

Cephalopod International Advisory Council Symposium

27 Oct - 02 Nov 2012

Majestic Palace Hotel | Florianópolis, SC, Brazil



Official Program





Cephalopod International Advisory Council Symposium

“Interdisciplinary approaches to cephalopod biology”

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Majestic Palace Hotel

Florianópolis, Santa Catarina, Brazil



Cover Photograph: *Pickfordiateuthis pulchella*, by Dr. Alvaro Migotto, Marine Biology Center (CEBIMar-USP), University of São Paulo, São Sebastião/SP, Brazil - www.usp.br/cbm

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Symposium Secretariat



Official Travel Agency



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Welcome Message

On behalf of the Organizing Committee, it is my pleasure to welcome you to Florianópolis for the 2012 Cephalopod International Advisory Council Symposium. It is a privilege to host this CIAC Symposium and we are proud to have it in Brazil. The theme of our conference, “**Interdisciplinary Approaches to Cephalopod Biology**”, embraces all aspects of cephalopod biology, allowing the presentation of oral communications and posters across a broad range of topics. As you will see, apart from a strong scientific program, CIAC 2012 will promote communication and new collaborations through workshops and a topical and vibrant symposium program that includes keynote papers, poster sessions, oral presentations, and discussion panels.

Social events are also an essential part of the program, as they provide the perfect occasion to re-connect with old friends and colleagues as well as to meet young scientists and students. With this in mind, it was my great wish that the official symposium dinner be a moment when every one of the participants of the symposium would gather together to cherish the moments we shared during the event.

We will have four concurrent workshops that precede the Symposium, each covering an exciting theme: “Cephalopod culture: recent advances and challenges”, “Biology, ecology and biodiversity of deep-sea cephalopods”, “Habitats and behavior of cephalopod key life-stages”, and “Cephalopod species dynamics and environmental effects, stock assessment, and management”. We would like to thank the workshop chairs for their efforts in preparing the ground for stimulating discussions of these highly topical themes that I know will enrich our Symposium.

The Symposium includes four keynote speakers. Dr. Angel Guerra will open the Symposium with an exciting talk on the conference theme that, we hope, will encourage all of you to engage in new, interdisciplinary collaborations. Dr. Louise Allcock will strike a more historical note with a delightful presentation on the vital role of women in teuthology, their challenges and motivation. It will be a talk that all teuthologists — male and female — certainly will find inspiring! Dr. Uwe Piatkowsky has taken on the task of reviewing the latest advances of a very broad and important topic - “Cephalopods and the environment” an area of obvious interest to many of you, given the high number of papers submitted to this session. Finally, Dr. Ron O’Dor will wrap up the event with a superb lecture on the vital biological information generated from tagging cephalopods, including traditional and novel technologies employed to track our favorite animals.



In addition to the pre-conference workshops and keynote speakers, an innovation of this CIAC Symposium will be two discussion panels: “Perspectives on cephalopod evolutionary studies” — a theme of growing interest to all of us — and “Perspectives on cephalopod research in Latin America”, which could not be more timely. The invited panelists are experts in their fields and will provide a suitable foundation for the discussion of these key topics. We hope that all delegates will actively participate in these discussion panels!

Regarding poster & oral presentations, the CIAC '12 program is very rich and varied with topics ranging from the feeding strategies of the deep-sea vampire squid to the airborne gliding behavior of the purpleback flying squid; and methods ranging from basic functional anatomical investigations (that still give us invaluable, new information on the biology of cephalopods) to the latest technologies in cephalopod genomics.

Present at this Symposium are delegates representing 27 countries, presenting a total of 89 oral presentations and 133 posters. We hope CIAC 2012 will provide excellent opportunities not only to present your research, but also to interact with many researchers whom you otherwise might not meet. Hopefully, this will lead to new, fruitful international (and why not interdisciplinary?) collaborations!

The host city, Florianópolis, has some of the most stunning scenery in Brazil. Commonly referred as “Floripa,” Florianópolis is one of the most visited cities in Southern Brazil and, according the United Nations, is the Brazilian state capital with the highest Human Development Index. The island combines the characteristics of a state capital and urban center. With a population of about 421,000 (the entire metropolitan area contains 1 million inhabitants), our city still maintains the peacefulness of a traditional fishing village. The island’s amazing natural setting includes areas of preserved Atlantic Forest, sand dunes, mangroves, lagoons, and over 100 beaches.

In conclusion, apart from having a very rich week scientifically, we hope that you also will have fun enjoying Florianópolis!

All the very best,

Érica A. G. Vidal
Symposium Chair



Committees

- **Organizing Committee**

Acácio R. G. Tomas: São Paulo Fisheries Institute, Brazil

Érica A. G. Vidal (Chair): Center for Marine Studies,
University of Paraná, Brazil

José Angel A. Perez: Centre for Education in Earth and
Sea Science and Technology, University of Vale do Itajaí, Brazil

José Eduardo A. R. Marian (Vice-Chair): Department of Zoology,
Institute of Biosciences, University of São Paulo, Brazil

Manuel Haimovici: Oceanographic Institute,
University of RioGrande, Brazil

Maria A. Gasalla: Oceanographic Institute,
University of São Paulo, Brazil

Roberta Aguiar dos Santos: Research and Management Center
for Fisheries Resources, Chico Mendes Institute for Biodiversity
Conservation, Brasília, Brazil

Rodrigo S. Martins: Oceanographic Institute,
University of São Paulo, Brazil

Tatiana S. Leite: Department of Oceanography,
University of Rio Grande do Norte, Brazil



• **International Scientific Committee**

Christian M. Ibáñez: Instituto de Ecología y Biodiversidad Facultad de Ciencias, Universidad de Chile (Chile)

Clyde Roper: Department of Invertebrate Zoology, Smithsonian Institution (United States of America)

Érica A.G. Vidal: Center for Marine Studies, University of Parana (UFPR) (Brazil)

Graham Pierce Department of Zoology, University of Aberdeen (United Kingdom)

José Angel A. Perez: Centre for Education in Earth and Sea Science and Technology, University of Vale do Itajaí, Brazil

José Eduardo A. R. Marian: Department of Zoology, Institute of Biosciences, University of São Paulo (Brazil)

Louise Allcock: Martin Ryan Marine Science Institute, National University of Ireland, (Ireland)

Manuel Haimovici: Oceanography Institute, University of Rio Grande (FURG) (Brazil)

Maria A. Gasalla: Oceanography Institute, University of São Paulo (IO-USP) (Brazil)

Michael Vecchione: National Museum of Natural History, Smithsonian Institution (USA)

Natalie Moltschaniwskyj: School of Environmental & Life Sciences, University of Newcastle (Australia)

Paul G. Rodhouse: British Antarctic Survey (United Kingdom)

Rodrigo S. Martins: Oceanography Institute, University of São Paulo (IO-USP) (Brazil)

Roger Villanueva: Instituto de Ciencias del Mar, CSIC (Spain)

Tatiana S. Leite: Department of Oceanography, University of Rio Grande do Norte (Brazil)

Uwe Piatkowski: Leibniz-Institute of Marine Sciences IFM-GEOMAR (Germany)



General Information

City of Florianópolis - located in the Santa Catarina Island, it is best known by its nickname: Floripa. It has the 4th best Human Development Index in Brazil, and the best life quality of Brazilian state capitals. Its colonization started in the mid-18th century, mostly with the arrival of Portuguese colonists from the Azores Islands. However, the city has taken on a cosmopolitan air with the arrival of Brazilians from other states and foreigners who chose to live here. The island, which in the beginning of the colonization period was an important whale-hunting centre, is today a technological pole of the Information Technology Industry. Floripa is currently inhabited by about 400 thousand people, a number that triples every summer, since tourism is one of the staples of the city's economy. In addition to its popular sugar-soft-white-sand beaches Florianópolis offers many historical attractions, including sites of the original Azorean colonists: Lagoa da Conceição lagoon, Ribeirão da Ilha, and Santo Antônio de Lisboa.



Symposium Venue - Majestic Palace Hotel

2746, Beira Mar Norte Avenue, Downtown - Florianópolis, SC - Brazil
Phone: +55-48-3231-8000. If you are in Florianópolis do not dial 55-48.



- **Symposium Secretariat**

Located at the **Floripa Room** (G2 Level) of the hotel. At the Symposium Secretariat you can pick-up your registration bag and badge, as well as obtain general information.

Operating hours:

Saturday and Sunday (October 27th and 28th) _____ 7h30 to 18h30

Monday (October 29th) _____ 7h30 to 18h30

Tuesday (October 30th) _____ 8h00 to 20h00

Wednesday (October 31st) _____ CLOSED

Thursday (November 1st) _____ 8h00 to 20h00

Friday (November 2nd) _____ 8h00 to 18h30

- **Participants' Material:**

- » Badge with name and country
- » Conference bag with the Symposium material
- » Lunch coupons for the official lunches
(Monday, Tuesday, Thursday and Friday)
- » Invitation for the Welcome Reception
- » Invitation for the Official Symposium Dinner

Registered accompanying persons are entitled to the Welcome Reception and Official Symposium dinner. Lunch is not included but it can be bought on a daily basis at the Symposium Secretariat.

We kindly request that all registered participants wear their badge during scientific sections and workshops. It is mandatory to wear your badge to attend any scientific session.

- **Coffee Break**

Will be served twice a day from Monday to Friday (except free day) at the Floripa Room (G2 Level), between 10h30 to 11h00, and 15h30 to 16h00.



- **Lunch**

Will be served daily from Monday to Friday (except free day) at the Restaurant (E Level). Lunch break is between 12h30 and 14h00. Presentation of the lunch coupons is mandatory at the restaurant entrance. Please note that your lunch coupon gives you a choice of beverage: water, fruit juice or soft drink.

- **Technical Information**

All the presenters are kindly requested to strictly comply to the program schedule and time limit as well as with the presentation guidelines posted in the website (www.ciac2012brazil.com.br). Each oral presentation should not exceed 15 minutes (12 minutes for speaking followed by 3 minutes for questions).

- **Presentation Equipment**

The **Auditorium** is fully equipped to receive the scheduled presentations. You are responsible for handing your PowerPoint file to the CIAC 2012 organization staff 24h before your scheduled presentation at the **media desk** located at Auditorium Hall. Computers will be available at the media desk for last check on your presentation, if necessary. Media desk will be open daily from 07h30 to 17h30.

- **Poster Display**

Posters will be displayed at Floripa Room (G2 Level). Although posters can be visited during the coffee breaks, presenters are expected to stay next to their poster between 18h30 and 20h00 on Tuesday, October 30th and Thursday, November 1st. The number of your poster will be displayed with large printed letters in the upper right hand of the poster board. Posters should be hanged and removed following this schedule:

	Poster hanging	Poster removal
October 29 th and 30 th	From 14h00 Monday to 14h00 Tuesday	
November 2 nd		No later than 12h00



The Symposium staff will keep the posters not removed by the authors until November 2nd. We will not assume any further responsibility for the material.

- **Poster Sessions I and II**

In the evening, poster presentations and happy hour will take place at Floripa Room (G2 Level), from 18h30 to 20h00 on Tuesday and Thursday (October 30th and November 1st).

Social Events

- **Welcoming Reception: Sunday October 28th**

The open ceremony will take place at the Auditorium at 20h00, and the Welcoming Reception at the Floripa Room between 21h00 and 22h30. Please present your invitation at the entrance of the restaurant.

