
Brasserie Beck	1101 K Street, NW, Washington, DC 20005	(202) 408-1717	5 blocks
DBGB Kitchen and Bar	931 H Street N.W. Washington, DC 20001	(202) 695-7660	2 blocks
L'Hommage Bistro Francais	450 K St NW, Washington, DC 20001	(202) 791-0916	4 blocks
Sax Restaurant and Lounge	734 11th Street, NW, Washington, DC 20004	(202) 737-0101	3 blocks
INDIAN / VEGETARIAN			
Busboys and Poets	1025 5th Street, NW, Washington, DC 20001	(202) 789-2227	5 blocks
Rasika	633 D Street, NW, Washington, DC 20004	(202) 637-1222	4 blocks
The Bombay Club	815 Connecticut Ave NW, Washington, DC 20006	(202) 659-3727	1 mile
ITALIAN			
Alta Strada	465 K Street NW Washington, DC, Washington, DC 20001	(202) 629-4662	4 blocks
Bibiana	1100 New York Avenue, NW, Washington, DC 20005	(202) 216-9550	4 blocks
Casa Luca	1099 New York Avenue, NW, Washington, DC 20001	(202) 628-1099	2 blocks
Centrolina	974 Palmer Alley NW, Washington, DC 20001	(202) 898-2426	1 block
Fiola	601 Pennsylvania Avenue, NW, Washington, DC 20004	(202) 628-2888	4 blocks
Graffiato	707 6th Street, NW, Washington, DC 20001	(202) 289-3600	4 blocks
LATIN			
Cuba Libre	801 9th Street, NW, Washington, DC 20001	(202) 408-1600	2 blocks
Del Campo	777 I St NW, Washington, DC 20001	(202) 289-7377	Next Door
MEDITERRANEAN			
Fig & Olive	934 Palmer Alley, NW, Washington, DC 20001	(202) 559 5004	1 block
Zaytinya	701 9th Street, NW, Washington, DC 20001	(202) 638-0800	3 blocks
MEXICAN			
Espita Mezcaleria	1250 9th St NW, Washington, DC 20001	(202) 621-9695	4 blocks
Jaleo	480 7th Street, NW, Washington, DC 20004	(202) 628-7949	4 blocks
Oyamel	401 7th Street, NW, Washington, DC 20004	(202) 628-1005	6 blocks
Rosa Mexicano	575 7th Street, NW, Washington, DC 20004	(202) 783-5522	6 blocks
SEAFOOD			
Legal Seafood	704 7th Street, NW, Washington, DC 20001	(202) 347-0007	2 blocks
Oceanaire	1201 F Street, NW, Washington, DC 20004	(202) 347-2277	6 blocks
STEAK			
BLT Steak	1625 I Street, NW, Washington, DC 20006	(202) 689-8999	1 mile
Bobby Van's	1201 New York Avenue, NW, Washington, DC 20005	(202) 589-1504	3 blocks
Del Frisco's Double Eagle Steak House	950 I Street NW, Suite 501, Washington, DC 20001	(202) 289-0201	1 block
Ruth Chris	724 9th Street, NW, Washington, DC 20001	(202) 393-4488	3 blocks



# Dining Options

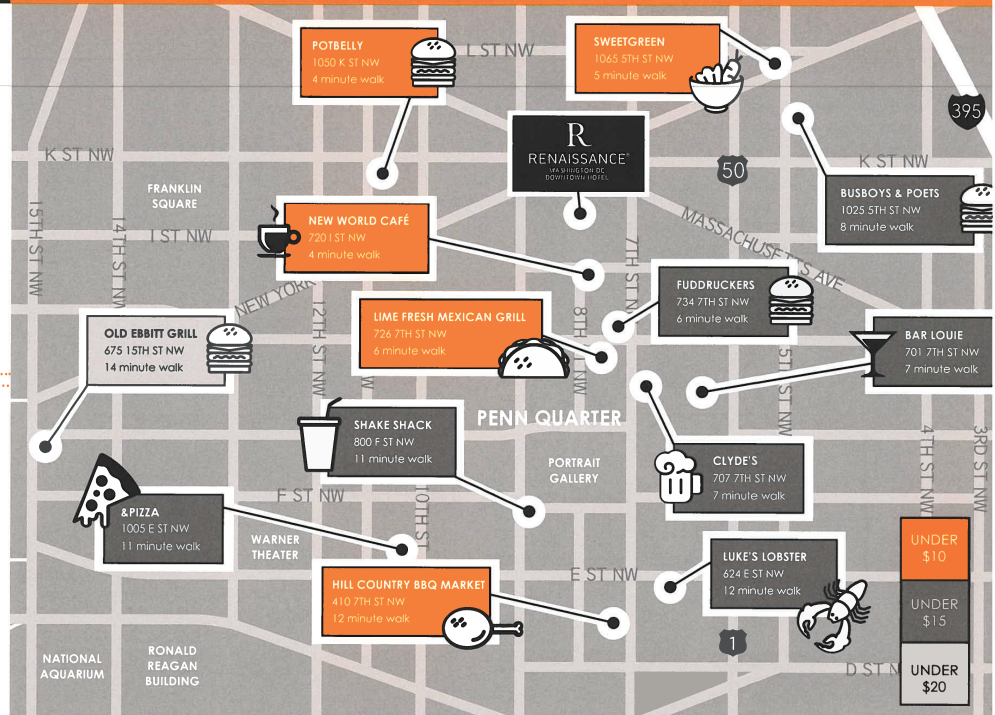
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SPY MUSEUM**

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ARCHIVES**

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0.6 miles from the hotel



**CAPITAL  
BIKE SHARE**

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**GALLERY PLACE**

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**CHINATOWN METRO**

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0.2 miles from the hotel



**NEWSEUM**

555 Pennsylvania Avenue NW  
0.8 miles from hotel



**MADAME TUSSAUD'S**

1001 F Street NW  
0.4 miles from hotel



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# Parking Options

## Renaissance Washington DC Hotel Daily Parking Rates

All prices are subject to change.

### Hotel Guest Parking

Self Parking for overnight guest \$ 35.00 inclusive  
Valet Parking for overnight guest \$ 45.00 plus tax

### Non Hotel Guest Parking Hourly Valet

Up to 3 hours: @ \$ 22.00 plus tax  
3 hours to 24 hours: @ \$ 45.00 plus tax

### Hourly Self Parking

Zero to one hour: \$11.00  
One hour to 9 hours: \$17.00  
9 hours to 16 hours: \$24.00  
16 hours to 24 hours: \$35.00

### Special Evening Rate

5:00 pm - 3:00 am: \$15.00

### PARKING LOTS NEAR THE WALTER E. WASHINGTON CONVENTION CENTER

Name/Address	Spaces	Rate
<b>1 Center City Parking</b> New York Avenue and 10th Street (202) 265-0010 2 blocks to the Center	145	1 hour - \$10.00 1-4 hours - \$15.00 All Day - \$20.00 Weekend - \$20.00 Special Events - \$20.00
<b>2 Interpark</b> (Renaissance Hotel) 999 Ninth Street NW (202) 973-3933 1 block to the Center	200	Self - \$28.00 Valet - \$40.00
<b>3 PMI Parking</b> 900 New York Ave. NW (202) 785-9191 1.5 blocks to the Center	167	1 hour - \$6.00 1 hour - \$6.00 Conv. Center Special Events - \$20.00
<b>4 Quick Park</b> (Grand Hyatt) 1000 H Street NW (202) 582-1234 5 blocks to the Center	50	Self - \$30.00 Valet - \$35.00
<b>5 Park America</b> 700 11th Street NW (202) 789-1750 6 blocks to the Center	352	Monday - Friday 1 hour - \$6.00 2 hours - \$10.00 All Day - \$15.00 After 7 p.m. - \$7.00 Saturday - \$7.00 Closed Sunday
<b>6 PMI Parking</b> 610 Mass Ave. NW (202) 661-5000 2 blocks to the Center	100	1 hour - \$8.00 Max - \$11.00 After 5 p.m. - \$7.00 Conv. Center Special Events - \$15.00
<b>7 Marc Parc</b> 500 K Street NW (202) 464-2900 2 blocks to the Center	100	Monday - Friday only All Day - \$20.00
<b>8 Doggett</b> 701 8th Street, NW (202) 393-2923 4 blocks to the Center	25	Open 6 A.M. - 8 P.M. Daily All Day - \$12.00 Special Events - \$15.00
<b>9 Colonial Parking at Gallery Place</b> 701 6th Street, NW (202) 393-2923 6 blocks to the Center	200	Open 24/7 1 hour - \$8.00 All Day \$17.00
<b>10 Altmans Parking</b> 701 6th Street, NW (202) 337-1005 5 blocks to the Center	100	Monday - Friday 6 A.M. - 6 A.M. All Day - \$7.00 Saturday & Sunday 9 A.M. - 6 A.M.
<b>11 System Parking</b> 700 8th Street, NW (202) 331-0980 4 blocks to the Center	20	Monday - Saturday 7 A.M. - 12 A.M. 1 hour - \$8.00 2 hours - \$12.00 Max - \$15.00 Sunday 8:30 A.M. - 12 A.M.

# Wednesday Program Sessions

Note: Presenter is first author unless noted by an asterisk (\*).

**8:30 AM – 9:00 AM WELCOME Freer Gallery, Meyer Auditorium**

## Welcome and Opening

**9:00 AM – 10:00 AM PL1 – Plenary Session Freer Gallery, Meyer Auditorium**

### Crustaceans in the Tropics: Still Much to Discover

*Nancy Knowlton; Smithsonian National Museum of Natural History*

The tropics are the epicenter of marine biodiversity, and crustaceans are no exception in this regard. Crustaceans are among the most diverse and ecologically important members of coral reef communities, where they form important symbioses with other invertebrates, support the base of coral reef food chains, and even shape the ecology of other reef dwellers through their sounds. This diversity has also provided model systems for understanding the processes of speciation in the sea and the evolution of true social behavior. Nevertheless, crustacean diversity is still poorly known, although DNA-based tools are contributing to rapid improvements in our understanding. In the past, DNA sequencing of individual organisms has revealed considerable cryptic diversity, and this process continues to this day. More recently, the high-throughput sequencing revolution has documented the extraordinary diversity of small crustaceans that typically go uncounted in traditional ecological surveys, and these approaches can also provide tools for examining the contribution of crustaceans to coral reef trophic relationships. In this talk I will review some highlights of these research trends, with a particular focus on snapping shrimp, one of the most diverse of all crustacean lineages, and on the discoveries emerging from studies of environmental DNA.

**10:30 AM – 12:00 PM WAM-1 Freer Gallery, Meyer Auditorium**

### Crustacean Biodiversity Neotropics

*Co-chairs: Marcos Tavares, Rafael Lemaitre*

10:30 am	<b>WAM-1.1</b>	<i>Tavares M; University of Sao Paulo</i>	Decapod Crustacea from the Remote Oceanic Archipelago Trindade & Martin Vaz, South Atlantic Ocean
10:45 am	<b>WAM-1.2</b>	<i>Bueno SLS, Tavares MDS, Mantelatto FL, Vera-Silva AL, Moraes JCB; University of São Paulo</i>	An Integrative Taxonomy Study of Cave-Dwelling Aeglids (Decapoda: Aeglididae) from Southeastern Brazil, with Description of Three New Species
11:00 am	<b>WAM-1.3</b>	<i>Lemaitre R, Poupin J; Smithsonian Institution, Institut de Recherche de L'ecole Naval</i>	Recognizing the Caribbean Sea Lesser Antilles as a "Hot Spot" of Decapod Crustacean Biodiversity
11:15 am	<b>WAM-1.4</b>	<i>Baeza JA, Sanjeevi P; Clemson University</i>	Diversification in the Caribbean Sea: Insights from Molecular Phylogenetics and Cryptic Species Delimitation Analyses in the Shrimp Genus <i>Lysmata</i>
11:30 am	<b>WAM-1.5</b>	<i>Vázquez-Bader AR, Gracia A; Instituto de Ciencias Del Mar y Limnología</i>	Biodiversity of Decapod Crustaceans in the Continental Slope of the Southern of Gulf of Mexico
11:45 am	<b>WAM-1.6</b>	<i>Wolf MR, Bueno SLS, Moraes JCB, Tudge CC, Teixeira GM, Castilho AL; Universidade Estadual Paulista, Universidade de São Paulo, American University, Universidade Estadual de Londrina</i>	Morphological Comparison Between <i>Aegla</i> Castro Schmitt, 1942 (Decapoda, Anomura, Aeglididae) Populations as an Important Source of Information for Conservation Status

**10:30 AM – 12:00 PM WAM-2 Freer Gallery, Conference Room**

### In Honor of Horton H. Hobbs III: Contributions and Legacy in Crustacean Biology

*Chair: Megan Porter*

10:30 am	<b>WAM-2.1</b>	<i>Porter ML; University of Hawaii at Manoa</i>	Horton H. Hobbs' III Contributions and Legacy in Crustacean Biology
10:45 am	<b>WAM-2.2</b>	<i>Butler MJ; Old Dominion University</i>	A Homage to H.H. Hobbs III: the Inspiration for Four Decades of Research On Decapods
11:00 am	<b>WAM-2.3</b>	<i>Yager J; National Museum of Natural History, Smithsonian</i>	The Remarkable Remipedia



## Wednesday 23 May 2018

11:15 am	<b>WAM-2.4</b>	<i>Crandall KA, Stern DB; George Washington University</i>	Phylogenetic Evidence from Freshwater Crayfishes That Cave Adaptation Is Not an Evolutionary Dead-End
11:30 am	<b>WAM-2.5</b>	<i>Kennedy MD; American University</i>	Photoreception and the Role of Serotonin On Photobehavior of <i>Gammarus minus</i>
11:45 am	<b>WAM-2.6</b>	<i>Fong DW, Farmer W; American University</i>	Long-Term Population Dynamics of a Stygobiont from a Hypotelmiorheic Habitat

### 10:45 AM – 11:45 AM      **WAM-7**      **Ripley Center, Lecture Hall**

#### **Climate Change**

Chair: Angelika Brandt

10:45 am	<b>WAM-7.1</b>	<i>Brandt A, Saeedi H; Senckenberg Research Institute Museum</i>	NW Pacific Deep-Sea Crustacea At the Edge of the Changing Arctic Ocean in Times of Rapid Climate Change
11:00 am	<b>WAM-7.2</b>	<i>Spanier E, Goldstein JS; University of Haifa, Israel, Wells National Estuarine Research Reserve, Maine Coastal Ecology Center</i>	Is the Mediterranean Slipper Lobster, <i>Scyllarides latus</i> , in the Levant Affected By Climate Changes?
11:15 am	<b>WAM-7.3</b>	<i>Chandrapavan A, Johnston D, Caputi N, Kangas M; Western Australian Department of Primary Industries Regional Development</i>	Is the Blue Swimmer Crab a Winner Or Loser of Climate Change?
11:30 am	<b>WAM-7.4</b>	<i>Pappalardo P, Wares J; University of Georgia</i>	Where Do Coastal Anthropogenic Stressors Present More Threats to Crustacean Diversity?

