

## ***Curriculum Vitae***

**Name** - Jorge Afonso Martins da Palma

**Local & Date of birth** - Faro, 18 de Outubro de 1968

**Nacionality** - Portuguese

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### **Academic Degree:**

**1988-1994** – Graduation in Marine Biology Universidade do Algarve. Graduation thesis: “Study on the feeding regime and gastric evacuation of gilthead seabream, *Sparus aurata* (Linnaeus 1758)”

**1996-2002** – Ph.D in Marine Sciences (Marine Zoology) Thesis: “Morphological variation of eight Sparidae species of the eastern Atlantic and Mediterranean sea”.

### **Grants:**

**1996-2000** – Ph.D. grant PRAXIS XXI, ref. PRAXIS XXI/BD/9441/96.

**2003-2006** – Post doctoral researcher, grant ref. SFRH/BPD/11604/2002, work plan: “Mass production of live diets as food for the culture of initial stages of cuttlefish, *Sepia officinalis*.” Performed in the Universidade do Algarve and in the Department of Animal and Poultry Science of the Universidade of Guelph, Ontario, Canada.

**2007 – to present** – Post doctoral reseracher, (grant ref. SFRH/BPD/34816/2007) work plan: “Scientific and technical basis for the culture of the Oceanic seahorse (*Hippocampus kuda*) and the long-snouted seahorse (*Hippocampus guttulatus*)” Performed at the Department of Animal and Poultry Science of the University of Guelph, Ontario, Canada and CCMAR - Universidade do Algarve.

### **Teaching activity –**

**2003-2004** - Invited Professor (Lecturer & Semester coordinator) of Zoologia II (Zoology).

**2004-2005** - Invited Professor (Lecturer & Semester coordinator) of Zoologia II

(Zoology).

**2009** - Guest lecturer - Biologia Pesqueira e Ictiologia (Marine Biology and Ichthyology), at the FCT department of the Universidade do Algarve.

**2008- 2010** – Invited professor at the FCT department of the Universidade do Algarve.

**Guidance of graduation theses in Marine Biology and Fisheries:**

Rita Godinho – Morphological variation of largemouth bass, *Micropterus salmoides* (Lacepède, 1802) in two artificial reservoirs (South Portugal).

Jorge Martins – Feeding ecology of little terns, *Sterna albifron*, in the Ria Formosa lagoon.

**Guidance of Masters theses in Marine Biology:**

Marta Sofia Alves Gomes – Determination of the optimal rearing conditions for larval growth of broad nosed pipefish (*Syngnathus typhle*, Linnaeus, 1758) (Pisces: Syngnathidae).

Ana Isa Marques Fialho – Characterization of the breeding behaviour of the long snout seahorse (*Hippocampus guttulatus*).

**Student guidance in international programs (ERASMUS):**

2003 - Sarah O'Flynn - A comparative study of the growth and fecundity of two species of shrimp *Palaemon elegans* and *Palaemonetes varians*

2005 - Rebecca Martin - Optimisation of rearing systems for the culture of cuttlefish (*Sepia officinalis*)

2006 - Roisin Pinfield - Effect of feeding hierarchy on growth and survival of cuttlefish (*Sepia officinalis*)

2006 - Tadeusz Kirakowski - Effect of prey condition on growth of juvenile cuttlefish (*Sepia officinalis*)

2006 - James Stockdale - Feeding optimisation of long snouth seahorse (*Hippocampus guttulatus*) broodstocks

**Research projects -**

**1992** - "Pesca exploratória do caranguejo-de-profundidade *Geryon longipes* (A. Milne Edwards, 1982) na região do Algarve".

**1993-1995** - "Optimização da qualidade da água em sistemas de aquacultura" STRIDE/MAR/015.

**1995-1998** - "A comprehensive genetic study of cultured and wild stocks of gilthead seabream (*Sparus aurata*) and genetic assessment of several related species as candidates for aquaculture". Comissão Europeia, Programa AIR/Agro-Industrial Research including Fisheries, AIR3-CT94-1926.

**1996-1997** - "Aquacultura extensiva na Ria Formosa: Validação de um modelo ecológico" PBIC/C/MAR/2226/95.

**1997** - "Avaliação de potenciais alterações na morfologia, hidrodinâmica e ecologia no sistema estuarino Arade/Odelouca".

**1997-2000** - "Caracterização genética e ecológica das populações portuguesas de sável e savelha (*Alosa* spp.) e lampreia (*Petromyzon marinus*). Base biológica para a sua gestão e manutenção". Programa Praxis XXI, ref. 3/3.2/CA/1981/95.

