

NOAA Technical Memorandum NMFS-SEFC-8



ANNOTATED BIBLIOGRAPHY AND SUBJECT INDICES FOR WESTERN ATLANTIC SNAPPERS (LUTJANIDAE)

Joseph E. Tashiro

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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Juanita M. Kreps, Secretary
National Oceanic and Atmospheric Administration
Richard A. Frank, Administrator
National Marine Fisheries Service
Terry L. Leitzell, Assistant Administrator for Fisheries

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Snappers (Lutjanidae)

ABSTRACT

This annotated bibliography contains references to literature published from 1896 to 1977 pertaining to fishes of the family Lutjanidae and the snapper fisheries. Seventeen common species in the genera Apsilus, Etelis, Lutjanus, Ocyurus, Pristipomoides, and Rhomboplites are covered. The geographic area concerned is the Gulf of Mexico, Caribbean Sea and other areas of the western Atlantic Ocean from 35° N lat to 8° S lat. Subject indices of snapper fisheries and biology, and snapper species are included.

INTRODUCTION

The commercial snapper fishery of the United States began over a century ago. Fishing started off the South Atlantic and Gulf Coast states and expanded to more distant waters off Mexico, the Bahamas and the western Caribbean Sea. Snappers (Table 1) are found in tropical and warm temperate regions in shallow estuaries of less than 1 fathom (1.83m) to oceanic waters over 140 fathoms (256m) in depth; because of their wide distribution, availability, and value as food fish, this multi-species resource is vulnerable to pressure from many user-groups (Allen and Tashiro 1976). In addition to commercial exploitation, snappers are fished by almost a million recreational fishermen in the U.S. (Deuel 1973). Moreover, other countries bordering the Gulf of Mexico, the Caribbean Sea, and off the north and northeast coast of South America have snapper fisheries; these range from artisanal endeavors conducted from shore or nearshore using canoes and small boats to large-scale commercial operations.

In the literature I found no bibliography on snappers, their biology, and fisheries; therefore, I assembled these references for use by the fishing industry, research organizations, fishery scientists, management groups, and other interested parties. This paper contains a list of references concerning snappers of the western Atlantic Ocean, from Cape Hatteras, North Carolina (35°N lat) to Recife, Brazil (8°S lat).¹ To make this list more meaningful to the user, a brief annotation follows each reference. Only a few comprehensive snapper research papers were found; most reports deal with a narrow aspect of the biology, fishery, resource or research of snappers, and many merely mention or list snappers among fish identified. These references are compiled mainly from recognized published fishery and scientific literature of an established series and monographs. Generally excluded are popular periodicals, encyclopedias, dictionaries and fishery statistical publications. Anonymous articles are listed by the name of the journal, agency, state or country. Abbreviations for journals are as, or compatible with, the system

¹ Some snapper life history and ciguatera references concerning other areas are included.

Table 1. Snappers commonly occurring in the Western Atlantic Ocean.

<u>Scientific Name</u> ¹	<u>Common Name</u>
<u>Apsilus dentatus</u>	Black snapper
<u>Etelis oculatus</u>	Queen snapper
<u>Lutjanus analis</u>	Mutton snapper
<u>Lutjanus apodus</u>	Schoolmaster
<u>Lutjanus buccanella</u>	Blackfin snapper
<u>Lutjanus campechanus</u>	Red snapper, Gulf red snapper ²
<u>Lutjanus cyanopterus</u>	Cubera snapper
<u>Lutjanus griseus</u>	Gray snapper
<u>Lutjanus jocu</u>	Dog snapper
<u>Lutjanus mahogoni</u>	Mahogany snapper
<u>Lutjanus purpureus</u> ²	Caribbean red snapper ²
<u>Lutjanus synagris</u>	Lane snapper
<u>Lutjanus vivanus</u>	Silk snapper
<u>Ocyurus chrysurus</u>	Yellowtail snapper
<u>Pristipomoides aquilonaris</u>	Wenchman
<u>Pristipomoides macrophthalmus</u> ³	Voraz ³
<u>Rhomboplites aurorubens</u>	Vermilion snapper

¹ Except when noted otherwise, scientific and common names follow the American Fisheries Society Special Publication No. 6 (Bailey et al., 1970).

² From Rivas (1966).

³ From Anderson (1967).

used in "Biosis 1973 List of Serials"², when possible.

Subject indices are presented in tabular form where a range of topics or species can be scanned and cross-referenced with the associated authors.