### 1:30 PM – 2:45 PM      **WPM-3**      **Freer Gallery, Meyer Auditorium**

#### **Conservation Biology of Freshwater Crustaceans, I**

Chair: Christopher Rogers

1:30 pm	<b>WPM-3.1</b>	<i>Cumberlidge N; Northern Michigan University</i>	Conservation of Freshwater Decapods and Responses to the Global Biodiversity Crisis
1:45 pm	<b>WPM-3.2</b>	<i>Kawai T; Wakkanai Fisheries Research Institution</i>	Global Conservation of Freshwater Crayfish
2:00 pm	<b>WPM-3.3</b>	<i>Ma KY, Chow LH, De Grave S, Chu KH; The Chinese University of Hong Kong, University of Oxford</i>	Extreme and Contrasting Population Structures of Freshwater Atyid Shrimps in Hong Kong
2:15 pm	<b>WPM-3.4</b>	<i>Carroll TM, Rogers C, Stern DB, Crandall KA; University of South Carolina Beaufort, University of Kansas, George Washington University, National Museum of Natural History, Smithsonian Institution</i>	A New Morphotype of the Phreatic Crayfish <i>Cambarus hubrichti</i> (Decapoda: Cambaridae) from an Ozark Spring Cave System, with Comments On Its Ecology
2:30 pm	<b>WPM-3.5</b>	<i>De Mazancourt V, Klotz W, Marquet G, Mos B, Rogers DC, Keith P; Muséum National D'Histoire Naturelle, Southern Cross University, Kansas University</i>	The Complex Study of Complexes: the First Well-Supported Phylogeny of Two Species Complexes Within Genus <i>Caridina</i> (Decapoda: Caridea: Atyidae) Sheds Light On Evolution, Biogeography, and Ecology

### 1:30 PM – 3:00 PM      **WPM-4**      **Freer Gallery, Conference Room**

#### **Reproduction and Larval Biology**

Chair: F. Audebert

1:30 pm	<b>WPM-4.1</b>	<i>Kienbaum K, Vehof J, Becker C; Humboldt-Universität zu Berlin, Queen's University Marine Laboratory</i>	The Reproductive System of <i>Limnopilos naiyanetri</i> (Hymenosomatidae) Indicates a Thoracotreme Affiliation
1:45 pm	<b>WPM-4.2</b>	<i>Carton B, Audebert F*, Tredez F, Galindo LA, Maury B, Rabet N; Sorbonne Universités, Université de Versailles Saint-Quentin-en-Yvelines, UFR Sciences de la Santé Simone Veil</i>	Synchronism in the Naupliar Development of <i>Sacculina carcini</i> Is Explained By Synchronized Cell Division
2:00 pm	<b>WPM-4.3</b>	<i>Vehof J, Scholtz G, Becker C; Humboldt-Universität Zu Berlin, Queen's University</i>	Marching to a Different Drummer –the Female Reproductive System of Dorippid Crabs
2:15 pm	<b>WPM-4.4</b>	<i>Haug JT; LMU Munich</i>	I Know What a Larva Is – a Look At Specimens That Mess with Our Concepts
2:30 pm	<b>WPM-4.5</b>	<i>Palecanda SP, Feller KD, Porter ML; University of Hawai'i at Mānoa, University of Cambridge</i>	Planktonic Estimates of Stomatopod Diversity

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2:45 pm	<b>WPM-4.6</b>	<i>Silva EF, Craveiro C, Nolé L, Lira AS, Castro Neto H, Gonzalez E, Lucena Flávia, Peixoto S, Soares R; Instituto Federal De Educação, Ciência e Tecnologia da Paraíba, Universidade Federal Rural de Pernambuco</i>	Population Structure and Size At First Maturity of the White Shrimp <i>Litopenaeus schmitti</i> On the North Coast of Paraíba State, Northeastern Brazil
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<b>1:30 PM – 2:45 PM</b>	<b>WPM-8</b>	<b>Ripley Center, Lecture Hall</b>
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### Crustacean Jambalaya I

Chair: Christopher Tudge

1:30 pm	<b>WPM-8.1</b>	<i>Rabet N, Rogers DC, Ferreira AO, Lacau S, Bonillo C; Sorbonne Universités, Kansas University, MUNDI Biologia Integrada Ltda, Universidade Estadual do Sudoeste da Bahia, UMS 2700 OMSI, MNHN</i>	NGS Sequencing On Brazilian Spinicaudatan Diversity
1:45 pm	<b>WPM-8.2</b>	<i>Bober S, Riehl T, Henne S, Brandt A; University of Hamburg, Senckenberg Research Institute and Natural History Museum</i>	New Macrostylidae (Isopoda) from the Northwest Pacific Basin Described By Means of Integrative Taxonomy with Reference to Geographical Barriers in the Abyss
2:00 pm	<b>WPM-8.3</b>	<i>Jakiel A, Jóźwiak P, Błażewicz M*; University of Łódź</i>	Distributional Patterns of Small Brooding Crustaceans (Tanaidacea) from Abyssal Regions Around the World
2:15 pm	<b>WPM-8.4</b>	<i>Wolf MR, Zara FZ, Tudge CC, Bueno SLS, Castilho AL; Universidade Estadual Paulista, American University, Universidade de São Paulo</i>	Ultrastructure of Spermatozoa of <i>Aegla</i> Sp. (Crustacea, Decapoda, Aegliidae): Description of Morphological Patterns, Comparison of the Potential Cryptic Taxon <i>Aegla castro</i> Schmitt, 1942 and Information for Conservation
2:30 pm	<b>WPM-8.5</b>	<i>Johnston DJ, Marks R, Denham A, Hesp A, de Lestang S, Caputi N; Western Australian Department of Primary Industries and Regional Development</i>	The Rise and Fall of a Coastal Marine Embayment Blue Swimmer Crab Fishery

<b>3:30 PM – 5:00 PM</b>	<b>WPM-5</b>	<b>Freer Gallery, Meyer Auditorium</b>
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### Conservation Biology of Freshwater Crustaceans, II

Chair: Tadashi Kawai

3:30 pm	<b>WPM-5.1</b>	<i>Campos MR, Lasso CA, Acevedo Alonso A*; Universidad Nacional de Colombia, Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Northern Michigan University</i>	Assessment of the Extinction Risk of the Colombian Freshwater Crabs
3:45 pm	<b>WPM-5.2</b>	<i>Wilson GDF, Humphrey CL; Saugatuck Natural History Laboratory, Environmental Research Institute of the Supervising Scientist</i>	Conservation Challenges for a Species Flock of Eophreatoicus (Isopoda; Phreatoicidea) in Australia's Northern Territory
4:00 pm	<b>WPM-5.3</b>	<i>Hughes LE; Life Science, Natural History Museum</i>	Taxonomy of Coastal Talitrids of Australia (Amphipoda: Peracarida)
4:15 pm	<b>WPM-5.4</b>	<i>Glenner H, Høeg JT, Rees DJ, Rybakov A, Schubart C; University of Bergen, University of Copenhagen, Russian Academy of Sciences, Universität Regensburg Institut für Zoologie</i>	The Phylogenetic Position of Freshwater Barnacles
4:30 pm	<b>WPM-5.5</b>	<i>Hupalo K, Mamos T, Rewicz T, Wrzesinska W, Karaouzas I, Plaiti W, Boulaaba S, Grabowski M; University of Lodz, Hellenic Centre for Marine Research, Université de Carthage, Tunisia</i>	Which Way to the Island? Diversity and Origin of Freshwater Gammarids from Mediterranean Islands
4:45 pm	<b>WPM-5.6</b>	<i>Rogers DC; University of Kansas</i>	Conservation Status of the Large Branchiopods (Branchiopoda: Anostraca, Notostraca, Laevicaudata, Spinicaudata, Cyclestherida)



**3:30 PM – 5:15 PM      WPM-6      Freer Gallery, Conference Room**

**Consequences of Sex Ratio Variation**

*Chair: Martin Thiel*

3:30 pm	<b>WPM-6.1</b>	<i>Thiel M; Universidad Catolica del Norte</i>	Rhythms and Reproduction
3:45 pm	<b>WPM-6.2</b>	<i>Ewers-Saucedo C; Zoological Museum of the Christian-Albrechts University</i>	A Review of Crustacean Sex Ratios in the Light of Sexual System Evolution
4:00 pm	<b>WPM-6.3</b>	<i>Baeza JA; Clemson University</i>	Sex (Phase) Ratio in Protandric Simultaneous Hermaphrodites (Caridea: Lysmatidae: <i>Lysmata</i> )
4:15 pm	<b>WPM-6.4</b>	<i>Galipaud M; University of Zurich</i>	Operational Sex Ratio and the Degree of Assortative Mating Among Crustacean Sympatric Species
4:30 pm	<b>WPM-6.5</b>	<i>Ogburn MB, Richie KD, Aguilar R, Hines AH; Smithsonian Environmental Research Center</i>	Linking Operational Sex Ratio and Reproductive Output of Chesapeake Bay Blue Crabs
4:45 pm	<b>WPM-6.6</b>	<i>Fernandes Martins MJ, Hunt G, Thompson C, Lockwood R; Smithsonian Institution, National Museum of Natural History, The College of William and Mary</i>	Did Sexual Selection Hinder Survival of Ostracode Species Through the K/Pg Mass Extinction?
5:00 pm	<b>WPM-6.7</b>	<i>Slater LM, Jackson TM, Webb JB, Pengilly D, Kruse GH, Daly B; Alaska Department of Fish &amp; Game, University of Alaska Fairbanks, College of Fisheries and Ocean Sciences</i>	Mating Dynamics of Eastern Bering Sea Snow Crab: Inferences Based On Female Sperm Reserves and Sex Ratios

**3:30 PM – 4:00 PM      WPM-9      Ripley Center, Lecture Hall**

**Crustacean Jambalaya II**

*Chair: Christopher Tudge*

3:30 pm	<b>WPM-9.2</b>	<i>Klomp maker AA, Robins CM, Fraaije RHB, Portell RW, De Angeli A; University of California, Berkeley, Oertijdmuseum, University of Florida, Museo Civico "G. Zannato"</i>	How Common Are Isopod Parasites in Decapod Crustaceans Throughout the Meso-Cenozoic?
3:45 pm	<b>WPM-9.4</b>	<i>Rabet N, Timms B, Charpin N, Bonillo C; Sorbonne Universités, Australian Museum, Vies d'Ô douce</i>	The Large Branchiopods of New Caledonia

**5:30 PM – 6:00 PM      WPM-10      Freer Gallery, Meyer Auditorium**

**Citizen Science: Crustacean Research for Everybody**

*Chair: Martin Thiel*

5:30 pm	<b>WPM-10.1</b>	<i>Thiel M; Universidad Catolica del Norte</i>	Citizen Science: Crustacean Research for Everybody
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# WEDNESDAY POSTER SESSION

Grand Ballroom South, Renaissance Hotel, 7:00 PM – 9:00 PM

## Climate Change

- P.1** Chen HS, Wen TC, Chen K, Chen CY, Chen MH; National Sun Yat-Sen University, National Taiwan University, National Kaohsiung Marine University
- P.2** Marochi MZ, Costa TM; São Paulo State University,
- P.3** Gutow L, Kellermann R, Wang HY, Lannig G; Alfred Wegener Institute Helmholtz Centre For Polar Marine Research
- P.4** Araújo-Silva CL, Santos PJP; Federal University of Pernambuco
- P.5** Sayavong N, Gunderson AR, Stillman JH, Tsukimura B; California State University
- P.6** Chen TC, Chen MH, Meng PJ, Chen CY, Chen KS, Chen HS; National Sun Yat-Sen University, National Museum of Marine Biology and Aquarium, National Kaohsiung Marine University
- Rising Seawater Temperature on the Benthic Shrimp Assemblages Structure in Subtropical Coastal Waters—An Eight-Year Investigation
- The Effect of Temperature on Larval Development of *Ucides cordatus* (Linnaeus, 1763) in a Climate Change Scenario
- Temperature Dependent Energetic Demands and Food Acquisition in the Marine Isopod *Idotea emarginata*
- Climate Change Scenarios Effects on a Coral Reef Peracarid Community
- Effects of Interspecific Interactions and Increased Population Density on Vitellogenesis in Intertidal Crabs *P. cinctipes* and *P. manimaculus*
- Crab Assemblages Changes in Relative to Environmental Factors in the Coastal Waters off Southwestern Taiwan

