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## THE 110<sup>th</sup> ANNIVERSARY OF THE MARINE RESEARCH STATION AT ROVINJ (ADRIATIC SEA, CROATIA). REFERENCE COLLECTIONS

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The creation and destiny of reference collections deposited at the marine research station in Rovinj (founded in 1891) are described. By the end of the World War II collections and scientific equipment were transported to Italy and the Institute was demolished. At present in the institution now named Center for Marine Research zoological collections comprising 1160 species and 4520 lots, and herbarium of about 400 taxa / 1850 herbarium sheets and samples are deposited.

**Key words:** zoological collections, herbarium, history, Rovinj, Croatia, Adriatic Sea

Zavodnik, D., Zavodnik, N. & Iveša, Lj.: 110. godišnjica morske istraživačke stanice u Rovinju. Referentne zbirke. *Nat. Croat.*, Vol. 10, No. 1., 53–60, 2001, Zagreb.

Opisuju se stvaranje i sudbina referentnih zbirki morske istraživačke postaje u Rovinju osnovane 1891. godine. Potkraj Drugog svjetskog rata zbirke i znanstvena oprema su preneseni u Italiju, a zgrada Instituta je oštećena. U današnjem Centru za istraživanje mora zoološka zbirka sadrži oko 4520 uzoraka 1160 vrsta i herbarij sa približno 400 svojiti / 1850 herbarskih jedinica.

**Ključne riječi:** zoološka zbirka, herbar, povijest, Rovinj, Hrvatska, Jadransko more

The present Center for Marine Research of the »Ruđer Bošković« Institute at Rovinj was established on May 10<sup>th</sup>, 1891, as a field station of the Berlin Zoological Garden and Aquarium. Its principal task was to supply the parent establishment with live marine animals and plants (HERMES, 1891; 1894). Ambitions to promote a scientific research as well were reflected in the official name of the station: Die Zoologische Station des Berliner Aquariums (Zoological Station of the Berlin Aquarium) (MÖBIUS, 1893; RAWITZ, 1893; SCHMEIL, 1893).

Soon the Station became a famous supplier of live material and preserved organisms to Aquaria and Universities all over the Europe (HERMES, 1895; ITH, 1897;

SAND, 1897). After the enlargement of the main building in 1900, the station offered the highest comfort to visiting scientists for field research and laboratory studies (KOFOID, 1910). In addition a large variety of chemicals and miscellaneous laboratory utensils as well as aquarium and library facilities, a reference collection of marine animals and algae common in the area was available for use (ZIMMERMANN, 1903; ANON., 1912). Collections were kept in a special room on the first floor in large cupboards four meters high which completely covered three walls of the room. In the centre of the room there was a cabinet destined for molluscan shells (SENDER, 1912). Regrettably, no exact data on the taxa numbers and lots kept in this early period are available.

After the World War I was over, the library holdings and collections of the ex Istituto Zoologico in Trieste were removed to Rovinj (ISSEL, 1923; FOÁ, 1927; BENASSO, 1984). Collection data labelled and noted by MARCUZZI (1972) revealed that liquid preserved and dried zoological specimens, and shells, were collected in the period from 1875–1905. Most of the items have been provided by Prof. E. GRAEFFE, especially in years 1880, 1888 and 1904. Precious planktonic decapod crustaceans collected at the Austrian S.M.S. »NAJADE« cruises in 1912–1913 were provided and identified by Prof. O. PESTA who was a continuous visiting scientist of the Rovinj Station. Many tiny organisms were mounted on microscopic slides (MARCUIZZI, 1972). Rich acquisitions from Trieste were basis of a high diversified zoological reference collections and herbarium in Rovinj which should contain all taxa collected during the Station's field researches. An increase in this activity was noticed in 1924 when Aristocle VATOVA took the post of a scientific assistant. Soon the collection of molluscan shells was enriched by hundreds of specimens. VATOVA's extensive benthic studies in the north and central Adriatic Sea performed in the period from 1927–1936 (VATOVA, 1935; 1949) and researches of numerous visiting scientists constantly contributed to collection acquisitions. The collection of Polychaete worms especially was benefited from this intensive work (FAUVEL, 1940). In 1937, a groundfloor wing was added to the north side of the main building and a part of the zoological collections was removed into it (STEUER, 1940). Curiously enough, no special report on zoological collections and herbarium of the then named Istituto italo-germanico di Rovigno d'Istria, and Deutsch-Italienisches Institut für Meeresbiologie appeared before the World War II.