The uncertainty concerning general snapper (Lutjanidae) taxonomy, and the definition of the term "red snapper" deserve some comment. The taxonomy of snappers in the 19th century involved the basic task of discovering, identifying and cataloguing of species to recognizable units. Not until the works of Jordan and Swain (1885), Jordan and Fesler (1893), and Jordan and Evermann (1896-1900) was the status of the family Lutjanidae brought to workable order. Because of this confusion in identity and taxonomy, I arbitrarily used Jordan and Evermann's "The Fishes of North and Middle America" and the year of its publication 1896 (Part 1), as the starting point for most taxonomic references in this bibliography.³

The red snappers are usually the target fishes of the U.S. commercial snapper fishery. Rivas (1966) in his "Review of the Lutjanus campechanus Complex of Red Snappers" determined there to be three distinct species of red snappers: L. campechanus (gulf red snapper), L. purpureus (Caribbean red snapper) and L. vivanus (silk snapper). L. vivanus posed no identity problems to taxonomists, the confusion was in the other two species. Before his paper was published, L. campechanus and L. purpureus were often reported in the literature as L. aya or L. blackfordi. Rivas showed that the name aya did not apply to a species of Lutjanus, and that L. blackfordi was a junior synonym of L. campechanus.

Lutjanus campechanus and L. purpureus are continental shelf species. Generally, L. campechanus is found only in the Gulf of Mexico and off the Atlantic coast of the United States, and L. purpureus only in the Caribbean Sea along the coasts of Central and South America to Brazil. Rivas attributed this allopatry to barriers formed by the absence of a continental shelf and deep water between the Caribbean Sea and the Gulf of Mexico. Lutjanus vivanus is a more widely distributed species found on the continental shelves and shelf edges and also off oceanic islands and banks throughout most of the geographic range of this paper. (S'alinikov 1965, Gonzales-Alberdi 1975, Roe 1976).

In earlier years, the term "red snapper" referring especially to Lutjanus campechanus developed the connotation of a product of excellence and fine quality, but later the term became ambiguous and is now often used generically by the commercial and recreational fishing industry as well as in the literature. Fishermen can readily recognize different snapper species but

2 Biosciences Information Services of Biological Abstracts, 2100 Arch Street, Philadelphia, PA 10103.

3 Literature cited in the text and some snapper fishery references of historical interest may pre-date 1896.

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SUBJECT INDICES

The subject indices contain general topics concerning the snapper fisheries, biology, and snapper species. Since many references are not exclusively concerned with snapper, these indices do not necessarily review the complete paper, but only the subject matter pertinent to snappers.

The Index of Fisheries and Biology lists 22 general topics. The Index of Snapper Species lists 17 of the more common species by scientific name. The references are identified on the left-hand column by author and date; the topics or species are listed on the top of each page and coded by letter. Topics or species contained in the references are indicated by the code letters opposite the authors.

Index of Snapper Fisheries and Biology

	Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential	Statistics, Catch, Effort	Taxonomy, Morphology
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riage & Bullock 1976	A	B				F				J									S			
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& Tee-Van 1928	A	B			E	F		H				L	M					R				V
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ov et al. 1973											K	L										
& Nichols 1974												L				P						U
& Chaplin 1970	A	B			E	F		H	I				M									V
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		Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential	Statistics, Catch, Effort

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Bullis et al. 1971													L									T
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Campos & Bashirullah 1975	A						F		H										R			
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Captiva & Rivers 1960								G				K	L		N					S		
Carles Martin & Liubimova 1967	A						F					K	L	M				R				T
Carpenter 1965						E	F	G		I		K	L		N		P			S		T
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Carrillo et al. 1974						E	F					K								S		
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Carvalho 1943						E	F							M								
Castillo & Carles 1966																						
Cato & Prochaska 1976								G					L									
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Chaplin & Scott 1972																						
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iedler & Jarvis 1932					D							K	L				P	Q				U
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Fuss & Picon 1973												K			N							U
Futch & Torpey 1966		A					F		H			K	L	M	N			Q	R			U
Futch & Bruger 1976		A					F	G	H			K	L	M	N			Q	R			U
Gesteira & Ivo 1973																				R		U
Gesteira et al. 1972		A																				U
Gilbert 1973							F															U
Gines 1975						E	F															U
Gines & Cervigon 1968						E						K	L									S
Ginsburg 1930							F	G		I		K										S
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Gonzales Lopes 1968												K	L									U
Gonzalez Alberdi 1975							F			I			L									S
Goode 1884							F					K	L									U
Goode & Gill 1903		A					F		H	I			L	M	N			Q	R			U
Gresham 1975										I												U
Griffiths & Simpson 1972													L									U
Grimes 1976a						E	F		H	I	J	K	L	M	N				Q	R		U
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rvis 1935							F	G				K			N		P					U
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dan & Evermann 1896-1900						E	F															
dan & Evermann 1902												K	L		N							
dan & Fesler 1893																						
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aguchi 1974					D		F			I		K	L		N					S	T	U