## Conservation Biology

- P.7** Desiderato A, Mucciolo S, Turicchia E, Ponti M, , Krapp-Schickel T; Universidade Federal Do Paraná, Curitiba, University of Bol, University of Bologna, Italy, Forschungsmuseum A. Koenig
- P.8** Zhang Z, Capinha C, Weterings R, Xi D, Lü HJ, Yu L; Tokyo University of Marine Science Technology, Universidade do Porto, Cat Drop Foundation, Universities of Shandong, Weifang University, Pearl River Fisheries Research Institute of Chinese Academy of Fishery Sciences
- P.9** Niwa N, Shigeto K, Hashimoto K, Sakaguchi T, Hoshino E, Mihara M; Kyoto University, Kobe Senior High School
- P.10** Brunson CE; University of Guam
- P.11** Lee KT; George Mason University
- P.12** Van Der Wal C, Ahyong ST, Ho SYW; University of Sydney, Marine Invertebrates, Australian Museum
- Parametopella cypris* (Amphipoda: Stenothoidae), A New Sneaky Alien in a North Adriatic Lagoon
- Ensemble Forecasting of the Global Potential Distribution of the Invasive Chinese Mitten Crab, *Eriocheir sinensis*
- Crossing Experiment and Genomic Analysis of Genus *Neocaridina* in Japan
- The Impact of Invasive Pigs (*Sus scrofa*) on Coconut Crabs (*Birgus latro*) on Guam
- Color Variation in Female Green Crabs, *Carcinus maenas*
- Assessing the Conservation Status and Genetic Diversity of the Giant Sydney Crayfish, *Euastacus spinifer* Using Molecular Approaches

## Crustacean Jambalaya

- P.13** Williams BW, Weaver PG, Woodson A, Lukas L, Egly R, Larson ER; North Carolina Museum of Natural Sciences, Meredith College, University of Illinois at Urbana-Champaign
- P.14** Norenburg JL, Santos CD, Schwartz LC, Goetz FE, Maslakova SA, Wirshing HH, Gonzalez VL; Smithsonian National Museum of Natural History, University of South Carolina, University of Oregon
- P.15** Goldstein JS, Carloni J, Kibler RD; Wells National Estuarine Research Reserve, New Hampshire Fish and Game Department, University of New Hampshire
- P.16** Koefoed IK, Loneragan NL, Kangas K, Hordyk A; Murdoch University, Department of Primary Industries and Regional Development, University of British Columbia
- Crayfish Symbiont Reponse to Invasion in the Northwestern United States
- Carcinonemertidae (Nemertea): Ribbon Worms in Search of a Family History Among Crabby Hosts
- A Fishery in Flux: Claw Removal and its Impacts on Survival, Behavior, and Physiological Stress in the Jonah Crab (*Cancer borealis*)
- Regional Variation in Life-History Strategies of Penaeids and Their Resilience to Changing Temperatures

**P.17** Kou Q, Gong L, Li X; Chinese Academy of Sciences

A New Species of the Deep-Sea Spongicolid Genus *Spongicoloides* (Crustacea, Decapoda, Stenopodidea) and a New Species of the Glass Sponge Genus *Corbitella* (Hexactinellida, Lyssacinosida, Euplectellidae) from Seamount Near the Mariana Trench, with a Novel C

## Ecology

**P.18** Kulkarni MR, Pai K; Savitribai Phule Pune University

Freshwater Diaptomid Copepods on the Rocky Outcrops of the Western Ghats: Distribution, Ecology and Biogeography.

**P.19** Araujo MSLC, Silva ES; Universidade de Pernambuco

Relative Growth of Swimming Crabs (Portunidae) from Potiguar Basin, Brazilian Northeast

**P.20** Model JFA, Vogt EL, Lima MV, Trapp M, Schott EJ, Vinagre AS\*; Federal University of Rio Grande Do Sul, Institute of Marine and Environmental Technology (IMET), University of Maryland Center for Environmental Sciences (UMCES)

Metabolic Effects of a Viral Infection (CSRV1) on the Blue Crab *Callinectes sapidus* in Southern Brazil: Preliminary Results

**P.21** Peart RA, Nodder SD, Lörz AN; National Institute of Water & Atmospheric Research, CeNak, Zoologisches Institut und Museum

Amphipods - Turning the Wheel of Carbon in the Deep Sea

**P.22** Guzman GL, Rivera J, Escibano R; Universidad Arturo Prat, Universidad de Concepción

Distribution of Pelagic Shrimps in the Southeast Pacific (Decapoda, Dendrobranchiata and Caridea)

**P.23** Böök I, Saborowski R\*; Alfred Wegener Institute

Crustaceans Liberate Substantial Amounts of Extracellular Enzymes

**P.24** Martinez-Alarcon D, Teschke M, Hagen W, Saborowski R; University of Bremen, Alfred Wegener Institute

Seasonal Expression of Digestive Enzyme Genes in the Brown Shrimp *Crangon crangon* (Decapoda, Caridea)

**P.25** Vogt EL, Lima MV, Model JFA, Souza SK, Rocha DS, Fabres RB, Vinagre AS\*; Federal University of Rio Grande Do Sul

Ghost Crabbing: a Stressful Touristic Activity For *Ocypode quadrata*

**P.26** Lessios N, Cohen JH, Rutowski RL, Sayre ME, Strausfeld NJ; University of Arizona, University of Delaware, Arizona State University

Multiple Spectral Channels in Branchiopods: Vision in Dim Light and Neural Correlates

**P.27** Barbosa-Nieto B, Gracia A\*, Vázquez-Bader AR; Instituto de Ciencias del Mar y Limnología

Ecology of *Sympagurus pictus* Smith 1883 in the Southern Gulf of Mexico

**P.28** Lucatelli D, Souza-Filho JF, Andrade RM; Universidade Federal De Pernambuco

Carcinofauna Composition from South Pernambuco Continental Shelf, Southwestern Atlantic

**P.29** Neufeld M, Gunderson AR, Stillman JH, Tsukimura B; California State University

Effects of Extended Day Length on Vitellogenesis of Intertidal Crab *P. cinctipes*

**P.30** Vázquez-Bader AR, Gracia A, Briones-Fourzán PD, Lozano-Alvarez E; Instituto de Ciencias Del Mar y Limnología

Distribution and Abundance of Nephropidae and Polychelidae of the Southern Gulf of Mexico (Tamaulipas to Yucatán)

**P.31** Esquete P, Schizas N, Chatterjee T; Universidade de Aveiro, University of Puerto Rico, Indian School of Learning

Discovering the Tanaidacea of Caribbean Mesophotic Reefs

**P.32** Peres PA, Azevedo-Silva M, Andrade SCS, Leite FPP; University of São Paulo, University of Campinas

Is There Host-Associated Differentiation in Marine Herbivore Amphipods?

**P.33** Rymut JA; Fairleigh Dickinson University

Determining the Effects of Nitric Oxide on *Procambarus fallax* Forma Virginalis

**P.34** Wade NM, Bourne N, Simon CJ; Queensland Biosciences Precinct

Influence of Particle Size on Shrimp Nutrient Digestibility and Particle Movement Through the Digestive System

**P.35** Baeza JA; Clemson University

The Private Sex Life of Symbiotic Decapod Crustaceans: Model Systems in Behavioral Ecology

**P.36** Kulp RE, Floros N, Peterson BJ; Stony Brook University, University of North Carolina Wilmington

Effects of Habitat Type on a Marine Mesopredator's Foraging Efficiency

## Fisheries

**P.37** Kroenke C, Baeza JA; Clemson University

A Review on the Life History of the Stone Crab *Menippe mercenaria*: Implications For Fishery Management

**P.38** Silva EF, Castelo-Branco T, Da Costa L, Da Silva Y, Nolé L, Lira AS, Batista A, Guerra M; Instituto Federal De Educação, Ciência e Tecnologia da Paraíba, Universidade Federal Rural de Pernambuco

Evaluation of Males Reproductive Quality of the White Shrimp *Litopenaeus vannamei* in Commercial Maturation System

**P.39** Villalobos-Rojas F, Wehrmann IS\*, Azofeifa-Solano JC, Romero-Chaves R; Universidad De Costa Rica

Spatial Distribution of Hermit Crabs Associated with Deep-Water Shrimp Fishing in the Pacific Coast of Costa Rica, Central America

**P.40** García-Carreño F, Maytorena Verdugo C; CIBNOR

*Litopenaeus vannamei* Digestive Metallo Peptidases Compensate For Anti-Nutritional Sbt in Feed

### Functional Morphology

**P.41** Hegna TA, Czaja AD, Rogers DC; Western Illinois University, University of Cincinnati, Kansas University

Raman Spectroscopic Analysis of the Composition of Clam Shrimp (Laevicaudata, Spinicaudata, Cyclestherida) Carapaces: a Novel Dual Mineralization System

**P.42** Kabus J, Hayer S, Boretius S, Brandis D; Christian-Albrechts-University Kiel, Deutsches Primatenzentrum (DPZ)

Seeing Things from a Different Angle - The Reproductive Morphology of *Xantho poressa*

**P.43** De Mazancourt V, Djediat C; Muséum National D'Histoire Naturelle

Are Some Cuticular Parts Conserved For Studying the Life History of Amphidromous *Caridina* Shrimps (Decapoda: Caridea: Atyidae)?

**P.44** Grygier MJ, Olesen J, Dreyer N, Høeg JT; National Taiwan Ocean University, University of Copenhagen

A New and Mysterious Internal Structure of Nauplius Larvae: a "Ghostly" Support Sling For the Y-Cypris Present Within Last-Instar Exuviae of Nauplius Y (Crustacea: Thecostraca: Facetotecta)

**P.45** Wagner P, Doemel J, Hofmann M, Huebner J, Leese F, Melzer RR; Ludwig-Maximilians-University Munich, University Duisburg-Essen, Bavarian State Collection of Zoology

New Insights Into the Proboscis of Pantopoda: a Comparative Approach Based on Morphology

**P.46** Lavalli KL, Malcom CN, Goldstein JS; Boston University, Educational Testing Service, Wells National Estuarine Research Reserve

Description of the Setae on the Pereiopods of Scyllarid Lobsters, *Scyllarides aequinoctialis*, *S. latus*, and *S. nodifer*, with Observations on the Feeding Sequence During Consumption of Bivalves and Gastropods

### Genomics

**P.47** Baeza JA; Clemson University

Historical Demography in the Reef-Dwelling Caribbean Spiny Lobster *Panulirus argus* Revealed Using Ngs

**P.48** Niwa N, Shigeto K, Hashimoto K, Sakaguchi T, Hoshino E, Mihara M; Kyoto University, Kobe Senior High School

Crossing Experiment and Genomic Analysis of Genus *Neocaridina* in Japan

**P.49** Hee-Soo K, Hyunhyong KD, Won K\*; Seoul National University

The Genome Survey of *Chthamalus challenger* (Cirripedia: Chthamalidae)

**P.50** Kim HK, Kim HS, Kim W\*; Seoul National University

Comparative Transcriptome Analysis of Two *Tetraclitella* Species, *T. chinensis* and *T. multicostata*

**P.51** Kim HS, Kim HK, Kim W\*; Seoul National University

The Genome Survey of *Chthamalus challenger* (Cirripedia: Chthamalidae)

**P.52** Figueroa NJ, Cartes JE, Figueroa DF, Scott N; University of Texas Rio Grande Valley, Instituto de Ciencias del Mar

Genetic Structure of *Calanus helgolandicus* (Calanoida: Copepoda) from the Deep Balearic Sea

**P.54** Peres PA, Mantelatto FL; University of São Paulo

How the Genetic Diversity Is Organized Along the Distribution of Neotropical Mangrove Crabs?

