

# ISMMS 2020

VII INTERNATIONAL SYMPOSIUM ON MARINE SCIENCES

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BARCELONA, JULY 01-03

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## INDEX

### ORAL COMMUNICATIONS

ALICIA MARTINEZ VARELA	LARGE ENRICHMENT OF ANTHROPOGENIC ORGANIC MATTER DEGRADING BACTERIA IN THE SEA-SURFACE MICROLAYER AT COASTAL ANTARCTICA	Chemical oceanography and biogeochemistry	4
MARIA JAUME-SEGUÍ	ND ISOTOPES IN THE DEEP BERMUDA RISE: DISTINGUISHING GLACIAL AMOC AND INTERGLACIAL NON-AMOC SIGNALS THROUGH THE EARLY MIDDLE PLEISTOCENE	Chemical oceanography and biogeochemistry	5
MARTA MASDEU NAVARRO	DAY/NIGHT CYCLING OF VOC IN AND AROUND A PATCH OF THE CORAL ACROPORA PULCHRA	Chemical oceanography and biogeochemistry	7
AINARA BALLESTEROS MASCARELL	THE USE OF A CITIZEN SCIENCE TOOL (IMEDJELLY APP) TO DELIVER FIRST AID PROTOCOLS FOR MEDITERRANEAN JELLYFISH STINGS	Citizen Science and the sea: challenges and opportunities	9
JOAQUIM GARRABOU VANCELLS	OBSERVADORES DEL MAR - A MARINE CITIZEN SCIENCE PLATFORM WORKING FOR A HEALTHY OCEAN	Citizen Science and the sea: challenges and opportunities	11
KEVIN UGWU HERNÁNDEZ	ENVIRONMENTAL IMPACTS AND THEIR SOCIAL PERCEPTION IN LAS CANTERAS BEACH: A TOOL FOR SUSTAINABLE MANAGEMENT	Citizen Science and the sea: challenges and opportunities	14
SONIA LIÑÁN	MAXIMIZING ENGAGEMENT IN CITIZEN SCIENCE, MOVING TO SEVENTH LEVEL	Citizen Science and the sea: challenges and opportunities	15
ALEJANDRO BERNAL	MARINE FOREST LOSS IN MADEIRA ARCHIPELAGO: AN HISTORICAL REVIEW	Climate Change and the ocean	18
CONXITA AVILA	PASSENGERS TO THE COLD: INVASIVE MARINE SPECIES DISCOVERED ON NON-NATIVE KELP RAFTS IN THE WARMEST ANTARCTIC ISLAND	Climate Change and the ocean	20
DIEGO FERNÁNDEZ NÓVOA	INFLUENCE OF THE MOST IMPORTANT RIVER PLUMES ON SEA SURFACE TEMPERATURE PATTERNS	Climate Change and the ocean	21
IGNACIO ALONSO BILBAO	THE RE-ESTABLISHMENT OF THE SEDIMENTARY BALANCE AT MASPALOMAS DUNEFIELD. AN EXAMPLE OF ADAPTATION TO CLIMATE CHANGE	Climate Change and the ocean	23
MARIA DE LA FUENTE	INFERRING DEGLACIAL VENTILATION AGES IN WESTERN MEDITERRANEAN WATERS USING COLD-WATER CORALS	Climate Change and the ocean	24
MERCE CISNEROS BERMEJO	PROXY VALIDATION WITH PRESENT-DAY DATA OF DEEP-WATER FORMATION DURING THE LAST 2500 YEARS IN THE NORTHWESTERN MEDITERRANEAN SEA	Climate Change and the ocean	26



VII INTERNATIONAL SYMPOSIUM  
ON MARINE SCIENCES  
BARCELONA, JULY 01-03

MIGUEL ÁNGEL GUTIÉRREZ GUERRA	LONG TERM TREND IN SURFACE TEMPERATURE IN THE CANARY ISLANDS FROM IN-SITU OBSERVATIONS	Climate Change and the ocean	28
NATALIA PETIT- MARTY	NATURAL CO <sub>2</sub> SEEPS GIVE CLUES ABOUT FISH ADAPTATION TO OCEAN ACIDIFICATION	Climate Change and the ocean	29
RUTH ROMERO MARTÍN	IDENTIFYING HOMOGENOUS COASTAL UNITS IN TERMS OF VULNERABILITY AND ADAPTATION CAPACITY TO CLIMATE CHANGE	Climate Change and the ocean	30
SANDRA RAQUEL DE MELO VIEIRA MARTINS REBOCHO	OCEAN WARMING AND ACIDIFICATION IMPACTS ON ENERGY BUDGET AND OXIDATIVE RESPONSES OF ZEBRA SEABREAM (DIPLODUS CERVINUS)	Climate Change and the ocean	32
THET OO MON	COASTAL HAZARD EVOLUTION UNDER DIFFERENT CLIMATE CHANGE SCENARIOS IN RIA FORMOSA, PORTUGAL	Climate Change and the ocean	35
ANTONIO M. CALAFAT FRAU	HISTORICAL BEACH EVOLUTION AND CURRENT STATUS OF THE MARESME LITTORAL CELL	Coastal and estuarine systems	38
MARIA FERNÁNDEZ MACIÀ	RECOVERY OF THE COAST OF HUELVA AFTER THE STORM EMMA	Coastal and estuarine systems	39
MARÍA LÓPEZ BELZUNCE	ENVIRONMENTAL EVIDENCES OF “ALBUFERA DE VALENCIA” COASTAL BARRIER STABILISATION FROM 8,500 YR BP TO PRESENT	Coastal and estuarine systems	40
MASUMA CHOWDHURY	PATTERNS OF VARIABILITY OF SATELLITE DERIVED OPTICAL PARAMETERS IN THE MEGHNA ESTUARY AND THEIR RESPONSE TO CLIMATIC INDICES	Coastal and estuarine systems	42
ANA TUBÍO GÓMEZ	SUSTAINABLE MANAGEMENT OF ARTISANAL SWORD RAZOR CLAM FISHERIES IN GALICIA (NW SPAIN): THE IMPORTANCE OF MATCHING MANAGEMENT WITH THE REPRODUCTIVE CYCLE	Living resources	46
ANDREA CASAUCAO AGUILAR	LAGRANGIAN DISPERSION AND SPATIAL DISTRIBUTION OF EARLY STAGES OF ANCHOVY (ENGRAULIS ENCRASICOLUS) IN THE GULF OF CÁDIZ IN 2016	Living resources	48
ANYELL CADERNO PEÑA	CAN SHELLFISH AFFECT THE GROWTH OF SOLEN MARGINATUS (PULTENEY, 1799)?	Living resources	49
CARLOS RODRÍGUEZ GARCÍA	ANALYSIS AND CHARACTERIZATION OF DISCARDS IN THE GULF OF CÁDIZ (SW SPAIN). RESULTS OF THE ECOFISH PROJECT.	Living resources	51
CLAUDIA CAMPANINI	BIOENERGETIC OF SMALL PELAGIC FISHES: FATMETER ANALYSIS AS SURROGATE OF CALORIMETRY TO ESTIMATE ENERGY CONTENT OF EUROPEAN SARDINE AND EUROPEAN ANCHOVY	Living resources	53
ELENA LLORET LLORET	SEASONAL SPATIAL PATTERNS OF A HIGHLY COMMERCIAL SPECIES RELATE TO PREY DISTRIBUTION AND TROPHIC BEHAVIOUR	Living resources	55
ESTELA CARBONELL GARZÓN	VARIABILITY OF DIFFERENT SAMPLING METHODS APPLIED TO MARINE AQUACULTURE IMPACT MONITORING	Living resources	57



