

CURRICULUM VITAE– ENRICO ARNERI

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Languages skills : Italian (mother tongue), English (fluent), French (fluent), Spanish (fluent), Portuguese (basic).

Professional Work Experience:

1. September 2009 – ongoing

Project Coordinator at FAO (Food and Agriculture Organization of the United Nations), AdriaMed and MedSudMed Projects, FAO Fisheries and Aquaculture Department, Marine and Inland Fisheries Service (FIRF). This position is held under a secondment agreement (*fuori ruolo*) with Italian National Research Council (CNR).

AdriaMed Project (<http://www.faoadriamed.org>) is an FAO Mediterranean Regional Project which aims in promoting scientific cooperation among the Adriatic countries (Republics of Albania, Croatia, Italy, Montenegro and Slovenia), in line with the Code of Conduct for Responsible Fisheries (UN-FAO).

MedSudMed (<http://www.faomedsudmed.org>) "*Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Straits of Sicily*" is an FAO Mediterranean regional project with four participating countries (Italy, Libyan Arab Jamahiriya, Malta and Tunisia), and it aims to support scientific communities and countries in the development of a monitoring system for the studies of fisheries resources and ecosystems.

2. October 2004 – August 2009

Head of the CNR-ISMAR Section in Ancona (Responsabile di sezione / Responsabile di Unità Operativa RUOS), Senior Fisheries Scientist: Consiglio Nazionale delle Ricerche - Istituto di Scienze Marine, Sede di Ancona (CNR-ISMAR) – (Institute for Marine Science of the National Research Council, ANCONA), Italy.

- International project coordinator of EU FP6 Project "SARDONE - Improving assessment and management of small pelagic species in the Mediterranean" Contract N°044294 (2007-2010).
- advisor to the Italian Directorate General for Fisheries in issues related to fishery management, responsible for the preparation of National Fisheries Management Plans.
- facilitator and chairman of the Demersal Species Working Group of the Sub Committee for Stock Assessment (SCSA) of the General Fishery Commission for the Mediterranean – Scientific Advisory Committees (GFCM-SAC) 2003-2008;
- member of the European Fisheries and Aquaculture Research Organization (EFARO, <http://www.efaro.eu/>). EFARO is an association composed of the Directors of the main European Research Institutes involved in Fisheries and Aquaculture research.
- Scientific responsible for ISMAR-CNR Ancona of EU FP6 Project "SESAME - Southern European Seas: Assessing and Modelling Ecosystem changes" Contract N° 036949-2 (2006-2010). Leader for Task 5.3 *Transferring output from environmental forcing to fishery management tools*.
- Scientific responsible for ISMAR-CNR Ancona of EU FP6 Project "ECOOP - European COastal-shelf sea OPERational observing and forecasting system" Contract N° 036355-2 (2007-2010).
- Scientific responsible for ISMAR-CNR Ancona of Contract LIFE04/ENV/IT/00479 UE, EMMA “Environmental Management through Monitoring and Modelling of Anoxia. (2004-2007).
- Independent consultant to FAO ADRIAMED project in 2007-2008 for the preparation of a review entitled "Small pelagic fish in the Adriatic Sea: sardine, *Sardina pilchardus* (Walbaum, 1792) and anchovy, *Engraulis encrasicolus* (Linnaeus, 1758), an ecological and fishery review".
- responsible since 2007 of the implementation of the EU Data Collection Regulation as far as biological sampling of commercial landings in Mediterranean Geographical Sub Areas (GSA) 17 and 18 (Northern and Southern Adriatic) are concerned, and for the trawl surveys activities (MEDITS) in the GSA 18.

3 . January 1990 – September 2004

Fisheries Scientist (1990-2000) and since 2001 Senior Fisheries Scientist: Consiglio Nazionale delle Ricerche - Istituto di Scienze Marine, Sede di Ancona (CNR-ISMAR)

Main scientific research activity relating to the biology and population dynamics of commercially exploitable stocks of fish and shellfish aimed at the rational fishery management of these resources in the Mediterranean Sea. Stock assessment of commercially exploited marine resources, ecosystem approach to fishery management;

