

ABOUT THE CATCH, THE DIET, THE REPRODUCTION, THE SIZE FREQUENCY AND DISTRIBUTION OF *Pagellus acarne* (RISSO 1826) IN THE STRAITS OF MESSINA AREA.

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SUMMARY-For its importance on the economy of the littoral fishery in the Straits of Messina Area, some features on *Pagellus acarne* biology have been studied. It results to be more abundant in the Tyrrhenian Sea than in the Jonian Sea, its feeding is based on 6 Phyla animals among which fish and crustaceans result more abundant, and the reproduction occurs in June-September period.

RÉSUMÉ-*Pagellus acarne* est une des espèces plus capturée par la petite pêche dans le Détroit de Messine, représentant à elle seule le 21% du poids de la pêche totale. A la suite de travaux intéressants sur l'âge et la croissance, cette recherche se propose de contribuer à la connaissance des autres aspects biologiques de l'espèce dans la zone. Les données de capture montrent une présence majeure dans les stations Tyrrhéniennes, et une particulièrement les exemplaires de plus grandes dimensions. L'étude du contenu de l'estomac révèle dans le régime de l'espèce 6 Phyla animaux variables dans les stations mais constants dans les périodes. Des poissons et crustacés constituent la base de l'alimentation. La période reproductive va de juillet à septembre avec une ponte majeure en août et septembre. La sexratio montre 57% de mâle contre 42.5% de femelles.

INTRODUCTION-*Pagellus acarne* represents one of the most fished species, in the range of the littoral fishery, in the Straits of Messina Area, making up in fact the 21% in weight of the whole catch.

This species was already treated by the Author in two preceding papers, in which 8 classes of age were identified, and were calculated; the von Bertalanffy's growth equations :

♀ (  $L_{\infty}=29.78$   $K=0.3203$   $t_0=-0.2625$  ), ♂ (  $L_{\infty}=26.23$   $K=0.4187$   $t_0=-0.2217$  ) ;  
the size-weight relationship:  $W = 0.0092 TL^{3.076}$  ;

and the first sexual maturity, which coincident with the 2nd year of age.

At present, it is thought convenient to complete the study on bronze bream treating further features of its biology.

DESCRIPTION OF THE AREA AND METHODS-600 specimens coming from 4 sampling stations in the Straits of Messina Area (fig 1) have been examined. The stations were different among them also for depth and nature of the bottom (Tab I).

The method of catch has been the trammel net for the adult speci-

mens; instead, the young have been sampled with beach seine.

The degree of development of gonads has been fixed on the basis of the scale suggested by FAO manuals.

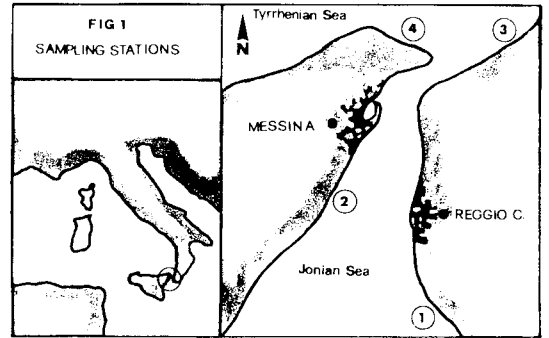
**DISTRIBUTION OF CATCHES**-The effectuated samplings have given variable results either for the sampling stations or for the periods.

These catch differences emerge from the graphs of fig 2 and fig 3 which show as the species is rather mostly present in the Tyrrhenian stations than in the Jonian ones.

**FEEDING**-The analyses of stomach contents have revealed in the diet of the species the presence of 6 Phyla animals, changeable in the stations but constant in the periods.

The presence of algae (stat 2) confirms the possible vegetarian diet, and strange it appears, instead, the presence of sand in individuals in the same station (Tab II). Among the Crustacea Isopods appear prevailing, among the Echinodermata are prevailing Ophiuridea, and same for Bivalva among the Mollusca. The main basis of their diet is made up of Crustacea and fish. The presence of Echinodermata, Anellida and Coelenterata is instead to be attributed to their abundance in some stations. In fig 4 is synthesized the situation in percentage.

**SEXUAL MATURITY AND REPRODUCTION**-Notwithstanding reproduction is often influenced by environmental conditions, the data got in the several years of sampling have revealed themselves constant: thus the resumtive



STATION	ZONE	DEPTH	BOTTOM NATURE
①	C <sup>PO</sup> DELL'ARMI	196-262 ft	detritus - muddy
②	GALATI	262-328 ft	sand - rocky
③	FAVAZZINA	229-328 ft	detritus - muddy
④	CASABIANCA	164-262 ft	mud - sandy