VII INTERNATIONAL SYMPOSIUM  
ON MARINE SCIENCES  
BARCELONA, JULY 01-03

ESTHER ARCAS SEN	STUDY OF THE COMMON OCTOPUS FISHERY IN THE VALENCIAN COMMUNITY. PROPOSALS TO IMPROVE ITS MANAGEMENT	Living resources	59
IK RODRÍGUEZ VITE	HARVEST RATE FOR THE ECOSYSTEM-BASED LIMIT REFERENCE POINT FOR THE THREAD HERRING FISHERY OF THE SOUTHERN GULF OF CALIFORNIA	Living resources	60
IRAIS MAGALLI SÁNCHEZ TORRES	APPROACH TO THE DIGESTIVE ONTOGENIA FOR THE CULTURE OF PACIFIC PYGMY OCTOPUS	Living resources	61
IRAIS MAGALLI SÁNCHEZ TORRES	EFFECT OF THE INTAKE OF ADDITIONAL SOLUBLE PROTEIN ON THE GROWTH, SURVIVAL AND METABOLIC RESERVES IN JUVENILES OF THE RED OCTOPUS, OCTOPUS MAYA	Living resources	62
JOAN O. GRIMALT	MERCURY ACCUMULATION IN MEDITERRANEAN LEAN FISH	Living resources	63
MARINA BIBILONI SOCIAS	A NEW SUSCEPTIBILITY TO FISHING INDEX: PRELIMINARY RESULTS TO EVALUATE THE STATE OF EXPLOITATION OF TARGET AND BY-CATCH SPECIES OF THE BALEARIC ISLANDS BOTTOM-TRAWL FISHERY	Living resources	64
MARTA CARRETON	ABUNDANCE AND DISTRIBUTION OF THE DEEP-SEA BLUE AND RED SHRIMP ARISTEUS ANTENNATUS LARVAE ALONG THE SPANISH MEDITERRANEAN COAST	Living resources	65
MIGUEL TORRES RODRÍGUEZ	VERY LONG-CHAIN (>C24) POLYUNSATURATED FATTY ACIDS IN MARINE FISH: NUTRITIONAL REGULATION OF GENES INVOLVED IN THEIR BIOSYNTHESIS IN SPARUS AURATA AND SOLEA SENEGALENSIS	Living resources	66
RODRIGO LÓPEZ SALAZAR	ESTIMATION OF THE POTENTIAL SPATIAL DISTRIBUTION OF SPECIES CAUGHT BY THE ARTISANAL FLEET OFF THE YUCATAN PENINSULA	Living resources	68
XÈNIA FRIGOLA TEPE	PRELIMINARY RESULTS ON THE EUROPEAN SARDINE CONDITION	Living resources	69
OIHANA SOLAUN	OCCURRENCE OF EU WATCH LIST SUBSTANCES IN WASTEWATER AND RECEIVING WATER WITHIN THE BASQUE ESTUARIES AND COAST	Management of the marine environment	72
PERRINE NANTOIS	BALLAST WATER DISCHARGE PROFILE OF LAS PALMAS PORT AS AN INPUT FOR RISK ASSESSMENT AND MANAGEMENT IN THE ATLANTIC AREA: PRELIMINARY RESULTS	Management of the marine environment	74
ALEX PARERA GARCIA	BIODIVERSITY IN ANTHROPIZED MARINAS. THE CASE OF THE BATH AREA OF THE FORUM OF BARCELONA (SPAIN)	Marine biodiversity	77
ANDREA GORI	PERFORMANCE OF THE COLD-WATER CORAL LOPHELIA PERTUSA UNDER NATURAL THERMAL VARIABILITY	Marine biodiversity	79
CARLOS VELOY DOMÍNGUEZ	SPATIO-TEMPORAL CHANGE OF INDICATORS OF MARINE COMMUNITIES ALONG A LATITUDINAL GRADIENT IN THE WESTERN MEDITERRANEAN SEA	Marine biodiversity	81