- experimental fishing surveys for shellfish and fish abundance evaluation;
- age determination and growth studies of various marine organisms by means of otoliths and scales readings, shell sectioning and length-frequency distribution analysis.
- expert in the General Fishery Commission for the Mediterranean – Scientific Advisory Committees (GFCM-SAC) working groups since 2000, in particular in the Sub Committee for Stock Assessment (SCSA).
- expert in FAO-ADRIAMED meetings and working groups since 2000;
- member of the DYNPOP (population dynamics) working group of CIESM (Commission International pour l'Exploration Scientifique de la Mer Méditerranée);
- independent consultant to FAO-GFCM (1994) relating to the preparation of a report on fishery resources assessment and management in the Adriatic and Ionian Sea which was presented at FAO-GFCM 3rd Technical Consultation on Stock Assessment in the Central Mediterranean, Tunis 8-12 November 1994;
- independent expert in 1999 and 2000 to the European Commission (Directorate General for Fisheries, DG XIV) for the evaluation of project proposals in fisheries research.
- member, from 2002 onwards, of SGRN (Sub Group on Research Needs) of Scientific, Technical and Economic Committee for Fisheries at Commission of European Communities DG-Fish and DG MARE.
- Italian deputy representative to CIESM (Commission International pour l'Exploration Scientifique de la Mer Méditerranée), 2001-2003.
- Scientific responsible for ISMAR-CNR Ancona of FP5 EU Contract EVK3-CT-2002-0075 MFSTEP Mediterranean Forecasting System: Toward Environmental Predictions (2002-2005).
- Scientific responsible for ISMAR-CNR Ancona of FP5 EU contract TACADAR (Toward accreditation and certification of age determination of aquatic resources). EU Concerted Action contract N° Q5CA-2002-01891, (2003-2006).
- Responsible for the bilateral programme between CNR (Italian National Research Council) and CSIC (Spanish National Research Council) for the "Comparison of an Ecopath Model in two different marine ecosystem - the North Western Mediterranean and the Adriatic (1999-2003).

- Independent consultant to FAO ADRIAMED project in 2007-2008 for the preparation of a review entitled "Small pelagic fish in the Adriatic Sea: sardine, *Sardina pilchardus* (Walbaum, 1792) and anchovy, *Engraulis encrasicolus* (Linnaeus, 1758), an ecological and fishery review".
- Scientific responsible for ISMAR-CNR Ancona Contract FAIR CT97-3402 "Fish Ageing By Otolith Shape Analysis (FABOSA)" (1998-2001).
- Scientific responsible for ISMAR-CNR Ancona of EU STUDY Contract 97/0100 "Improvement of Nephrops stock assessment by use of micro-scale mapping of effort and landings" (1998-1999).
- Scientific responsible for ISMAR-CNR Ancona and responsible for Italy in Contract FAIR CT96-1304. "European Fish Ageing Network (EFAN)" (1997-2000).
- Scientific responsible for ISMAR-CNR Ancona of Project TR/MED/93/017: "Growth, first maturity size, and food habits of turbot (*Psetta maxima*) and brill (*Scophthalmus rhombus*) in Northern and Central Adriatic Sea" (1994-1996).
- Scientific responsible for ISMAR-CNR Ancona for Project XIV-1/MED/91/008: "Age and growth of *Venus verrucosa* (warty venus) in the Adriatic and the Aegean Sea" (1992-1993).

4. September 1987 - September 1989:

National Associated Expert: Delegations of the Commission of the European Communities in Fiji (87-88) and in Solomon Islands (88-89).

General administration, evaluation and appraisal of projects and programmes related to fishery and agriculture research and development in Fiji, Solomon Islands, Vanuatu and more broadly in the South Pacific region.

5. May 1982 - July 1987:

Research Assistant: Marine Biology and Fisheries Laboratory in Fano (University of Bologna), Italy.

Studies on the biology of commercial species of fish in the Adriatic Sea, stock assessment of exploited fish stocks; trawl-surveys for the evaluation of demersal resources; experimental off-shore mussel culture; surveys for clam stocks evaluation; lectures in fisheries biology and fisheries management to professionals and to university students.