Early in 1943 Italians leaved the Istrian peninsula. The Institute's library and collections, together with a part of scientific equipment were transported to Venice (GAMULIN *et al.*, 1964). Zoological collections were at first stored in an underground cellar of Istituto Studi Adriatici (Institute for Adriatic Studies), later displaced to an exhibition hall of Museo di Storia Naturale (Museum of Natural History) in Venice and finally deposited in Stazione Idrobiologica (Hydrobiological Station) in Chioggia (MARCUIZZI, 1972). The famous »Herbarium Vatuense« containing about 2570 taxa and 5000 specimens of land and marine phanerogams and algae at present is kept in the Central Herbarium of the University in Firenze (ANON., 1992). In the collections located in Chioggia, MARCUZZI (1972) has recorded only 26 seaweed taxa.

After the reestablishment of Rovinj Station in 1948 (ZEI, 1954), only about hundred molluscan shells and a litter of tropical corals, three turtle carapaces (two log-

**Tab. 1.** Botanical collections of the Center for Marine research by Dec. 31, 2000.

Collections	Curator	Collection time	Species No.	Samples No.
Flora Marina Adriatica	A. Zarattin	1884–1889	107	179
Herbarium Rovinj (RI)	D. Gucunski–Terek	1952–1954	82	250
Algae Terrae Novae		1969–1978	154	184
Herbarium Rovinj (CMR)	N. Zavodnik	1972–2001	252	1229

gerhead turtles -*Caretta caretta* and one green turtle -*Chelonia mydas*), a small number of liquid preserved zoological specimens (26 Invertebrates, 10 fish, 1 loggerhead turtle and 4 land snakes) and five herbarium sheets were found in the demolished main building. Collections had to be created from nothing again. The material was collected occasionally, mostly by M. NIKOLIĆ who was engaged with bryozoan studies, and D. GUCUNSKI-TEREK who curated the seaweed herbarium. A new acquisition period began in the sixties when the Institute's scientific personnel was enriched by young scientists. Only marine taxa were collected. Special attention was paid to collections of molluscs, decapod crustaceans, echinoderms, and fish.

In 1969 the Institute of Marine Biology of the Yugoslav Academy of Sciences and Arts, and the Laboratory for Marine Radiobiology of the »Ruđer Bošković« Institute fused to a new self governed department of the »Ruđer Bošković« Institute named Center for Marine Research (STREHLOW, 1987; ZAVODNIK, 1995a). Its laboratories were located in Rovinj and in Zagreb. Unfortunately, department managers did not recognize the importance of reference collections to ecologists and taxonomists. Collections were treated as an out-of-date and useless hobby of taxonomists. Shortly afterwards the zoological collection room and a preparator's chamber, excellently equipped, were converted into a hot-laboratorium. A part of the inventory ended in the garbage. It was only by chance that one of us (D.Z.) found and saved 19 boxes full of microscopic slides of tiny marine and land invertebrates, and anatomical sections. It was the old didactic collection of the late ADOLF STEUER, a full professor at the Innsbruck University and in 1931–1940 the German director of the Rovinj Institute. Turtle carapaces vanished a few years later. Expanded educational activities of the Center also involved dislocation of a rich didactic collection of species common in the Rovinj environs which was previously exposed in a large student lecture room. For these reasons the Center's reference zoological collections are at present dispersed in the garret chamber of 6 square metres space, the ground floor and the second floor corridors, and in the working rooms of the Laboratory for Ecology and Systematics. Dr. D. ZAVODNIK takes care of zoological collections, and Dr. N. ZAVODNIK is in charge of the herbarium.

The herbarium of seaweeds and seagrasses has been always located in the curator's working room. After the World War II the first curator of the herbarium was D. GUCUNSKI-TEREK, followed by S. GOLUBIĆ, and finally by N. ZAVODNIK. The precious old herbarium Flora Marina Adriatica of ZARATTIN (1865–1895) has been completed in seventies by the exchange with the Rovinj Gymnasium for a modern didactic herbarium of selected local algal exiccata. At this time also a gift was made

**Tab. 2.** Zoological collections of the Rovinj Marine Station. Data marked with an asterisk (\*) are only preliminary – the collection is in course of revision.

Date	1943		2000	
Source	MARCZZI (1972)		This paper	
Present location	Chioggia (Italy)		Rovinj (Croatia)	
Taxon numbers	Species	Lots	Species	Lots
PORIFERA	40	53	40	75
PLATYHELMINTHES				
Turbellaria	6	6	1	1
Trematoda	4	4		
Cestoda	5	7		
CNIDARIA				
Hydrozoa	13	17	3	5
Anthozoa	18	28	26	73*
Scyphozoa	6	8	6	15
CTENOPHORA	4	4		
ASCHELMINTHES				
Acanthocephala	1	1		
NEMATODA	2	3	145	300
PRIAPULIDA			1	1
KAMPTOZOA			3	10
NEMERTINA	8	8		
MOLLUSCA				
Placophora	6	9	8	64
Gastropoda	146	179	117*	374*
Scaphopoda	3	4	3	17
Bivalvia	135	158	140	526
Cephalopoda	10	15	9	29
SIPUNCULA	6	18	10	120
ECHIURA	3	3	2	7
ANNELIDA				
Polychaeta	179	323	228	1010*
Mysostomida	1	1		
Clitellata	4	5	1	1
ARTHROPODA				
Pantopoda			4	8
Crustacea				
Anostraca	1	1		
Copepoda	3	4		
Cirripedia	8	14	17	27*
Leptostraca	1	1	1	2
Stomatopoda	3	5	2	4
Decapoda	92	202	109	244
Mysidacea	7	7		