VII INTERNATIONAL SYMPOSIUM  
ON MARINE SCIENCES  
BARCELONA, JULY 01-03

DESIREE PALOMINO CANTERO FREE ESPINOSA (PATRICIA FORT - INSCRITA)	TRAWLING FOOTPRINT AND DIVERSITY OF BENTHIC COMMUNITIES IN THE MENORCA CHANNEL (WESTERN MEDITERRANEAN)	Marine biodiversity	83
JÚLIA MULET ORTEGA	LIFE REMOPAF PROJECT (RECOVERY OF ENDANGERED MOLLUSC PATELLA FERRUGINEA)	Marine biodiversity	85
MANUEL BALLESTEROS	REPEATABILITY OF BEHAVIOUR IN THE PEARLY RAZORFISH (XYRICHTYS NOVACULA): SEX AND BODY SIZE EFFECTS	Marine biodiversity	87
MARCO FRANCESCANG ELI	VEGAN NUDIBRANCHS? FEEDING BEHAVIOR OF THE CRYPTIC NUDIBRANCH POLYCERELLA EMERTONI ASSOCIATED WITH THE PSEUDO-INDIGENOUS BRYOZOAN AMATHIA VERTICILLATA	Marine biodiversity	89
SEBATHIA HERNANDIS CABALLERO	IMPLEMENTATION OF THE OBSEA COASTAL SEAFLOOR OBSERVATORY TO DERIVE ECOLOGICAL INDICATORS	Marine biodiversity	91
ALBA FUSTER ALONSO	AGE AND GROWTH INDICATE THAT THE REMAINING PINNA NOBILIS POPULATIONS LIVING IN SPAIN ARE HIGHLY THREATENED AND VULNERABLE	Marine biodiversity	93
ALICIA GRAN GARCÍA	ANALYSIS OF THE SEDIMENT ASSOCIATED WITH POSIDONIA OCEANICA'S WRACK ON THE COAST OF ALICANTE (WESTERN MEDITERRANEAN).	Marine ecosystems	96
ANDREU BLANCO CARTAGENA	MAPPING AND MONITORING OF A TREPTACANTHA BARBATA RESTORED POPULATION IN MENORCA	Marine ecosystems	98
FABIO BLANCO MURILLO	MAPPING INVASIVE MACROALGAE IN NW IBERIAN PENINSULA	Marine ecosystems	100
FRANCESC PETERS	20 YEARS OF POSIDONIA OCEANICA MONITORING ALONG THE ALICANTE COAST (5W MEDITERRANEAN) THE EFFECT ON VOLUNTEERING MARINE PRODUCTION SPIKES OWING TO HEAVY STORM GLORIA IN A NW WESTERN MEDITERRANEAN COASTAL SITE WITH A DECREASING CHLOROPHYLL TREND.	Marine ecosystems	102
INMACULADA MONTERO GONZALEZ	STUDY OF THE REPRODUCTIVE ECOLOGY OF SPICARA SMARIS IN THE IBIZA ISLAND.	Marine ecosystems	104
ISABEL ESTESO PERONA	CHANGES IN THE POPULATION STRUCTURE OF CALLINECTES SAPIDUS RATHBUN 1896 IN DIFFERENT INTERCONNECTED COASTAL HABITATS OF SE PENINSULA IBERICA (MEDITERRÁNEO OCCIDENTAL)	Marine ecosystems	105
JOAQUIM TOMÀS FERRER	POTENTIAL VULNERABILITY OF DEMERSAL FISHERIES TO WESTERN MEDITERRANEAN WARMING	Marine ecosystems	106
JOAQUIM TOMÀS FERRER	RECRUITMENT VARIABILITY OF THE STRIPED RED MULLET (MULLUS SURMULETUS) STOCK IN THE BALEARIC SEA (WESTERN MEDITERRANEAN)	Marine ecosystems	107
LOLA RIESGO	EVIDENCES OF SEXUAL SEGREGATION IN A COMMON DEEP-SEA SHARK: IMPLICATIONS FOR CONSERVATION AND MANAGEMENT	Marine ecosystems	108
			110

MARTA COLL	ADVANCING FOOD-WEB MODELLING CAPABILITIES TO ANALYSE GLOBAL OCEAN FUTURES	Marine ecosystems	111
MIQUEL CANALS	ECOSYSTEM RECOVERY 30 MONTHS AFTER THE 2011-2012 SUBMARINE VOLCANIC ERUPTION OFF EL HIERRO	Marine ecosystems	113
RAIBEL ZELIDETH NUÑEZ-GONZALEZ	ISOTOPIC DISTRIBUTION OF BLUE SHARK (PRIONACE GLAUCA) IN THE WEST COAST OF BAJA CALIFORNIA SUR, MEXICO	Marine ecosystems	115
SANDRA NAVARRO MAYORAL	SPATIO-TEMPORAL VARIABILITY OF AMPHIPOD ASSEMBLAGES ASSOCIATED WITH RHODOLITH SEABEDS	Marine ecosystems	117
ALBERT CATALÀ I CAPARRÓS	UNRAVELLING THE CHEMICAL SIGNATURE OF ALBORAN SEA SEDIMENTS TO DETECT HOLOCENE HUMIDITY CHANGES IN SOUTHERN IBERIA	Marine geosciences	119
AMADEU DEU LOZANO	MARINE SUBSOIL INVESTIGATIONS FOR OFFSHORE WIND FARMS AND SUBMARINE INTERCONNECTION CABLES	Marine geosciences	121
AMADEU DEU LOZANO	THERMAL PROPERTIES OF MARINE SEDIMENTS	Marine geosciences	122
ANNA OLIVÉ ABELLÓ	TEMPERATURE AND CONDUCTIVITY ANOMALIES AS A PROXY FOR VOLCANIC ACTIVITY AT THE TAGORO SUBMARINE VOLCANO IN THE CANARY ISLANDS	Marine geosciences	123
EMMA SOLDEVILA MOLDES	CREATING A 3D SEISMIC CUBE FROM 2D HIGH-RESOLUTION SEISMIC PROFILES. A CASE STUDY FROM THE MARINE MINE TAILINGS DEPOSIT IN PORTMÁN BAY, SPAIN	Marine geosciences	125
MIQUEL CANALS	THE FAST TRANSFORMATION OF THE MEDITERRANEAN DEEP SEAFLOOR	Marine Geosciences	126
NIL RODES I LLORENS	GEOMETRY, STRUCTURE AND STABILITY OF THE SUBMARINE EXTENSION OF THE MINE TAILINGS DEPOSIT OF PORTMÁN BAY, SPAIN	Marine geosciences	127
ANA BARTUAL MAGRO	IMAGING FLOW CYTOMETRY AS A TOOL FOR THE STUDY OF CYANOBACTERIAL AGGREGATION	Microbiology, genetics, biotechnology and molecular biology	130
CARLES GALIÀ	PREDICTING 2B-RAD LOCI ABUNDANCE AND TESTING RESULTS IN STYELA PLICATA	Microbiology, genetics, biotechnology and molecular biology	132
DANIEL RICKUE BONDYALE JUEZ	RESPIRATION, PROTEIN, LIPID & CARBOHYDRATE COMPOSITION IN PHYSALIA PHYSALIS AND VELELLA VELELLA. PREDATOR AND PREY OF THE PLEUSTON.	Microbiology, genetics, biotechnology and molecular biology	134