Recent publications

- 1) T. Russo, P. Carpentieri, F. Fiorentino, E. Arneri, M. Scardi, A. Cioffi, S. Cataudella (2016). Modeling landings profiles of fishing vessels: An application of Self-Organizing Maps to VMS and logbook data. *Fisheries Research* 181: 34–47
- 2) P. Ruggeri, A. Splendiani, G. Occhipinti, T. Fioravanti, A. Santojanni, I. Leonori, A. De Felice, E. Arneri, G. Procaccini, G. Catanese, V. Tičina, A. Bonanno, P. Nisi Cerioni, M. Giovannotti, W. S. Grant, V. Caputo Barucchi (2016). Biocomplexity in populations of European anchovy in the Adriatic Sea. *PLoS ONE* 11(4): e0153061. doi:10.1371/journal.pone.0153061
- 3) P. Ruggeri, A. Splendiani, C. Di Muri, T. Fioravanti, A. Santojanni, Iole Leonori, A. De Felice, I. Biagiotti, P. Carpi, E. Arneri, P. Nisi Cerioni, M. Giovannotti, V. Caputo Barucchi (2016). Coupling Demographic and Genetic Variability from Archived Collections of European Anchovy (*Engraulis encrasicolus*). *PLoS ONE* 11(3): e0151507. doi:10.1371/journal.pone.0151507
- 4) Carpi, P.; Martinelli, M.; Belardinelli, A.; Russo, A.; Arneri, E.; Colucelli, A.; Santojanni, A.; (2015). Coupling an oceanographic model to a fishery observing system through mixed models: the importance of fronts for anchovy in the Adriatic Sea *FISHERIES OCEANOGRAPHY* 24(6):521-532
- 5) P. Carpi, A. Santojanni, F. Donato, S. Colella, V. Čikeš Keč, B. Zorica, I. Leonori, A. De Felice, V. Tičina, T. Modic, P. Pengal, E. Arneri (2015). A joint stock assessment for the anchovy stock of the northern and central Adriatic Sea: comparison of two catch-at-age models. *Sci. Mar.* 79: 57-70.
- 6) P. Ruggeri, A. Splendiani, S. Bonanomi, E. Arneri, N. Cingolani, A. Santojanni, S. Colella, F. Donato, M. Giovannotti and V. Caputo Barucchi (2013). Searching for a stock structure in *Sardina pilchardus* from the Adriatic and Ionian seas using a microsatellite DNA-based approach. *Sci. Mar.* 77(4) : 565-574.
- 7) M. Martinelli, E. B. Morello, I. Isajlović, A. Belardinelli, A. Lucchetti, A. Santojanni, R. J. A. Atkinson, N. Vrgoč and E. Arneri (2013). Towed underwater television towards the quantification of Norway lobster, squat lobsters and sea pens in the Adriatic Sea. *Acta Adriat.* 54(1): 3 – 12.
- 8) P. Ruggeri, A. Splendiani, S. Bonanomi, E. Arneri, N. Cingolani, A. Santojanni, A. Belardinelli, M. Giovannotti, V. Caputo (2012). Temporal genetic variation as revealed by a microsatellite analysis of European sardine (*Sardina pilchardus*) archived samples. *Can. J. Fish. Aquat. Sci.* 69: 1698–1709.
- 9) N. Fouzai, M. Coll, I. Palomera, A. Santojanni, E. Arneri, V. Christensen (2012). Fishing management scenarios to rebuild exploited resources and ecosystems of the Northern-Central Adriatic (Mediterranean Sea). *Journal of Marine Systems Journal of Marine Systems*, 102–104: 39-51.
- 10) M. Giannoulaki, M. Pyrounaki, B. Liorzou, I. Leonori, V.D. Valavanis, K. Tsagarakis, J. L. Bigot, D. Roos, A. De Felice, F. Campanella, S. Somarakis, E. Arneri and A. Machias. (2011). Habitat suitability modelling for sardine juveniles (*Sardina pilchardus*) in the Mediterranean Sea. *Fisheries Oceanography*, 20:5, 367–382.
- 11) M. Coll, A. Santojanni, I. Palomera, and E. Arneri. (2010). Ecosystem assessment of the North-Central Adriatic Sea: towards a multivariate reference framework. *Marine Ecology Progress Series*, 417: 193-210
- 12) S. Libralato, M. Coll, M. Tempesta, A. Santojanni, M. Spoto, I. Palomera, E. Arneri, C. Solidoro. 2010. Food-web traits of protected and exploited areas of the Adriatic Sea. *Biological Conservation* 143: 2182–2194