- **Happy Hour: Tuesday October 30th and Thursday November 1st**

Happy Hour will take place between 19h30 to 21h00 at Floripa Room at the end of the Poster Sessions.

- **Official Symposium Dinner: Friday November 2nd**

Official Symposium Dinner will take place at “Alameda Casa Rosa” between 20h00 and 03h00. Transportation will be provided by the Symposium organization and will depart from the Majestic Palace Hotel at 20h00. Transportation will return to the Hotel starting from 02h00. Please bring your invitation.

- **Optional Day Trips and Tours**

Açoriana Agency is ready to hook you up with the best day trips around Floripa or other tours. Please check the options at their stand located at the Auditorium Hall.



Useful Information

- **Police and Emergency Numbers**

190 - Police

192 - Medical Emergency

194 - Firemen

Phone: 3234 6326 / 9982 8686 - Dentists (24h)

- **Airport**

Hercílio Luz International Airport

Avenida Diomício Freitas, 3393 – Carianos. Phone: 3331-4000

- **Bus Station**

Terminal Rodoviário Rita Maria

Avenida Paulo Fontes, 1101 – Centro. Phone: 3212-3100

- **Airlines Companies**

» **Webjet (www.webjet.com.br):** 0800 723 1234 (Toll-free number)

» **Gol (www.voegol.com.br):** 0800 704 0465 (Toll-free number).
Phone: 3331-4092 (local airport store)

» **TAM (www.tam.com.br):** Phone: 4002-5700

» **Avianca (<http://www.avianca.com.br>):** Phone: 4004-4040

» **Azul (www.voeazul.com.br):** 0800 884 4040 (Toll-free number).
Phone: 4003-1118

» **Trip (www.voetrip.com.br):** 0800 722 8747
(Toll-free number). Phone: 3003-8747

- **Overseas Embassies and Consulates of Brazil**

<http://embassy.goabroad.com/embassies-of/brazil#>

- **Foreign Embassies and Consulates in Brazil**

<http://embassy.goabroad.com/embassies-in/brazil#>

- **Currency Exchange**

Açoriana (Official Travel Agency) will be providing this service at the Auditorium Hall daily from 10h00 to 12h00



- **Post Office**

Phone: 3025-6789 - Beiramar Shopping Mall, First Floor, 162A and B

- **Malls**

- » **Beiramar Shopping** - 2468, Bocaiúva Street – Downtown
Monday to Saturday: from 10h00 to 22h00 - Sunday: from 14h00 to 20h00.
- » **Shopping Iguatemi** - 687, Madre Benvenuta Avenue - Santa Mônica
Monday to Saturday: from 10h00 to 22h00 h - Sunday: from 14h00 to 20h00
- » **Floripa Shopping** - 3116, SC 401 Road-Monte Verde
Monday to Saturday: from 10h00 to 22h00 - Sunday: from 15h00 to 21h00.

Submission of Manuscripts

All those participants who wish to publish their papers in the special issues of *Hydrobiology*, *Fisheries Research* and *Journal of Natural History* have to submit their manuscripts during the Symposium or up to November 30th, 2012. All manuscripts should be submitted to Dr. Érica A. G. Vidal (ericavidal2000@yahoo.com.br) or Dr. José Eduardo A. R. Marian (ciac12brazil@gmail.com).





- 1. Majestic Palace Hotel (Symposium Venue)**
Av. Jornalista Rubens de Arruda Ramos, 2746 –Tel: 3231-8000
- 2. Blue Tree Towers Florianópolis (Hotel)**
Rua Bocaiúva, 2304 – Tel: 3251-5555
- 3. Toca de Jurerê (Seafood)**
Rua Demétrio Ribeiro, 148
***Monday–Saturday from 12h to 15h,
Sunday from 12h to 16h***
- 4. Kay’s Ki Dum Lanches e Crepes (Fast Food, Snacks & Crepe)**
Rua Bocaiúva, 2415
***Friday & Saturday from 18h to 06h,
Sunday–Thursday from 18h to 02h***
- 5. Sanduicheria da Ilha (Best Sandwiches in Town)**
Rua Altamiro Guimarães, 18
***Monday–Thursday from 11h to 02h.
Friday & Saturday from 11h to 03h, Sunday from 16h to 24h***
- 6. Pizza na Pedra (Pizza)**
Av. Jornalista Rubens Arruda Ramos, 2483
***Monday–Friday from 18h30h to 24h
Saturday, Sunday & holydays from 12h to 15h and from 18h30h
to 24h***
- 7. Yaah Temakeria (Oriental Food)**
Rua Bocaiúva, 2297
***Monday–Thursday from 11h30 to 1h30
Friday & Saturday from 11h30 to 05h00
Sunday from 18h00 to 1h30***
- 8. Mirantes Restaurantes (Buffet Service)**
Rua Bocaiúva, 2256
Monday–Saturday from 11h to 15h
- 9. Cervejaria Original (Beer House)**
Rua Altamiro Guimarães, 126
Monday–Sunday from 18h to 01h
- 10. Shopping Beira Mar – Praça de Alimentação
(Food Court with several options)**
Av. Mauro Ramos, 1785
***Monday–Saturday from 10h to 22h, Sunday from 11h
to 22h***



Hotels

» **Plaza Baía Norte**

Rua Almirante Lamego, 220 –Phone: 3229-3144

» **Sofitel Florianópolis**

Av. Jornalista Rubens de Arruda Ramos, 2034 – Phone: 3202-6100

Restaurants

» **Kaffa (Arabic Food)**

Rua Rafael Bandeira, 337 – Centro

Monday–Friday from 11h to 15h and from 18h to 23h

Saturday & Sunday from 11h to 23h30

» **El Divino Restaurante**

Rua Almirante Lamego, 1147 – Centro

Tuesday–Sunday, starting at 20h

» **Kanpai (Oriental Food)**

Rua Alves de Brito, 161 – Centro

Thursday–Sunday from 18h to 00h30

Friday & Saturday from 18h to 01h

» **Pizzaria Basílico (Pizza)**

Rua Rafael Bandeira, 328 – Centro

Tuesday–Sunday from 19h to 24h

» **Outback Steakhouse**

1st Floor of Beira Mar Shopping –Rua Bocaiúva, 2468 – Centro

Monday–Thursday from 12h to 15h and from 18h to 23h

Friday from 12h to 15h and from 18h to 01h

Saturday from 12h to 01h

Sunday & holydays from 12h to 22h

» **Macarronada Italiana (Italian Food)**

Rua Bocaiúva, 2306

Monday–Sunday from 11h to 00:30h



» **Toca da Garoupa (Seafood)**

Rua Alves de Brito, 178 – Centro

Lunch – Monday–Friday from 12h to 15h

Saturday & Sunday from 12h to 16h

Dinner – Monday–Sunday from 19h to 24h

Beer House & Nightclubs

» **Absoluto Chopp Bar**

Av. Osmar Cunha, 313

Monday–Friday from 17h30 to 01h

» **Boteco da Ilha (Beer House)**

Av. Jornalista Rubens de Arruda Ramos, 974

Monday–Friday from 17h to 02h

Saturday & Sunday from 18h to 02h

» **Cervejaria Original (Beer House)**

Rua Altamiro Guimarães, 126

Monday–Friday from 18h to 01h

» **El Divino (Nightclub)**

Rua Almirante Lamego, 1147

Thursday–Sunday, starting at 24h

» **Outback Steakhouse**

1st Floor of Beira Mar Shopping

Monday–Thursday from 12h to 15h and from 18h to 23h

Friday from 12h to 15h and from 18h to 01h

Saturday from 12h to 01h

Sunday & holydays from 12h to 22h



Pre-conference Workshops

Cephalopod culture: recent advances and challenges

Chair: Dr. Érica A.G. Vidal - Center for Marine Studies, University of Paraná, Brazil

Co-Chair: Dr. Roger Villanueva - Institut de Ciències del Mar (CSIC), Spain

Secretary: BSc. Rita M. Franco-Santos - Center for Marine Studies, University of Paraná, Brazil

Cephalopod research increasingly relies on maintenance of healthy animals in the laboratory. From delicate planktonic forms to robust benthic adults, a variety of species and life stages have been maintained, reared, and cultured, albeit with different degrees of success. The technical advances that have made small-scale husbandry possible have increased our understanding of the general biology, physiology, nutrition and behaviour of cephalopods, as well as opening up aquaculture possibilities for some species. Compiling and interpreting culture information is thus a necessary step in advancing applied cephalopod research. To this end, the Workshop will:

- describe current rearing techniques, including broodstock maintenance, egg incubation, larval & juvenile rearing, grow out, feeding & nutrition, and diseases;
- clearly identify critical research areas and challenges;
- review criteria for evaluating candidate aquaculture species;
- review relevant and recent literature on cephalopod culture;
- stimulate open discussion and encourage collaborative research.

In addition to these topics, participants are encouraged to suggest other relevant subjects within their areas of interest. To enhance the level of interaction, all presenters will be requested to write a summary of their presentations.

Workshop product: A multi-author original paper to be published in the Proceedings of the Symposium or submitted to a review journal.



Biology, ecology and biodiversity of deep-sea cephalopods

Chair: Dr. José Angel A. Perez - Centre for Education in Earth and Sea Science and Technology, University of Vale do Itajaí, Brazil

Co-Chair: Dr. Henk-Jan Hoving - Monterey Bay Aquarium Research Institute, USA

Secretary: Dr. José Eduardo A.R. Marian – Depto. Zoology, Institute of Biosciences, University of São Paulo, Brazil

In terms of number of taxa and total biomass, most cephalopods inhabit waters below 200 meters. Due to advances in undersea technology, an increase in general interest in the deep sea as one of the last frontiers in exploration, and the growing exploitation of deep-sea natural resources (e.g., fisheries and oil), our body of knowledge on the diversity, ecology and biology of deep-sea cephalopods has grown exponentially in recent decades. However, this knowledge is still widely dispersed in the literature. In order to increase the efficiency of scientific research on deep-sea cephalopods, our workshop aims to:

- provide a forum for scientists to exchange ideas on research related to deep-sea cephalopods;
- present review talks (20 minutes + 10 minutes discussion, by one or more authors) that outline the current knowledge in various topics (physiology, diversity, feeding ecology, collection techniques, etc.).

We will prepare a list of suggested topics for review talks, but presenters may also propose their own. If more than one scientist is interested in giving a talk on a particular topic, we will encourage collaboration. Authors signing up to give review talks are expected to write a contribution on this topic, in a format to be determined. Graduate students are also encouraged to present (or co-present) a review talk.

Workshop product: The reviews will be integrated into one or more scientific publications, either as a combined paper (or series of papers) in the Symposium Proceedings or as a synthetic review paper to be submitted to an outside journal.



Habitats and behaviour of key cephalopod life stages

Chair: Dr. Jean Paul Robin - CNRS INEE, Biologie des Mollusques Marins et des Ecosystèmes Associés, IBFA - Université De Caen Basse-Normandie, France

Co-Chair: Dr. Mike J. Roberts - Oceans and Coasts, Department of Environment Affairs, South Africa

Secretary: Dr. Tatiana S. Leite – Depto. Oceanography, University of Rio Grande do Norte, Brazil

Cephalopod populations are extremely sensitive to environmental variability. This sensitivity is of particular concern for populations that are heavily fished, as environmental parameters have a significant impact on cohort success. Most cephalopod species also exhibit ontogenetic migrations, exposing different life stages to different environments.