**1998-2000** - "Collection of biological data of 5 flatfish species from Iberian waters (Portuguese coast and Gulf of Cadiz)" European Commission/DG XIV, Program Studies in Support of the Common Fisheries Policy, Coordination, ref 97/0083.

**1999-2002** - "Cephalopoda: Octopodidae – relação do recurso com o ambiente marinho" Programa Praxis XXI, ref. 2/2.1/MAR/1707/95.

**2000-2002** - "Assessing the impact of bivalves fisheries on the benthic ecosystems of the Ria Formosa lagoon (Portugal), Venice lagoon (Italy), Aegean Sea (Kavala - Greece) and Impact of bivalve dredge fishery on juvenile flatfish in the south coast of Portugal (Algarve) (IMPACTO)", Impacto-DGXIV Proposal n°99/062.

**2001-2004** - "Interações tróficas do choco *Sepia officinalis* (Cephalopoda: Sepiidae) na Ria Formosa, no estuário do Sado e na Ria de Aveiro: um contributo para a modelação multi-específica", PDCTM/PP/MAR/15259/1999.

**2002** - "Ecologia reprodutora e alimentar da Andorinha-do-mar-anã para gerar indicadores ecológicos em ecossistemas marinhos", POCTI/BSE/37385/2001.

**2002-2004** - Projecto "AQUASEPIA: Development of aquaculture techniques for the cuttlefish, *Sepia officinalis*". Fundação para a Ciência e Tecnologia - Agência de Inovação.

**2006-2007** – Projecto SHAR – "Sea Horse Artificial Rearing"

**2009-present** – Project EEMA “Avaliação do Estado Ecológico das Massas de Água Costeiras e de Transição e do Potencial Ecológico das Massas de Água Fortemente Modificadas”.

## **Publications –**

### **Theses:**

Undergraduation thesis - “Estudo do regime alimentar e taxa de evacuação gástrica em dourada *Sparus aurata* (Linnaeus 1758)”

Ph.D. Thesis – “Morphological variation of eight Sparidae species of the eastern Atlantic and Mediterranean sea”. 161 p.

### **Refereed Journal Publications (Career total = 15)**

Andrade, J. P.; Erzini, K.; Palma, J., 1996. Gastric evacuation and feeding in the gilthead seabream reared under semi-intensive conditions. *Aquaculture International*. **4**, 129-141 pp.

Palma, J., Andrade, J. P., Paspatis, M., Divanach, P., Kentouri, M., 1998. Morphometric characters in gilthead sea bream, *Sparus aurata*, red porgy, *Pagrus pagrus* and their hybrids (Sparidae). *Italian Journal of Zoology*. **65**, Suppl.: 435-439.

Palma, J., Alarcon, J. A., Alvarez, C., Zouros, E., Magoulas, A., Andrade J. P., 2001. Developmental stability and genetic heterozygosity in wild and cultured stocks of gilthead seabream (*Sparus aurata*) *Journal of the Marine Biological Association of UK*. Vol. **81**, (2), 283-288.

Palma, J., Andrade, J. P., 2002. Morphological study of *Diplodus sargus*, *Diplodus puntazzo*, and *Lithognathus mormyrus* (Sparidae) in the Eastern Atlantic and Mediterranean Sea. *Fisheries Research*. **57**, 1-8.

Palma, J., Reis, C., Andrade, J. P., 2003. Impact of the bivalve dredge fishing on flatfish species in the south coast of Portugal (Algarve). *Journal of Sea Research*. **50**, 129-137.

Palma, J., Andrade, J. P., 2004. Morphological study of *Pagrus pagrus*, *Pagellus bogaraveo*, and *Dentex dentex* (Sparidae) in Eastern Atlantic and Mediterranean Sea. *Journal of the Marine Biological Association of the United Kingdom*. **84**, 449-454.

Bargelloni, L., Alarcon, J.A., Alvarez, M.C., Penzo, E., Magoulas, A., Palma, J., Patarnello, T., 2005. The Atlantic-Mediterranean transition: Discordant genetic patterns in two seabream species, *Diplodus puntazzo* (Cetti) and *Diplodus sargus* (L.). *Molecular Phylogenetics and Evolution* **36**, 523-535.