Author(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
		Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential
Kinch & O'hara 1975											J							Q			
Klima 1976a										I		K	L		N			Q			T
Klima 1976b												K	L		N					S	T
Klima 1976c																					T
Korzhova 1969				C																S	T
La Monte 1958	A		C		E	F								M							
Lazunova & Lukoshkin 1969																					T
Lima 1965	A																				
Lobell & Puncochar 1947												K									
Longley & Hildebrand 1941							F														
Lonnberg 1894					E	F															
Love & Thompson 19169				C																	
Madziar 1970													L								
Mallory 1966			B							I								Q			
Martinez 1948								G				K	L		N						
Mather 1952												K	L								
McClane 1965					E							K	L								
McErlean 1963						F												Q			
Meek & Hildebrand 1925																					
Menezes 1974				C																	
Menezes & Gesteira 1974	A																				
Mezentseva 1975														M							
Mihara & Brito Leon 1970								G				K	L								
Miranda Ribeiro 1961					E	F															
Moe 1963						F		G		I		K	L		N				Q		
Moe 1966a	A	B				F					J								Q		
Moe 1966b						F															
Moe 1969						F															
Moe 1972			B								J										
Moe 1975											J										T
Moe et al. 1966	A	B				F					J										
Moe et al. 1970					E	F															
Monteiro de Almeida 1965	A																			R	
Moore 1973																O					
Moore 1975						F															
Morales 1967												K	L		N						
Moseley 1965	A	B				F	G	H	I			K		M	N			Q	R		
Moseley 1966a	A					F						K									
Moseley 1966b	A	B				F	G	H	I					M	N			Q	R		
Mota Alves 1971a				C										M							
Mota Alves 1971b				C																	
Munro 1973	A	B			D		F	G	H	I		K	L	M	N		P	Q	R	S	T
Munro 1974a												K	L								T
Munro 1974b							F					K	L								T
Munro et al. 1973									H										R		

(s)	Code:	Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential	Statistics, Catch, Effort	Taxonomy Morphology
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
o & Thompson 1973		A							H			K	L					R			T	U	
ock 1957												L											
ura 1976												K	L					Q					U
on & Carpenter 1968												K	L							S			
ols 1929						E	F					K	L										V
zel & Gaynor 1974													L										
zel & Wajnowski 1975								G					L										
ille 1975												K	L		N							T	U
ille 1976												K						Q			T	U	
. & Bastos 1971				C																			
hea & Quintana 1970		A																					
hea & Quintana 1975		A							H									R					
hea & Sauskan 1974							F					K	L							S			
et al. 1974													L										
et al. 1976													L										
Research, Inc. 1973					C	D							L										
d 1963												K	L										
la 1974		A																					
r et al. 1972						E																	V
gnat et al. 1977																							V
a 1965		A							H			K		M	N			R					V
1883						E	F																
1955						E																	V
1962						E	F																V
l 1950																							V
s & Stender 1976							F		H												S	T	
aska 1976								G															U
aska & Cato 1974								G															U
aska & Cato 1975a								G				K	L			P	Q						U
aska & Cato 1975b								G					L										U
z Hernandez 1965												K											
z H. & Vasquez R. 1966																							U
l 1958					D																		
l 1962		A									J												
l 1963a					D					I													
l 1963b											J												
l 1967															M								
l 1968						E																	V
l & Brock 1960		A								I					M								
ajan 1970															M								
ajan 1973		A													M								
ajan 1974		A							H										R				