The analysis of environmental variability includes both individual variables (temperature, depth, salinity) and multivariate descriptions of habitats, over small to large spatial scales. Local habitat features can also influence cephalopod behaviour, such as the effect of substratum type on spawning. Ecosystem-based management is an opportunity to better integrate existing information about cephalopod habitats, as well as a new context for the development of population studies. The broader the range of ecological parameters considered, the better our understanding of ecosystem interactions. Stock protection is intimately related to other components of the ecosystem and services other than fisheries. The objectives of this workshop are:

- To highlight the use of detailed descriptions of biotic and abiotic factors in defining “preferred habitats”;
 - To invite a broader audience into discussion of trophic ecology and other biotic factors affecting cephalopod dynamics;
 - To document habitat choice and behavioural reactions to sub-optimal environment;
 - To discuss the application of key factor analyses to life cycles and population dynamics, and adopt a common definition and technique for identifying “key life stages.”
- Outcome: The workshop will be integrated into a review paper and published in the Proceedings of the Symposium or submitted to a review journal.



Cephalopod population dynamics, environmental effects, stock assessment and management

Chair: Dr. Paul G. Rodhouse - British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET, UK

Co-Chair: Dr. Yasunori Sakurai - Faculty of Fisheries, Hokkaido University, Hakodate, Hokkaido 041-8611, Japan

Secretary: Dr. Rodrigo S. Martins - Oceanographic Institute, University of São Paulo, São Paulo, SP, Brazil

As the prototypical semelparous organisms, most coleoid cephalopods experience both the advantages and hazards of a short life cycle with a single reproductive event at the end. To offset the risk of recruitment failure, cephalopods have evolved adaptations such as internal fertilization, encapsulated eggs and direct development. Therefore, much of cephalopod population dynamics and stock sizes available for fished species are driven by environmental variability. Comprehensive research on population dynamics, stock assessment and proper management needs to take into account the environmental variability acting on both the spawning stock and early life stages. Bearing this in mind, the aims of this workshop are:

- (1) to review available knowledge on cephalopod population dynamics;
- (2) to update attendees on the most suitable, state-of-the-art study techniques;
- (3) to summarize current knowledge and identify gaps and research needs;

Those goals will be reached through open discussions and presentations of key issues and reviews. A list of key issues will be provided in due time, and attendees are encouraged to suggest relevant topics for inclusion in this list at any time. All participants (including students) are invited to present their latest research and/or a comprehensive review within their area of expertise.

Workshop product: workshop outputs would be synthesized in a comprehensive review paper to be published in the Proceedings of the Symposium or submitted to a peer-reviewed journal.



Invited Speakers

Studying problems: Interdisciplinary approaches to Cephalopod Biology

Angel Guerra

Instituto de Investigaciones Marinas (CSIC). Eduardo Cabello 6, 36208 Vigo, Spain.
angelguerra@iim.csic.es

The efficiency of the collaboration between individual researchers or groups that cultivate different research fields does not question and interdisciplinarity is emerging. However, interdisciplinarity carries on some indispensable requirements and raises certain problems. This talk deals with two aspects: first, on some requirements and barriers of the interdisciplinary research, and second, on some items towards, from my view, an interdisciplinary research on the biology of the cephalopods might set out. The first basic requirement to develop a productive and effective interdisciplinary research is to define adequately a problem of study. The second is integration. Impediments to interdisciplinary research might be found in five major categories: attitude, communication, academic structure, funding, and career development. The feature that will be focused here is communication, mainly the problem associated with the consideration of “hard” and “soft” disciplines. Selected examples serve to illustrate these requirements and barriers. The item “discovering specific problems in cephalopod biology” is centered in the following three perspectives: 1^a) Cephalopods as experimental animals, 2^a) Cephalopods in the ecosystems, and 3^a) Cephalopods as source of natural products. Specific topics that could represent potential interdisciplinary research projects are given. I aimed to show: i) that the biology of cephalopods provides many interesting problems to be focused with interdisciplinary approaches; ii) that it is time to establish more solid bridges between CIAC’s members and other research groups in order to design and develop more interdisciplinary projects; iii) that opening mind, collaboration and harmony would allow science to advance more rapidly making transfer of knowledge more effective and direct; and iv) that this attitude would provide more opportunities to obtain suitable funds for cephalopod research. In fact, the main tendency in the majority of the western countries, but also in the most developed eastern ones, is to fund interdisciplinary proposals.



Women in cephalopod research: past and present

Louise Allcock

Martin Ryan Marine Science Institute, National University of Ireland, Galway, Ireland.
louise.allcock@gmail.com

This talk explores the contribution that women past and present have made to cephalopod research. Beginning with some of the strong women from the earlier half of the twentieth century it explores some of the prejudices faced by these pioneering female scientists such as Anna Bidder and Grace Pickford. An analysis of the studies undertaken by women who have devoted the greater part of their research career to cephalopods shows that a large proportion have contributed particularly to our knowledge of systematics and evolution. The talk follows developments in cephalopod evolutionary biology tracing a path to the last few years where female researchers have been extremely active in molecular systematics and evolution. The very latest developments in this field are described and the existing gaps in our knowledge and avenues for future research are highlighted. Finally, the unique CIAC atmosphere and community, which provides an even playing field for female researchers, is celebrated.



Natural and anthropogenic factors that characterize environment, life cycle and biology of cephalopods

Uwe Piatkowski

Helmholtz Centre for Ocean Research Kiel, GEOMAR, Düsterbrookweg 20, 24105 Kiel, Germany.

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Numerous abiotic and biotic factors affect the distribution of cephalopods and thus characterise the environment in which they live. One of the most important of these factors is water temperature. For example, temperature is the key factor which controls where and when oceanic squid spawn, feed or rest. It therefore determines largely the life cycle of many pelagic cephalopods. In nearshore or bottom living cephalopods such as many incirrate octopods or cuttlefish the structure of the bottom habitat is of crucial importance as some species need hard rocky substrates, others prefer sandy bottoms. Other significant factors are for example salinity, oxygen, pressure, nutrients, turbidity. The various life stages of most cephalopod species react differently to such environmental factors. A prominent example is that eggs and early life stages of cephalopods are much more sensible to changing temperature or oxygen values than their adult stages. Cephalopods and their relation to these factors is still one of the most investigated subjects in cephalopod science, resulting in a vast amount of experiments and literature. Recently, stress factors such as low oxygen, low pH, or pollutants are attracting more and more interest in the cephalopod community, because it has been documented that these stressors negatively influence growth, mobility and well-being of many cephalopod species. Their effects are increasing in an ocean of change and alter the environment harmfully in which most cephalopods live. The present talk will briefly highlight how some of the various factors influence cephalopod life cycles and their environment and summarise the contributions to the session on cephalopods and the environment.



What can we learn from tagging cephalopods? Climate change, ecosystem dynamics and energetics?

Ron O'Dor

Biology Department, Dalhousie University, 1355 Oxford Street, Halifax, NS, B3H 4J1, Canada.

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The Ocean Tracking Network (OTN) grew out of two Census of Marine Life tagging projects that together provide coverage for three trophic levels of interactions in ocean ecosystems. Researchers are pressing for standards and protocols allowing universal storage and sharing of a broad spectrum of biological and physical oceanographic information from combined systems to understand changing patterns produced by climate change and altered ecosystems. Society needs information to manage marine resources in an ecosystem context and standardized approaches encourage investment in new technologies compatible with global systems. OTN core funding is from Canada, but it now has standardized equipment in every ocean. Fortunately, cephalopods remain among the most interesting species to be studied because most are highly mobile and respond rapidly to fill niches created by climate and fishing. A wide variety of octopus, squid, cuttlefish and nautilus have been tagged around the world, many by my students and more by CIAC colleagues. No doubt there will be new reports during this meeting, which I will endeavor to integrate into the historical context. Tagging starts with passive numbered tags put into animals that are released and have to be re-caught. Archival tags store lots of data of all sorts, including geo-positioning, but they also have to be recovered, although some release themselves, pop to the surface and report to satellites. Acoustic tags produce sound codes unique to each animal that are detected by the receiver lines that OTN deploys as the animal passes over them. These are particularly useful in cephalopods because they can be carried by animals as small as 5g. OTN is testing 'Bioprobes' that use transceivers that both send and receive acoustic signals so a large animal can record its interactions with small ones. The Gilly Lab at Stanford University has done extensive studies of *Dosidicus gigas* recently



as it has expanded its range from Mexico to Alaska, and while they still can't be sure 'why', a variety of tag types have given a lot 'how' data. The most advanced tags now talk to GPS satellites to give precise when and where data, but these are not very useful for most cephalopods because they only work at the surface. However, we have recently published some high-profile information on the energetics of flying squid and at least dream of tagging squid so that they can report when and where they fly! I will tell you more.



CIAC '12 PROGRAM

	27th October Saturday	28th October Sunday	29th October Monday	30th October Tuesday	31st October Wednesday	1st November Thursday	2nd November Friday
8h30-9h00			Opening Talk: Dr. Angel Guerra	Keynote Talk: Dr. Louise Allcock		Keynote Talk: Dr. Uwe Pliatkowski	Oral presentations
9h00-10h30	Workshops	Workshops	Oral presentations Reproductive Biology	Oral presentations Taxonomy, biogeography & biodiversity		Oral presentations Cephalopods and the environment	The role of cephalopods in marine ecosystems
10h30-11h00	Coffee break	Coffee break	Coffee break	Coffee break		Coffee break	Coffee break
11h00-12h30	Workshops	Workshops	Oral presentations Behavior	Oral presentations Taxonomy Evolution & Genetics		Oral presentations Cephalopods and the environment	Oral presentations Early Life History I
12h30-14h00	Break	Break	Lunch	Lunch		Lunch	Lunch
14h00-15h30	Workshops	Workshops	Oral presentations Fisheries	Oral presentations Evolution & Genetics		Oral presentations Cephalopods and the environment Culture	Oral presentations Early Life History II
15h30-16h00	Coffee break	Coffee break	Coffee break	Coffee break		Coffee break	Coffee break
16h00-17h00	Workshops	Workshops	Oral presentations Management, stock assessment & conservation	Oral presentations Anatomy & Physiology	Free Day (Tours)	Oral presentations Age & Growth Migration & movement	Oral presentations Early Life History III
17h00-17h30	Workshops	Workshops closure	Group Photo	Discussion Panel: "Perspectives on Evolutionary Studies"		Discussion Panel: "Perspectives on Cephalopod Research in Latin America"	Closure Talk: Dr. Ron O'Dor
17h30-18h30		Workshops closure	Workshops Synopses				Closure Ceremony Student Oral & Poster Presentation Awards Best Paper Award /
18h30-20h00		Open Ceremony and Welcome Reception at the Majestic Palace Hotel	Poster Session I	Poster Session I		Poster Session II	
20h00-20h30							
20h30-							

CIAC '12 PROGRAM
Oral Presentations - Auditorium

MONDAY 29TH OCTOBER 2012

08h30-09h00 **OPENING TALK: "STUDYING PROBLEMS: INTERDISCIPLINARY APPROACHES TO CEPHALOPOD BIOLOGY"**
Dr. Ángel Guerra, Instituto de Investigaciones Marinas (CSIC), Vigo, Spain

