

## Dr. CARLOS GARCIA-SOTO

### PERSONAL DETAILS

First Name: Garcia-Soto  
Name: Carlos  
Place of Birth: Bilbao (Spain)  
Date of Birth: 19/02/1965

Current Position: Senior researcher (26)  
Institution: National Institute of Oceanography (IEO)  
Postal address: Promontorio de S. Martin s/n, 39004 Santander (Spain)  
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### Previous Research Centres

1991-1997 Plymouth Marine Laboratory (UK)  
1990 National Oceanography Centre, Southampton University (UK)  
1988-1989 Service of Oceanographic Research (AZTI) of the Basque Government

### PROFILE

- **ACADEMIC PROFILE**

PhD on Oceanography by Southampton University, Department of Oceanography.  
National Oceanography Centre (NOC), Southampton University. (United Kingdom, 1994).

First degree on Ecology. University of the Basque Country. (Spain, 1988)  
MSc on Estuarine Ecology. University of the Basque Country. (Spain, 1989)

Diplomas

Space Oceanography (University of Dundee, 1990)

Water quality modelling in lakes and reservoirs. (University of W Australia, 2006)

Ocean remote sensing methods, tools and applications (University of Hamburg, 2006)

- **RESEARCH ABROAD**

7 Years of research in the United Kingdom

Research group Ocean Colour, Ocean Climate and Circulation.

- Current **RESEARCH LINES**:

- Climate Variability
- Satellite Oceanography
- Plankton Ecology

- **PRINCIPAL INVESTIGATOR** of 5 Research Projects financed by the European Space Agency (ESA) and the National Government (CICyT)

- 2008-2011 Remote sensing of salinity in the northern Polar seas: Phytoplankton and Climate Research.  
Sponsor: European Space Agency (ref: AO-SMOS 4675)
- 2004-2007 Timing and structure of the Spring Phytoplankton Bloom in the Bay of Biscay (NE Atlantic): Remote Sensing (Envisat MERIS) and Ship measurements.  
Sponsor: European Space Agency (ref: ENVISAT-CAT1-2808)
- 2004-2007 Envisat measurements and mesoscale structure of Phytoplankton Blooms in the Marginal Ice Zone (MIZ)  
Sponsor: European Space Agency (ref: CRYOSAT-AO-2673).

- 2005-2006 Altimetric Remote Sensing and Poleward Current in the region of influence of the Prestige oil spill  
Sponsor: National Government, CICYT (ref: VEM04-08613)
- 2001-2005 Satellite oceanography in the context of Global Change  
Sponsor: National Government, CICYT (ref. Ramón y Cajal Programme)
- Participation in other 12 Research Projects financed by the European Union and the National Governments of U.K. (NERC and DRA) and Spain (CICYT).

European Union Projects:

- 2002-2005 FerryBox: From on-line oceanographic observations to environmental information. Ref. EU: EVK2-CT-2002-00144.  
Coordinator: Prof. Franciscus Coljin (GKSS Institute for Coastal Research, Germany).
- 1996-1999 Canary Islands Azores Gibraltar Observations. Ref. EU: MAS3-CT95-0060.  
Coordinator: Dr. Gregorio Parrilla (Spanish Institute of Oceanography, Spain)
- 1990-1993 European co-operative study of the processes controlling recruitment of clupeiform fishes. (Ref. EU): MA.1.96).  
Coordinator: Jurgen Alheit (Baltic Sea Research Institute, Germany)