Author(s)	Code:	Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Rathjen 1959a												K	L		N					S	
Rathjen 1959b							F					K	L		N					S	
Rathjen 1971							F													S	
Rathjen et al. 1969																				S	
Reid 1954		A					F							M						S	
Reshetnikov et al. 1972a			B											M		O					
Reshetnikov & Claro 1976		A							H					M				R			
Reshetnikov et al. 1972b														M		O					
Rijov & Valle 1974														M							
Ritzhaupt 1965												K									
Rivas 1949										I											
Rivas 1966							F														
Rivas 1970							F			I										S	
Robins 1958						E															
Rodrigues 1974														M							
Rodrigues 1975														M							
Rodriguez Pino 1961		A					F											R			
Rodriguez Pino 1962		A	B				F		H					M				R			
Roe 1976							F			I		K								S	
Roithmayr 1965							F														
Rojas 1960		A					F												R		
Rolon 1975																			R		
Rosen & Ellis 1961																		Q			
Rounsefell 1954												K	L		N						
Routh 1959													L								
Saenz 1963													L								
Saez 1972												K	L		N						
Saez 1974												K	L								
Sagra 1843																					
Salmon 1958													L								
Sal'nikov 1965							F			I		K	L		N					S	
Santos & Coelho 1974								G													
Sauskan 1975							F														
Sauskan & Olaechea 1974							F			I		K	L							S	
Sauskan & Ryzov 1975							F														
Schroeder 1921													L		N						
Schwartz 1972		A					F			I											
Secr. Ind. Comer. 1968																					
Secr. Ind. Comer. 1972																					
Secr. Ind. Comer. 1976						E															
Sekavec & Huntsman 1972												K						Q			
Shinn 1974										I											
Sidwell et al. 1974			C																		
Siebenaler 1953													L								
Siebenaler 1955													L								
Siebenaler & Brady 1952													L		N						

(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
		Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential	Statistics, Catch, Effort	Taxonomy

son 1974			B									K	L		N			Q					
son & Griffiths 1967																							U
h & Tyler 1973							F																U
h & Gathman 1948													L									T	U
h 1975															N								U
h 1976a							F																U
h 1976b							F																U
h et al. 1975							F			I										S			V
h 1894							F			I													V
h 1895							F			I		K			N								U
h 1896												K	L		N								U
h 1948a												L	L		N								U
h 1948b												L	L		N								U
lova 1965												L	L										U
s Ramirez 1966	A						F			I		L	L							S			U
ier et al. 1976						E	F			I		K	L										U
nger 1951													L							S			U
nger & Bullis 1956						E	F			I													U
nger & Woodburn 1960							F			I													U
ck 1961												K	L		N			Q					U
ck & Davis 1966			B											M									U
ck & Schroeder 1970	A						F		H	J				M					R		T	U	V
ns 1883												K	L										U
ns 1885a							F					K	L										U
ns 1885b												K	L		N		P						U
ns 1887a												K	L		N								U
ns 1887b												K	L		N								U
ns 1887c							F			I		K	L		N			Q					U
i 1957												K	L		N								U
nson 1893												K	L										U
isaker 1969							F	G		I		K	L							S			U
z Caabro 1950												K	L										U
z Caabro 1970a												K	L		N								U
z Caabro 1970b												K	L										U
z Caabro 1973												K	L										U
rland 1977							F					K						Q					U
le 1976												K											U
le & Bland 1974							F					K			N								U
le & Dammann 1969																							U
le et al. 1970													L										U
ster 1974	A			D			F					L	L										U
ster & Dammann 1972							F					L	L						R	S			U
ster & Dammann 1973	A						F					K	L										U
ster & Dammann 1974							F					K	L							S			U
& Manning 1961																							U
et al. 1962							F			H													U
t 1960	A									H													U
										H				M					R	S			U

Author(s)	Code:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
		Age, Growth, Size	Analysis of Flesh	Behavior	Ciguatera, Toxins	Common Names, U.S., Foreign	Distribution, Occurrence	Economics	Eggs, Larvae, Juveniles	Environment, Habitat	Fish Tagging Studies	Fishing Areas	Fishing Methods, Gear, Vessels	Food, Feeding	Historical Fishery Information	Physiology	Processing, Marketing	Recreational Fishery	Reproduction, Spawning	Research Cruises	Resource, Management, Potential							
Tarbox 1970												K	L		N													
Tashiro & Coleman 1977						E	F					K	L		N													
Thompson & Thompson 1972				C								L				P												
Thompson 1974												K	L															
Thompson & Munro 1974	A	B				E	F		H			K		M					R									
Thompson & Arnold 1971							F								N													
Topp 1964			B				F			I	J																	
Turner & Johnson 1973							F			I																		
U. S. Fish Wildl. Serv. 1958												K	L															
U. S. Fish Wildl. Serv. 1964													L		N													
U. S. Fish Wildl. Serv. 1968													L															
Ulrich & Rhodes 1977	A							G					L		N			Q							T	U		
Van Gelderen 1953																												
Vasconcelos 1947																												
Vasil'ev & Torin 1965	A						F						L												S	U		
Vick 1964							F																					
Vidaeus 1972												K	L													T	U	
Wade 1977								G				K							Q									
Walford 1946												K	L		N													
Walford & Wicklund 1973												K																
Walker 1950							F																					
Wallace 1977																												
Wang & Raney 1971							F									O												
Warren 1898																												
Whiteleather & Brown 1945												K			N													
Wilcove 1975										I		K	L													S	U	
Wilcox 1902												K	L		N											S	U	
Wise 1972												K																
Wise 1974												K	L		N													
Wolf & Chislett 1974							F					K	L		N											R	T	
Wolf & Rathjen 1974												K														S	U	
Wood 1883								G					L															
Yntema 1970																												
Zaneveld 1962						E	F			I																		