SYMPOSIUM SESSION: REPRODUCTIVE BIOLOGY

Chair: José Eduardo A. R. Marian

- 09h00-09h15 **THE ONTOGENETIC PERIODIZATION OF SPERMATOPHOGENESIS IN COLEOID CEPHALOPODS**
Chingiz Muchametovich Nigmatullin; Rushan Mirzovich Sabirov
- 09h15-09h30 **FECUNDITY AND SPAWNING STYLE OF OCTOPODS FROM THE FALKLAND ISLANDS AND SOUTH ORKNEY ISLANDS AS SHOWN BY THE STUDY OF SPENT FEMALES**
Vladimir Laptikhovskiy
- 09h30-09h45 **DISTRIBUTION AND SIGNS OF BIOLOGY OF THE WARTY BOBTAIL SQUID *Rossia palpebrosa* IN THE BARENTS SEA AND ADJACENT WATERS**
Alexey Valentinovich Golikov; Rushan Mirzovich Sabirov;
Arseniy Romanovich Morov; Pavel Anatolievich Lubin; Lis Lindal Jørgensen
- 09h45-10h00 **REPRODUCTIVE ACTIVITY OF THE TROPICAL ARROW SQUID *Doryteuthis plei* AROUND SÃO SEBASTIÃO ISLAND (SE BRAZIL) BASED ON A 10YR FISHERIES MONITORING**
Felipe Aldert Postuma; Maria Gasalla
- 10h00-10h15 **GROWTH, MATURATION AND METABOLISM OF REARED *Metasepia tullbergi***
Yuya Umezu; Kotaro Tsuchiya; Susumu Segawa
- 10h15-10h30 **THE EVAGINATING SPINY-TUBE PERFORATING MECHANISM: A THEORETICAL MODEL TO EXPLAIN SPERMATOPHORE IMPLANTATION IN CEPHALOPODS**
José Eduardo A. R. Marian

10h30-11h00 **COFFEE BREAK**

SYMPOSIUM SESSION: BEHAVIOR

Chair: Jennifer Mather

- 11h00-11h15 **HOW FAR SQUID CAN FLY OUT OF THE WATER**
Tsunemi Kubodera
- 11h15-11h30 **THE ORIGIN OF VISUAL COMMUNICATION: *Sepia pharaonis* BODY PATTERNS AND CONTEMPORARY ART**
Ryuta Nakajima; Yuzuru Ikeda
- 11h30-11h45 **THE POSSIBILITY OF CRYPTIC FEMALE CHOICE VIA SPERM REMOVAL IN THE JAPANESE PYGMY SQUID, *Idiosepius paradoxus***
Noriyosi Sato; Takashi Kasugai; Hiroyuki Munehara

MONDAY 29TH OCTOBER 2012

11h45-12h00 **FEEDING BEHAVIOR IN JUVENILE *Octopus maya*: SELECTIVE ATTACK ON DIFFERENT TYPES OF PREY**

Esther Portela; Carlos Rosas; Nuno Simoes

12h00-12h15 **ANESTHESIA OF *Octopus vulgaris* WITH THE VOLATILE GENERAL ANESTHETIC ISOFLURANE**

Gianluca Polese; Francesco Paolo Ulloa Severino; William Winlow; Anna Di Cosmo

12h15-12h30 **OCTOPUS PREY CHOICE: EVALUATION OF THE GENERALIST-SPECIALIST SPECTRUM**

Jennifer Mather; Tatiana Leite; Allan Batista

12h30-14h00 **LUNCH**

SYMPOSIUM SESSION: FISHERIES

Chair: Manuel Haimovici

14h00-14h15 **DISTRIBUTION, TRAWLING EXPLOITATION PATTERNS AND SIZE COMPOSITION OF OCTOPUS (*Octopus vulgaris*) IN PORTUGUESE WATERS (NORTHEAST ATLANTIC)**

João Manuel Figueiredo Pereira; Teresa Pilar-Fonseca; Ana Cristina Andrade Moreno Marques; Manuel Afonso-Dias; Aida Campos

14h15-14h30 **QUANTITATIVE ANALYSIS OF THE BEHAVIOR OF LONGFIN INSHORE SQUID (*Doryteuthis pealeii*) IN REACTION TO A SEPARATING GRID OF A DEMERSAL TRAWL**

Shannon Bayse; Michael Pol; David Chosid; Mark Szymanski; Pingguo He

14h30-14h45 **A PRELIMINARY INVESTIGATION INTO THE BIOLOGICAL CAPACITY OF THE *Octopus cf. tetricus* POPULATION IN WESTERN AUSTRALIA**

Stephen Charles Leporati; Anthony Michael Hart; Linda Franken; Martin de Graaf

14h45-15h00 **IMPACT OF DECADAL SCALE CLIMATE CHANGES ON THE PEAK OF FISHING SEASON AND SITE OF FISHING GROUNDS OF JAPANESE COMMON SQUID *Todarodes pacificus***

Hideaki Kidokoro; Norio Yamashita; Yasunori Sakurai

15h00-15h15 **ENVIRONMENTAL EFFECTS ON SEASONAL VARIABILITY IN LONGFIN INSHORE SQUID CATCH IN NANTUCKET SOUND (NORTHEAST USA)**

Owen C. Nichols; Ernie Eldredge; Steven X. Cadrin

15h15-15h30 **CHARACTERIZATION OF OCEANOGRAPHIC CONDITIONS OF THE FISHING GROUNDS OF THE NEON FLYING SQUID (*Ommastrephes bartramii*) IN THE NORTH PACIFIC OCEAN**

Yoshiki Kato; Mitsuo Sakai; Hiromichi Igarashi; Haruka Nishikawa; Yoichi Ishikawa; Masaki Seitou; Masahito Ebina; Norihisa Usui; Masafumi Kamachi; Toshiyuki Awaji

15h30-16h00 **COFFEE BREAK**

MONDAY 29TH OCTOBER 2012

SYMPOSIUM SESSION: MANAGEMENT, STOCK ASSESSMENT AND CONSERVATION

Chair: Natalie Moltschaniwskyj

- 16h00-16h15 **POPULATION STOCK IDENTIFICATION OF *Dosidicus gigas* USING LA-ICP-MS FOR STATOLITH TRACE ELEMENTAL FINGERPRINTING**
N. Scarlett M. Arbuckle; John H. Wormuth
- 16h15-16h30 **ANALYSIS OF SPATIAL AND TEMPORAL POPULATION STRUCTURE OF ARROW SQUID (*Nototodarus gouldi*) USING STATOLITH ELEMENTAL COMPOSITION AND SHAPE**
Corey Paul Green; Natalie A. Moltschaniwskyj; Simon Gerard Robertson; Paul Hamer; Patti Virtue; George Jackson
- 16h30-16h45 **A BIOMASS MODEL APPLIED TO THE ENGLISH CHANNEL CUTTLEFISH STOCK TO DISENTANGLE FISHING PRESSURE AND RECRUITMENT VARIABILITY**
Beatriz A. Roel; Franck Coppin; Eric Foucher; Jean-Paul Robin; Michael Gras
- 16h45-17h00 **CHANGES IN SPAWNING PRODUCTION AND POPULATION SIZE IN *Sepioteuthis australis*: TRACKING A DECADAL LONG DECLINE AT MULTIPLE TIME SCALES**
Natalie A. Moltschaniwskyj; Andy M. Fischer; Klaas Hartmann; Jeremy Lyle; Gretta Pecl; Sean Tracey
- 17h00-17h30 **GROUP PHOTO**
- 17h30-18h30 **WORKSHOPS SYNOPSES**

TUESDAY 30TH OCTOBER 2012

08h30-09h00 **KEYNOTE TALK: "WOMEN IN CEPHALOPOD RESEARCH: PAST AND PRESENT"**

Dr. Louise Allcock, Martin Ryan Marine Science Institute,
National University of Ireland, Galway, Ireland

SYMPOSIUM SESSION: TAXONOMY, BIOGEOGRAPHY AND BIODIVERSITY

Chair: Michael Vecchione

09h00-09h15 **OBSERVATIONS OF DEEP-SEA CEPHALOPODS BY THE SERPENT PROJECT IN THE GULF OF MEXICO, 2002-2010**

Michael Vecchione; Mark C. Benfield

09h15-09h30 **THE DISTRIBUTION, DIVERSITY, AND IMPORTANCE OF CEPHALOPODS IN TOP PREDATOR DIETS FROM OFFSHORE HABITATS OF THE NORTHWEST ATLANTIC OCEAN**

Michelle D. Staudinger; Francis Juanes; Brandi Salmon; Amy Teffer

09h30-09h45 **THE SQUID GENUS *Teuthowenia* IN NEW ZEALAND WATERS: SYSTEMATICS, ECOLOGY AND BIG, GOOGLY EYES**

Aaron Boyd Evans; Kat Bolstad; Monica Acosta

09h45-10h00 **THE *Octopus* COMPLEX IN THE TAYRONA SECTOR, SOUTHERN CARIBBEAN**

Jürgern Guerrero-Kommritz

10h00-10h15 **CEPHALOPODS IN THE POTENTIAL PREY FIELD OF SPERM WHALES (*Physeter macrocephalus*) IN THE NORTHERN GULF OF MEXICO**

Heather Judkins; Scarlett Arbuckle; Michael Vecchione; Lance P. Garrison; Anthony Martinez

10h15-10h30 **ECOLOGY AND SYSTEMATICS OF WHIP-LASH SQUID (CEPHALOPODA: MASTIGOTEUTHIDAE) FOUND IN NEW ZEALAND WATERS**

Heather Elizabeth Braid; Kathrin Bolstad

10h30-11h00 **COFFEE BREAK**

SYMPOSIUM SESSION: TAXONOMY, BIOGEOGRAPHY AND BIODIVERSITY

Chair: Clyde Roper

11h00-11h15 **A CRITICAL REVIEW OF THE AUSTRALASIAN OCTOPOTEUTHID FAUNA (CEPHALOPODA: OEGOPSIDA), INCLUDING TWO NEW SPECIES**

Jesse Tyler Kelly

11h15-11h30 **OCCURRENCE OF *Octopus insularis* AND OBSERVATIONS ON ITS FEEDING AND MATING IN TRINDADE AND MARTIN VAZ ARCHIPELAGO OFF SOUTHEASTERN BRAZIL**

Tatiana Silva Leite; Jaciana C. Barbosa; Lidiane Bahls De Almeida; Françoise Dantas De Lima; Manuel Haimovici

11h30-11h45 **CEPHALOPODS IN MICRONEKTON TRAWLS ON THE SOUTHERN MID-ATLANTIC RIDGE AND WALVIS RIDGE**

José Angel Alvarez Perez; Kathrin Bolstad; Marek Lipinski; Érica A.G. Vidal

TUESDAY 30TH OCTOBER 2012

SYMPOSIUM SESSION: EVOLUTION & GENETICS

Chair: Louise Allcock

- 11h45-12h00 **NEOTENOUS ORIGIN OF *Spirula* LAMARCK, 1799? – EVIDENCE FROM A MORPHOLOGICAL SERIES OF FOSSILS**
Dirk Fuchs
- 12h00-12h15 **PHYLOGENETIC RELATIONSHIPS AMONG CEPHALOPODS: IMPLICATIONS FOR CHARACTER EVOLUTION**
Annie R. Lindgren; Molly S. Pankey; Todd H. Oakley
- 12h15-12h30 **SHOOT OUT THE LIGHTS: THE EVOLUTION OF BACTERIAL BIOLUMINESCENCE IN LOLIGINIDAE**
Frank E. Anderson; Alexis Bergman; Samantha H. Cheng; Sabrina Pankey; Tooraj Valinassab