- 53 SCIENTIFIC WORKS

5 Key publications

- Garcia-Soto, C. & R.D. Pingree (2011) Atlantic Multidecadal Oscillation (AMO) and Sea Surface Temperature in the Bay of Biscay and adjacent regions. *Journal of the Marine Biological Association of the U.K.* (in press).
- Garcia-Soto, C. & R.D. Pingree (2009). Spring and summer blooms of phytoplankton (SeaWiFS/MODIS) along a ferry line in the Bay of Biscay and western English Channel. *Continental Shelf Research*, 29, 1111-1122.
- Garcia-Soto, C. (2004). Prestige Oil Spill and Navidad flow. *Journal of the Marine Biological Association of the U.K.*, 84, 297-300.
- Pingree, R.D. & Garcia-Soto, C. (2004). Annual westward propagating anomalies near 26°N and eddy generation south of the Canary Islands: remote sensing (altimeter/ SeaWiFS) and *in situ* measurement. *Journal of the Marine Biological Association of the U.K.*, 84, 1105-1115.
- Garcia-Soto, C., R.D. Pingree & L. Valdés (2002). Navidad development in the southern Bay of Biscay: Climate change and swoddy structure from remote sensing and *in situ* measurements. *Journal of Geophysical Research*, 107 (C8), 10.1029/2001JC001012.

- EDITORIAL EXPERIENCE (2006-current)

- 2011- current Editorial Board of *Continental Shelf Research*. Elsevier.
- 2011 Lead Guest Editor of the Special Issue "ISOBAY 13 International Symposium on Oceanography of the Bay of Biscay" of *Deep-Sea Research II*. Elsevier
- 2011 Lead Guest Editor of the Special Issue "Satellite Oceanography and Climate Change" of *Deep-Sea Research II*. Elsevier.
- 2009 Editor of the book *Oceanography and Satellites*  
502 pp, 14 chapters and 44 authors. Tebar publisher
- 2007-current Editorial Board of *Journal of Remote Sensing* (spanish)
- 2006 Guest Editor of the Special Issue "Oceanography and Remote Sensing" of *Journal of Remote Sensing* (spanish). 33 articles.

- NETWORKING
  - Associated Member of the NETWORKS OF EXCELLENCE on Global Change and Marine Ecosystems of the European Union (MARBEF and Eur-OCEANS).
  - Member of the American Geophysical Union (AGU, USA), the Challenger Society for Ocean Sciences (National Oceanography Centre, UK) and the the Marine Biological Association of UK (MBA, UK).
  - Founder and Coordinator of the National Network of Satellite Oceanography financed by the Spanish Government (Ref. ESP2004-21661E). This Scientific Network integrates 44 scientists from 7 Research Institutes, 8 Universities and a private company.

## OTHERS

- Oceanographic Cruises in the Bay of Biscay and Subtropical N Atlantic (RRS Charles Darwin).
- Government Reviewer of Research Projects  
Examination panel of Theses and Research Positions.  
Director of PhD and MSc Theses.  
Organizer of Workshops  
Chair in Research Meetings
- Lecturer in 3 University Masters
  - European MSc on Marine Environment and Resources (2006-present).  
Universities of the Basque Country, Southampton and Bordeaux
  - MSc on Biodiversity and Ecosystem management (2007-present)  
University of the Basque Country
  - MSc on Environmental Evaluation (1992-94 y 1995-96)  
University of the Basque Country
- Invited Conferences. Last ones:
  - Garcia-Soto, C. "Satellite Oceanography and Climate Change" in the RIMER Conference Week. San Sebastian, 1 to 10 February 2011.
  - Garcia-Soto, C. "Oceanography and Primary Production in the Bay of Biscay" in the RIMER Conference Week. San Sebastian, 1 to 10 February 2011.
- 2005 Joint Award from the Spanish Foundation for Science and Technology (FECyT)

## **PERSONAL REFERENCES (Editors)**

Dr. Ann Pulsford  
Editor of the Journal of the Marine Biological Association of U.K.  
 Marine Biological Association of U.K.  
 E-mail: [jmba@mba.eclipse.co.uk](mailto:jmba@mba.eclipse.co.uk)

Prof. John Milliman  
Editor of Deep Sea Research Part II  
 Virginia Institute of Marine Science  
 E-mail: [milliman@vims.edu](mailto:milliman@vims.edu)

## ANNEX (Full Publication List)

### International Journals (SCI)

GARCIA-SOTO, C. & Pingree, R.D. (2011) Atlantic Multidecadal Oscillation (AMO) and Sea Surface Temperature in the Bay of Biscay and adjacent regions. *Journal of the Marine Biological Association of the U.K.*, 90 (in press).