### Paleobiology

**P.57** Elsea PK, Hegna TA\*; Western Illinois University

Almatium Sp. from the Middle to Late Triassic Madygen Formation, SW Kyrgyzstan and the Structure of the Calmanostraca

**P.58** Tashman JN, Feldmann RM, Wells NA, Schweitzer CE; Kent State University

Morphological Variation of the Pennsylvanian Horseshoe Crab *Euproops danae* (Meek and Worthen, 1865) from the Lower Mercer Shale of Windber, Pennsylvania, USA

**P.59** Andrada AM, Lazo DG, Bressan GS; Universidad de Buenos Aires, Instituto de Estudios inos "Don Pablo Groeber" (IDEAN, UBA-CONICET)

Preservation of Cuticle of *Protaxius isochela* Woodward (Axiidea, Axiidae) from the Agrio Formation (Lower Cretaceous), Neuquén Basin, West-Central Argentina

**P.60** Diana ON, Garelick S, Leonard-Pingel J, Michelson AV; Virginia Wesleyan University, Brown University, the Ohio State University at Newark

Tracking Human Impact and Remediation of Temperate Lakes That Have Experienced Eutrophication Using Living and Subfossil Records

**P.61** Sabroux R, Audo D, Charbonnier S, Corbari L, Hassanin A; Muséum National D'Histoire Naturelle, Yunnan University

The Sea Spiders (Arthropoda: Pycnogonida) from the Late Jurassic of Solnhofen

- P.62** Schädel M, Nagler C, Haug JT; Ludwig-Maximilians-Universität, University of Bergen Taking a Deeper Look – A Fossil Isopod Revisited By ‘Virtual Paleontology’
- P.63** Bondioli JG, Matos SA, Castilho AL\*, Varejão FG, Fürsich FT, Assine ML, Simões MG; Universidade de São Paulo, Universidade Estadual Paulista, Friedrich-August-Universität Erlangen-Nürnberg Systematic Reassessment of a Caridean Shrimp from the Aptian Crato Formation, Araripe Basin, NE Brazil
- P.64** Matos SA, Castilho AL\*, Bondioli JG, Custódio MA, Fürsich FT, Assine ML, Simões MG; Universidade Estadual Paulista, Universidade de São Paulo, Universidade Federal do Amazonas, Friedrich-August-Universität Erlangen-Nürnberg New Aptian Necrocarcinoidea from the Early Cretaceous Romualdo Formation, Araripe Basin, Brazil
- P.65** Schweitzer CE, Feldmann RM; Kent State University Paleoeecology of Podotrematous Crabs and Galatheid Anomurans
- P.66** Feldmann RM, Schinker M, Schweitzer CE, Maguire E; Kent State University Preliminary Phylogenetic Analysis of the Enigmatic Cycloidea
- P.67** Pinheiro AP, Santana W, Oliveira GR, Alencar DR, Saraiva AAF; Universidade Regional do Cariri/URCA, Universidade Sagrado Coração/USC, Universidade Federal Rural de Pernambuco-UFRPE Rise of Shrimp Diversity from the Araripe Basin (Cretaceous: Aptian/Albian): the First Solenoceridae (Decapoda:Dendrobranchiata)

### Parasitology

- P.68** Alves-Junior FA, Araujo MSLC\*, Souza-Filho JF; Universidade Federal de Pernambuco First Report of Morphological Anomaly in Deep-Sea Shrimps of the Genus *Glyphocrangon* a. Milne-Edwards For the Atlantic Ocean
- P.69** Bhaduri RN, Yamaguchi T, Munguia K, Sandhu R; California State University Stanislaus Impact of Acanthocephalan Parasitism on the Fecundity of the Pacific Mole Crab, *Emerita analoga*
- P.70** Alves-Junior FA, Bertrand A, Araujo MSLC\*, Paiva RJC, Souza-Filho JF; Universidade Federal de Pernambuco First Report of the Ectoparasitic Isopod, *Holophryxus acanthephyrae* Stephensen, 1912 (Cymothoidea: Dajidae) in the South Atlantic, from a New Host, the Deep-Sea Shrimp, *Acanthephyra acanthitelsonis* Spence Bate, 1888

### Reproduction

- P.71** Mullen H, Baeza JA; Clemson University Exploring the Effect of Phyletic Dwarfism on the Static Allometry of Reproductive Traits: Fecundity, Egg Size, and Reproductive Output in the Pygmy Crab *Petamithrax pygmaeus*
- P.72** Brenneis G, Schwentner M, Benton JL; Wellesley College, University of Hamburg First Insights Into the Gene Network Governing Embryonic and Adult Neurogenesis in Procambarid Crayfish
- P.73** Hertzler PL, Baugh WM, Wei J, Droste AP, Yuan J, Ziang J; Central Michigan University, Ocean University of China Brachyury and Engrailed Genes Identified from Penaeid Shrimp Genomes and Transcriptomes
- P.74** Grygier MJ, Dreyer N, Olesen J, Høeg JT; National Taiwan Ocean University, University of Copenhagen A Tour of the Fantastic Diversity of Body Forms of “Nauplius Y” (Crustacea: Thecostraca: Facetotecta), as Exemplified By Populations in Okinawa and Taiwan
- P.75** Yi G, Fuhua L, Jianhai X; Chinese Academy of Sciences Transcriptome Analysis For Molting Process in *Litopenaeus vannamei*
- P.76** Haug JT, Haug C; LMU Munich I Am Not a Larva, But I Look Like One – Erroneous Identifications Among Larval Material and What We Can Learn from Them
- P.77** Haug C, Haug GT, Haug JT; LMU Munich An Unusual Type of Mantis Shrimp Larva
- P.78** Maurer L, Chung JS; University of Maryland Center For Environmental Science Effects of Prey Densities and Dietary Supplementation on the Larval Development of the Blue Crab *Callinectes sapidus* Rathbun, 1896 (Brachyura: Portunidae)
- P.79** Slater LM, Jackson TM, Kruse GH, Grant WS, Habicht C, Grauvogel Z, Cheng W, Webb JB, Pengilly D, Daly B; University of Alaska Fairbanks, College of Fisheries & Ocean Sciences, Alaska Department of Fish and Game Mating Dynamics of Eastern Bering Sea Snow Crab: Preview of Genetic Analysis
- P.80** Becker C, Cunningham EM; Queen's University Belfast The Reproductive Cycle of the Norway Lobster *Nephrops norvegicus*: Ovary Maturation and Staging Scales
- P.81** Faulkes Z, Deleon H, Thomas J; the University of Texas Rio Grande Valley Cloning Crayfish Cell Culture



- P.82** Goodall JD, Botwright N, Coman GJ, Wade NM\*; *The University of Queensland, CSIRO Aquaculture, Queensland Bioscience Precinct, Bribie Island Research Centre* Impacts of Repeat Spawning on Lipid Content and Fecundity-Associated Regulatory Pathways in Giant Tiger Shrimp, *Penaeus monodon*

### Systematics

- P.83** Boyko CB, Yu J, An J, Li Y; *Hofstra University, Shanxi Normal University, China* The First Complete Mitochondrial Genome of a Parasitic Isopod Supports Epicaridea as a Suborder and Reveals the Less Conservative Genome of Isopods
- P.84** Yang CH, Ma KY, Chu KH, Chan TY; *National Taiwan Ocean University, the Chinese University of Hong Kong* Revisiting the Phylogeny and Classification of *Penaeus* Sensu Lato (Decapoda, Dendrobranchiata, Penaeidae)
- P.85** Kim JH, Lee WC, Karanovic I\*; *Hanyang University, University of Tasmania* An Integrated Approach to the Phylogenetic Position of Microcerberidea Lang, 1961 (Peracarida, Isopoda)
- P.86** Johnson EC, Cumberlidge N; *Northern Michigan University* Evolution of Freshwater Crabs in Lake Malawi in the African Rift Valley
- P.87** Frolová P, Horká I, Ďuriš Z; *University of Ostrava* Shrimps of the 'Cuapetes–Palaemonella Complex' (Caridea: Palaemonidae) on Their Way to Primary Symbioses
- P.88** Toledano Carrasco IA, Villalobos Hiriart JL; *Institute of Biology of Universidad Nacional Autónoma De México* Phylogenetic Revision of the Semi-Terrestrial Crab Species, Genus *Gecarcinus* Leach, 1814 (Brachyura: Grapsoidea: Gecarcinidae) from Mexico
- P.89** Galindo LA, Pellen F, Rabet N, Audebert F\*; *Université de Versailles Saint-Quentin-en-Yvelines, Sorbonne Universités* Looking For *Sacculina* (Rhizocephala, Cirripedia)
- P.91** Santana W, Lima D; *Universidade do Sagrado Coração, Universidade de São Paulo* Taxonomic Revision of the Genus *Pagurus* Fabricius, 1775 "Provenzano" Group (Decapoda: Anomura: Paguridae) from the Western Atlantic
- P.92** Colavite J, Windsor A, Santana W; *University of São Paulo State, Universidade do Sagrado Coração, Department of Health & Human Services, Food and Drug Administration* Taxonomic Revision of the Eastern Pacific Species of *Stenocionops* Desmarest, 1823 (Decapoda: Brachyura)
- P.93** Miranda I, Zara FJ, Mantelatto FL\*; *Paulista State University, University of Sao Paulo* Comparative Analysis and Phylogenetic Context of the Spermatozoa Ultrastructure in Grapsoidea Macleay, 1838
- P.94** Windsor AM, Mendoza JCE, Warner KA, Choudhuri A, Deeds JR; *US Food Drug Administration, National University of Singapore, OCEANA, Newport International* Taxonomic Status and Identity of the Commercially Important Portunid Crab, *Monomia haanii* (Stimpson, 1858) and Resolution of the *Portunus gladiator* Species Complex

### Taxonomy

- P.95** Bober S, Brix-Elsig S, Riehl T, Schwentner M, Brandt A; *University of Hamburg, German Centre of Marine Biodiversity Research (DZMB), Senckenberg Research Institute and Natural History Museum* Does the Mid-Atlantic Ridge Affect the Distribution of Abyssal Benthic Crustaceans across the Atlantic Ocean?
- P.96** Frutos I, Sorbe JC; *University of Hamburg, Station Marine* A New Mesosignum Species (Crustacea: Isopoda: Mesosignidae) from Abyssal Bottoms of the Puerto Rico Trench
- P.97** Moreno-Juarez EG, Villalobos-Hiriart JL; *Universidad Nacional Autónoma De México* Phylogenetic Approach of the Mexican Freshwater Crabs Genus *Tehuana* (Decapoda: Pesudothelphusidae), Using Morphologic and Genetic Evidence
- P.98** Merrin KL, Hughes L; *Museums Victoria, Natural History Museum* Searching Through the Abyss – Comparing Isopod Family Composition from Two Different Depths from Northern and Southern Deep-Sea Areas off the East Coast of Australia
- P.99** Andrade KSP, Araujo MSLC\*, Nunes JLS; *Universidade Federal do Maranhão, Universidade de Pernambuco, Universidade Federal do Maranhão* Diversity of Decapod Crustaceans from Streams of Brazilian Cerrado, State of Maranhão
- P.100** Pipitone C, Vega Fernández T; *CNR-IAMC, Stazione Zoologica Anton Dohrn* First Lessepsian Decapod Crustacean in the Tyrrhenian Sea
- P.101** Stępień A, Mühlenhardt-Siegel U, Błazewicz M; *University of Lodz, Universität Hamburg* First Insight Into the Cumacea Fauna from the Gulf of Guinea
- P.102** Tandberg AHS, Stokkan M; *University of Bergen* A New Species of Whale Louse (Crustacea: Amphipoda: Cyamidae) Found on Cuvier's Beaked Whale *Ziphius cavirostris*
- P.103** Zimmermann BL, Buzatto I, Crivellaro MS, Bartholomei-Santos ML, Santos S\*; *Universidade Federal De Santa Maria* Phylogeography of *Aegla uruguayana* (Anomura, Aeglididae) Reveals Cryptic Diversity



- P.104** Lee D, Chan BKK, Kim W; Seoul National University, Academia Sinica  
First Male Specimen of Sea Spider *Pycnogonum spatium* (Pycnogonida: Pycnogonidae) from the Green Island, Taiwan
- P.105** Fersi A, Esquete P\*, Neifar L, Dauvin JC; Université de Sfax, Universidade de Aveiro, Laboratoire Morphodynamique Continentale et Côtière  
First Data of Tanaidacea from the Tidal Channels of the Gulf of Gabès (Central Mediterranean Sea, Tunisia) with the Discovery of Three New Species
- P.106** Esquete P, Aldea C; Universidade de Aveiro, Facultad de Ciencias & Instituto de la Patagonia  
Nested Distribution of the Peracarida of Bernardo O'Higgins National Park (S Chile) Channels and Fjords
- P.107** Geburzi JC, Meenke H; Kiel University  
Rapid Colonization and Historical Introductions? - First Insights Into the Biogeography of *Palaemon varians* in the Baltic Sea
- P.108** Hwang HS, Ah Yong S, Kim W; Seoul National University, Australian Museum, University of New South Wales  
First Record of Six Species of Mantis Shrimp from Korea (Crustacea: Stomatopoda)
- P.109** Esquete P, Garcia-Herrero A; Departamento de Biología & Cesam, Universidade de Aveiro  
The Tanaidacea of the Iberian Margin and Adjacent Abyssal Plains: Diversity and Connections
- P.110** Tamburus AF, Mantelatto FL\*; University of Sao Paulo  
Phylogenetic Relationships and Comparative Morphology Among the Spider Crabs *Libinia* Leach, 1815 (Majoidea: Epialtidae)
- P.111** Dong D, Li X; Chinese Academy of Sciences,  
Species of Porcellanid Crabs from the Northern South China Sea
- P.112** Gan Z, Li X; Chinese Academy of Sciences  
New Records of Caridean Shrimps (Crustacea Decapoda Caridea) from China Seas
- P.113** Gracia A, Vázquez-Bader AR; Instituto de Ciencias del Mar y Limnología  
Deepwater Shrimp of the Southern Gulf of Mexico
- P.114** Błazewicz M, Jóźwiak P, Frutos I; University of Łódź, University of Hamburg  
A New Family of Tanaidacea (Tanaidomorpha) from the Deep-Sea

#### **Late Breaking Works**

- P.115** Kim SH, Lee YG, Kim YH; Dankook University  
New Genus or Just New Species?
- P.116** Karanovic I, Sitnikova TY; Hanyang University, Limnological Institute, Siberian Branch, Russian Academy of Sciences  
Phylogeny and Divergence Times of Lake Baikal and Subterranean Candonidae Ostracod Lineages
- P.117** Johnston DJ, Marks R, Hesp A, de Lestang S, Caputi N, Chandrapavan A; Western Australian Department of Primary Industries and Regional Development  
Temporal and Spatial Trends in the Reproductive Biology of Blue Swimmer Crabs in Temperate and Subtropical Environments in Western Australia
- P.118** Reed KJ, Ahlfeld K\*, Moser W; Smithsonian Institution, National Museum of Natural History, Department of Invertebrate Zoology  
Best Practices for Depositing Voucher and Type Material in Museum Collections
- P.119** Ramachandran P, Reed E, Windsor AM, Ottensen A; Office of Regulatory Science US Food and Drug Administration  
Exploring the Microbiome of *Callinectes sapidus* (Maryland Blue Crab)
- P.120** Baptista-Metri C, Costa-Junior FM, Roveda LF, Metri R; Colegiado de Ciências Biológicas, Universidade Estadual do Paraná, Rua Comendador Correia Junior, Curso de Ciências Biológicas  
Evidence of Contamination in *Ucides cordatus* at a Southern Brazil Mangrove
- P.121** Karanovic T, Lee S, Lee W; Hanyang University  
Instant Taxonomy: Choosing Adequate Characters for Species Delimitation and Description through Congruence between Molecular Data and Quantitative Shape Analysis.