VII INTERNATIONAL SYMPOSIUM  
ON MARINE SCIENCES  
BARCELONA, JULY 01-03

DANIELA MARIA PORFÍRIO RODRIGUES	COMPARATIVE LIPID PROFILE OF HERMETIA ILLUCENS FED WITH TWO DIFFERENT SEAWEEDS TO ENHANCE THEIR FATTY ACID PROFILE	Microbiology, genetics, biotechnology and molecular biology	136
EIRINI SCHOINA	EVALUATION OF ISOEUGENOL IN STUNNING/KILLING GILT HEAD SEA BREAM (SPARUS AURATA L.)	Microbiology, genetics, biotechnology and molecular biology	138
GIORGIA PALLADINO	SEA ANEMONE (ANEMONIA VIRIDIS) MICROBIOME CHARACTERIZATION ACROSS SEASONALITY IN THE NORTH ADRIATIC SEA	Microbiology, genetics, biotechnology and molecular biology	139
JOÃO MIGUEL MENDES FERREIRA	RED SEAWEEDS GRATELOUPIA TURUTURU AND PORPHYRA UMBILICALIS AS A MARINE RESOURCE – A STUDY ON THE PHENOLIC COMPOSITION AND BIOACTIVE PROPERTIES	Microbiology, genetics, biotechnology and molecular biology	141
LUCIA PITA	DECODING SPONGE RESPONSES TO A DYNAMIC ENVIRONMENT BY RNA-SEQ	Microbiology, genetics, biotechnology and molecular biology	143
ANNA OLIVÉ ABELLÓ	PROPERTY BALANCES IN THE SCOTIA SEA AS DEDUCED FROM INVERSE MODELLING	Polar marine research	146
CAROLINA GABARRO PRATS	ASSESSMENT OF THE CORRELATION BETWEEN RIVER DISCHARGE AND SEA ICE GROWING IN LAPTEV SEA	Polar marine research	148
DAVID AMBLAS	MODELING THE DOWNSLOPE PROPAGATION OF DENSE SHELF WATER FLOWS IN ANTARCTICA	Polar marine research	150
MARÍA DE LA LUZ GUTIÉRREZ MARTÍNEZ	ICHTHYOFAUNA OF THE BAJA CALIFORNIA PENINSULA DEPICTED ON THE ROCK PAINTINGS OF SIERRA DE SAN FRANCISCO AND SIERRA DE GUADALUPE, MEXICO	Social sciences, museums and outreach in Marine Sciences	153
TANIA MONTOTO MARTÍNEZ	MOTIVATIONS AND CONCERNS OF EARLY CAREER MARINE RESEARCHERS	Social sciences, museums and outreach in Marine Sciences	154
ADRIÁN FERNÁNDEZ BALADRÓN	DOWNSCALING OF WRF1,3 MODEL OUTPUT IN THE RIA DE VIGO	Technologies and data management	157
ISABEL CABALLERO DE FRUTOS	SENTINEL-2A/B SATELLITES FOR AQUATIC AND COASTAL SCIENCE APPLICATIONS	Technologies and data management	159





VII INTERNATIONAL SYMPOSIUM  
ON MARINE SCIENCES  
BARCELONA, JULY 01-03

JAUME PIERA	A MINIMUM VIABLE ECOSYSTEM OF SERVICES FOR CITIZEN OBSERVATORIES: COS4CLOUD TACKLING TECHNOLOGICAL CHALLENGES IN THE AGE OF OPEN SCIENCE	Technologies and data management	161
JÚLIA URPI BADELL	HIGH-RESOLUTION BATHYMETRIC MONITORING USING 3D POINT CLOUD DATA ANALYSIS	Technologies and data management	163
KILIAN TOLEDO GUEDES	MACCAM: A PROXY TO CARRYING CAPACITY FOR MEDITERRANEAN AQUACULTURE	Technologies and data management	164
MARCO SIGNAROLI	REAL-TIME MARINE FISH DETECTION USING DEEP LEARNING FOR BEHAVIOURAL STUDIES UNDER LABORATORY CONDITIONS	Technologies and data management	165
ANGEL RODRÍGUEZ SANTANA	THERMOHALINE INTRUSIONS AND DIAPYCNAL MIXING IN THE CAPE VERDE FRONTAL ZONE	The physical bases of Marine Sciences	167
BORJA AGUIAR GONZÁLEZ	EDDY CORRIDORS OF THE NORTHEASTERN TROPICAL AND SUBTROPICAL ATLANTIC OCEAN	The physical bases of Marine Sciences	169
EVGENIYA MAKAROVA	EVALUATION OF THE ERA* OCEAN FORCING PRODUCT UNDER STORM SURGE CONDITIONS IN THE ADRIATIC SEA	The physical bases of Marine Sciences	170
IGNASI VALLÈS CASANOVA	ON THE SPATIOTEMPORAL DIVERSITY OF ATLANTIC NIÑO AND ASSOCIATED RAINFALL VARIABILITY OVER WEST AFRICA AND SOUTH AMERICA.	The physical bases of Marine Sciences	172
INÉS HERNÁNDEZ GARCÍA	EXPLORING HYDROGRAPHICAL STRUCTURES IN THE CAPE VERDE FRONTAL ZONE THROUGH IN SITU DATA AND NUMERICAL MODELLING DURING FLUXES-II SURVEY	The physical bases of Marine Sciences	174
ISABEL CACHO	TESTING THE ROLE OF MEDITERRANEAN THERMOHALINE CIRCULATION AS A SENSOR OF TRANSIENT CLIMATE EVENTS (TIMED-PROJECT)	The physical bases of Marine Sciences	176
JUAN MANUEL SAYOL	WHERE DO THE NEAR-BOUNDARY SUBPOLAR NORTH ATLANTIC SINKING WATERS GO? A LAGRANGIAN-BASED STUDY WITH A HIGH-RESOLUTION GLOBAL OCEAN MODEL	The physical bases of Marine Sciences	178
MARINA BOLADO PENAGOS	DYNAMIC OF THE NORTH-WESTERN ALBORAN SEA UPWELLING FROM LOCAL AND REMOTE OBSERVATIONS	The physical bases of Marine Sciences	180