Varela, M., Bode, A., Osorio, M., Prego, R. Bernardez P. & GARCIA-SOTO, C. (2010) The effects of winter upwelling on biogeochemical and planktonic components in a area close to the Galician upwelling core: the sound of Corcubion. *Journal of Sea Research* 64,260-272. doi: 10.1016/j.seares.2010.03.004.

Ospina-Álvarez N., Prego R. Álvarez I. deCastro M. Álvarez-Ossorio M.T., Pazos Y., Campos M.J., Bernárdez P., GARCIA-SOTO, C. Gómez-Gesteira M. & Varela M. (2010) Oceanographical patterns during a summer upwelling-downwelling event in the Northern Galician Rias. Comparison with the whole Ria system (NW of Iberian Peninsula). *Continental Shelf Research* 30, 1362-1372.

Báez, J.C., Olivero, J., Peteiro, C., Ferri-Yáñez, F., GARCIA-SOTO, C. & Real, R. (2010) Macro-environmental modelling of the current distribution of *Undaria pinnatifida* (Laminariales, Ochrophyta) in northern Iberia. *Biological Invasions*, 12, 2131-2139. doi: 10.1007/s10530-009-9614-1.

GARCIA-SOTO, C. & Pingree, R.D. (2009) Spring and summer blooms of phytoplankton (SeaWiFS/MODIS) along a ferry line in the Bay of Biscay and western English Channel. *Continental Shelf Research*, 29, 1111-1122. doi: 10.1016/j.csr.2008.12.012

Báez, J.C., Real, R., Camiñas J.A., Torreblanca, D. & GARCIA-SOTO, C. (2009) Analysis of swordfish catches and by-catches in artisanal longline fisheries in the Alboran Sea (western mediterranean Sea) during the summer season. *Marine Biodiversity Records*, 2, np. doi: 10.1017/S17552672209990856.

Báez, J.C., R. Real, C. GARCIA-SOTO, J.M. De La Serna, D. Macias & J.A. Camiñas (2007). Sea turtle by-catch dependency on distance to the coast independent of fishing effort: implications for conservation and fisheries management. *Marine Ecology Progress-Series*, 338, 249-256.

Kelly-Guerrein, B., D.J. Hydes, A.M. Jégou, P. Lazure, L.J., Fernand, I. Puillat, & C. GARCIA-SOTO (2006). Low salinity intrusions in the western English Channel. *Continental Shelf Research*, 26, 1241-1257.

Álvarez-Salgado, X.A., J.L. Herrera, J. Gago, P. Otero, J.A Soriano, C.G. Pola, & C. GARCIA-SOTO (2006). Influence of the oceanographic conditions during spring 2003 on the transport of the Prestige tanker fuel oil to the Galician coast. *Marine Pollution Bulletin*, 5-7, 239-249.

Varela, M., A. Bode, J. Lorenzo, M.T. Alvarez-Osorio, A. Miranda, T. Patrocinio, R. Anadón, L. Biseca, N. Rodríguez, L. Valdés, A. Urrutia, M. Rodríguez, C. GARCIA-SOTO, X.A. Álvarez-Salgado & S. Groom (2006). The effect of the Prestige oil spill on the plankton in the N-NW Spanish coast. *Marine Pollution Bulletin*, 5-7, 272-286.

Pérez, V., E. Fernández, E. Marañón, P. Serret C. & C. GARCIA-SOTO (2005). Seasonal and interannual variability of chlorophyll a and primary production in the Equatorial Atlantic: in situ and remote sensing observations. *Journal of Plankton Research*, 27, 1-9.

Pérez, V., E. Fernández, E. Marañón, P. Serret, R. Varela, A. Bode, M. Varela, X. A. G. Morán, M. Woodward, V. Kitidis & C. GARCIA-SOTO (2005). Latitudinal distribution of microbial plankton abundance, production and respiration in the Equatorial Atlantic in Autumn 2000. *Deep-Sea Research Part I*, 52, 861-880.