# Thursday Program Sessions

Note: Presenter is first author unless noted by an asterisk (\*). All programs take place at the Renaissance Hotel.

## 9:00 AM – 10:00 AM PL2 – Plenary Session Grand Ballroom South

### Evolution and Development Of Novel Forms: Insights from Crustacean Limbs

*Rich Palmer; University of Alberta, Canada*

Fundamental questions in development and evolution can be addressed using comparative and experimental studies of crustacean limb morphology. Examples from our own research include: How reversible is development (developmentally plastic gain versus loss of limb segments)? Is direction of asymmetry in an individual determined developmentally at the local level (independently in different body segments) or at the global level (consistently across all body segments)? Are genes leaders or followers in evolution (phylogenetic patterns of asymmetry variation)? How do stunning novel morphologies - like the spectacular claws of snapping shrimp - evolve from unspecialized precursors (reconstructing the evolutionary history of snapping claws in alpheid and palaemonid shrimp)?

## 10:30 AM – 12:00 PM THAM-1 Grand Ballroom South

### Crustacean Paleobiology, I

*Co-chairs: Rod Feldmann, Carrie Schweitzer*

10:30 am	<b>THAM-1.1</b>	<i>Schram FR; University of Washington</i>	Unknown Unknowns: What Would We Not Know About Pancrustacea Without Fossils
11:00 am	<b>THAM-1.2</b>	<i>Wolfe JM; Massachusetts Institute of Technology</i>	What Defines Crustaceans? Insights from the Cambrian Fossil Record and from Phylogenomics
11:15 am	<b>THAM-1.3</b>	<i>Klompmaaker AA, Nyborg T, Brezina J; University of California, Berkeley, Loma Linda University, South Dakota School of Mines and Technology, Mizunami Fossil Museum</i>	Crustaceans from Fossil Cold Seep Environments
11:30 am	<b>THAM-1.4</b>	<i>Hegna TA; Western Illinois University</i>	The Fossil Record of Branchiopod Crustaceans
11:45 am	<b>THAM-1.5</b>	<i>Kornecki KM; Rensselaer Polytechnic Institute</i>	Bring Out Your Dead: Reconstructing a Decapod Biocoenosis Through Quantitative Taphonomy and Functional Morphology

## 10:30 AM – 12:00 PM THAM-2 Congressional A

### Systematics and Evolution

*Chair: Sarah Gerken*

10:30 am	<b>THAM-2.1</b>	<i>Gerken S, Meland K, Glenner H; University of Alaska, University of Bergen, Norway</i>	First Multigene Phylogeny of the Cumacea (Peracarida)
10:45 am	<b>THAM-2.2</b>	<i>Biancani LM, Osborn KJ, Cummings MP; Museum of Natural History, University of Maryland, College Park</i>	Multi-Locus Phylogenetic Analysis of Amphipoda Provides Insight Into the Evolution of the Pelagic Suborder Hyperidea
11:00 am	<b>THAM-2.3</b>	<i>Bernot JP, Boxshall GA, Crandall KA; George Washington University, London Natural History Museum</i>	Copepod Phylogeny and Systematics: the Current State and Future Directions
11:15 am	<b>THAM-2.4</b>	<i>Poon KKY, Ma KY, De Grave S, Chan TY, Chu KH; The Chinese University of Hong Kong, University of Oxford, National Taiwan Ocean University</i>	Molecular Phylogeny Reveals Diversification Rate Shifts in Crangonidae (Decapoda, Caridea)
11:30 am	<b>THAM-2.5</b>	<i>Evans N; National Museum of Natural History, Smithsonian Institution</i>	Diversity, Disparity and the Evolutionary Radiation of Symbiotic and Non-Symbiotic Portunid Crabs
11:45 am	<b>THAM-2.6</b>	<i>Reaka ML, Lauer D; The University of Maryland, College Park</i>	Understanding Peaks of Diversity and Endemism of Crustacea in the Gulf of Mexico

10:30 AM – 12:00 PM

THAM-3

Congressional B

### Crustacean Mesoherbivore Communities

Chair: Jan Beerman, Lars Gutow

- |          |                 |   |   |
|----------|-----------------|---|---|
| 10:30 am | <b>THAM-3.1</b> | <i>Poore AGB, Gutow L, Thiel M; University of New South Wales, Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Universidad Católica del Norte</i>                                | Impacts of Small Crustaceans On the World's Largest Seaweeds  |
| 11:00 am | <b>THAM-3.2</b> | <i>Beermann J, Boos K, Gutow L, Boersma M, Peralta AC; Helmholtz Centre for Polar Marine Research, University of Bremen, Simon Bolivar University</i>   | Performance of Amphipod Mesograzers - Direct and Indirect Effects   |
| 11:15 am | <b>THAM-3.3</b> | <i>Kodama M, Kawamura T, Nakamoto K, Ohtsuchi N, Hayakawa J, Kitagawa T, Watanabe Y; The University of Tokyo</i>  | Dynamics of Amphipod Assemblages Associated with Sargassum Yezoense Beds On the Coast of Otsuchi Bay                          |
| 11:30 am | <b>THAM-3.4</b> | <i>Cruz-Rivera E; University of the Virgin Islands</i>  | Sex, Allometry and Herbivory: Are Mesograzers Weird Or Is There Need for Reassessing Size-Consumption Relationships?          |
| 11:45 am | <b>THAM-3.5</b> | <i>Gutow L, Poore AGB, Díaz MA, Villalobos VA, Jerosch K, Thiel M; Alfred Wegener Institute Helmholtz Centre for Polar Marine Research, University of New South Wales, Universidad Católica del Norte</i> | The Burrowing Amphipod Sunamphitoe Lessoniophila Induces Major Damage in the Large Kelp Lessonia Berteroana in Northern Chile |

1:30 PM – 3:00 PM

THPM-4

Grand Ballroom South

### Crustacean Paleobiology, II

Chair: Rod Feldmann, Carrie Schweitzer

- |         |                 |  |  |
|---------|-----------------|--|--|
| 1:30 pm | <b>THPM-4.1</b> | <i>Briggs DEG, Siveter DJ, Siveter DJ, Sutton MD; Yale University, Oxford University, University of Leicester, Imperial College London</i> | Exceptionally Preserved Fossils Reveal the Origins of Crustacean Clades  |
| 2:00 pm | <b>THPM-4.2</b> | <i>Luque J; University of Alberta, Edmonton</i>  | The Evolution of True Crabs Through Time: Insights from the Tropical Americas  |
| 2:15 pm | <b>THPM-4.3</b> | <i>Robins CM, Klompmaker AA; University of California, Berkeley</i>  | A Hyperdiverse Late Jurassic Squat Lobster Assemblage  |
| 2:30 pm | <b>THPM-4.4</b> | <i>Charbonnier S; Muséum National D'Histoire Naturelle</i>   | Thylacocephalans from the Cretaceous Lagerstätten of Lebanon   |
| 2:45 pm | <b>THPM-4.5</b> | <i>Schädel M, Perrichot V, Haug JT; Ludwig-Maximilians-Universität, Université de Rennes</i>   | Exceptionally Preserved Fossils of Minute Infective Larvae – 90 Million Years Old Window Into the Evolution of the Parasitism of Epicaridean Isopods |

1:30 PM – 3:00 PM

THPM-5

Congressional A

### Invasives and Conservation

Chair: R. Aguilar

- |         |                 |   |   |
|---------|-----------------|---|---|
| 1:30 pm | <b>THPM-5.1</b> | <i>Young AM, Elliott JA*, Incatasciato JM, Taylor ML; Salem State University, University of Maine</i>   | Seasonal Catch, Size, Color, and Assessment of Trapping Variables for the European Green Crab <i>Carcinus maenas</i> (Linnaeus, 1758) (Brachyura: Portunoidea: Carcinidae), a Nonindigenous Species in Massachusetts, USA |
| 1:45 pm | <b>THPM-5.2</b> | <i>Desiderato A, Beermann J, Haddad MA; Universidade Federal Do Paraná, Curitiba, Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI), Universidade Federal do Paraná, Curitiba, Brazil</i> | Crustacean Fouling Communities Along Southern Brazilian Coasts – Functionality, Connectivity and Possible Implications for Marine Bioinvasions  |
| 2:00 pm | <b>THPM-5.3</b> | <i>Zhang Z, Yokota MDS; Tokyo University of Marine Science Technology</i>   | Potential Competitive Impacts of the Invasive Chinese Mitten Crab On Native Japanese Mitten Crab  |
| 2:15 pm | <b>THPM-5.4</b> | <i>Geburzi JC, Weiler N; Kiel University</i>  | Seeking for Salinity: Larvae of an Invasive Crab Perform Horizontal Migrations to Optimize Development Conditions   |

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2:30 pm	<b>THPM-5.5</b>	<i>Aguilar R, Baeza JA, Sanjeevi P, MacDonald KS, Driskell AC, Almeida AO, Cunha A, Leray M, Ogburn MB, Hines AH; Smithsonian Environmental Research Center; Clemson University, NMNH, Federal University of Pernambuco, Naos Island Laboratories</i>	Unraveling Unresolved Taxonomy in a World of Invaders: Delimiting the <i>Lysmata vittata</i> Species Complex in Light of a Recent North American Introduction
2:45 pm	<b>THPM-5.6</b>	<i>Gracia A, Murawski SA, Vázquez-Bader AR; Instituto de Ciencias Del Mar y Limnología, University of South Florida</i>	Shrimp Population Resiliency to Mega Oil Blowouts in the Gulf of México

### 1:30 PM – 2:45 PM      **THPM-6**      **Congressional B**

#### **Crustacean Feeding and Nutrition**

Chair: Reinhard Saborowski

1:30 pm	<b>THPM-6.1</b>	<i>García-Carreño F, Rodríguez Siordia I; CIBNOR</i>	A Synergistic Peptidase Network Mediates Food Protein Digestion in the American Lobster <i>Homarus americanus</i> (Edwards, 1837)
1:45 pm	<b>THPM-6.2</b>	<i>Martinez-Alarcon D, Harms L, Hagen W, Saborowski R; University of Bremen, Alfred Wegener Institute</i>	Hepatopancreas Transcriptome Analysis of the Brown Shrimp, <i>Crangon crangon</i> (Decapoda, Caridea), Reveals Expression of Polymorphic Digestive Enzymes
2:00 pm	<b>THPM-6.4</b>	<i>Schnabel K, Peart R, Handler MR, Wysoczanski RJ, Frontin-Rollet GE, Graham AEM, Seabrook C; National Institute of Water &amp; Atmospheric Research, Victoria University of Wellington</i>	You Are What You Eat, You Are Where You Live - Caime Part 1 - Trace Metals in Crustacea, Biomonitoring of the Marine Environment
2:15 pm	<b>THPM-6.5</b>	<i>Peart R, Schnabel K, Handler MR, Wysoczanski RJ, Frontin-Rollet GE, Graham AEM, Seabrook C; National Institute of Water &amp; Atmospheric Research, Victoria University of Wellington</i>	You Are What You Eat, You Are Where You Live - Caime Part 2 - Trace Metals in Crustacea: Biomonitoring of the Marine Environment
2:30 pm	<b>THPM-6.6</b>	<i>Saborowski R, Korez S, Weidung M, Riesbeck S, Gutow L; Alfred Wegener Institute</i>	Synthetic and Natural Microparticles - Coping with the Dirt

### 3:30 PM – 6:00 PM      **THPM-7**      **Grand Ballroom South**

#### **Adaptations to Deep Sea and Caves**

Co-chairs: Tammy Frank, Karen Osborn, Megan Porter

3:30 pm	<b>THPM-7.1</b>	<i>Osborn KJ; Smithsonian NMNH</i>	Hyperiid Amphipods as a Model of Midwater Adaptation
3:45 pm	<b>THPM-7.2</b>	<i>Lin C, Cronin TW, Osborn KJ; Smithsonian Institution, University of Maryland Baltimore County</i>	The Brains and Sensory Specializations in the Midwater Hyperiid Amphipods
4:00 pm	<b>THPM-7.3</b>	<i>Frank TM; Nova Southeastern University</i>	Sight Beyond Eyes? Are Photophores of Deep-Sea Crustaceans Able to Both Emit Bioluminescence and Sense the Background Light Intensity?
4:15 pm	<b>THPM-7.4</b>	<i>Sickles JE, Blackwelder PL, Frank TM; Nova Southeastern University</i>	Comparative Study of the Effects of Light On Photophore Ultrastructure from Two Families of Deep-Sea Decapod Crustaceans: Oplophoridae and Sergestidae
4:30 pm	<b>THPM-7.5</b>	<i>Pérez-Moreno JL, Balázs G, Bracken-Grissom HD; Florida International University</i>	Transcriptomic Analyses Illuminate the Molecular Basis of Troglomorphy in the Molnár János Cave System
4:45 pm	<b>THPM-7.6</b>	<i>Porter ML, Chen JWT, Blanco-Bercial L, Maas AE, Goetze E, Iwanicki T; University of Hawaii at Manoa, Bermuda Institute of Ocean Sciences</i>	Evolution of Light Production and Detection in <i>Pleuromamma</i> Copepods
5:00 pm	<b>THPM-7.7</b>	<i>Richter S, Hoepel CG, Reinhardt M, Ah Yong ST; Universität Rostock, Australian Museum</i>	Multiple Immigrations Into the Subterranean Habitat in the Tasmanian <i>Anaspides</i> (Malacostraca) – Timing and Adaptation
5:15 pm	<b>THPM-7.8</b>	<i>Cohen JH, Last KS, Charpentier CL, Johnsen G, Berge J; University of Delaware, Scottish Association for Marine Science, Rutgers University, Norwegian University of Technology and Science, UiT The Arctic University of Norway</i>	Photic Ecology in the Epipelagic High Arctic Polar Night: a Deep Sea Analogue?