Paiva, V. H., Ramos, J. A., Catry, T., Pedro, P., Medeiros, R., Palma, J., 2006. Influence of environmental factors and energetic value of food on Little Tern *Sterna albifrons* chick growth and food delivery: Chick diet and early growth parameters differed between birds breeding on natural (sandy beaches) and alternative (salinas) habitats. *Bird Study* **53**(1), 1-11.

Catry, T., Ramos, J. A., Martins, J., Peste, F., Trigo, S., Paiva, V. H., Almeida, A., Luís, A., Palma J., Andrade J. P. 2006. Inter-colony and annual differences in the diet and feeding ecology of Little Tern adults and chicks in Portugal. *The Condor*. **108**, 366–376.

Correia, M., Palma, J., Andrade, J. P. 2008. Effects of live prey availability on growth and survival in early stages of cuttlefish *Sepia officinalis* (Linnaeus, 1758) life cycle. *Aquaculture Research* **39**, 33-40.

Correia, M., Palma, J., Kirakowski, T., Andrade, J.P. 2008. Effect of prey condition on the growth of juvenile cuttlefish, *Sepia officinalis*. *Aquaculture Research*. **39**, 869-876.

Palma, J., Correia, M., Andrade, J. P. 2008. Usefulness of flat bottom tanks on the settlement of spider crab (*Maja squinado*, Herbst) larvae. *Aquaculture Research*. **39**, 1005-1008.

Palma, J., Stockdale, J., Correia, M. and Andrade, J.P. 2008. Growth and survival of adult long snout seahorse (*Hippocampus guttulatus*) using frozen diets. *Aquaculture*. **278**, 55–59.

Palma, J., Bureau, D. P., Andrade, J. P. 2008. Effect of binder type and binder addition to artificial diets used for the growth of *Palaemonetes varians* and *Palaemon elegans* (Crustacea: Palaemonidae) produced as aquaculture live food. *Aquaculture International*. **16**, 427–436.

Palma, J., Bureau, D. P., Correia, M., Andrade, J. P. 2009. Effect of temperature, density and early weaning in survival and growth of *Palaemonetes varians* larvae. *Aquaculture Research*. **40**, 1468-1473.

#### **Non-refereed Journal Publications:**

Palma, J., Alarcon, J. A., Alvarez, C., Magoulas, A., Zouros, E., Andrade J. P., 2000. Relationship between heterozygosity and fluctuating asymmetry in wild and cultured gilthead seabream (*Sparus aurata* L.). ICES 2000. Report on the Young Scientists Conference on Marine Ecosystem Perspectives. ICES Cooperative Research Report, N°240, 73.

#### **Manuscript revision in International journals:**

*Aquacultural Engineering, Marine & Freshwater Behaviour & Physiology, Journal Fish Biology, Journal of the Marine Biological Association of the United Kingdom, Journal of the World Aquaculture Society, Aquaculture Research*

#### **Oral presentations -**

“Morphometric characters in gilthead sea bream, *Sparus aurata*, red porgy, *Pagrus pagrus* and their hybrids” - 9<sup>th</sup> International Congress of European Ichthyologists (CEI9), Trieste, Italy (co-authors J. Andrade, M. Paspatis, P. Divanach and M. Kentouri)

“A comparative study of the diet of *Pagrus pagrus*, *Lithognathus mormyrus* and *Diplodus sargus* from the south coast of Portugal” - 9<sup>th</sup> International Congress of European Ichthyologists (CEI9), Trieste, Italy (co-authors C. Reis, J. P. Andrade)

"Comparison of the growth performance of the hybrid *Sparus aurata* x *Pagrus pagrus* reared under intensive farming conditions" FSBI (The Fisheries Society of the British Islands), Environment, Development and Growth of the Fishes) Annual International Symposium (5-8 Julho 1999) St. Andrews, Scotland (co-author M. Paspatis, M. Kentouri, P. Divanach and J. P. Andrade).

"Multivariate morphometric variability in European Gilthead seabream stocks" - 10<sup>th</sup> European Congress of Ichthyology (ECIX), Prague, Czech Republic (2001) (co-author J. P. Andrade).

"Morphological study of *Diplodus sargus*, *Diplodus puntazzo*, and *Lithognathus mormyrus* (Sparidae) in the Eastern Atlantic and Mediterranean Sea" - 10<sup>th</sup> European Congress of Ichthyology (ECIX), Prague, Czech Republic (2001) (co-author J. P. Andrade).