Index of Snapper Species⁵

Author(s)	Code:	<u>A. dentatus</u>	<u>E. ocellatus</u>	<u>L. analis</u>	<u>L. apodus</u>	<u>L. buccanella</u>	<u>L. campechanus</u>	<u>L. cyanopterus</u>	<u>L. griseus</u>	<u>L. jocu</u>	<u>L. mahogoni</u>	<u>L. purpureus</u>	<u>L. synagris</u>	<u>L. vivanus</u>	<u>O. chrysurus</u>	<u>P. aquilonaris</u>	<u>P. macrophthalmus</u>	<u>R. aurorubens</u>
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Abbes et al. 1972												K	L					Q
Adams & Kendall 1891							F											
Adams 1976									H				L					
Alegria & Menezes 1970													L					
Allen & Tashiro 1976		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Almeida 1965							F											
Alvarez Peres 1969														M				Q
Anderson 1966																	O	P
Anderson 1967		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Anderson 1972			B														O	P
Anderson & Gehringer 1965							F		H						N			Q
Austin 1971					D				H	I								
Austin & Austin 1971					D				H	I								
Bailey et al. 1970		A	B	C	D	E	F	G	H	I	J		L	M	N	O	P	Q
Baird 1973			B			E								M				
Bardach 1958									H									
Barrosa 1965							F											
Bastos et al. 1975				C		E	F			I		K		M				
Baughman 1943							F		H	I			L					Q
Bearden & McKenzie 1971						E	F											Q
Beaumariage 1964							F		H						N			Q
Beaumariage 1969				C			F		H				L		N			Q
Beaumariage & Bullock 1976							F											
Beaumariage & Wittich 1966				C		E	F		H				L		N			Q
Beebe & Tee-Van 1928				C	D		F		H	I			L		N			Q
Beebe & Tee-Van 1933			B		D	E			H				L	M	N			Q
Ben-Tuvia 1969				C				G	H	I			L		N			Q
Bohlke & Chaplin 1970		A	B	C	D	E	F	G	H	I	J		L	M	N	O	P	Q
Bortone 1971a																		Q
Bortone 1971b																		Q
Bradley & Bryan 1975							F											
Brasileiro, Governo 1974												K						
Brice 1898a				C	D				H	I			L		N			
Briggs 1958			B	C	D	E	F	G	H	I	J		L	M	N			Q
Bright & Pequegnat 1974							F		H						N			Q
Bright & Rezak 1976							F											Q
Brody 1972					E				H					M				
Brody & Slocum 1974										I								
Brownell 1970		A	B			E								M	N		P	Q
Brownell 1971		A	B	C		E				I		K		M			P	Q
Brownell & Rainey 1971		A	B	C		E				I				M			P	Q
Buesa 1975				C			F						L		N			Q
Bullis 1964							F						L					Q
Bullis & Struhsaker 1970														M				
Bullis & Thompson 1959							F						L			O		
Bullis & Thompson 1965		A		C	D	E		G	H		J		L	M	N		P	Q
Bullis & Thompson 1970							F							M				

⁵ References to L. aya and L. blackfordi in the Gulf of Mexico and the U. S. Atlantic coast are listed here as L. campechanus; L. aya in the Caribbean Sea and off South America is listed as L. purpureus.