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5:30 pm	<b>THPM-7.9</b>	Fong DW, Bilandžija H, Laslo M, Porter ML; American University, Ruđer Bošković Institute, Harvard University, University of Hawai'i at Mānoa	Loss of Wound Melanization Response in the Cave Shrimp <i>Troglocaris</i>
5:45 pm	<b>THPM-7.10</b>	Chu KH, Tsang LM, Chan TY, Ng PKL; The Chinese University of Hong Kong, National Taiwan Ocean University, National University of Singapore	Brachyuran Tree of Life Illuminates the Origin and Biogeography of Hydrothermal Vent Crabs

**3:30 PM – 6:00 PM**

**THPM-8**

**Congressional A**

### Frontiers in the Ecology and Biology of the Thecostraca

Co-chairs: Benny Chan, Niklas Dreyer

3:30 pm	<b>THPM-8.1</b>	Chan BKK, Lin CC; Academia Sinica, National Taiwan Ocean University	Are Barnacles Sessile Organisms? Drastic Movement of the Turtle Barnacle <i>Chelonibia testudinaria</i>
3:45 pm	<b>THPM-8.2</b>	Ewers-Saucedo C, Owen CL, Perez-Losada M, Hoeg J, Glenner H, Chan BKK, Crandall KA; Zoological Museum of the Christian-Albrechts University, Henry Jackson Foundation, George Washington University, National Museum of Natural History, Smithsonian Institution, University of Copenhagen, University of Bergen, Academia Sinica	A Synthesis Phylogeny of the Thecostraca: Integrating Diverse Phylogenetic Efforts Into a Comprehensive Phylogeny for Barnacles
4:00 pm	<b>THPM-8.3</b>	Yu MC, Liu JCW, Kolbasov GA, Chan BKK; Marine Biotechnology National Sun Yat-Sen University, Academia Sinica, National Taiwan University, Moscow State University, Biodiversity Research Center	How to Walk and Settle On a Bed of Nails? Extreme Variation of Antennular Structure, Settlement, Process and Metamorphosis of Sponge-Inhabiting Barnacle
4:15 pm	<b>THPM-8.4</b>	Nagler C, Starck M, Glenner H; University of Bergen, Ludwig-Maximilians University of Munich	Insights Into What Is Inside: New Observations of the Relationship Between Parasitic Barnacles and Their Host Shrimps
4:30 pm	<b>THPM-8.5</b>	Hsu WC, Chan BKK, Fraser CML; National Taiwan University, Biodiversity Research Center	Host Driven Phenotypic Plasticity of Coral-Inhabiting Barnacle
4:45 pm	<b>THPM-8.6</b>	Rees DJ, Schnabel K, Finucci B, Drewery J, Leslie R, Noever C, Salvanes AG, Glenner H*; University of Bergen, NIWA, Marine Scotland, Department of Agriculture, Forestry and Fisheries	Portray of a Global Species: the Parasitic Barnacle, <i>Anelasma squalicola</i>
5:00 pm	<b>THPM-8.7</b>	Sing-Pei Y, Chan BKK; National Taiwan University, Academia Sinica	Eat Microplastics, Die Early? Do Microplastics Lead to Higher Mortality of Barnacle Larvae?
5:15 pm	<b>THPM-8.8</b>	Dreyer N, Grygier MJ, Chan BKK, Høeg JT, Olesen J; Natural History Museum of Denmark, National Taiwan Ocean University, Academia Sinica, Marine Biological Section	A Journey Into the Unknown: Past, Present and Future Studies of the Elusive Crustacean Y-Larvae
5:30 pm	<b>THPM-8.9</b>	Yusa Y, Dreyer N, Høeg JT; Nara Women's University, University of Copenhagen	Why Be Androdioecious?: the Barnacle Case
5:45 pm	<b>THPM-8.10</b>	Olesen J, Kolbasov GA, Petrunina AS, Chan BKK, Dreyer N, Grygier MJ*; University of Copenhagen, Moscow State University, Academia Sinica, National Taiwan Ocean University	Video Recordings of the Swimming Behavior of Nauplii and "Tessmann's Larvae" of Several Kinds of Ascothoracida from Taiwan (Crustacea: Thecostraca: Synagogidae, Petaracidae, Lauridae)

## Taxonomy and Biogeography

Chair: Amanda Windsor

3:30 pm	<b>THPM-9.1</b>	<i>Colavite J, Windsor AM, Santana W; University of São Paulo State, Universidade do Sagrado Coração, Department of Health &amp; Human Services, Food and Drug Administration</i>	Morphological and Molecular Investigations of the <i>Macrocoeloma trispinosum</i> and <i>M. nodipes</i> (Decapoda: Brachyura) and its Potential Cryptic Species
3:45 pm	<b>THPM-9.2</b>	<i>Wicksten MK; Texas A&amp;M University</i>	Deep Discoverer Gives a New View of Deep Decapods
4:00 pm	<b>THPM-9.3</b>	<i>Garcia C, Flanagan AM, Rogers DC, De La Cruz S; U.S. Geological Survey, Kansas University</i>	Rediscovery of the Presumed Extinct Horseshoe Shrimp ( <i>Lightiella serendipita</i> ) in San Francisco Bay, California, USA
4:15 pm	<b>THPM-9.4</b>	<i>Frutos I, Jazdzewska A, Hendrycks E; University of Hamburg, University of Lodz, Canadian Museum of Nature</i>	Discovering Biodiversity with Genetics and Morphology: a New Deep-Sea Amphipod Family
4:30 pm	<b>THPM-9.5</b>	<i>Tshudy D, Hyžný M, Jagt J, Veselská MK; Edinboro University, Comenius University, Natuurhistorisch Museum Maastricht, Charles University</i>	Clawed Lobster Genus <i>Oncopareia</i> and Its Convolved Taxonomic History
4:45 pm	<b>THPM-9.6</b>	<i>Wehrmann IS; Universidad de Costa Rica</i>	Freshwater Decapod Research in Central America: Past – Present – Future
5:00 pm	<b>THPM-9.7</b>	<i>Chim CK; National University of Singapore</i>	Deep-Sea Tanaids of the Clarion-Clipperton Fracture Zone
5:15 pm	<b>THPM-9.8</b>	<i>Jakiel A, Stępień A*; University of Lodz</i>	Pseudotanaidae of the Iceage – a Tip of the Iceberg in the Tanaidacean Diversity in the North Atlantic
5:30 pm	<b>THPM-9.9</b>	<i>Padhye SM; Katholieke Universiteit Leuven</i>	Regional and Local Species Distribution of Cladocera (Crustacea: Branchiopoda) in the Indian Sub-Continent
5:45 pm	<b>THPM-9.10</b>	<i>Park JH, De Grave S, Kim W; Seoul National University, Oxford University Museum of Natural History</i>	Towards a Revision of the <i>Cristimenes</i> Commensalis Complex (Crustacea, Decapoda, Palaemonidae)



# Friday Program Sessions

Note: Presenter is first author unless noted by an asterisk (\*). All programs take place at the Renaissance Hotel.

9:00 AM – 10:00 AM

PL3 – Plenary Session

Grand Ballroom South

## Climate Change Enhances Disease Outbreaks in Crabs and Lobsters

Jeff Shields, Virginia Institute of Marine Science

Over the last two decades disease outbreaks have been increasingly reported from several commercially important crustacean fisheries. Environmental stressors, including increasing temperatures, extensive hypoxia due to eutrophication, and presumptive exposures to contaminants, have been implicated as contributory factors in these outbreaks. Environmental stressors can alter the homeostasis of crustacean hosts by weakening or compromising their defensive responses thereby increasing their susceptibility to pathogens. Environmental stressors also favor microbial pathogens by improving their reproductive capacity, particularly in response to temperature or nutrient loading, leading to faster rates of population growth that can overwhelm host defensive capabilities. The role of environmental stressors in the emergence of pathogens has been difficult to delineate because stressors have complex biotic and abiotic interactions. This presentation highlights the role of increasing temperature due to climate change in the emergence of several disease syndromes in important commercial species. Insights will be provided into how multiple factors contribute to the emergence of disease outbreaks. Examples include outbreaks of epizootic shell disease, *Neoparamoeba pemaquidensis*, calcinosis and blindness in clawed lobsters, *Hematodinium* in snow crabs and blue crabs, and viral infections in shrimp and lobsters. Collaborative laboratory, field and in silico studies offer a means to coordinate sampling and focus research questions to gain further understanding of these types of outbreaks.

10:30 AM – 12:00 PM

FAM-1

Grand Ballroom South

## Parasitology and Disease

Chair: Jason Williams

- |          |                |   |  |
|----------|----------------|---|--|
| 10:30 am | <b>FAM-1.1</b> | <i>Williams JD, McDermott JJ, Boyko CB, Blakeslee AMH, Tepolt CK; Hofstra University, Franklin and Marshall College, American Museum of Natural History, East Carolina University, Woods Hole Oceanographic Institution</i> | Cryptic Diversity of Endoparasitic Isopods Associated with Brachyuran Hosts Along the East Coast of the United States  |
| 10:45 am | <b>FAM-1.2</b> | <i>Spitznagel MI, Small H, Shields J, Lively J, Schott EJ; University of Maryland Center for Environmental Science, College of William &amp; Mary, Louisiana State University</i>   | Individual and Environmental Risk Factors for the Atlantic Blue Crab ( <i>Callinectes sapidus</i> ) Mortality in Soft-Shell Aquaculture Practice Associated with Reovirus Infection        |
| 11:00 am | <b>FAM-1.3</b> | <i>Meng Q, Ning M, Xiu Y, Wang W; Nanjing Normal University</i>   | Interaction Between Host Lgpb and Pathogenic Enolase Promote <i>Spiroplasma eriocheiris</i> Invasion Into Macrobrachium Rosenbergii Hemocytes  |
| 11:15 am | <b>FAM-1.4</b> | <i>Simpson LA, Baeza JA; Clemson University</i>   | <i>Carcinonemertes conanobrieni</i> - A Newly Described Nemertean Parasite Infecting the Caribbean Spiny Lobster, <i>Panulirus Argus</i> , and its Effect on Host Reproductive Performance |
| 11:30 am | <b>FAM-1.5</b> | <i>Ning M, Wei P, Wang W, Meng Q; Nanjing Normal University</i>   | Proteomic and Metabolomic Responses in Hepatopancreas of Whiteleg Shrimp <i>Litopenaeus vannamei</i> Infected By Microsporidian Enterocytozoon Hepatopenaei                                |
| 11:45 am | <b>FAM-1.6</b> | <i>Hou L, Gu W; Nanjing Normal University</i>   | The Protein Phosphorylation Regulation in Pathogenesis of Tremor Disease of <i>Eriocheir sinensis</i> Caused by Spiroplasma Eriocheiris  |

10:30 AM – 12:00 PM

FAM-2

Congressional A

## Population Genetics

Chair: Luis Hurtado

- |          |                |  |   |
|----------|----------------|--|---|
| 10:30 am | <b>FAM-2.1</b> | <i>Hurtado LA, Macedo D, Caballero IC, Mateos M, McCay S; Texas A&amp;M University</i> | Population Genetics Inferences of the Blue Crab in the US Based on Microsatellites        |
| 10:45 am | <b>FAM-2.2</b> | <i>Yao N, Zhang Y; Florida International University</i>                                | Investigating the Connectivity of the Florida Spiny Lobster Recruit Using Microsatellites |

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11:00 am	<b>FAM-2.3</b>	Yan RJ, Schnabel KE, Rowden AA, Guo XZ, Gardner JPA; Victoria University of Wellington, National Institute of Water & Atmospheric Research, New Zealand	Population Genetic Structure and Connectivity of Squat Lobsters in Vulnerable Marine Ecosystems
11:15 am	<b>FAM-2.4</b>	Sanjeevi P, Frolová P, Duris Z, Anker A, Baeza JA; Clemson University, University of Ostrava, Czech Republic, Universidade Federal de Goiás	Disentangling Cryptic Species Complexes and Understanding Diversification in 'Marbled Shrimps' <i>Saron</i> spp. (Caridea: Hippolytidae): an Integrative Taxonomy Approach
11:30 am	<b>FAM-2.5</b>	Jung J, Kim W; Seoul National University, Ewha Womans University	Presence of Three Groups Among Populations of Common Intertidal Hermit Crab <i>Pagurus minutus</i> (Decapoda; Paguridae) in East Asia
11:45 am	<b>FAM-2.6</b>	Ruiz Cancino G, Perez-Losada M, Crandall KA, Mejia Ortiz LM; Universidad De Quintana Roo, George Washington University	Population Structure of <i>Creaseriella anops</i> in the Yucatan Peninsula, Mexico