## POSTER COMMUNICATIONS

RENATA IGNACIA VICTORIANO ROJAS	TEMPORAL VARIABILITY OF DIFFUSIVE NUTRIENT VERTICAL FLUXES IN THE CAPE GHIR UPWELLING REGION	Chemical oceanography and biogeochemistry	184
BERTA PINTÓ	CITIZEN SCIENCE FOR DISCLOSING SPONGE- GRAZER INTERACTIONS	Citizen Science and the sea - challenges and opportunities	186
ALEX MERCHAN MORENO	EXPLORING DEEP CIRCULATION PROXIES FOR THE LAST GLACIAL-INTERGLACIAL TRANSITION IN THE ALBORAN SEA	Climate change and the ocean	189
JAIME FRIGOLA	PAST CHANGES IN THE WESTERN MEDITERRANEAN OCEANOGRAPHY FROM NEODYMIUM ISOTOPE RATIOS	Climate change and the ocean	191
JESÚS PEÑA- IZQUIERDO	MAY DEEP LEARNING CONTRIBUTE TO DOWNSCALING TECHNIQUES?	Climate change and the ocean	193
MARIA BAS LÓPEZ	PREDICTING HABITAT USE BY THE ARGENTINE HAKE <i>MERLUCCIVUS HUBBSI</i> IN A WARMER WORLD: INFERENCES FROM THE MIDDLE HOLOCENE	Climate change and the ocean	195
NATALIA BIENZOBAS MONTÁVEZ	GRAIN-SIZE AND BULK-SEDIMENT GEOCHEMICAL DATA FROM THE MENORCA RISE (WESTERN MEDITERRANEAN SEA) OVER THE PAST 22,000 YEARS	Climate change and the ocean	197
SARA CAMPDERRÓS SERRA	U/MN AS A NEW INDICATOR OF CHANGES IN WESTERN MEDITERRANEAN THERMOHALINE CIRCULATION SINCE THE LAST GLACIAL MAXIMUM	Climate change and the ocean	199
ABEL SAN ROMUALDO COLLADO	INTERACTION BETWEEN DIFFERENT NATURE VARIABLES AFFECTING ARID NEBKHA FOREDUNES	Coastal and estuarine systems	201
MARIA DEL MAR ROCA MORA	RECENT COASTAL CHANGES IN THE PROVINCE OF CASTELLÓN (WESTERN MEDITERRANEAN SEA)	Coastal and estuarine systems	203
MIGUEL ÁNGEL NOMBELA CASTAÑO	NEW APPROACH TO THE SEDIMENTARY CHARACTERIZATION OF THE INTERTIDAL SAND BANKS: THE CASE OF THE RIAS ALTAS (NW OF IBERIAN PENINSULA)	Coastal and estuarine systems	204
ANA MAGRO LÓPEZ	FEEDING HABITS OF ATLANTIC BLUEFIN TUNA IN THE STRAIT OF GIBRALTAR	Living resources	206
ANYELL CADERNO PEÑA	PRELIMINARY STUDY ON THE GROWTH OF THE CLAM <i>SCROBICULARIA PLANA</i> (DA COSTA, 1778) IN THE BAY OF CÁDIZ (SOUTHWEST OF SPAIN)	Living resources	207
EVARISTO PÉREZ RIAL	DIGESTIVE ENZYME ACTIVITY IN FASTING WRECKFISH ( <i>POLYPRION AMERICANUS</i> ) LARVAE HAS BEEN SUBMITTED WITH THE FOLLOWING DETAILS.	Living resources	208
INMACULADA MONTERO GONZALEZ	STUDY OF STRESS ASSOCIATED WITH TRADITIONAL GERRET OR PICAREL ( <i>SPICARA SMARIS</i> ) CAPTURED IN THE IBIZA ISLAND	Living resources	210