TABLE I: DEPTH AND BOTTOMS IN THE STATIONES

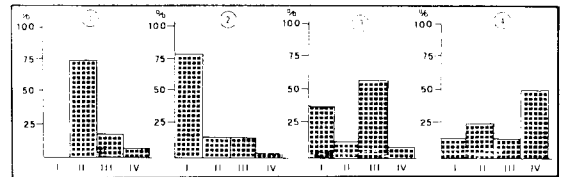


FIG 2: CATCH SEASONAL VARIATION FOR STATION

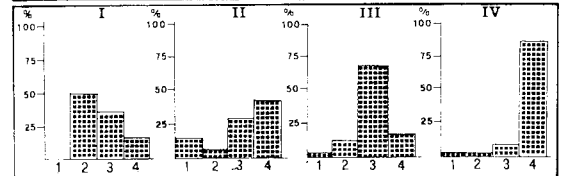


FIG 3: CATCH VARIATION IN STATIONS FOR SEASON

STATION	①				②				③				④			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
SAND					+	+										
ALGAE					+	+	+									
COELENTERATA					20	5										
ANELLIDA	20	15	15	15												
CRUSTACEA	40	45	40	35	40	20	30	25	40	35	20	45	30	30	20	30
MOLLUSCA		5				30	40	40	20	15	15	10	10		10	5
ECHINODERMATA					20	5	20	15			5					
PISCES	40	35	40	50	20	30	10	20	40	50	60	45	60	70	70	65

TABLE II: TABLE OF STOMACH CONTENTS IN PERCENTAGE

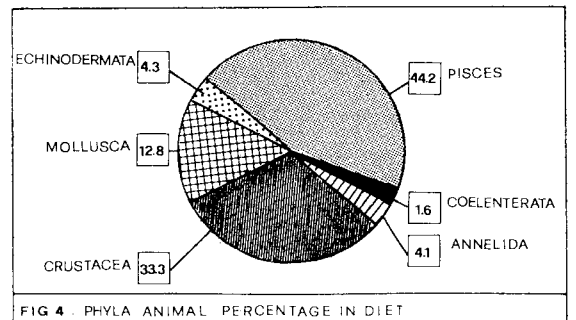


FIG 4: PHyla ANIMAL PERCENTAGE IN DIET

Tab III has been set down.

The reproductive period occurs from July to October with a spawning maximum in August and September; however the male seems to be fluent for a longer period.

**SEX-RATIO AND SEXUAL DISTRIBUTION FOR SIZE AND AGE**-The sex-ratio, calculated by the total sampled specimens, states 57.5% of males and against 42.5% of females.

Considering the protandryal hermaphroditism to which the species goes towards, and the growth difference between the two sexes, it has been proceeded in the elaboration, in fig 5, in which the percentage composition in length of the two sexes in the 8 classes of age is represented; from this the growth difference and

the hermaphroditism condition are pointed out further on.

For the distribution of the sexes for size, instead, separate histograms are needed, in as much as they vary remarkably with the sampling stations (fig 6). A single graph has no meaning.

This variability is imputable to movings of the individuals during their growth if not to real and proper migrations for size in relation to their several feeding exigences.

MONTH	JAN		APR		MAY		JUN		JULY		AUG		SEP		OCT		DEC	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
I	40	70	32	29	11	6	9	7	8	3	6	2	18	15	31	33	68	89
II	60	30	28	51	33	22	2											
III			19	9	20	49	8	10										
IV			16	11	16	14	48	19	9	14	1							
V			5		18	9	26	53	41	13	9	8						
VI					2	4	11	32	61	52	37	18	14	10				
VII							3		9	6	30	52	53	45	20	20	1	
VIII									1	3	2	1	11	26	39	47	18	4

TABLE III : ANNUAL PROCEEDING OF GONAD MATURATION (in percentage)

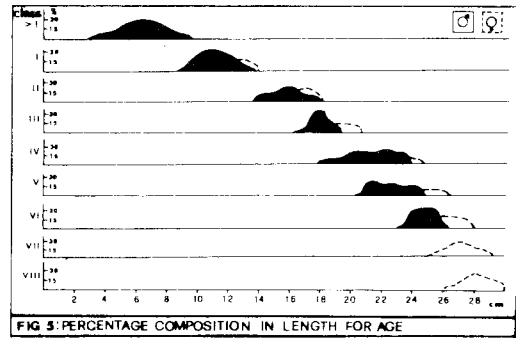


FIG 5: PERCENTAGE COMPOSITION IN LENGTH FOR AGE

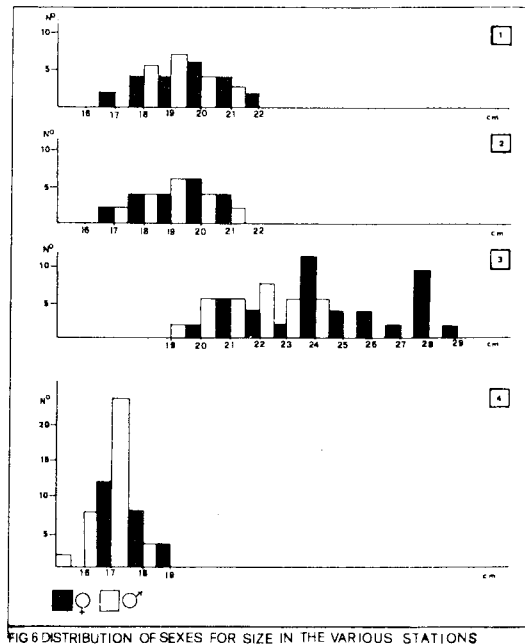


FIG 6 DISTRIBUTION OF SEXES FOR SIZE IN THE VARIOUS STATIONS