12h30-14h00 **LUNCH**

SYMPOSIUM SESSION: EVOLUTION & GENETICS

Chair: Jan Strugnell

- 14h00-14h15 **A MOLECULAR SEARCH FOR THE GIANT SQUID**
Inger Winkelmann; Jan M. Strugnell; M. Thomas P. Gilbert
- 14h15-14h30 **THE CEPHALOPOD SEQUENCING CONSORTIUM (CEPHSEQ) AND A CALL FOR NEW CEPHALOPOD MODELS IN FUNCTIONAL GENOMICS AND NEXT-GENERATION LIFECYCLE IMAGING**
Eric Edsinger-Gonzales; Caroline B. Albertin; Clifton W. Ragsdale; Daniel S. Rokhsar
- 14h30-14h45 **GENOME SEQUENCE OF THE PYGMY SQUID AND THE EVOLUTION OF GIANT BRAIN OF CEPHALOPODS**
Masa-Aki Yoshida; Takashi Gojobori; Atsushi Ogura
- 14h45-15h00 **A GENETIC ASSESSMENT OF THE ONYCHOTEUTHIDAE**
Kat Bolstad; Annie Lindgren
- 15h00-15h15 **PHYLOGENETIC RELATIONSHIPS WITHIN THE *Sepioteuthis* cf. *lessoniana* COMPLEX IN THE INDIAN AND INDO-PACIFIC OCEANS USING MITOCHONDRIAL AND NUCLEAR DATA**
Samantha Hue Tone Cheng; Frank E. Anderson; Alexis Bergman; I Gusti Ngurah Kade Mahardika; Z. A. Muchlisin; Dang Binh Thuy; Hilconida P. Calumpong; K. Sunil Mohamed; Geetha Sasikumar; Vellathi Venkatesan; Paul Henry Barber
- 15h15-15h30 **ALLOPATRIC SPECIATION WITHIN A CRYPTIC AUSTRALASIAN OCTOPOD SPECIES COMPLEX**
Michael Amor; Mark Norman; Hayley Cameron; Jan Strugnell

15h30-16h00 **COFFEE BREAK**

TUESDAY 30TH OCTOBER 2012

SYMPOSIUM SESSION: ANATOMY AND PHYSIOLOGY

Chair: Patricia Jereb

- 16h00-16h15 **VENTILATION RATES AND ACTIVITY LEVELS OF JUMBO SQUIDS UNDER METABOLIC SUPPRESSION IN THE OXYGEN MINIMUM ZONES**
Katja Trübenbach; Maria Rita Pegado; Brad Seibel; Rui Rosa
- 16h15-16h30 **EVIDENCE FOR DUAL SIGNAL TRANSDUCTION PATHWAYS IN THE SQUID, *Lolliguncula brevis***
Mary T. Lucero; Arie S. Mobley
- 16h30-16h45 **SEXUALLY DIMORPHIC, SWITCHABLE IRIDESCENCE OF *Doryteuthis opalescens* OFFERS A POTENTIAL FOR MALE MIMICRY**
Daniel G. DeMartini; Daniel E. Morse
- 16h45-17h00 **RE-EXAMINING TETRODOTOXIN PRODUCING BACTERIA IN BLUE-RINGED OCTOPUSES**
Becky Williams; Amber Stokes; Michele Nishiguchi

17h00-18h30 **DISCUSSION PANEL: "PERSPECTIVES ON CEPHALOPOD EVOLUTIONARY STUDIES"**

Invited panelists:

Dr. Michael Vecchione (moderator):

NOAA National Systematics Laboratory, National Museum of Natural History, Smithsonian Institution, Washington, DC (USA)

Dr. Frank Anderson:

Department of Zoology, Southern Illinois University, Carbondale, Illinois (USA)

Dr. Dirk Fuchs:

Institut für Geologische Wissenschaften, Fachrichtung Paläontologie, Freie Universität Berlin, Berlin (Germany)

Dr. Vladimir Laptikhovskiy:

Falkland Islands Fisheries Department, Stanley (Falkland Islands)

Dr. Annie Lindgren:

Department of Biology, Portland State University, Portland, OR (USA)

Dr. Jan Strugnell:

Department of Genetics, La Trobe Institute for Molecular Science, La Trobe University, Bundoora, Victoria (Australia)

18h30-20h00 **POSTER SESSION I**

THURSDAY 1ST NOVEMBER 2012

08h30-09h00 **KEYNOTE TALK: "NATURAL AND ANTHROPOGENIC FACTORS THAT CHARACTERIZE ENVIRONMENT, LIFE CYCLE AND BIOLOGY OF CEPHALOPODS"**
Dr. Uwe Piatkowski, Helmholtz Centre for Ocean Research Kiel, GEOMAR, Kiel, Germany

SYMPOSIUM SESSION: CEPHALOPODS AND THE ENVIRONMENT

Chair: Ángel González

09h00-09h15 **MODELLING HABITAT USE OF LESSER OCTOPUS *Eledone cirrhosa* TO IDENTIFY MARINE PROTECTED AREAS FOR RISSO'S DOLPHIN *Grampus griseus* IN SCOTTISH WATERS**
Graham J Pierce; Colin D Macleod; Finlay Burns; Sarah Dolman; Andrew Brownlow; Mike Tetley; M. Begoña Santos

09h15-09h30 **IMPACTS AND IMPLICATIONS OF AMBIENT ENVIRONMENTAL VARIABLES ON THE SPATIAL DISTRIBUTION OF SQUID (*Loligo reynaudi*)**
Jean M.W. Githaiga-Mwicigi; Michael J. Roberts; Michael Lucas

09h30-09h45 **RELATIONSHIP BETWEEN SEASONAL VARIATION IN SIZE OF JUMBO FLYING SQUID (*Dosidicus gigas*) AND ENVIRONMENTAL FACTORS**
Kazuhiro Sadayasu; Yoshiki Kato; Junichi Abo; Mitsuo Sakai; Kousuke Takahashi; Yousuke Ochi

09h45-10h00 **QUANTIFYING SPAWNING HABITAT FOR THE CALIFORNIA MARKET SQUID, *Doryteuthis opalescens***
Louis David Zeidberg; Chad Miller; J. Ashley T. Booth

10h00-10h15 **BIOLOGICAL VARIATION IN COASTAL STAGES OF THE ENGLISH CHANNEL COMMON CUTTLEFISH (*Sepia officinalis*) AND FISHERY IMPLICATIONS**
Jean-Paul Robin; Michael Gras; Karine Grangeré; Christelle Caplat; Paul Shaw; Emma Jackson; Isobel Bloor; Beatriz Roel; Franck Coppin

10h15-10h30 **THE INFLUENCE OF THE TROPHIC HABITAT ON THE QUALITY OF THE GONAD OF *Octopus vulgaris* USING STABLE ISOTOPES AND LIPID CLASS AS BIO-INDICATORS**
Sílvia Lourenço; Luís Narciso; Ángel González; João Pereira; Santiago Auborg; José C. C. Xavier

10h30-11h00 **COFFEE BREAK**

SYMPOSIUM SESSION: CEPHALOPODS AND THE ENVIRONMENT

Chair: Graham Pierce

11h00-11h15 **SPATIO-TEMPORAL ANALYSIS OF DISTRIBUTION AND ABUNDANCE OF LESSER OCTOPUS *Eledone cirrhosa* IN NORTH-EASTERN ATLANTIC WATERS**
Marcos Regueira; Angel F. González; Angel Guerra

THURSDAY 1ST NOVEMBER 2012

- 11h15-11h30 **SPATIAL DISTRIBUTION OF *Illex argentinus* IN SAN MATIAS GULF (NORTHERN PATAGONIA, ARGENTINA) IN RELATION TO ENVIRONMENTAL VARIABLES**
Augusto César Crespi-Abril; Enrique Mario Morsan; Gabriela Noemí Williams; Domingo Antonio Gagliardini
- 11h30-11h45 **ESSENTIAL HABITATS FOR JUVENILE *Octopus vulgaris* ALONG THE PORTUGUESE COAST**
Ana Moreno; Sílvia Lourenço; João Pereira; Miguel Gaspar; Henrique Nogueira Cabral; Graham John Pierce; Antonio Miguel Piecho Almeida Santos
- 11h45-12h00 **LIFE-HISTORY AND POPULATION DYNAMICS OF THE RANGE EXTENDING *Octopus tetricus* IN SOUTH-EASTERN AUSTRALIA**
Jorge Ramos; Gretta Pecl; Rafael León; Natalie Moltschanivskyj; Jayson Semmens; Jan Strugnell
- 12h00-12h15 **FROM EGGS TO SPAWNERS: ALL KEY LIFE-STAGES OF THE TROPICAL ARROW SQUID *Doryteuthis plei* AROUND A COASTAL ISLAND OFF SE BRAZIL**
Maria Gasalla; Felipe Aldert Postuma; Rodrigo Silvestre Martins
- 12h15-12h30 **OCEANOGRAPHIC CONDITIONS OF YUCATAN PENINSULA MODULATE PHYSIOLOGICAL AND IMMUNOLOGICAL CONDITION OF *Octopus maya***
Cristina Pascual Jiménez; Rossanna Rodríguez Canul; Cecilia Enríquez; Ariadna Sánchez Arteaga; Maite Mascaró Miquelajáuregui; Pedro Pablo Gallardo Espinosa; Carlos Rosas Vázquez

12h30-14h00 **LUNCH**

SYMPOSIUM SESSION: CEPHALOPODS AND THE ENVIRONMENT

Chair: Uwe Piatwoski

- 14h00-14h15 **VAMPIRE SQUID: DETRITIVORES IN THE OXYGEN MINIMUM ZONE**
Henk-Jan Hoving; Bruce Robison
- 14h15-14h30 **DISTRIBUTION AND ABUNDANCE OF JUVENILE JUMBO FLYING SQUID *Dosidicus gigas* OFF PERU IN DECEMBER 2011 TO JANUARY 2012 FOLLOWING THE 2009/2010 EL NINO**
Mitsuo Sakai; Toshie Wakabayashi; Yoshiki Kato; Carmen Yamashiro; Luis Mariategui; Ricardo Tafur; Kotaro Tsuchiya
- 14h30-14h45 **FACTORS INFLUENCING DISTRIBUTION AND ABUNDANCE OF *Octopus* INSIDE AND OUTSIDE OF A MARINE PROTECTED AREA IN A KELP FOREST ROCKY REEF ECOSYSTEM**
Jennifer Krista Kaulalani Hofmeister

SYMPOSIUM SESSION: CULTURE

Chair: José Iglesias

- 14h45-15h00 **LAND BASED AQUACULTURE OF COMMON OCTOPUS IN JAPAN**
Ian G. Gleadall

THURSDAY 1ST NOVEMBER 2012

15h00-15h15 **GENETIC VARIATION IN CONSECUTIVE GENERATIONS OF CULTURED CUTTLEFISH, *Sepia officinalis***
J. Pedro Andrade; Filipa Duarte Baptista; António Vilhena Sykes; José María Porta; Javier Porta

15h15-15h30 **ACTUAL STATUS AND BOTTLENECK OF *Octopus maya* NUTRITION: IN THE WAY OF A FORMULATED DIET FOR ITS AQUACULTURE**
Pedro Gallardo; Maite Mascaró; Cristina Pascual; Ariadna Sánchez; Claudia Caamal Monsreal; Rosario Martínez Yáñez; Marcela Linares Aranda; Guadalupe Villegas Bárcenas; Lenin Fabian Canseco; Carlos Rosas