MARIA CONSTENLA	ASSESSMENT OF THE HEALTH STATUS OF MARINE ORGANISMS WITH RELEVANCE FOR FISHERIES IN CATALONIA	Living resources	212
MIREIA CANET CHAQUÉS	THE DEPLOYMENT OF SKIRTS TO KEEP SEA LICE OUT OF SALMON PENS AFFECTS TO ZOOPLANKTON COMMUNITY STRUCTURE IN THE NORWEGIAN FJORDS	Living resources	214
MIREIA CANET CHAQUÉS	COULD MUSSEL AQUACULTURE AFFECTS THE ABUNDANCE OF <i>LEPADOGASTER CANDOLII</i> (RISSO, 1810) DUE TO THE SEDIMENTATION OF ORGANIC MATTER?	Living resources	216
ÓSCAR MORENO ESCALANTE	DIET COMPOSITIONS OF COMMERCIAL FISH SPECIES INHABITING SHALLOWER WATERS OFF THE COAST OF HUELVA (SW SPAIN)	Living resources	218
TANIA BALLESTEROS OTERO	SPAWNING AND LARVAL DEVELOPMENT OF <i>HOLOTHURIA FORSKALI</i> , A NEW CANDIDATE FOR AQUACULTURE	Living resources	220
JUAN PANTOJA PÉREZ	IMPACT OF TOURISM OVER TRADITIONAL FISHERIES IN IBIZA ISLAND	Management of the marine environment	223
JUAN PANTOJA PÉREZ	EVOLUTION OF THE CATCH PER UNIT OF EFFORT (CPUE) OF THE SMALL-SCALE FISHERIES OF SPICARA SMARIS IN THE ISLAND OF IBIZA	Management of the marine environment	224
ALBERTO GARCÍA GONZÁLEZ	CHARACTERIZATION OF TWELVE SPECIES OF THE MACRO-INFAUNA OF THE CADIZ COAST BEACHES (SOUTHWEST OF SPAIN)	Marine biodiversity	226
ANDREA CABRITO RUBAU	TRAVELING WITH LIVING CORALS: THE PACIFIC NUDIBRANCH <i>BAEOLIDIA RIEAE</i> CARMONA, POLA, GOSLINER & CERVERA, 2014 ARRIVES TO BARCELONA (SPAIN) AQUARIUMS.	Marine biodiversity	228
DARÍO CÓRDOBA GONZÁLEZ	TWO OCEANS: BIOGEOGRAPHIC AND TAXONOMIC REVIEW OF MARINE HETEROBRANCH SEASLUGS ( <i>MOLLUSCA</i> : <i>GASTROPODA</i> ) FROM PANAMA WATERS. (PRELIMINARY STUDY).	Marine biodiversity	230
ENRIQUE GONZALEZ ORTEGON	ESTIMATING THE TROPHIC POSITION OF THE AQUATIC CONSUMER <i>DUGASTELLA VALENTINA</i> USING STABLE ISOTOPES.	Marine biodiversity	232
EULALIA PERAZA GONZÁLEZ	ON THE DISTRIBUTION OF A FREQUENT ACTINIARIA OF THE CANARY ISLANDS, <i>TELMATACTIS CRICOIDES</i> (CNIDARIA, ANTHOZOA, ACTINIARIA), AND ITS ASSOCIATED FAUNA	Marine biodiversity	233
MARTA PAGÈS ESCOLÀ	GLOBAL PATTERNS AND DRIVERS OF MARINE SESSILE BIODIVERSITY: UNRAVELING THE SOUTHERN OCEAN AS AN IMPORTANT HOTSPOT OF BIODIVERSITY AND CLIMATIC REFUGE.	Marine biodiversity	234
MARTA PASCUAL	IDENTIFYING THE ORIGIN OF NEW COLONIZATIONS IN SEA TURTLES	Marine biodiversity	236



VII INTERNATIONAL SYMPOSIUM  
ON MARINE SCIENCES  
BARCELONA, JULY 01-03

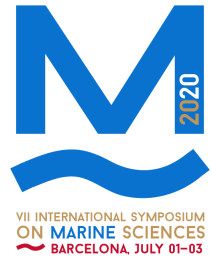
NEBIS ADRIANA NAVARRO OJEDA SARA MARIA DALLARÉS VILLAR YOLANDA LUCAS RODRÍGUEZ ALEJANDRO CARMONA RODRIGUEZ	POPULATION STRUCTURE OF THE STONE CRAB <i>XANTHO PORESSA</i> (OLIVI, 1972) IN A HUMAN RESTRICTED ACCESS AREA	Marine biodiversity	237
SARA MARIA DALLARÉS VILLAR YOLANDA LUCAS RODRÍGUEZ ALEJANDRO CARMONA RODRIGUEZ	LIFE STRATEGIES AND HABITAT PREFERENCES OF TWO ESPECIALIZED FISH SPECIES IN THE NW MEDITERRANEAN DEEP SEA	Marine biodiversity	238
YOLANDA LUCAS RODRÍGUEZ ALEJANDRO CARMONA RODRIGUEZ	AUNA OF THE <i>SYLLIDAE</i> (ANNELIDA: <i>POLYCHAETA</i> ) FROM SOCOTRA ARCHIPELAGO (INDIAN OCEAN)	Marine biodiversity	240
AMANDA COHEN- SÁNCHEZ	RAPID ASSESSMENT SURVEY OF BIOFOULING IN TWO MARINAS OF ALICANTE (SW MEDITERRANEAN)	Marine ecosystems	243
ARIADNA ALDRICH RODRIGUEZ	DISENTANGLING FOOD WEBS IN <i>CYMODOCEA NODOSA</i> : COMPARING MAIN PREYS FOR <i>XYRICHTYS NOVACULA</i> USING STABLE ISOTOPE DATA	Marine ecosystems	245
DRAGO MASSIMILIANO	ESTIMATION OF THE ECOLOGICAL NICHE OF THE <i>MURICEA</i> GENUS (OCTOCORAL) IN THE GULF OF CALIFORNIA, B.C.S (MEXICO)	Marine ecosystems	247
ELENA LLORET LLORET	STABLE OXYGEN ISOTOPES REVEAL THE HABITAT USE OF MARINE MAMMALS IN THE AREA OF INFLUENCE OF THE RÍO DE LA PLATA ESTUARY	Marine ecosystems	249
HELENA CHECA SÁNCHEZ	SEASONAL PATTERNS OF BODY CONDITION AND STABLE ISOTOPES OF TWO SMALL PELAGIC FISH ALONG A LATITUDINAL GRADIENT OF THE NORTHWESTERN MEDITERRANEAN SEA	Marine ecosystems	251
JUDIT JIMÉNEZ CASERO	VARIATIONS IN WATER MASSES OF THE EASTERN MEDITERRANEAN SEA DURING THE LAST SAPROPEL (S1) INFERRED FROM NEODYMIUM ISOTOPIC COMPOSITION IN FORAMINIFERA	Marine ecosystems	253
LOLA RIESGO	VULNERABILITY OF <i>POSIDONIA OCEANICA</i> DEEP MEADOW LIMITS TO REMOTE WASTE DISCHARGES	Marine ecosystems	255
PAULA DE CASTRO- FERNÁNDEZ SANDRA NAVARRO MAYORAL SEBASTIA HERNANDIS CABALLERO	FEEDING ECOLOGY OF BLACKMOUTH CATSHARK <i>GALEUS MELASTOMUS</i> RAFINESQUE, 1810 IN THE PORCUPINE BANK (NE ATLANTIC)	Marine ecosystems	258
UXUE MUÑOZ	THE VARIED DIET OF THE SEA SLUG <i>DORIS KERGUELENENSIS</i> IN DECEPTION ISLAND (SOUTH SHETLAND IS., ANTARCTICA)	Marine ecosystems	259
	TEMPORAL DYNAMICS OF AMPHIPOD POPULATIONS ASSOCIATED WITH BIOFOULING IN COASTAL AQUACULTURE FACILITIES	Marine ecosystems	260
	<i>PINNA RUDIS</i> LINNAEUS, 1758: THE FASTEST GROWTH REPORTED FOR A BIVALVE	Marine ecosystems	261
	INFLUENCE OF THE WATER'S PHYSICOCHEMICAL CHARACTERISTICS ON THE FORAMINIFERA BIOGENOSIS IN THE SPANISH CONTINENTAL SHELF	Marine ecosystems	263