#### **Posters -**

Palma, J., Alarcon, J. A., Alvarez, C., Magoulas, A., Andrade J. P. Relationship between heterozygosity and fluctuating asymmetry in wild and cultured gilthead seabream (*Sparus aurata* L.) Third European Marine Science and Technology Conference. Lisbon, 23-27 May, 1998.

Palma, J., Alarcon, J. A., Alvarez, C., Magoulas, A., Andrade J. P. Relationship between heterozygosity and fluctuating asymmetry in wild and cultured stocks of gilthead seabream (*Sparus aurata* L.) ICES 2000. Young Scientists Conference on Marine Ecosystem Perspectives (20-24 November, 1999, Gilleleje, Denmark).

Palma, J., Andrade, J. P. Comparison of traditional morphometric against truss networks for describing gilthead seabream, *Sparus aurata* L., stocks. British Ecological Society Aquatic Group Meeting "Aquatic Habitats as Ecological Islands" (5-7 September 2000, University of Plymouth, UK).

Palma, J., Andrade, J. P., Paspatis, M., Divanach, P., Kentouri, M. Head morphology features of the hybrids *Sparus aurata* x *Pagrus pagrus*" 10<sup>th</sup> European Congress of Ichthyology (ECIX), Prague, Czech Republic (3-7 September, 2001).

Palma, J., Ferreira, C., Andrade, J. Do prey preference limit the conservation of largemouth bass, *Micropterus salmoides*, in the freshwater basins in South Portugal?. 10<sup>th</sup> European Congress of Ichthyology (ECIX), Prague, Czech Republic (3-7 September, 2001).

Palma, J., Reis, C., Andrade, J. P. Impact of bivalve dredge fishing on flatfish species in the South coast of Portugal (Algarve). Fifth International Flatfish Symposium, Isle of Man, UK (3-7 November, 2002).

Palma, J., Bureau, D. P., Andrade, J. P. Effect of binder type and binder addition to artificial diets used for the growth of *Palaemonetes varians* and *Palaemon elegans* (Crustacea: Palaemonidae) produced as aquaculture live food. 11<sup>th</sup> International Symposium on Nutrition and Feeding in Fish. Phuket, Thailand, 2-7 May, 2004.

Palma, J., O'Flynn, S., Andrade, J. P. Growth performance of *Palaemonetes varians* and *Palaemon elegans* (Crustacea: Palaemonidae) produced as aquaculture live preys. 11<sup>th</sup> International Symposium on Nutrition and Feeding in Fish. Phuket, Thailand, 2-7 May, 2004.

Palma, J., Bureau, D. P., Correia, M., Andrade, J. P. Quantitative dietary requirement of juvenile grass shrimp *Palaemonetes varians* (Leach) for lysine, methionine and arginine. 12<sup>th</sup> International Symposium on Nutrition and Feeding in Fish. Biarritz, France, 28 May - 1 June, 2006.

Palma, J., Bureau, D. P., Andrade, J. P. Effect of plant protein sources on the growth and feed utilization by *Palaemonetes varians* and *Palaemon elegans* (Crustacea: Palaemonidae). 12<sup>th</sup> International Symposium on Nutrition and Feeding in Fish. Biarritz, France, 28 May - 1 June, 2006.

Palma, J., Correia, M., Andrade, J. P. Growth and survival of adult long snout seahorse (*Hippocampus guttulatus*) using frozen diets. 13<sup>th</sup> International Symposium on Fish Nutrition and Feeding. Florianópolis, Brazil, 1-5 June, 2008.



Palma, J., Correia, M., Andrade, J. P. Growth performance of early life stages of broad-nosed pipefish (*Syngnathus typhle* L.) fed with different natural diets. 13<sup>th</sup> International Symposium on Fish Nutrition and Feeding. Florianópolis, Brazil, 1-5 June, 2008.

### **Scientific Illustration -**

Scientific Illustration Exhibits "Oceans - Illustrating Marine Life" e "GNSI's members Annual Exposition" "GNSI 2000 Portugal" realizado em Évora, Lisboa e Sagres, Portugal (30<sup>th</sup> July – 7<sup>th</sup> August, 2000).

### **Oceanographic campaigns -**

1992 (September) - "Pesca exploratória do caranguejo-de-profundidade *Geryon longipes* (A. Milne Edwards, 1982) na região do Algarve "

1994 (may-June) – Oceanographic campaign in the R/V Poseidon from the Institut für Meereskunde. Project "Stock dynamics, interactions and recruitment in north-east Atlantic squid fisheries" ref. AIR1-CT 92-573.