Author(s)	Code:	<u>A. dentatus</u>	<u>E. ocellatus</u>	<u>L. analis</u>	<u>L. apodus</u>	<u>L. buccanella</u>	<u>L. campechanus</u>	<u>L. cyanopterus</u>	<u>L. griseus</u>	<u>L. jocu</u>	<u>L. mahogoni</u>	<u>L. purpureus</u>	<u>L. synagris</u>	<u>L. vivanus</u>	<u>O. chrysurus</u>	<u>P. aquilonaris</u>	<u>P. macrophthalmus</u>	<u>R. aurorubens</u>
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Caldwell 1966		A	B	C	D	E			H	I	J				N			Q
Camber 1955a			B	C		E	F		H				L	M	N		P	Q
Camber 1955b							F											
Captiva & Rivers 1960				C	D		F		H				L	M	N			Q
Carles Martin & Liubimova 1967				C				G	H				L	M	N			Q
Carpenter 1965			B	C	D	E	F		H				L	M	N		P	Q
Carpenter & Nelson 1969						E						K	L	M	N			Q
Carpenter & Nelson 1971				C	D	E			H	I	J	K	L	M	N	O		Q
Carranza 1962				C		E	F	G	H				L	M	N			
Carrillo et al. 1974							F						L				P	Q
Carson 1944			C	D			F		H						N			
Carvalho 1943							F		H				L					
Castillo & Carles 1966			C	D	E	F	G	H	I	J			L	M	N		P	
Causey 1969							F	G	H				L					
Cervigon 1963																	P	Q
Cervigon 1966			C	D	E	F			H	I	J		L		N	O		
Chaplin & Scott 1972			C	D					H	I	J				N			
Chestnut & Davies 1975			C				F		H				M	N				Q
Chittenden & McEachran 1976							F									O		Q
Chittenden & Moore 1976							F								N	O		
Claro & Lapin 1974													L					
Claro et al. 1974			C					G	H				L		N			
Coelho & Pavia Filho 1974												K						
Colin 1974			C		E					I								
Collette & Rutzler 1977												K	L		N	O		
Collette & Talbot 1972							F						L					
Collins 1887a			C	D					H									
Craig 1966			C		E				H		J		L	M	N			Q
Craig 1976									H									
Croker 1960									H									
Croker 1962												K	L					
Cummins & Jones 1973			C				F		H					M	N			Q
Cummins et al. 1962a			C				F		H					M	N			Q
Cummins et al. 1962b				D				G		I	J				N		P	
Dahlberg 1975			C	D	E	F			H	I	J		L		N			Q
Dammann 1965				D		F	G								N			
Dammann et al. 1970		A	B			E							L			O		Q
Dawson 1963							F											
Dawson 1966							F		H									
Diener 1975							F											
Douglas & Stroud 1971									H									
Druzhinin 1970				C	D	E	F	G	H	I	J		L	M	N			Q
Duffy 1975									H									
Ellis 1957					D			G	H	I			L					
Erdman 1956			B			E		G	H					M			P	
Erdman 1974		A	B	C	D	E			H	I	J		L	M	N		P	Q
Erdman 1976		A	B	C	D	E		G	H	I	J		L	M	N	O		
Evermann & Bean 1898					D				H				L					
Evermann & Marsh 1902			B	C	D		F	G	H	I	J		L	M	N			Q

Author(s)	Code:	<u>A. dentatus</u>	<u>E. ocellatus</u>	<u>L. analis</u>	<u>L. apodus</u>	<u>L. buccanella</u>	<u>L. campechanus</u>	<u>L. cyanopterus</u>	<u>L. griseus</u>	<u>L. jocu</u>	<u>L. mahogoni</u>	<u>L. purpureus</u>	<u>L. synagris</u>	<u>L. vivanus</u>	<u>O. chrysurus</u>	<u>P. aquilonaris</u>	<u>P. macrophthalmus</u>	<u>R. aurorubens</u>
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Fable & Saloman 1974									H									
Fadul 1968				C									L		N			
Fahay 1975																		
Fiedler & Jarvis 1932					D		F		H	I	J		L	M				Q
Fiedler et al. 1947		B	C	D	E	F			H	I			L	M	N			Q
Fishery Market News 1942			C															
Fonteles-Filho 1970													K					
Fonteles-Filho 1972													K					
Fonteles-Filho & Kurisaka 1970													K					
Fourmanoir 1968					E								K					
Fowler 1953			C	D		F			H		J		L	M	N			Q
Furtado-Ogawa & Menezes 1972													K					
Futch & Torpey 1966						F												
Futch & Brugger 1976						F							K					
Gesteira & Ivo 1973													K					
Gesteira et al. 1972													K					
Gilbert 1973									H	I								
Gines 1975					D	F			H							P	Q	
Gines & Cervigon 1968												K	L		O			
Ginsburg 1930						F								M				
Gomez de la Maza 1966															N			
Gonzalez Alberdi 1975	A	B		D	E	F								M				
Goode 1884						F												Q
Goode & Gill 1903						F												Q
Griffiths & Simpson 1972			C			F			H				L					
Grimes 1976a		B			E	F							L	M	N			Q
Grimes 1976b																		Q
Grimes 1977																		
Grimes et al. 1977					E	F	G							M		O		Q
Gudger 1929									H									
Gusey & Maturgo 1975						F												
Haskell 1961						F												
Hastings et al. 1976										H			L					Q
Heald 1970	A					F			H						N			Q
Hildebrand 1954			C			F			H				L					Q
Hildebrand 1955						F			H				L					Q
Hildebrand et al. 1964				D					H	I					N			
Hildebrand & Ginsburg 1927			C			F								M				
Hobson 1974									H									
Hoese 1958			C	D		F			H				L		N			Q
Holder 1913			C	D						I			L	M				
Houde 1971						F			H				L					
Howell Rivero 1938						F					J						P	Q
Huntsman 1973																		
Huntsman 1976a					E	F								M	N	O		Q
Huntsman 1976b						F								M				Q
Huntsman & Macintyre 1971						F								M				Q
Hutton et al. 1961									H									Q
Idyll 1971					E								K	L	M			
Idyll & Randall 1959																N		
Irby 1974						F			H									
Iversen & Berry 1969						F			H									
Ivo & Gesteira 1974																		
Ivo 1973a													K					
Ivo 1973b													K					
Ivo 1975													K					
Izquierdo 1976													K					
													L					