15h30-16h00 **COFFEE BREAK**

SYMPOSIUM SESSION: AGE & GROWTH

Chair: Angel Perez

16h00-16h15 **SPATIO-TEMPORAL VARIABILITY IN GROWTH OF *Illex argentinus* IN RELATION TO THE ENVIRONMENTAL GRADIENTS EXPERIENCED IN THE NORTH EXTREME OF DISTRIBUTION**
Rafael Schroeder; José Angel Alvarez Perez

16h15-16h30 **INTERSEASONAL AND INTERANNUAL DIFFERENCES IN GROWTH AND MATURITY OF *Illex argentinus* ALONG SOUTHERN BRAZIL**
Manuel Haimovici; Mara C.R.S. Bairy; Roberta Aguiar Dos Santos

SYMPOSIUM SESSION: MIGRATION & MOVEMENT

Chair: Warwick Sauer

16h30-16h45 **INVESTIGATING THE MOVEMENT, BEHAVIOR AND HABITAT USE OF *Sepia officinalis* ON INSHORE JUVENILE AND SPAWNING GROUNDS IN THE ENGLISH CHANNEL**
Isobel Bloor; Victoria J. Wearmouth; Matthew McHugh; Stephen Cotterell; Emma L. Jackson; Martin Attrill; David W. Sims

16h45-17h00 **SPATIAL STRUCTURE OF THE METAPOPOPULATION OF CHOKKA SQUID *Loligo reynaudi* D'ORB., 1848 IN SOUTHERN AFRICAN WATERS**
Marek Roman Lipinski; Warwick Hugo Hans Sauer; Paul Shaw; Johan Samuel Frederik van der Vyver; Terence Anthony Stonier; Dawit Yemane

17h00-18h30 **DISCUSSION PANEL: "PERSPECTIVES ON CEPHALOPOD RESEARCH IN LATIN AMERICA"**

Invited panelists:

Dr. Manuel Haimovici (moderator):

Laboratório de Recursos Pesqueiros Demersais e Cefalópodes, Instituto de Oceanografia, Universidade Federal do Rio Grande (FURG), Rio Grande, RS (Brazil)

THURSDAY 1ST NOVEMBER 2012

Dr. Augusto Crespi-Abril:

Centro Nacional Patagónico (CENPAT-CONICET), Puerto Madryn, Chubut (Argentina)

Dr. Christian Ibañez:

Instituto de Ecología y Biodiversidad, Departamento de Ciencias Ecológicas, Facultad de Ciencias, Universidad de Chile, Santiago (Chile)

Dr. Carlos Rosas:

Facultad de Ciencias, UNAM, Unidad Multidisciplinaria de Docencia e Investigación, Yucatán (Mexico)

Dr. Carmen Yamashiro:

Instituto del Mar del Perú (IMARPE), Callao (Peru)

18h30-20h00 **POSTER SESSION II**

FRIDAY 2ND NOVEMBER 2012

SYMPOSIUM SESSION: THE ROLE OF CEPHALOPODS IN MARINE ECOSYSTEMS

Chair: José Xavier

- 08h30-08h45 **THE ROLE OF SQUID IN PELAGIC MARINE ECOSYSTEMS**
Paul Gregory Kenneth Rodhouse; Jock W. Young; Robert J. Olson
- 08h45-09h00 **FEEDING ECOLOGY OF TOP PREDATORS WORLDWIDE: HAVE WE ALWAYS HAVE BEEN UNDER-ESTIMATING THE ROLE OF CEPHALOPODS IN THEIR DIETS?**
José Carlos Xavier; Yves Cherel; Richard Phillips
- 09h00-09h15 **ARE PELAGIC CEPHALOPODS IN THE MEDITERRANEAN AS ABUNDANT AS SUGGEST THE STOMACH CONTENTS OF THEIR PREDATORS?**
Stefanie Keller; Antoni Quetglas; Maria Valls; Francesc Ordines; Aina de Mesa; M Pilar Olivar; Enric Massutí
- 09h15-09h30 **TROPHIC HABITS OF TWO OMMASTREPHID SQUIDS, *Illex coindetii* AND *Todarodes sagittatus* IN THE WESTERN MEDITERRANEAN SEA**
Rigoberto Rosas Luis; Pilar Sanchez
- 09h30-09h45 **FOOD AND FEEDING HABITS OF JUMBO SQUID (*Dosidicus gigas*, D'ORBIGNY, 1835) OFF PERU**
Ana Alegre; Ricardo Tafur; Pepe Espinoza; Juan Argüelles; Víctor Maehara; Monique Simier; Frédéric Ménard; Arnaud Bertrand
- 09h45-10h00 **SPATIAL AND TEMPORAL TRENDS OF OCTOPUS PREDATION IN THE ROCK LOBSTER FISHERY IN TASMANIA**
Felipe Briceño; Stewart D. Frusher; Jeffrey M. Dambacher; Caleb Gardner; Jessica André; Rafael León; Gretta T. Pecl
- 10h00-10h15 **DIET IN EARLY LIFE STAGES OF JUMBO FLYING SQUID *Dosidicus gigas***
Susana Camarillo Coop; César Augusto Salinas Zavala; Bertha Lavaniegos; Unai Markaida
- 10h15-10h30 **CONVERGENCE IN LIFE HISTORY STRATEGIES IN LARGE PELAGIC NEKTONIC SQUID AND TELEOST FISH**
Alexander Arkhipkin; Vladimir Laptikhovsky

10h30-11h00 **COFFEE BREAK**

SYMPOSIUM SESSION: EARLY LIFE HISTORY I

Chair: Roger Villanueva

- 11h00-11h15 **CYCLONIC EDDIES REVEAL OEGOPSIDA SQUID EGG BALLOON MASSES IN THE AGULHAS CURRENT, SOUTH AFRICA**
Michael J. Roberts; Tyler Zemlak; Allan Connell
- 11h15-11h30 **SPATIO-TEMPORAL ANALYSIS OF REFLECTINS EXPRESSION DURING DEVELOPMENT OF *Sepia officinalis* EMBRYOS (MOLLUSCA, CEPHALOPODA)**
Aude Andouche; Yann Bassaglia; Sébastien Baratte; Laure Bonnaud

FRIDAY 2ND NOVEMBER 2012

- 11h30-11h45 **EFFECTS OF CHRONIC EXPOSURE TO ELEVATED PCO2 AND DECREASED DISSOLVED O2 ON EMBRYONIC MARKET SQUID, *Doryteuthis opalescens*, PHYSIOLOGY AND MORPHOLOGY**
Michael O. Navarro; Martin Tresguerres; Christina Frieder; Jennifer Gonzalez; Emily E. Bockmon; Lisa A. Levin
- 11h45-12h00 **IS THE WESTERN TRANSPORT HYPOTHESIS RELEVANT TO THE CHOKKA SQUID DEEP SPAWNING GROUNDS ON THE AGULHAS BANK, SOUTH AFRICA?**
Nicola Jean Downey; Michael John Roberts; Warwick H. H. Sauer
- 12h00-12h15 **IMPACT OF OCEAN ACIDIFICATION AND WARMING IN THE EARLY ONTOGENY OF *Loligo vulgaris***
Rui Rosa; Marta S. Pimentel; Joana Boavida-Portugal; Gisela Dionísio; Ana Moreno; Katja Trübenbach
- 12h15-12h30 **COMPARATIVE MORPHOLOGY OF EARLY STAGES OF OMMASTREPHID SQUIDS FROM THE MEDITERRANEAN SEA OBTAINED FROM IN VITRO FERTILIZATION**
Giuliano Petroni; Anna Bozzano; Daniel Quintana; Marta Campos; Stefanie Keller; Pilar Sánchez; Roger Villanueva

12h30-14h00 **LUNCH**

SYMPOSIUM SESSION: EARLY LIFE HISTORY II

Chair: Érica A. G. Vidal

- 14h00-14h15 **PARALARVAL OCTOPODS OF THE FLORIDA CURRENT**
Clyde F. E. Roper; Michael Vecchione; Alfredo Gutierrez
- 14h15-14h30 **COMPARATIVE DESCRIPTION OF BEAKS OF *Argonauta nodosa* AND *Octopus vulgaris* PARALARVAE**
Rita Melo Franco Santos; Érica Alves González Vidal; Pedro M. Domingues; José Iglesias Estévez
- 14h30-14h45 **LOIGINID PARALARVAE OFF THE SOUTHEASTERN BRAZILIAN BIGHT (22°-25°S) IN RELATION TO OCEANOGRAPHIC CONDITIONS**
Carolina Costa De Araújo; Mario Katsuragawa; Maria Gasalla
- 14h45-15h00 **CEPHALOPOD PARALARVAE DISTRIBUTION AND INTERACTIONS WITH MESOZOOPLANKTON COMMUNITIES IN A COASTAL UPWELLING SYSTEM (RÍA DE VIGO, NW SPAIN)**
Álvaro Roura Labiaga; Xosé Antón Álvarez Salgado; Ángel Francisco González; María Gregori I Casamayor; Gabriel Rosón; Ángel Guerra Sierra
- 15h00-15h15 **THE SÃO PAULO SHELF (SE BRAZIL) AS A NURSERY GROUND FOR *Doryteuthis plei* PARALARVAE: A LAGRANGIAN PARTICLE-TRACKING INDIVIDUAL BASED MODEL APPROACH**
Rodrigo Silvestre Martins; Ricardo de Camargo; Christophe Lett; Maria Gasalla
- 15h15-15h30 **CAN *Todarodes pacificus* PARALARVAE ESCAPE FROM THE HOT SURFACE WATER?**
Yasunori Sakurai; Haekyun Yoo; Tomonori Saitoh; J. Yamamoto

FRIDAY 2ND NOVEMBER 2012

15h30-16h00 **COFFEE BREAK**

SYMPOSIUM SESSION: EARLY LIFE HISTORY III

Chair: Rodrigo Martins

16h00-16h15 **CUTTLEFISH, *Sepia officinalis* L., PRE-RECRUITS PHYSIOLOGICAL CHARACTERISTICS IN DIFFERENT SPAWNING SITES OF THE ENGLISH CHANNEL**

Georges Safi; Isobel Bloor; Emma Jackson; Michael Gras; Jean Paul Robin; Noussithé Koueta

16h15-16h30 **LYSOZYME, ANTIPROTEASE AND PHENOXYDASE ACTIVITIES IN CUTTLEFISH *Sepia officinalis* L.**

Noussithé Koueta; Georges Safi; Charles Le Pabic; Antoine Serpentine; Jean-Marc Lebel; Jean Paul Robin

16h30-16h45 **EFFECTS OF CHRONIC EXPOSURE TO DISSOLVED ZINC ON JUVENILE CUTTLEFISH *Sepia officinalis* L.: DEVELOPMENT OF APPROPRIATE BIOMARKERS**

Charles Le Pabic; Georges Safi; Antoine Serpentine; Jean-Marc Lebel; Noussithé Koueta

16h45-17h15 **CLOSURE TALK: “WHAT CAN WE LEARN FROM TAGGING CEPHALOPODS? CLIMATE CHANGE, ECOSYSTEM DYNAMICS AND ENERGETICS?”**

Dr. Ron O’Dor, Biology Department, Dalhousie University, Halifax, Canada

17h15-18h15 **CLOSURE CEREMONY**

STUDENT ORAL & POSTER PRESENTATION AWARDS

BEST PAPER AWARD

20h00 **Buses departure from Majestic Palace Hotel to Alameda Casa Rosa**

20h30 **OFFICIAL SYMPOSIUM DINNER**

CIAC '12 POSTERS
POSTER SESSIONS I and II – Floripa Room

P1 - REGULATORY CAPACITY OF TISSUE HYDRATION IN *Octopus vulgaris* AND *Octopus insularis*

Amado EM; Souza-Bastos LR; Wosnick N; Ceron FJM; Vidal EAG; Freire CA

P2 - WHAT CAN THE MORPHOMETRY OF STATOLITHS TELL US?