ANA MARÍA BLÁZQUEZ MORILLA	THE HOLOCENE RECORD OF THE ALMENARA MARSH, CASTELLON, SPAIN	Marine geosciences	266
ANDREA BAZA- VARAS	PHYSICO-CHEMICAL CHARACTERIZATION OF A SUBMARINE MINE TAILINGS DEPOSIT OFF PORTMÁN BAY (SE SPAIN) BY USING NON- DESTRUCTIVE TECHNIQUES	Marine Geosciences	267
DANIEL CAMPO	THE ALMANZORA-ALÍAS-GARRUCHA CANYON SYSTEM: SEISMIC PROCESSING AND SEDIMENTARY FEATURES	Marine Geosciences	269
DESIREE PALOMINO CANTERO	GEOMORPHOLOGICAL SUBMARINE FEATURES IN THE MENORCA CHANNEL (WESTERN MEDITERRANEAN)	Marine geosciences	270
EDUARDO PAREDES PAREDES	NOVEL ISOTOPIC TRACERS IN MARINE SCIENCES: NEODYMIUM AND BORON ANALYSIS AT NANOGRAM LEVELS	Marine geosciences	271
IGNACIO ALONSO BILBAO	STUDY OF THE SUBMARINE CANYONS ON THE INSULAR MARGIN OF GRAN CANARIA	Marine geosciences	273
JOEL CALVIÑO HERMIDA	BEDFORM MAPPING WITH SIDE SCAN SONAR: A TOOL FOR STUDYING SEDIMENT DYNAMIC STUDIES IN CÍES ISLANDS, GALÍCIA	Marine geosciences	274
JUDIT TORNER PEREZ	OCEAN-ATMOSPHERE INTERCONNECTIONS FROM THE LAST INTERGLACIAL TO THE EARLY GLACIAL: AN INTEGRATION OF MARINE AND CAVE RECORDS IN THE IBERIAN REGION	Marine geosciences	275
LEOPOLDO D. PENA	DEEP WATER MASS GEOMETRY IN THE SOUTH EAST ATLANTIC ACROSS THE MID-PLEISTOCENE TRANSITION	Marine geosciences	277
SERGIO TRIAS NAVARRO	IMPACT OF THE EASTERN MEDITERRANEAN STAGNATION DURING THE LAST SAPROPEL IN THE DEEP SOUTH TYRRHENIAN BASIN	Marine geosciences	279
ANA SALGADO	ABUNDANCE OF HYDROCARBONOCLASTIC BACTERIA IN THE TROPICAL AND SUBTROPICAL OCEAN	Microbiology, genetics, biotechnology and molecular biology	282
EIRINI SCHOINA	EFFECT OF UV DISINFECTION ON WATER MICROBIOLOGY AND QUALITY OF A MEDITERRANEAN RECIRCULATED AQUACULTURE SYSTEM	Microbiology, genetics, biotechnology and molecular biology	284
FRANCESC MESTRES NAVAL	THE CONNECTIVITY BETWEEN POPULATIONS OF THE MARINE CRAB <i>LIOCARCINUS DEPURATOR</i> IN THE ATLANTO-MEDITERRANEAN TRANSITION: A FIVE YEAR SERIES	Microbiology, genetics, biotechnology and molecular biology	285
FRANCESC MESTRES NAVAL	SPATIAL GENETIC STUDY IN WESTERN MEDITERRANEAN POPULATIONS OF THE BATHYAL CRAB <i>GERYON LONGIPES</i> : VARIABILITY OF COI GENE	Microbiology, genetics, biotechnology and molecular biology	286