GARCIA-SOTO C. (2004). Prestige Oil Spill and Navidad flow. *Journal of the Marine Biological Association of the U.K.*, 84, 297-300.

Pingree, R.D. & C. GARCIA-SOTO (2004). Annual westward propagating anomalies near 26°N and eddy generation south of the Canary Islands: remote sensing /altimeter/ SeaWiFS) and *in situ* measurement. *Journal of the Marine Biological Association of the U.K.*, 84, 1105-1115.

Fernández, E., F. Álvarez-Marques, R. Anadón, S. Barquero, A. Bode, A. Garcia, C. GARCIA-SOTO, J. Gil, N. Gonzalez, A. Iriarte, B. Mouriño, F. Rodríguez, R. Sánchez, E. Teira, S. Torres, M. Varela, R.

Varela & M. Zapata (2004). The spatial distribution of plankton communities in a slope water anticyclonic eddy in the southern Bay of Biscay. *Journal of the Marine Biological Association of the U.K.* 84, 501-517.

GARCIA-SOTO, C., R.D. Pingree & L. Valdés (2002). Navidad development in the southern Bay of Biscay: Climate change and swoddy structure from remote sensing and in situ measurements. *Journal of Geophysical Research*, 107 (C8), 10.1029/2001JC001012.

Pingree, R.D., Y.-H. Kuo & C. GARCIA-SOTO (2002). Can the Subtropical North Atlantic permanent thermocline be observed from space? *Journal of the Marine Biological Association of the U.K.*, 82, 709-728.

Gil, J., L. Valdés, M. Moral, R. Sánchez & C. GARCIA-SOTO (2002). Mesoscale variability in a high-resolution grid in the Cantabrian Sea (southern Bay of Biscay), May 1995. *Deep-Sea Research Part I*, 49, 1591-1607.

Pingree, R.D., C. GARCIA-SOTO & B. Sinha (1999). Position and structure of the Subtropical/Azores Front region from combined Lagrangian and remote sensing (IR / altimeter / SeaWiFS) measurements. *Journal of the Marine Biological Association of the U.K.*, 79, 769-792.

GARCIA-SOTO, C. & R.D. Pingree (1998). Late autumn distribution and seasonality of chlorophyll *a* at the shelf-break/ slope region of the Armorican and Celtic shelf. *Journal of the Marine Biological Association of the U.K.*, 78, 17- 33.

GARCIA-SOTO, C., B. Sinha & R.D. Pingree (1996). Mapping a bloom of the coccolithophore *Emiliania huxleyi* from Airborne Thematic Mapper data. *Journal of the Marine Biological Association of the U.K.*, 76, 839- 849.

GARCIA-SOTO, C., E. Fernández, R.D. Pingree & D. H. Harbour (1995). Evolution and structure of a coastal coccolithophore bloom in the Western English Channel. *Journal of Plankton Research*, 17, 2011- 2036.

Fernández, E., J. Cabal, J.L. Acuña, A. Bode, A. Botas & C. GARCIA-SOTO (1993). Plankton distributions across a slope-current induced front in the Southern Bay of Biscay. *Journal of Plankton Research*, 15, 619- 641.

GARCIA-SOTO, C., I. de Madariaga, F. Villate & E. Orive (1990). Day-to-day variability in the plankton community of a coastal shallow embayment in response to changes in river runoff and water turbulence. *Estuarine, Coastal and Shelf Science*, 11, 221- 229.

## International Congresses

Ospina-Alvarez, N., Prego, R., Alvarez, I, Pazos, Y., Bernárdez P., Gomez-Gesteira, M., GARCIA SOTO, C., deCastro, M. & Varela (2009) M. Biogeochemical and meteorological patterns of an upwelling-downwelling process in the Northern Galician Rias (NW Iberian Peninsula). SOLAS Open Science Conference. Barcelona, 16-19 Nov 2009.

GARCIA-SOTO, C. (2009) Comparison de the global estimates of carbon dioxide from satellite and in situ measurements. UN Conference on Climate Change: Global Risks, Challenges and Decission. Copenhagen, 10-12 March 2009.