Bainy MCRS

P3 - STATOLITH MORPHOLOGY AND MORPHOMETRY OF *Doryteuthis plei* SPECIMENS FROM SÃO PAULO, BRAZIL

Barcellos DD; Gasalla MA

P4 - NEUROPEPTIDES ANALYSIS OF *Octopus vulgaris* TRANSCRIPTOME: OCT-PEDAL PEPTIDE EXPRESSION IN CNS LOBES INVOLVED IN MOTOR COORDINATION

Bertapelle C; Troncone L; Moroz LL; Polese G; Di Cosmo A

P5 - WOULD YOU SHAKE OFF YOUR PENIS? THE SEVEN-ARM OCTOPUS *Haliphron atlanticus* DOES IT

Guerra A; Valeiras J; Roura A; Abad E; Serrano A

P6 - CHARACTERIZATION OF *Sepia officinalis* HAEMOCYTES, PRIMARY-CULTURE DEVELOPMENT AND ENZYMATIC ASSAYS ON SERUM AND HAEMOCYTE FRACTIONS

Le Pabic C; Goux D; Serpentine A; Lebel J-M; Koueta N

P7 - PHYSIOLOGY, BIOCHEMISTRY AND DIGESTIVE RHYTHMS OF THE RED OCTOPUS *Octopus maya*

Linares-Aranda M; Canseco L; Rosas C

P8 - DIGESTION CYTOLOGY OF THE DIGESTION OF *Octopus maya* EARLY JUVENILES

López-Ripoll E; Avila-Poveda OH; Calva R; Rosas C

P9 - BIFLAGELLATE SPERM IN CEPHALOPODA REQUIRES RECONSIDERING THIS “TAXONOMIC” CHARACTER

Rodrigues M; Roura A; Guerra A; Nishiguchi MK; Troncoso JS

P10 - STATOLITH MICROSTRUCTURE FOR STUDYING AGE AND GROWTH OF THE ATLANTIC BRIEF SQUID *Lolliguncula brevis* IN NORTHERN SÃO PAULO

Tanaka KY; Martins RS; Gasalla MA

P11 - AEROBIC AND ANAEROBIC PATHWAYS IN JUMBO SQUID (*Dosidicus gigas*) UNDER METABOLIC SUPPRESSION IN THE OXYGEN MINIMUM ZONES

Trübenbach K; Seibel BA; Rosa R

P12 - HYPOXIA TOLERANCE AND ANTIOXIDANT DEFENSE SYSTEM OF JUMBO SQUIDS IN OXYGEN MINIMUM ZONES

Trübenbach K; Teixeira T; Diniz M; Rosa R

P13 - AGE VALIDATION IN *Octopus maya* BY COUNTING INCREMENTS IN THE BEAK SECTIONS OF KNOWN AGE INDIVIDUALS

Villegas G; Perales-Raya C; Rosas C; Almansa E; Bartolomé A

P14 - RELATIONSHIP BETWEEN INDIVIDUAL CHARACTERISTICS OF *Octopus insularis* (CEPHALOPODA: OCTOPODIDAE) AND THEIR DIET

Batista AT; Leite TS; Mather J

P15 - COLOR VISION OF *Octopus ocellatus* BY LEARNING EXPERIMENT

Kaneshiro A; Tsuchiya K; Segawa S

P16 - CAN PREFERENCE FOR CRABS IN EARLY *Octopus maya* BE MODIFIED THROUGH ASSOCIATIVE LEARNING OR IMPRINTING?

Portela E; Rosas C; Simoes N; Mascaro M

P17 - BODY PATTERNING BEHAVIOR OF THE TROPICAL ARROW SQUID *Doryteuthis plei*: A CAPTIVITY-BASED ETHOGRAM IN THE NORTHERN COAST OF SÃO PAULO, BRAZIL

Postuma FA; Gasalla MA

P18 - PRESENCE-ONLY MODELLING TO INVESTIGATE LARGE-SCALE DISTRIBUTION OF *Sepia officinalis* SPAWNING GROUNDS WITHIN THE ENGLISH CHANNEL

Bloor I; Marshall C; Attrill M; Jackson EL

P19 - SUBTIDAL SURVEYS TO INVESTIGATE FINE-SCALE DISTRIBUTION OF *Sepia officinalis* SPAWNING HABITAT WITHIN THE ENGLISH CHANNEL

Bloor I; Jackson EL; Attrill M; Robin JP

P20 - EFFECTS OF WATERBORNE FLUOXETINE ON SURVIVAL BEHAVIORS AND PHYSIOLOGICAL FUNCTIONS IN YOUNG CUTTLEFISH

Di Poi C; Le Pabic C; Darmaillacq A-S; Koueta N; Bellanger C

P21 - MULTIDISCIPLINARITY IN CEPHALOPOD RESEARCH: INTEGRATING MODELS, SURVEYS, BEHAVIOR, POPULATION DYNAMICS, AND THE FISHERIES OF THE TROPICAL ARROW SQUID

Gasalla MA; Postuma FA; Araujo CC; Barcellos DD; Cintho CY; Katsuragawa M; Camargo R; Martins RS

P22 - CHEMICAL ELEMENTS IN THE ENGLISH CHANNEL CUTTLEFISH (*Sepia officinalis*): DIFFERENCES AMONG COASTAL JUVENILES AND ORIGIN OF OFFSHORE RECRUITS

Gras M; Caplat C; Bloor I; Jackson E; Robin JP

P23 - DO DEEP DWELLING SQUID LIVE A LIFE IN THE FAST LANE?

Hoving HJT; Robison BH

P24 - DISTRIBUTION OF OCTOPODS ON THE SHELF OF SOUTH GEORGIA (UNDERWATER CAMERA, SCUBA DIVING, AND TRAWL SAMPLES)

Laptikhovsky V; Barnes DKA; Brewin P

P25 - ELEVATED SEAWATER PCO₂ CONCENTRATIONS AFFECT STATOLITH MORPHOLOGY AND REDUCE PREY CAPTURE ABILITY IN EARLY LIFE CUTTLEFISH *Sepia officinalis*

Maneja RH; Hu MYA; Geffen AJ; Melzner F; Gutowska MA; Clemmesen C; Piatkowski U

P26 - MAXIMUM AGE OF THE COMMON OCTOPUS (*Octopus vulgaris*) IN ITS NATURAL HABITAT AND STRESS MARKS BY USING BEAKS OF SPENT INDIVIDUALS

Perales-Raya C; Bartolomé A; Jurado A; Duque V; Carrasco N; Fraile E; Andrade JP

P27 - POST-MORTEM DRIFT IN AUSTRALIAN CUTTLEFISH BONES: IT'S EFFECT ON THE INTERPRETATION OF SPECIES RANGES

Reid A

P28 - MOLECULAR DETECTION OF *Vibrio alginolyticus* IN THE RED OCTOPUS, *Octopus maya*

Rodríguez-Canul R; Gamboa-Muñoz A; Pérez-Campos, RAA; Pérez-Vega JA; Pascual C; Aguirre-Macedo ML

P29 - DISTRIBUTION OF ADULTS OF JUMBO SQUID *Dosidicus gigas* IN RELATION TO THE OCEANOGRAPHIC CONDITIONS IN THE PERUVIAN EEZ AND ADJACENT WATERS 2007-2012

Yamashiro C; Mariátegui L; Tafur R; Tello E; Quispe J; Wakabayashi T; Kato Y; Sakai M

P30 - OVERLOOKED CONSUMERS? LONG-FINNED SQUID AS IMPORTANT PREDATORS IN THE NORTH SEA

Oesterwind D; Piatkowski U

P31 - FOOD AND FEEDING OF *Ancistroteuthis linchtensteinii* IN THE WESTERN MEDITERRANEAN SEA

Rosas-Luís R; Sanchez P

P32 - TROPHIC IMPACTS AND INTERACTION OF *Moroteuthis ingens*, *Illex argentinus* and *Loligo gahi* IN THE ECOSYSTEM OF THE SOUTHWESTERN ATLANTIC OCEAN

Rosas-Luís R; Sanchez P; del Río JL; Portela JM

P33 - IN VITRO DIGESTIBILITY: STANDARDIZING METHODS USING GASTRIC JUICE OF *Octopus maya* IN THE WAY OF IMPROVE FOODS FOR OCTOPUS CULTURE

Aguilar FDM; Overa-Novoa M; Rosas C

P34 - EFFECT OF FEMALE DIET ON THE YOLKS CHEMICAL COMPOSITION, AND ITS CONSEQUENCES ON EGGS AND EMBRYOS MORPHOLOGY, AND HATCHLINGS QUALITY OF *Octopus maya*

Caamal-Monsreal C; Mascaró M; Gallardo P; Capella S; Noreña-Barroso E; Rosas C

P35 - UTILIZATION OF AMINO ACIDS DURING FASTING AND RECOVERY PERIODS IN *Octopus maya* JUVENILES FROM YUCATAN, MEXICO

George-Zamora A; Caamal-Monsreal C; Rosas C; Rodríguez S

P36 - THE USE OF DIFFERENT ANAESTHETICS AS WELFARE PROMOTERS DURING SHORT-TERM MANIPULATION OF EUROPEAN CUTTLEFISH (*Sepia officinalis*) JUVENILES

Gonçalves RA; Frias P; Andrade JP; Aragão C; Sykes AV

P37 - CHARACTERIZATION OF DEFORMED HATCHLINGS OF *Octopus vulgaris* OBTAINED UNDER CAPTIVITY FROM A SMALL FEMALE (150 G WEIGHT)

Jimenez P; Sherbakova A; Riera D; Felipe BC; Sykes AV; Rodríguez C; Gonçalves R; Andrade JP; Perales C; Bartolome A; Santamaria F; Almansa E

P38 - FIRST DESCRIPTION OF EGGS AND PARALARVAE OF *Octopus insularis* UNDER CULTURE CONDITIONS

Lenz TM; Elias NH; Huy JM; Leite TS; Vidal EAG

P39 - SURVIVAL OF THE TROPICAL ARROW SQUID *Doryteuthis plei* (LOLIGINIDAE) IN CAPTIVITY: AN EXPERIMENTAL APPROACH IN THE NORTHERN COAST OF SÃO PAULO, BRAZIL

Postuma FA; Gasalla MA

P40 - EVALUATION OF WEIGHT GAIN OF THE OCTOPUS (*Octopus vulgaris*) FED ON A MONODIET BASED ON MUSSEL *Perna perna* LIVE AND FROZEN IN THE LABORATORY

Reis IMM; Teixeira PB; Ferreira T; Ferreira JF; Roubledakis K; Magalhães ARM

P41 - NUTRITIONAL VALUE OF FISH WASTE SILAGE FOR JUVENILES AND ADULTS OF *Octopus maya*

Rosas C; Villegas G; Caamal C; Mascaro M; Pascual C; Espinosa LG; Martinez R; Lopez K; Rodriguez S; Gonzalez G; Arjona R; Dzib L; Cuzon G; Gallardo P