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		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Jarvis 1932				C	D								L		N			
Jarvis 1935						E	F		H					M				
Johnston et al. 1930									H									
Jordan & Evermann 1896-1900		A	B	C	D	E	F		H	I	J		L	M	N			Q
Jordan & Evermann 1902		A		C	D	E	F	G	H	I	J		L	M				Q
Jordan & Fesler 1893		A	B	C		E	F	G	H	I	J		L	M	N			Q
Jordan & Swain 1885			B	C		E		G	H	I	J		L	M	N			Q
Jordan & Thompson 1905				C	D		F		H	I			L		N			
Jordan et al. 1930			B	C	D	E	F	G	H	I	J		L	M	N		P	Q
Juhl 1969				C	C	E			H	I			L	M	N			Q
Juhl 1972				C	C	E			H	I			L	M	N			Q
Juhl & Suarez-Caabro 1971				C	C	E		G	H	I			L	M	N			Q
Juhl & Suarez-Caabro 1973				C	C	E							L	M	N			
Kapote 1971							F											
Kawaguchi 1974		A	B	C	D	E			H	I	J	K	L	M	N		P	Q
Kinch & O'hara 1975									H									
Klima 1976a							F											Q
Klima 1976b				C			F		H				L		N			Q
Klima 1976c									H				L		N			Q
Korzhova 1969				C				G	H				L		N			
La Monte 1958				C	D				H		J	K			N		P	
Lima 1965							F											
Longley & Hildebrand 1941				C	D								L	M	N		P	Q
Lonnberg 1894							F			I			L		N			
Love & Thompson 1969															N			
Martinez 1948				C			F		H	I			L		N			
Mather 1952				C	D		F	G	H	I			L		N			Q
McClane 1965				C	D	E	F	G	H	I			L	M	N			Q
Meek & Hildebrand 1925				C	D		F	G	H	I	J		L		N			Q
Mezentseva 1975				C									L		N			Q
Miranda Ribeiro 1961				C	D	E	F								N			Q
Moe 1963									H				L	M	N			Q
Moe 1966a									H				L		N			Q
Moe 1966b							F						L					Q
Moe 1972									H						N			
Moe et al. 1970							F											
Moe et al. 1966						E	F		H				L		N	O		Q
Monteiro de Almeida 1965							F											
Moore 1973							F											Q
Moore 1975																		Q
Morales 1967									H				L					
Moseley 1965							F		H				L					
Moseley 1966a													L					Q
Moseley 1966b							F		H									
Mota Alves 1971a												K						
Mota Alves 1971b												K						
Munro 1973		A	B	C	D	E			H					M	N		P	Q