**10:30 AM – 12:00 PM**

**FAM-3**

**Congressional B**

### Physiology and Endocrinology

Chair: J. Sook Chung

10:30 am	<b>FAM-3.1</b>	Lawrence AL, Green SR, Chung JS; Institute of Marine Environmental Technology	Isolating Insulin-Like Androgenic Gland (Iag) Hormone Cdna Sequence of the Red Deep-Sea Male Crab, <i>Chaceon quinque-dens</i>
10:45 am	<b>FAM-3.2</b>	Chung JS, Ahn IS; University of Maryland Center for Environmental Science	Expression Profile of Crustacean Female Sex Hormone (Cfsh) and Its Functional Role During the Development of the Blue Crab, <i>Callinectes sapidus</i>
11:00 am	<b>FAM-3.3</b>	Legrand E, Schock TB, Chung JS; University of Maryland Center for Environmental Science, National Institute of Standards Technology, Hollings Marine Laboratory	Studying Molt-Stage Dependent Changes in the Blue Crab <i>Callinectes sapidus</i> By Transcriptomic and Metabolomic Approaches
11:15 am	<b>FAM-3.4</b>	Kozma M, Schmidt M, Derby CD*; Georgia State University	Chemoreceptor Proteins in the Decapods: Variant Ionotropic Receptors Galore, Some Shared, Some Unique
11:30 am	<b>FAM-3.5</b>	Gan HM, Austin C; Deakin University	Next Generation Sequencing and an in Silico Approach Identifies an Endo-Beta-1,4-Mannase, a Novel Highly Expressed Hemicellulase Within the Herbivorous Christmas Island Red Crab, <i>Gecarcoidea natalis</i>
11:45 am	<b>FAM-3.6</b>	Fuhua L, Shihao L, Qing G, Jianhai X; Chinese Academy of Sciences	Molecular Regulation Mechanism of Sex-Determination and Sex Differentiation in Penaeid Shrimp

**1:30 PM – 3:00 PM**

**FPM-4**

**Grand Ballroom South**

### Adaptable Blue Crabs, *Callinectes Sapidus*

Co-chairs: Eric Schott, Matt Ogburn

1:30 pm	<b>FPM-4.1</b>	Ogburn MB, Gilmour CC, Johnson EG, Hines AH; Smithsonian Environmental Research Center, University of North Florida	Tracking the Blue Crab Spawning Migration Using Carapace Biogeochemistry
1:45 pm	<b>FPM-4.2</b>	Plough LV, Chung JS; University of Maryland Center for Environmental Science	Population Genomic Analyses of the Blue Crab <i>Callinectes sapidus</i> : Novel Tools and Resources
2:00 pm	<b>FPM-4.3</b>	Garavelli L, Criales MM*, Ghannami M, Crowley C, Gandy R, Chérubin L; Pacific Northwestern National Laboratory, University of Miami, Ecole Nationale Supérieure de Techniques Avancées Bretagne, Fish and Wildlife Research Institute (FWRI), Florida Atlantic University	Modelling Larval Dispersal and Connectivity of the Blue Crab ( <i>Callinectes sapidus</i> ) for Florida Coastal Waters
2:15 pm	<b>FPM-4.4</b>	Richard K, Pham J, Frischer ME, Dunn PH*; Georgia Southern University, University of Georgia	Hematodinium in Georgia: Where Are We Today?
2:30 pm	<b>FPM-4.5</b>	Vogt EL, Model JFA, Vinagre AS*; Federal University of Rio Grande Do Sul	Effects of Organotins On Crustaceans: Update and Perspectives

2:45 pm	<b>FPM-4.6</b>	Flowers EM, Johnson AF, Aguilar R, Schott EJ*; University of Maryland School of Medicine, University of California San Diego, Smithsonian Environmental Research Center, University of Maryland Center for Environmental Science	Virus Prevalence in Proximity to Flow-Through Blue Crab Aquaculture in a North American Atlantic Estuary
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<b>1:30 PM – 3:00 PM</b>	<b>FPM-5</b>	<b>Congressional A</b>
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### Form and Function in Crustacean Morphology I

Chair: Stefan Richter, Tomonari Kaji

1:30 pm	<b>FPM-5.1</b>	Kaji T; University of Alberta, Edmonton	Why a Functional Approach to Comparative Morphology Matters: Examples from Snapping Claws of Shrimps and Amphipods
1:45 pm	<b>FPM-5.2</b>	Patek SN, Muñoz MM; Duke University, Virginia Tech	The Evolutionary Dynamics of Extreme Movement in Mantis Shrimp (Stomatopoda)
2:00 pm	<b>FPM-5.3</b>	Grams M, Richter S; Universität Rostock	The Joint in Between - Intrabasal Joints and Their Relevance for Malacostracan Phylogeny
2:15 pm	<b>FPM-5.4</b>	Becker C, Dick JTA, Cunningham EM, Sigwart JD; Queen's University Belfast	Age Determination of Decapod Crustaceans - Do Gastric Teeth Form Annual Growth Rings as a Record of Chronological Age?
2:30 pm	<b>FPM-5.5</b>	Laidre ME; Dartmouth College	Private Parts for Private Property: Evolution of Penis Size in Hermit Crabs
2:45 pm	<b>FPM-5.6</b>	Rebert AL, Kruse GH, Webb JB, Tamone SL, McNeel KW; Alaska Department of Fish & Game, University of Alaska Fairbanks, University of Alaska Southeast, Juneau	Do We Have the Guts to Age Crustaceans? Evaluating Potential Age Structures for Three Alaska Species

<b>1:30 PM – 3:00 PM</b>	<b>FPM-6</b>	<b>Congressional B</b>
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### Genomics

Chair: Nicolas Rabet

1:30 pm	<b>FPM-6.1</b>	Rabet N, Audebert F, Galindo LA, Bonillo C; Sorbonne Universités, UFR de Sciences, Université de Versailles Saint-Quentin-en-Yvelines	Evolution of Mitogenome Reorganization in Crustaceans: from the Extreme Case of Sacculine to a More Classical Situation in Branchiopods
1:45 pm	<b>FPM-6.2</b>	Bachvaroff TR, Plough LP, Decre BE, Chung JS; University of Maryland Center for Environmental Science, University of Maryland Baltimore County	Cracking the Genetic Code of the Blue Crab, <i>Callinectes sapidus</i>
2:00 pm	<b>FPM-6.3</b>	Wade NM, Huerlimann R, Gordon L, Montenegro JD, Goodall J, McWilliam S, Siemering K, Giardina E, Donovan D, Sellars M, Cowley JA, Condon K, Coman GJ, Khatkar M, Raadsma H, Maes G, Zenger KR, Jerry DR; ARC Research Hub for Advanced Prawn Breeding, a collaborative partnership between James Cook University, CSIRO, University of Sydney, Australian Genome Research Facility, Seafarms Group Pty Ltd, Australia	De Novo Assembly, Characterization, Functional Annotation and Expression Patterns of the Black Tiger Shrimp ( <i>Penaeus monodon</i> ) Transcriptome
2:15 pm	<b>FPM-6.4</b>	Jianhai X; Chinese Academy of Sciences	Genetic Selective Breeding and Genome Sequencing of Penaeid Shrimp
2:30 pm	<b>FPM-6.5</b>	Jeong JH, Koo HY, Kim W; Seoul National University, Sangi University	An Alternative Draft Genome of <i>Portunus (Portunus) trituberculatus</i> and Comparative Genomic Analysis Across Decapod Species (Decapoda: Brachyura: Portunidae)
2:45 pm	<b>FPM-6.6</b>	Qin J, Chu KH; The Chinese University of Hong Kong	A Transcriptomic Approach for Large-Scale Functional and Evolutionary Analyses On Crustacean Gene Regulation

**Molecular Insights: the Genomic Revolution in Crustacean Biology**

Co-chairs: Heather Bracken-Grissom, Joanna Wolfe

3:30 pm	<b>FPM-7.1</b>	Bracken-Grissom HD, Wolfe J, Breinholt J, Crandall KA; Florida International University	Decapod Phylogeny: a Conflicted Past and the Way Forward
3:45 pm	<b>FPM-7.2</b>	Schwentner M, Richter S, Rogers DC, Giribet G; Harvard University, University of Hamburg, Universität Rostock, Kansas University	Crustacean Phylogenomics with Special Focus On Malacostraca and Branchiopoda - Designing Taxon-Specific Matrices Increases Accuracy in Phylogenomic Analyses
4:00 pm	<b>FPM-7.3</b>	Bruce HS, Patel NH; UC Berkeley	Insect Wings and Body Wall Evolved from Crustacean Leg Segments
4:15 pm	<b>FPM-7.4</b>	Van Der Wal C, Ah Yong ST, Ho SYW, Lo N; University of Sydney, Marine Invertebrates, Australian Museum	Reconstructing the Phylogeny of Mantis Shrimps (Stomatopoda): Are Rates of Molecular and Morphological Evolution Correlated?
4:30 pm	<b>FPM-7.5</b>	Hultgren KM, Hurt C, Bracken-Grissom H; Seattle University, Tennessee Tech University, Florida International University	A Worldwide Phylogeny of the Snapping Shrimp Genus <i>Alpheus</i> Using Anchored Hybrid Enrichment
4:45 pm	<b>FPM-7.6</b>	Rhodes ACE; University of Vermont	Adaptive Potential of <i>Calanus pacificus</i> Copepods Along the Northern California and Oregon Coast
5:00 pm	<b>FPM-7.7</b>	De Leo DM, Bracken-Grissom HD; Florida International University	Sight Beyond Eyes? Evidence for Photosensitivity in the Bioluminescent Light Organs of Deep-Sea Shrimp Using Phylotranscriptomics
5:15 pm	<b>FPM-7.8</b>	Caballero IC, Mateos M, Hurtado LA; Texas A&M University	Blue Crab Population Genomics in the US Using Rad-Seq
5:30 pm	<b>FPM-7.9</b>	Chak STC, Hultgren KM, Duffy JE, Rubenstein DR; Columbia University, Seattle University, Tennenbaum Marine Observatories Network, Smithsonian Institution	Genomic Consequences of Eusociality in Snapping Shrimps
5:45 pm	<b>FPM-7.10</b>	Sun DA, Patel NH; UC Berkeley	Exploring Crustacean Hox Gene Evolution Using Functional Genomics

**Form and Function in Crustacean Morphology, II**

Co-chairs: Stefan Richter, Tomonari Kaji

3:30 pm	<b>FPM-8.1</b>	Watling L, Gerken S, Boudrias M; University of Hawaii At Manoa, University of Alaska, Anchorage, University of San Diego	Morphology of the Cumacean Male: the Importance of Being Sleek, Or Not
3:45 pm	<b>FPM-8.2</b>	Göpel T, Wirkner CS; Universität Rostock, Allgemeine & Spezielle Zoologie	Mission Shrimpossible – the Circulatory System of <i>Penaeus vannamei</i> with Special Focus On Lacunar Structures
4:00 pm	<b>FPM-8.3</b>	Bober S, Riehl T, Brandt A; University of Hamburg, Senckenberg Research Institute and Natural History Museum	An Organ of Equilibrium in Deep-Sea Isopods Revealed: the Statocyst of Macrostylidae (Crustacea, Peracarida, Janiroidea)
4:15 pm	<b>FPM-8.4</b>	Hayer S, Köhnk S, Kabus J, Boretius S, Gorb SN, Kihara T, Brandis D; Christian-Albrechts-University Kiel, Deutsches Primatenzentrum (DPZ), Deutsches Zentrum für Marine Biodiversitätsforschung (DZMB)	Reproduction At Depth - the Reproductive Morphology of Hydrothermal Vent Crabs
4:30 pm	<b>FPM-8.5</b>	Hazerli D, Richter S; Universität Rostock	Buttresses and Muscles: First 3D Reconstructions of Brachyuran Axial Skeletons and Intrinsic Musculature - Why Swimming Crabs (Portunidae) Are Able to Swim
4:45 pm	<b>FPM-8.6</b>	Wagner P, Braig F; Ludwig-Maximilians-University Munich	Approaching the True Diversity of Mantis Shrimps Beyond Taxonomy: Morphological Heterogeneity of Larval Forms
5:00 pm	<b>FPM-8.7</b>	McDonald MS, Porter ML, Feller KD; University of Hawaii at Manoa, University of Cambridge	Investigation of Ultrastructures in the Eyes of Larval Stomatopod Crustaceans

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5:15 pm	<b>FPM-8.8</b>	<i>Rumney BM, Morgan SR, Lewis P, Malik FT, White N, Parker AR, Albon J, Meek KM; Cardiff University, Lifescaped, Somerset House</i>	Understanding the Structural Properties of the Skogsbergia Lernerii Carapace
5:30 pm	<b>FPM-8.9</b>	<i>Morgan SR, Rumney BM, Malik FT, White N, Parker AR, Meek KM, Albon J; Cardiff University, Lifescaped, Somerset House</i>	Establishment of Long-Term Crustacean Epithelial Cell Culture