P42 - IMPLICATIONS OF THE INCLUSION OF CEPHALOPODS IN THE DIRECTIVE 2010/63/EU

Sykes AV; Baptista FD; Gonçalves R; Andrade JP

P43 - LIPID CHARACTERIZATION OF BOTH STARVED AND FED CUTTLEFISH (*Sepia officinalis*, L.) DURING THE FIRST 7 DAYS AFTER HATCHING

Sykes AV; Almansa E; Martin R; Rodríguez C; Lorenzo A; Andrade JP

P44 - CUTTLEFISH (*Sepia officinalis*) CULTURE AT CCMAR: TOWARDS SPECIES DIVERSIFICATION IN AQUACULTURE

Sykes AV; Aragão C; Ribeiro L; Gonçalves R; Silva C; Frias P; Baptista FD; Reis DB; Segovia I L; Hubbard P; Barata E; Oliveira C; Andrade JP

P45 - EARLY WEANING OF CUTTLEFISH (*Sepia officinalis*, L.) WITH FROZEN GRASS SHRIMP (*Palaemonetes varians*) FROM THE FIRST DAY AFTER HATCHING

Sykes AV; Gonçalves R; Andrade JP

P46 - EFFECTS OF INCREASED TANK BOTTOM AREAS ON CUTTLEFISH (*Sepia officinalis*, L.) REPRODUCTION PERFORMANCE

Sykes AV; Pereira D; Rodríguez C; Lorenzo A; Andrade JP

P47 - THE EFFECTS OF LIGHT INTENSITY ON GROWTH AND SURVIVAL OF CUTTLEFISH (*Sepia officinalis*) HATCHLINGS AND JUVENILES

Sykes AV; Quintana D; Andrade JP

P48 - THE EFFECTS OF TANK COLOURS ON GROWTH AND SURVIVAL OF CUTTLEFISH (*Sepia officinalis*) HATCHLINGS AND JUVENILES

Sykes AV; Domingues PM; Márquez L; Andrade JP

P49 - IDENTIFICATION OF THE ANTIMICROBIAL ACTIVITY FROM *Octopus vulgaris* HAEMOCYTES

Troncone L; De Lisa E; Polese G; Di Cosmo A

P50 - SEASONAL SQUID PARALARVAE OCCURRENCE, DISTRIBUTION AND ABUNDANCE OFF UBATUBA SHELF, NORTHERN COAST OF SÃO PAULO

Cintho CY; Araújo CC; Katsuragawa M; Gasalla MA

P51 - SPATIAL DISTRIBUTION OF *Loligo sanpaulensis* PARALARVAE IN SAN JOSÉ GULF (PATAGONIA, ARGENTINA)

Crespi-Abril AC; Villanueva-Gomila L; Barón PJ

P52 - DESCRIPTION AND DISTRIBUTION OF *Gonatus pyros* PARALARVAE FROM THE GULF OF CALIFORNIA, MEXICO

De Silva-Dávila R; Hochberg FG; Franco-Gordo MC; Avendaño-Ibarra R; Gómez-Gutiérrez J; Zepeda-Benítez VY

P53 - THE EMBRYONIC DEVELOPMENT OF *Octopus vulgaris* AND *O. ocellatus*

Isshiki Y; Tsuchiya K; Kohno H; Segawa S

P54 - IDENTIFICATION OF THE HATCHING CHECK ON THE STYLETS OF *Octopus vulgaris*

Lourenço S; Moreno A; Narciso L; Rosa R; Rocha F; González AF

P55 - STRUCTURAL DIFFERENCES IN THE KÖLLIKER'S ORGANS OF *Octopus vulgaris* AND *Argonauta nodosa* PARALARVAE

Mazzini FS; Fávoro LF; Donatti L; Iglesias J; Vidal EAG

P56 - LONGFIN INSHORE SQUID (*Doryteuthis pealeii*) PARALARVAL DISTRIBUTIONAL ECOLOGY: DATA GAPS AND NOVEL FIELD STUDIES

Nichols OC

P57 - PARALARVAE OF *Robsonella fontaniana* IN SOUTHERN CHILEAN FJORDS

Pardo-Gandarillas MC, Pena F, Ruiz JF, Bustos CA, MF & Ibáñez CM Landaeta

P58 - COMBINING TOOLS TO ALLOW DIRECT STUDIES OF EARLY LIFE STAGES OF LOLIGINID SQUID IN THE WILD: THE EPIBENTHIC SLED AND INDIVIDUAL DNA BAR-CODING

Robin JP; Shaw PW

P59 - DISTRIBUTION OF PARALARVAL SQUIDS FROM THE FLORIDA CURRENT

Roper CF; Vecchione M; Adams C

P60 - HISTOLOGICAL AND BIOCHEMICAL TOOLS USED TO STUDY THE DIGESTIVE GLAND MATURATION IN CUTTLEFISH *Sepia officinalis* L. EARLY LIFE HISTORY

Safi G; Le Pabic C; Robin JP; Koueta N

P61 - FEEDING HABITS OF JUVENILE JAPANESE COMMON SQUID *Todarodes pacificus*: RELATIONSHIP BETWEEN DIET AND ALLOMETRIC GROWTH

Uchikawa K; Kidokoro H

P62 - VERTICAL DISTRIBUTION OF *Dosidicus gigas* PARALARVAE OFF PERU

Wakabayashi T; Yamashiro C; Mariategui L; Tafur R; Tsuchiya K; Kato Y; Sakai M

P63 - EVOLUTION OF REPRODUCTIVE STRATEGIES IN BENTHIC OCTOPUSES

Ibáñez CM; Peña F; Pardo-Gandarillas MC; Méndez MA; Poulin E

P64 - CONNECTIVITY PATTERNS AND DEMOGRAPHIC HISTORY IN TWO SPECIES OF OCTOPUSES INHABITING DIFFERENT BIOGEOGRAPHIC PROVINCES OF SOUTH AMERICA

Pardo-Gandarillas MC; Méndez MA; Poulin E

P65 - EXPERIMENTAL POT FISHING FOR *Octopus insularis* OFF RIO GRANDE DO NORTE STATE, NORTHEASTERN OF BRAZIL

Andrade LCA; Leite TS; Barbosa JC; Lima FD; Oliveira JL

P66 - *Octopus insularis* LEITE & HAIMOVICI, 2008, A FAST GROWING AND SHORT LIVING TROPICAL OCTOPUS

Batista BB; Haimovici M; Matthews-Cascon H; Madrid RMM; Marinho RM

P67 - DOES THE COMMON OCTOPUS REALLY GET ENTRAPPED?

Borges TC; Calixto P; Sendão J

P68 - RECREATIONAL SQUID JIGGING FISHERY LINKED TO BIOLOGICAL AND ENVIRONMENTAL CONDITIONS

Cabanellas-Reboredo M; González AF; Guerra A

P69 - LIFE-HISTORY, ECOLOGY AND FISHERY OF *Sepia officinalis* IN THE WESTERN MEDITERRANEAN

Keller S; Valls M; Quetglas A

P70 - IMPACT OF DIFFERENT CONSERVATION AND TRANSFORMATION MODES OF CUTTLEFISH, *Sepia officinalis*, ON ITS FLESH VISUAL AND NUTRITIONAL QUALITY

Koueta N; Safi G; Broyer T; Sauve R; Brouzes R

P71 - JUMBO SQUID (*Dosidicus gigas*) IN SITU TARGET STRENGTH MEASUREMENTS IN NORTHWEST MEXICO

Manini-Ramos F; Villalobos H; Salinas-Zavala CA

P72 - EFFECTS OF LIGHT AND JIG COLOR ON THE INDIVIDUAL CATCH OF THE TROPICAL ARROW SQUID *Dorytheuthis plei* IN SÃO PAULO, BRAZIL

Postuma FA; Gasalla MA

P73 - VALIDATION OF STYLETS, BEAKS AND CRYSTALLINES INCREMENTS AS AGEING TOOLS IN *Octopus maya* (VOSS & SOLÍS, 1966)

Rodríguez-Domínguez A; Markaida U; Méndez-Loeza I; López-Ripoll E; Rosas C

P74 - CEPHALOPODS DISCARD ESTIMATES FROM SPANISH TRAWL FISHING FLEETS OPERATING IN THE NORTHEAST ATLANTIC EUROPEAN WATERS (ICES AREAS VI, VII, VIII, IXA)

Silva L; Santos J; Valeiras J; Salinas I; Acosta J; Pérez N

P75 - GENE DISCOVERY AND EXPRESSION IN *Octopus bimaculoides* WITH NEXTGEN SEQUENCING

Albertin CB; Ye Q; Kang S; Pungor JR; Ragsdale CW

P76 - COMPLETE MITOCHONDRIAL DNA DIFFERENTIATION BETWEEN *Cistopus taiwanicus* AND *Cistopus chinensis*

CHENG R; ZHENG X; LI Q

P77 - EMERGING FRONTIERS OF CEPHALOPOD GENOMICS AND NEUROGENOMICS

Moroz LL; Kohn AB; Citarella M; Kokot K; Halanych K; Polese G; Di Cosmo A

P78 - THE ANTARCTIC OSCILLATION INDEX AS A PARAMETER OF *Illex argentinus* POPULATION VARIATION IN SOUTHWEST ATLANTIC WATERS

Chang KY; Wang HY; Kuo CL; Chiu TS

P79 - MARINE BIOBANK: AN OPPORTUNITY FOR CEPHALOPOD RESEARCH?

González AF; Pascual S; Outeiriño L; Vello C

P80 - IDENTIFICATION AND CHARACTERIZATION OF ADEQUATE HABITATS FOR SPAWNING AND EARLY STAGES OF DEVELOPMENT OF COMMERCIALY IMPORTANT CEPHALOPODS

Guerra A; Graci ME; Hernández-Urzera J; Morales-Nín B; Cabanellas-Reboredo M; González AF

P81 - MORPHOMETRIC SEXUAL DIMORPHISM, SIZE AT MATURITY AND GROWTH OF THE SHORTFIN SQUID *Illex coindetii* IN THE AEGEAN SEA (EASTERN MEDITERRANEAN)

Lefkaditou E; Dogramatzi K; Vidoris P; Papaconstantinou C

P82 - AGE STRUCTURE, GROWTH AND LIFE CYCLES OF THE SQUID *Doryteuthis plei* OFF THE SOUTHERN COAST OF BRAZIL

Perez JAA; Aguiar DC; Santos JAT

P83 - SPACE-BASED FISHERIES EFFORT ASSESSMENT AND FISHING DRIVERS OF POPULATION DEMOGRAPHICS FOR THE SQUID *Loligo vulgaris* OFF THE PORTUGUESE COAST

Pilar-Fonseca T; Pereira J; Moreno A; Afonso-Dias M; Campos A; Lourenço S

P84 - CONTRIBUTIONS TO THE UNDERSTANDING ON POPULATION STRUCTURE OF THE ARGENTINE SHORTFIN SQUID *Illex argentinus* CAPTURED IN SOUTHERN BRAZIL

Schroeder R; Schwarz R

P85 - REPRODUCTIVE BIOLOGY OF THE OCTOPUS *Eledone massyae* VOSS, 1964 (OCTOPODIDAE) FROM SOUTHEASTERN BRAZIL

Tomas ARG; Carvalho ES

P86 - STOCK ASSESSMENT OF *Octopus vulgaris* CUVIER, 1797 (CEPHALOPODA: OCTOPODIDAE) EXPLOITED BY TRAWLING FISHERIES IN SOUTHEAST BRAZIL

Tomas ARG; Petrere M

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