Tab. 2. (cont)

Date	1943		2000	
Source	MARCUZZI (1972)		This paper	
Present location	Chioggia (Italy)		Rovinj (Croatia)	
Taxon numbers	Species	Lots	Species	Lots
Cumacea	1	1		
Anisopoda			1	1
Isopoda	8	10	1	1
Amphipoda	16	21	25	49
PHORONIDA	1	1		
BRYOZOA	10	11	38	71
BRACHIOPODA			7	22
HEMICHORDATA				
Enteropneusta	2	3		
ECHINODERMATA				
Crinoidea	2	2	1	20
Holothuroidea	18	49	27	185+
Asteroidea	7	10	23	338
Ophiuroidea	9	33	21	404
Echinoidea	9	17	18	282
CHAETOGNATHA	1	1	1	2
TUNICATA				
Thaliacea	3	6	1	1
Asciacea	15	18	40	92
ACRANIA	1	5	1	6
VERTEBRATA				
Cyclostomata	1	1		
Chondrichthyes	17	35	6	10
Osteichthyes	119	180	65	144++
Reptilia	1	1	1	1
Mammalia	1	1		
TOTAL	957	1494	1160	4520

+ Ossicles mounted on slides are not included.

++ Otoliths are not included.

by the Phycological Herbarium of the Memorial University of Newfoundland: Herbarium Algae Terrae Novae comprising 154 taxa. It is the only collection of the Center for Marine Research originating from outside the Adriatic Sea (Tab. 1). In addition to curators' collections, a few herbarium specimens have been provided by P. KUCKUCK, K. TECHET, G. FUNK, I. MUNDA, M. RICHTER, C. BATTELLI and the Zagreb University students.

In the past, many new species were described by type specimens collected in the Rovinj area (ZAVODNIK, 1993a; 1993b). Regrettably, in the course of the past fifty years none of the types was deposited in Rovinj. One can find Rovinj type specimens in some European Museums, mostly in the Museum of Natural History (Naturhistorisches Museum) in Vienna.

At present the Center for Marine Research holdings are the herbarium of about 2000 exiccata, and zoological reference collections comprising about 4520 lots of 1160 Adriatic Sea species (Tab. 1, 2). Theratological specimens of molluscs and echinoderms are available (ZAVODNIK, 1995b). Zoological collections are rather poor in some high taxonomic groups, and in general lacked in benthic and pelagic meiofauna, and parasites. Similarly as many other small research stations in the world, collections badly need contributions of specialized taxonomists, and a place adequate for keeping dried and liquid preserved specimens.

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## SAŽETAK

### 110. godišnjica morske istraživačke stanice u Rovinju. Referentne zbirke.

D. Zavodnik, N. Zavodnik & Lj. Iveša

Pomorska istraživačka postaja u Rovinju otvorena je 1891. godine kao ispostava Berlinskog akvarija. Osnovna joj je namjena bila opskrba živim i konzerviranim morskim organizmima matične ustanove kao i akvarija i sveučilišta diljem Europe. Pružajući također i povoljne uvjete za istraživački rad, postaja se uskoro svrstala među najpoznatije takve ustanove u svijetu. Osim znanstvene opreme, biblioteke i akvarija, istraživačima je bila na raspolaganju i omanja zbirka morskih organizama okolice Rovinja. Nakon što je poslije I. svjetskog rata rovinjskoj ustanovi dodijeljena bogata zoološka zbirka nekadašnje Zoološke postaje u Trstu, pristupilo se stvaranju

prave dokumentacijske zbirke i herbara. Zbirke su naročito obogaćene zahvaljujući A. Vatovi koji je dvadesetih godina započeo opsežnim istraživanjima životnih zajednica morskog dna u sjevernom i srednjem dijelu Jadrana. Potkraj II. svjetskog rata Talijani su dio institutskog inventara i zbirku prenijeli u Veneciju. Čuveni herbar Vatove danas se nalazi u Firenci, a zoološka zbirka u Hidrobiološkoj postaji u Chioggi. Kada je godine 1948. institut u Rovinju ponovno otvoren, započelo je i obnavljanje dokumentacijske zbirke. Tako zbirka današnjeg Zavoda za istraživanje mora »Instituta Ruđer Bošković« sadrži oko 4520 uzoraka 1160 vrsta životinja i herbar s 400 svojti morskih alga i cvjetnjača odnosno 1850 herbarskih jedinica.