GARCIA-SOTO, C. (2008). Spring and summer blooms of phytoplankton (SeaWiFS/MODIS) along a ferry line in the Bay of Biscay and Western English Channel. XI International Congress of the Bay of Biscay. San Sebastián, 2-4 April 2008.

Varela M., A. Bode, R. Prego & C. GARCIA-SOTO (2008). The effects of a winter upwelling on biogeochemical and planktonic components in an area close to the Galician Upwelling Core: The Sound of Corcubiión (NW Spain). XI International Congress of the Bay of Biscay. San Sebastián, 2-4 April 2008.

Camiñas, J.A., J.C. Baez, C. GARCIA-SOTO & R. Real (2007). Biodiversity changes of the water column large pelagic species in the Alboran sea. CIESM (Comission Internationale pour l'exploration scientifique de la Mer Méditerranée). Istanbul, 9-13 April 2007.

López, M. J.L. Acuña, C. Lobón, J. Sostres, C. GARCIA-SOTO & E. Nogueira (2007). Photo acclimation at the verge of a spring phytoplankton bloom. International Symposium GLOBEC-IMBER. Valencia, 28-30 March 2007.

Nogueira E., J.L. Acuña, C. GARCIA-SOTO & X. Irigoien (2006). Initiation of late-winter phytoplankton blooms by the passage of transient anticyclonic weather systems in the Central cantabrian Sea. XI International Congress of the Bay of Biscay. Vigo, 19-21 April 2006.

GARCIA-SOTO, C. (2006). Satellite observations of dinoflagellate blooms (2000, 2002 and 2003) along a FerryBox line in the Western English Channel. MarCoast User Workshop. Koblenz, 27-28 March 2006.

E. Nogueira, J.L. Acuña, X. Irigoien, C. GARCIA-SOTO, J. Sostres & R. Revilla (2005). Late-winter phytoplankton blooms driven by transient anticyclonic weather conditions in a temperate sea (southern Bay of Biscay). American Association of Limnology and Oceanography (ASLO) Summer Meeting. Santiago de Compostela, 19-24 June 2005.

Kelly-Guerrein, B.A., M.A. Qurban, D.J. Hydes, D.J., L. Fernand, I. Puillat A.M. Jégou, P. Lazure & C. GARCIA-SOTO (2004). Understanding intense *Karenia mikimotoi* blooms in the western English Channel from Ferrybox, ship survey, satellite, river and wind data. FerryBox Open Conference. Southampton, 5-6 October 2004.

Nogueira E., J.L. Acuña, C. GARCIA-SOTO & X. Irigoien (2004). Dynamics of spring phytoplankton blooms in the Cantabrian Sea. Preliminary results from an intensive mesoscale sampling. IX Colloque International d'Océanographie du Golfe de Gascogne. Pau, 10-12 June 2004.

Lavin, A.M., D.J. Hydes, C. González-Pola, C. GARCIA-SOTO, B. Kelly-Guerrein & X.A.G. Morán (2004). FerryBox: An operational Oceanography Project in the Bay of Biscay. IX Colloque International d'Océanographie du Golfe de Gascogne. Pau, 10-12 June 2004.

Fernández, E., F. Alvarez-Marques, R. Anadón, S. Barquero, A. Bode, C. GARCIA-SOTO, J. Gil, N. González, A. Iriarte, B. Mouriño, R. Sánchez, E. Teira, S. Torres, M. Varela & R. Varela (2000). The planktonic biology of a slope water anticyclonic eddy (swoddy) in the southern Bay of Biscay. VII Colloque International d'Océanographie du Golfe de Gascogne. Biarritz, 4-6 April 2000.

GARCIA-SOTO, C. & L. Valdés (2000). Remote sensing of slope water oceanic eddies (swoddies) in the Bay of Biscay VII Colloque International d'Océanographie du Golfe de Gascogne. Biarritz, 4-6 April 2000.