### 3:30 PM – 4:30 PM      **FPM-9A**      **Congressional B**

#### **Marine Chelicerates**

*Chair: John A. Fornshell*

3:30 pm	<b>FPM-9A.1</b>	<i>Fornshell JA; Smithsonian Institution</i>	Early Post Hatching Stages of Nymphon Australe Hodgson 1902, an Example of Direct Development in the Pycnogonida
3:45 pm	<b>FPM-9A.2</b>	<i>Brenneis G, Arango CP; Wellesley College, Queensland Museum</i>	New Data On the Development of Antarctic and Tropical Sea Spiders - Implications for the Evolution of Developmental Pathways in Pycnogonida
4:00 pm	<b>FPM-9A.3</b>	<i>Sabroux R, Corbari L; Muséum National D'Histoire Naturelle</i>	Unraveling the Phylogenetic Relationships Within Sea Spiders Using Mitochondrial Genomes
4:15 pm	<b>FPM-9A.4</b>	<i>Haug C; LMU Munich</i>	Ontogeny of Fossil and Extant Xiphosuran Chelicerates and Its Contribution to Species Delineation and Evolution of the Group

### 4:30 PM – 6:00 PM      **FPM-9B**      **Congressional B**

#### **Ecology and Behavior**

*Chair: TBD*

4:30 pm	<b>FPM-9B.1</b>	<i>Stevens BG, Wilson J; University of Maryland Eastern Shore</i>	Direct Aging of Decapod Crustaceans with Application to Red Deep-Sea and Jonah Crabs
4:45 pm	<b>FPM-9B.2</b>	<i>Patel RN, Cronin TW; University of Maryland Baltimore County</i>	Local Navigation in a Mantis Shrimp
5:15 pm	<b>FPM-9B.4</b>	<i>Maguire EP, Feldmann RM, Schweitzer CE, Casadio S, Thiel BA; Kent State University, Universidad Nacional de Rio Negro</i>	Volcanic Mass-Death Events and Exceptional Fossil Preservation: Lessons from the Ancient Romans
5:30 pm	<b>FPM-9B.5</b>	<i>Ohtsuchi N, Kawamura T, Kurogi H, Watanabe Y; The University of Tokyo, National Research Institute of Fisheries Science, Japan of Fisheries Science</i>	Relationship Between Ontogenetic Habitat Shift and Decorating Material Preference in Japanese Kelp Crab <i>Pugettia quadridens</i>
5:45 pm	<b>FPM-9B.6</b>	<i>Perez-Botello AM, Guerra E, Simões N; Posgrado Ciencias Biológicas, UMDI-Sisal</i>	Diversity Patterns and Multiscale Analysis of <i>Callyspongia vaginalis</i> Dwelling-Crustacea in Campeche Bank Coral Reefs

### 6:00 PM – 6:15 PM      **Closing Ceremony**      **Renaissance**

#### **Closing Ceremony**

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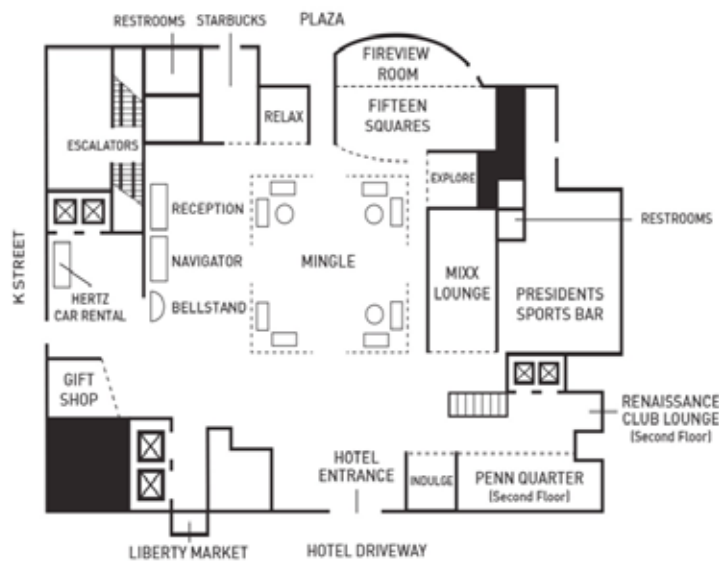
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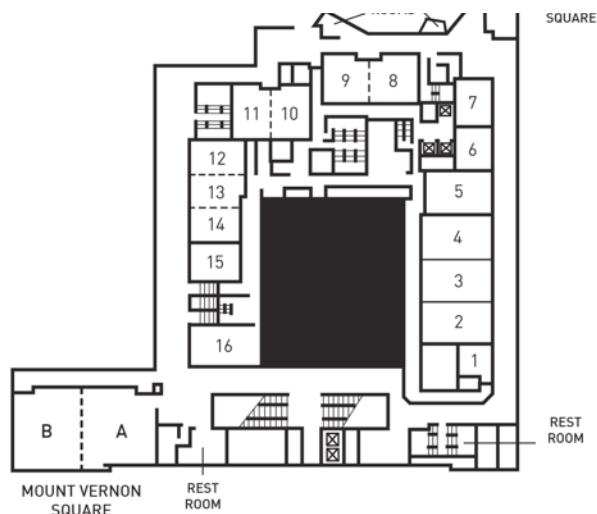
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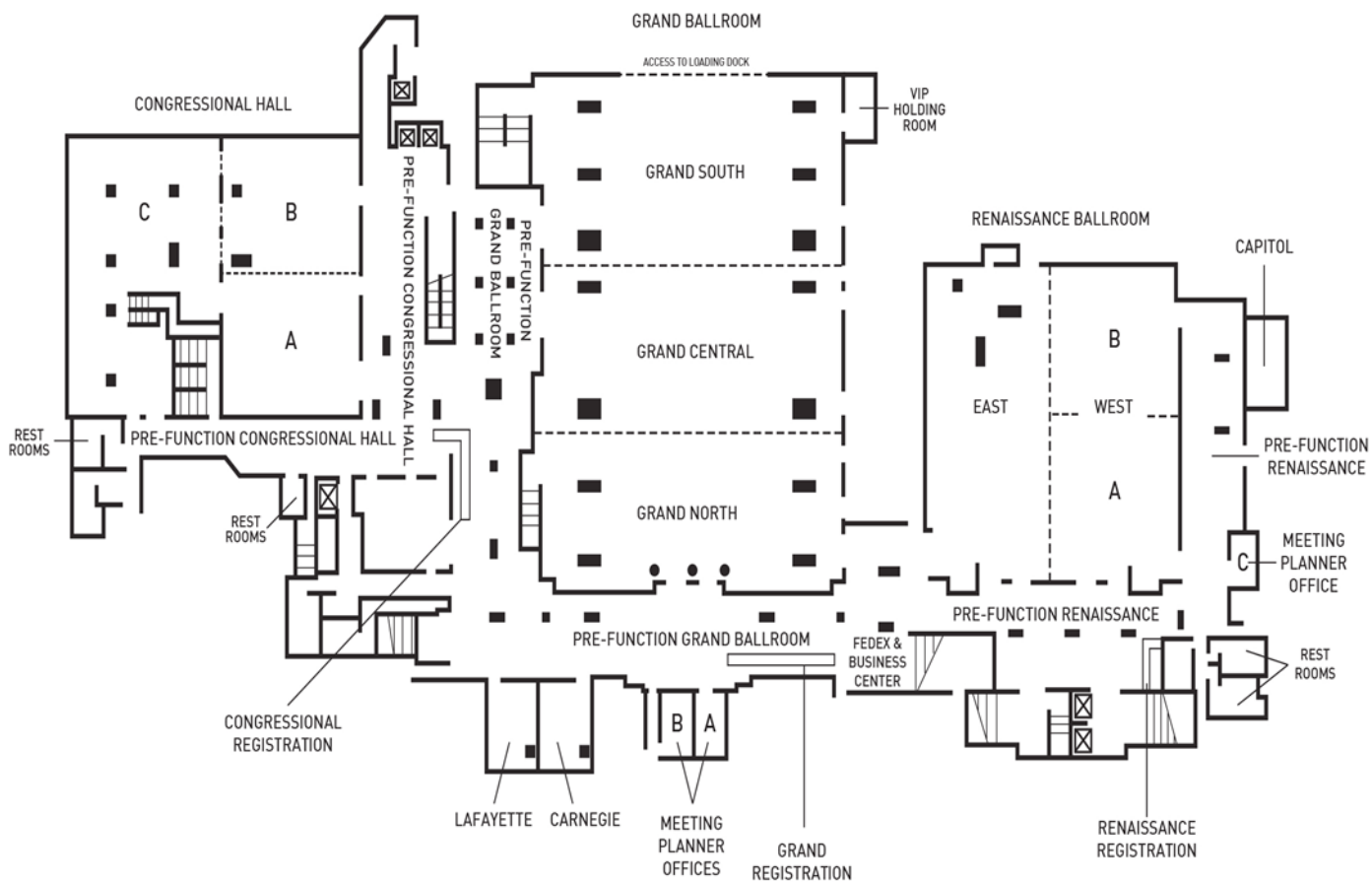
# Renaissance Hotel Floorplan



LOBBY LEVEL

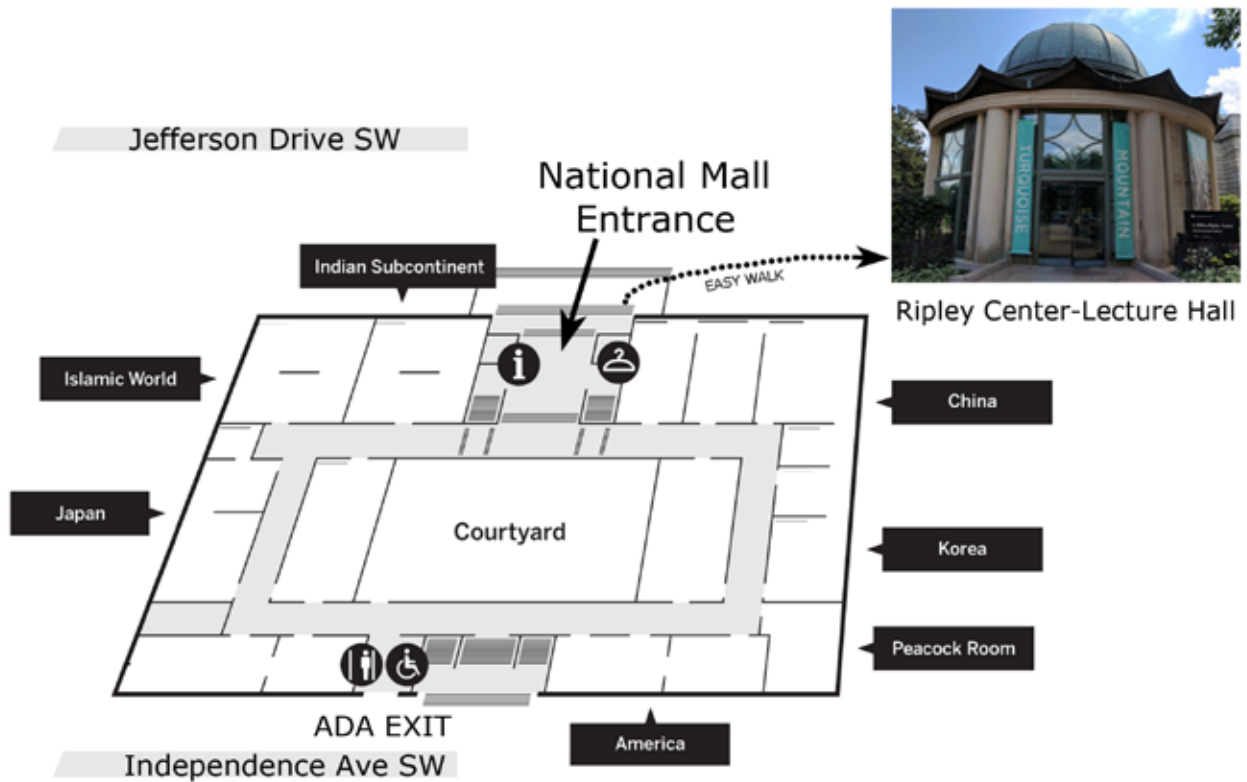


MEETING ROOM LEVEL

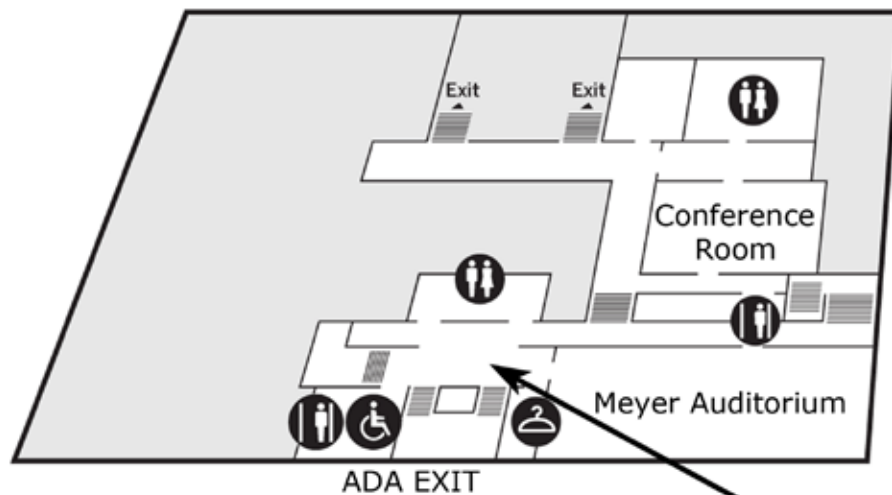


BALLROOM LEVEL

# Freer Gallery of Art Floorplan



First Floor



Lower Level (Ground Floor)

REGISTRATION

- Information
- Restrooms
- Lockers
- Elevator
- ADA Accessible

# Notes