VII INTERNATIONAL SYMPOSIUM  
ON MARINE SCIENCES  
BARCELONA, JULY 01-03

ICO MARTÍNEZ SÁNCHEZ	AN OVERVIEW OF THE ENERGY METABOLISM DURING <i>AURELIA AURITA</i> 'S LIFE CYCLE (FROM EPHYRA TO MEDUSA)	Microbiology, genetics, biotechnology and molecular biology	287
MARGHERITA	MICROBIOME CHARACTERIZATION OF <i>M. GALLOPROVINCIALIS</i> ALONG A SPATIAL AND TEMPORAL ENVIRONMENTAL STRESS GRADIENT	Microbiology, genetics, biotechnology and molecular biology	288
MARTA PASCUAL	POPULATION GENOMICS AND HIERARCHICAL ANALYSES REVEAL GENETIC STRUCTURE AND ADAPTATION IN <i>PARACENTROTUS LIVIDUS</i> (ECHINOIDEA)	Microbiology, genetics, biotechnology and molecular biology	290
MIGUEL TORRES RODRÍGUEZ	PHYSIOLOGICAL ROLES OF VERY LONG-CHAIN (>C24) FATTY ACIDS DURING EARLY DEVELOPMENT OF FISH: MOLECULAR AND FUNCTIONAL CHARACTERIZATION OF ELOVL4 GENES IN <i>SPARUS AURATA</i> AND <i>SOLEA SENEGALENSIS</i>	Microbiology, genetics, biotechnology and molecular biology	292
MIQUEL CANALS	PREDICTIVE MAPPING OF SEAGRASS COMMUNITIES ON THE MARESME INNER SHELF, BARCELONA	Modelling in Marine Sciences	295
CAROLINA GABARRO PRATS	KEY ENVIRONMENTAL MONITORING FOR POLAR LATITUDES AND EUROPEAN READINESS (KEPLER)	Polar Marine Research	297
CONXITA AVILA	CLIMATE CHANGE AND CHEMICAL ECOLOGY: DETERMINATION OF NATURAL PRODUCTS IN TWO SPECIES OF BRYOZOANS, <i>HIMANTOZOUM (HIMANTOZOUM) ANTARCTICUM</i> (CALVET, 1909) AND <i>CHARTELLA TENELLA</i> (HINCKS, 1887)	Polar Marine Research	299
CONXITA AVILA	SIGNS OF VOLCANIC ERUPTIONS IN AN ANTARCTIC MARINE BENTHIC INVERTEBRATE	Polar Marine Research	300
DAVID AMBLAS	EFFICIENT COMPRESSION OF MULTIBEAM ECHOSOUNDERS WATER COLUMN DATA	Technologies and data management	302
IGNACIO ALONSO BILBAO	CORRELATION STUDY BETWEEN WAVE BUOYS AND SIMAR DATA IN THE CANARY ISLANDS	Technologies and data management	304
JOAN SALVADOR FONT MUÑOZ	ANNUAL TO DECADAL VARIABILITY PATTERNS OF HIGH NUTRIENT LOW CHLOROPHYLL REGIONS: A REMOTE SENSING PERSPECTIVE	Technologies and data management	305
JÚLIA TERRA MIRANDA MACHADO	IMPACTS OF OFFSHORE WIND FARMS ON COASTAL TOURISM ACTIVITIES IN IRELAND	Technologies and data management	307
CRISTINA ARUMÍ PLANAS	ECCO: A NEW APPROACH TO ESTIMATE THE TIME VARIABILITY OF THE MERIDIONAL OVERTURNING CIRCULATION IN THE SOUTH ATLANTIC AT 30°S	The physical bases of Marine Sciences	310
JOSE LUIS GARCIA GARCIA	THE CANARY EDDY CORRIDOR: LAGRANGIAN EVOLUTION OF TWO ANTICYCLONIC EDDIES BASED ON ALTIMETRY AND MODEL DATA	The physical bases of Marine Sciences	311



MARTA VENY  
LÓPEZ

SPATIO-TEMPORAL VARIABILITY OF THE  
BRANSFIELD CURRENT SYSTEM (ANTARCTICA)  
BASED ON DIRECT VELOCITY MEASUREMENTS

The physical bases  
of Marine Sciences

312



## **TRAWLING FOOTPRINT AND DIVERSITY OF BENTHIC COMMUNITIES IN THE MENORCA CHANNEL (WESTERN MEDITERRANEAN)**

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### **Abstract:**

It is well known that bottom trawling affects the abiotic (seafloor morphology, sediment resuspension, water turbidity) and biotic components (biodiversity, biomass and production) of habitats. However, comparative studies on the effect of trawling on epibenthic communities of sedimentary bottoms are scarce. One of the objectives of LIFE IP INTEMARES project is to assess the impact of bottom trawling on vulnerable benthic habitats of the circalittoral bottoms of the Menorca Channel (western Mediterranean), designated Site of Community Importance (SCI) within the Natura 2000 network. The present study compares the benthic communities of four areas subjected to different bottom trawl fishing intensity levels (null, intermediate and high). The assignment of fishing effort levels was based on the fishing effort distribution in the area calculated from Vessel Monitoring System (VMS) data. The biological samples were collected from 46 beam trawl stations sampled during a scientific survey on April 2019. In order to detect differences related to the different levels of fishing intensity, we calculated four “traditional” diversity indices (i.e. species richness, Margalef’s richness, Pielou’s evenness and Shannon’s diversity), and the recently developed  $N_{90}$  diversity index, which has shown to be useful in the detection of the response of demersal and benthic communities to fishing pressure. Our results show the highest values of all the analyzed indices in the non-impacted area, suggesting a negative effect of bottom trawling on the benthic communities present in Menorca Channel. However, no clear pattern was observed between different degrees of trawling intensity and diversity values, so other factors such as environmental conditions must be also considered to explain these results.

**Key words:** Diversity, Benthic community, Bottom trawling, Menorca Channel, SCI

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## GEOMORPHOLOGICAL SUBMARINE FEATURES IN THE MENORCA CHANNEL (WESTERN MEDITERRANEAN)

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### **Abstract:**

Based on geophysical (multibeam echosounder and very high resolution parametric profiles) and sedimentological (Shipek dredge) data acquired during the INTEMARES-CANAL0419 expedition, different geomorphologic features have been identified. The study area is located in the continental shelf of the Menorca Channel between 37 and 116 m water depth (mwd). Shallower zones are dominated by lense shaped bedforms, up to 1 m high. They are characterized by very low backscatter values. Also small circular -or slightly elongated- mounds are very frequent morphologies occurring up to 100 mwd. Their sizes range from 1 to 5 m high and 20 to 80 m of diameter with high backscatter values. The most prominent morphological features at intermediate depths are a set of channels that dig in the shelf from 60 to 90 mwd. They show vertical walls and extend up to several km. In the parametric profiles, paleochannels filled by a sedimentary layer approximately 30 ms (two-way time) thick can be observed. The deepest zones are characterized by an erosive surface covered by a thin layer of no consolidated sediments. A visual analysis of the samples shows that sediments are characterized by coarse sand and gravel mainly composed of biogenic particles (carbonated fragmented bioclasts). Higher values of backscatter correspond to samples with a variable abundance of rhodoliths whereas lower values correspond to sands. The variety of morphological features can be mainly related to erosive and depositional Quaternary processes in the continental. Benthic communities strongly influence sediment composition, which was found to be characterized by a high carbonate content.

**Key words:** geomorphology, carbonated sediments, sedimentary processes, Menorca Channel, Balearic Island

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