González-Quirós, R., N. González Benítez, J. Cabal, C. GARCIA-SOTO & R. Anadón. (1995). Eggs and larvae distribution across an upwelling front in the central Cantabrian Sea (NW Spain): preliminary results. European Institute of Advanced Studies on Oceanography (EIASO) summer school on Upwelling Systems, Las Palmas de Gran Canaria, August 1995.

Madariaga I. de & C. GARCIA-SOTO (1992). Photosynthetic response of coastal marine phytoplankton to short term changes in river inputs in the Plentzia estuary, Bay of Biscay. ECSA/ERF Joint Conference: Changes in fluxes in estuaries, implications from science to management. Plymouth, 13-18 September 1992.

GARCIA-SOTO, C., N.C.H. Halliday, S.B. Groom, S.B., A. Lavin & S.H. Coombs (1991). Satellite imagery, hydrography and plankton distributions off the NW coast of Spain. International Council for the Exploration of the Sea (ICES), 79th Statutory Meeting, ICES (C.M. Papers and Reports): C.M. 1991/C:17, 10pp. La Rochelle, 26 September- 4 October 1991..

## Other scientific works

### National Journals

GARCIA-SOTO, C., G. Navarro & Y. Sagarminaga (2009) Sensores de color: Fitoplancton y Producción primaria. En Oceanografía y Satélites. Editorial Tebar, Madrid. ISBN: 978-84-7360-268-6. pp. 69-112.

Baez, J.C. , R. Real, C. GARCÍA-SOTO, J.A. Camiñas (2008). Reducing sea turtle by-catch in longlines using management of eco-geographical variables (in german). Marginata, 17, 40-42.

GARCIA-SOTO, C. (2006). Blooms de fitoplancton (SeaWiFS) en el Golfo de Vizcaya y Canal de la Mancha a lo largo de la ruta del ferry Pride of Bilbao. *Revista de Teledetección*, 25, 10-14.

Elgue, J.C., C. GARCIA-SOTO & O. Llinas. (2006). Ciclos estacionales de fitoplancton (SeaWiFS) en secciones meridionales del Océano Atlántico. *Revista de Teledetección* 25, 20-24.

GARCIA-SOTO, C. (2006). La Red Nacional de Teledetección Oceanográfica. *Revista de Teledetección*, 25, 5-9.

GARCIA-SOTO, C. (2005). Oceanografía del Golfo de Vizcaya. En *El Cimarrón del Atlántico Norte y Mediterráneo*. Ed. J.L. Cort. Servicio de Publicaciones del IEO, Madrid, 66-69. Depósito Legal: SA. 790-2005.

GARCIA-SOTO, C. & I. de Madariaga (1993). Floración primaveral de fitoplancton en el SE del Golfo de Vizcaya. *Kobie* 21, 17-26.

### **National Congresses**

Baez, J.C., Olivero, J., GARCIA-SOTO, C. y Real, R. (2008). Modelación de la distribución del alga invasora *Undaria Pinnatifida* (Laminariales, Phaeophyceae) en el norte de España. V Congreso Español de Biogeografía. Málaga, 9-13 September 2008.

Varela, M., A. Bode, M.T. Alvarez-Osorio, R. Anadón, M. Llopé, L. Valdés & C. GARCIA-SOTO (2005). The effect of the Prestige oil spill on the phytoplankton in the N NW Spanish coast during spring. Simposio sobre vertidos accidentales de petróleo en el medio marino (VERTIMAR) Vigo, 13-16 July 2005.

Urrutia, J. & C. GARCIA-SOTO (1990) Eventos oceanográficos detectados por radiometría infra-roja (NOAA) en aguas oceánicas del Golfo de Vizcaya. III Reunión Científica del Grupo de Trabajo en Teledetección. Madrid, 17-19 Octubre 1990.

Urrutia, J. & C. GARCIA-SOTO (1990). Sistemas frontales costeros del Golfo de Vizcaya detectados por radiometría infra-roja (NOAA). III Reunión Científica del Grupo de Trabajo en Teledetección. Madrid, 17-19 Octubre 1990.