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		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Munro 1974a		A	B	C	D	E			H					M	N		P	Q
Munro 1974b		A			D	E	F								N			
Munro et al. 1973		A			D	E				I			L	M	N			Q
Nakamura 1976							F		H					M	N			Q
Nelson & Carpenter 1968							F				J			M				
Nichols 1929		A	B	C	D		F	G	H	I	J		L	M	N			Q
Ogawa & Bastos 1971												K						
Olaechea & Quintana 1970													L					
Olaechea & Quintana 1975													L					
Olaechea & Sauskan 1974													L		N			Q
Olsen et al. 1976													L					Q
Omni Research Inc. 1973				C	D	E			H	I	J		L	M	N			Q
Oswald 1963	A													M	N			
Panella 1974					D													
Parker et al. 1972				C	D		F		H				L		N	O		Q
Pequegnat et al. 1977							F		H				L		N	O		Q
Poey 1883							F						L		N			
Powell 1950							F											Q
Prochaska & Cato 1974							F		H						N			
Randall 1962									H	I	J		L		N			
Randall 1963a				C	D				H		J		L		N			
Randall 1963b					D										N			
Randall 1967				C	D			G	H	I	J		L					
Randall 1968				C	D			G	H	I	J		L		N			
Rathjen 1959a				C	D	E	F	G					L	M	N			Q
Reid 1954							F	G	H				L					
Keshetnikov & Claro 1976				C					H				L		N			
Reshetnikov et al. 1972a					D				H				L		N			
Reshetnikov et al. 1972b				C	D			G	H	I					N			
Rijov & Valle 1974																		Q
Rivas 1949					D			G	H	I								
Rivas 1966						E	F		H			K	L	M				
Rivas 1970				C	D	E	F	G	H	I	J	K	L	M			P	
Robins 1958			B	C	D	E	F	G	H	I	J		L	M	N		P	Q
Rodrigues 1974													L					
Rodrigues 1975													L					
Rodriguez Pino 1961													L		N			
Rodriguez Pino 1962													L					
Roe 1976			B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Roithmayr 1965							F		H				L		N			Q
Rojas 1960				C														
Rosen & Ellis 1961									H									
Rounsefell 1954				C	D	E	F		H				L	M	N	O		
Routh 1959															N	O		

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		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Saenz 1963									H									
Saez 1974													L					
Sal'nikov 1965				C	D	E	F	G	H	I				M	N			
Santos & Coelho 1974									H	I		K						
Sauskan 1975															N			
Sauskan & Olaechea 1974				C			F	G	H				L					
Sauskan & Ryzhov 1975									H				L		N			
Schroeder 1921				C	D		F		H	I			L		N			
Schwartz 1972							F		H	I		K		M				
Sec. Ind. y Comer. 1976				C			F		H	I			L		N	O		
Sekavec & Huntsman 1972							F							M				
Siebenaler 1953									H				L					
Smith & Tyler 1973				C														
Smith 1975							F		H									
Smith 1976a							F		H									
Smith 1976b				C	D	E	F	G	H		J		L	M	N	O		Q
Smith et al. 1975								G	H				L		N			Q
Smith 1895							F											Q
Smith 1896				C			F		H				L					
Sokolova 1965				C			F		H				L					Q
Solis Ramirez 1966					D									M	N			Q
Sonnier et al. 1976							F	G	H	I					N			
Springer & Bullis 1956			B	C		E	F		H	I			L	M	N		P	Q
Springer & Woodburn 1960							F		H				L		N			
Starck 1961														M				
Starck & Davis 1966						E			H	I			L		N			
Starck & Schroeder 1970					D	E	F	G	H	I	J		L	M	N			
Stearns 1887c							F											
Struhsaker 1969				C		E	F		H				L	M	N	O		Q
Suarez-Caabro 1970a				C										M	N			
Sutherland 1977							F		H									Q
Swingle & Bland 1974									H									
Swingle & Dammann 1969						E								M	N			
Swingle et al. 1970										I								
Sylvester 1974						E											P	
Sylvester et al. 1977					D			G		I	J							
Sylvester & Dammann 1973														M				
Sylvester & Dammann 1974		A	B	C		E				I		K		M			P	Q
Tabb & Manning 1961									H									
Tabb et al. 1962									H				L					
Tashiro & Coleman 1977							F		H				L	M	N			Q
Thompson & Thompson 1972				C										M				
Thompson & Munro 1974		A	B	C	D	E			H	I	J		L	M	N		P	Q
Topp 1964									H									
Turner & Johnson 1973									H									

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		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Ulrich & Rhodes 1977						E	F	G					M					Q
Vasconcelos 1947															N			Q
Vick 1964					D		F		H									
Walford 1946							F											
Walford & Wicklund 1973										I								
Walker 1950				C														Q
Wallace 1977																N		
Wang & Raney 1971									H				L					
Wolf & Chislett 1974												K		M	N			Q
Wolf & Rathjen 1974														M				
Wilcox 1902				C					H				L	M				
Zaneveld 1962		A		C	D	E	F							M	N			