- 13) D. Borme, V. Tirelli, S.B. Brandt, S. Fonda Umani, E. Arneri. (2009). Diet of *Engraulis encrasicolus* in the Northern Adriatic Sea (Mediterranean): ontogenetic changes and feeding selectivity. *Marine Ecology Progress Series*, 392:193-209.
- 14) M. Coll, A. Santojanni, I. Palomera, and E. Arneri. (2009). Food-web changes in the Adriatic Sea (Mediterranean) over the last three decades. *Marine Ecology Progress Series*, 381: 17-37
- 15) Morello E.B. & Arneri E. (2009). Anchovy and sardine in the Adriatic Sea: an ecological review. *Oceanography and Marine Biology: an Annual Review*, 47: 209-245.
- 16) M. La Mesa, F. Donato, G. Giannetti, E. Arneri, 2009. Growth and mortality rates of European anchovy (*Engraulis encrasicolus*) in the Adriatic Sea during the transition from larval to juvenile stages. *Fisheries Research*, 96: 275-280.
- 17) La Mesa M., Colella S., Giannetti G. and E. Arneri, 2008. Age and growth of brown meagre *Sciaena umbra* (Sciaenidae) in the Adriatic Sea. *Aquat. Living Resour*, 21: 153–161.
- 18) M. Coll, A. Santojanni, I. Palomera, S. Tudela and E. Arneri, 2007. An ecological model of the Northern and Central Adriatic Sea: analysis of ecosystem structure and fishing impacts. *Journal of Marine Systems*, 67: 119-154
- 19) N. Pinardi, M. Zavatarelli, E. Arneri, A. Crise, M. Ravaioli, 2006. The physical, sedimentary and ecological structure and variability of shelf areas in the Mediterranean sea (27,s). *The Sea , Volume 14, edited by Allan R Robinson and Kenneth H. Brink. Harvard University Press: 1245-1331.*
- 20) A. Santojanni, E. Arneri, V. Bernardini, N. Cingolani, M. Di Marco, A. Russo, 2006. Effects of environmental variables on recruitment of anchovy in the Adriatic Sea. *Climate Research*, 31: 181-193.
- 21) M. La Mesa, E. Arneri, V. Caputo & M. Iglesias, 2005. The transparent goby, *Aphia minuta*: review of biology and fisheries of a paedomorphic European fish. *Reviews in Fish Biology and Fishery*, 15: 89-109.
- 22) A. Santojanni, N. Cingolani, E. Arneri, G. Kirkwood, A. Belardinelli, G. Giannetti, S. Colella, F. Donato, C. Barry, 2005. Stock assessment of sardine (*Sardina pilchardus*, WALB.) in the Adriatic Sea, with an estimate of discard. *Scientia Marina*, 69 (4): 603-617.
- 23) Santojanni, A., Arneri, E., Barry, C., Belardinelli, A., Cingolani, N., Giannetti, G. and G. Kirkwood, 2003. Trends of anchovy (*Engraulis encrasicolus*, L.) biomass in the northern and central Adriatic Sea. *Scientia Marina*, 67 (3): 327-340.
- 24) Caputo, V., Candi, G., Arneri, E., La Mesa, M., Cinti, C., Provinciali, M., and A. Gregorini, 2002. Short lifespan and apoptosis in the gobiid fish, *Aphia minuta* (Perciformes, Gobiidae). *Journal of Fish Biology*: 60:775-779.
- 25) Caputo, V., Candi, G., Colella, S. and E. Arneri, 2001. Reproductive biology of turbot (*Psetta maxima*) and brill (*Scophthalmus rhombus*) in the Adriatic Sea (Teleostei: Pleuronectiformes). *Italian Journal of Zoology*, 68: 107-113.
- 26) Caputo, V., Candi, G., La Mesa, M. and E. Arneri, 2001. Pattern of gonad maturation and the question of semelparity in the paedomorphic goby *Aphia minuta* (Risso, 1810) (Teleostei: Gobiidae). *Journal of Fish Biology*, 58: 656-669.
- 27) Arneri, E., Colella, S. and G. Giannetti, 2001. Age determination and growth of turbot and brill in the Adriatic Sea: reversal of the seasonal pattern of otolith zone formation. *Journal of Applied Ichthyology*, 17: 256-261.
- 28) Arneri, E. and B. Morales-Nin, 2000. Aspects of the early life history of European hake *Merluccius merluccius* (L.) from the central Adriatic. *Journal of Fish Biology*, 56: 1368-1380.