

## INDEX TO VOLUME 61

	Page		Page
ABUNDANCE AND AGE OF KVICHAK RIVER RED SALMON SMOLTS, by Orra E. Kerns, Jr.....	301-320	Brooks Lake, Alaska, red salmon fecundity at.....	53-60
ABUNDANCE AND DISTRIBUTION OF EGGS AND LARVAE AND SURVIVAL OF LARVAE OF JACK MACKEREL ( <i>Trachurus symmetricus</i> ), by David A. Farris.....	247-279	CALANOID COPEPODS FROM EQUATORIAL WATERS OF THE PACIFIC OCEAN, by George D. Grice..._	171-246
Age:		Columbia River blueback salmon, influence of early maturing females on reproductive potential of.	429-437
haddock, young, determined from scales....	439-450	Conkle, Charles Y., and Wilbur I. Hartman: FECUNDITY OF RED SALMON AT BROOKS AND KARLUK LAKES ALASKA.....	53-60
salmon smolts, red, of Kvichak River.....	301-320	Copepods, calanoid, from equatorial waters of the Pacific Ocean.....	171-246
shad, American, determined from scales....	161-170	Copper ore effects on ecology of a lagoon.....	153-160
Alaska:		Craddock, Donovan R., and Richard L. Major: INFLUENCE OF EARLY MATURING FEMALES ON REPRODUCTIVE POTENTIAL OF COLUMBIA RIVER BLUEBACK SALMON ( <i>Oncorhynchus nerka</i> ).....	429-437
Brooks Lake, red salmon fecundity at.....	53-60	Culture, raft, of oysters in Massachusetts.....	481-495
Karluk Lake, red salmon fecundity at.....	53-60	DETERMINING AGE OF YOUNG HADDOCK FROM THEIR SCALES, by Albert C. Jensen and John P. Wise.	439-450
Alewives, prespawning and postspawning anadromous, blood properties of.....	145-151	DEVELOPMENT, DISTRIBUTION, AND COMPARISON OF RUDDER FISHES, <i>Kyphosus sectatrix</i> (Linnaeus) AND <i>K. incisor</i> (Cuvier), IN THE WESTERN NORTH ATLANTIC, by Donald Moore.....	451-480
<i>Alosa pseudoharengus</i> , alewife, blood properties of prespawning and post spawning anadromous.	145-151	DISTRIBUTION AND ABUNDANCE OF SKIPJACK IN THE HAWAII FISHERY, 1952-53, by Herbert H. Shippen.....	281-300
American shad scales reveal age.....	161-170	Dobkin, Sheldon: EARLY DEVELOPMENTAL STAGES OF PINK SHRIMP, <i>Penaeus duorarum</i> , FROM FLORIDA WATERS.....	321-349
Atlantic:		EARLY DEVELOPMENTAL STAGES OF PINK SHRIMP, <i>Penaeus duorarum</i> , FROM FLORIDA WATERS, by Sheldon Dobkin.....	321-349
redfish, serological studies of.....	351-354	Ecology of a lagoon, copper ore effects on.....	153-160
western north, bluefin tuna growth in.....	39-52	EFFECTS OF COPPER ORE ON THE ECOLOGY OF A LAGOON, by Kenneth T. Marvin, Larence M. Lansford, and Ray S. Wheeler.....	153-160
western, north, development, distribution, and comparison of rudder fishes, <i>Kyphosus sectatrix</i> (Linnaeus) and <i>K. incisor</i> (Cuvier) in.....	451-480	Eggs, jack mackerel, abundance and distribution.	247-279
western north, filefishes (Monacanthidae) of..	61-109	EMBRYOLOGICAL STAGES IN THE SEA LAMPREY AND EFFECTS OF TEMPERATURE ON DEVELOPMENT, by George W. Piavis.....	111-143
ATLAS OF THE OCEANOGRAPHIC CLIMATE OF THE HAWAIIAN ISLANDS REGION, by Gunter R. Seckel.....	371-427	Equatorial waters of the Pacific Ocean, calanoid copepods from.....	171-246
Becker, Clarence Dale: ESTIMATING RED SALMON ESCAPEMENTS BY SAMPLE COUNTS FROM OBSERVATION TOWERS.....	355-369	ESTIMATING RED SALMON ESCAPEMENTS BY SAMPLE COUNTS FROM OBSERVATION TOWERS, by Clarence Dale Becker.....	355-369
Berry, Frederick H., and Louis E. Vogele: FILEFISHES (MONACANTHIDAE) OF THE WESTERN NORTH ATLANTIC.....	61-109	<i>Eulamia milberti</i> , sandbar shark, natural history...	1-38
Blood:			
properties of prespawning and postspawning anadromous alewives ( <i>Alosa pseudoharengus</i> ).....	145-151		
serological studies of Atlantic redfish.....	351-354		
BLOOD PROPERTIES OF PRESPAWNING AND POSTSPAWNING ANADROMOUS ALEWIVES ( <i>Alosa pseudoharengus</i> ), by Carl J. Sindermann and Donald F. Mairs.....	145-151		
Blueback salmon of Columbia River, influence of early maturing females on reproductive potential of.....	429-437		
Bluefin tuna growth in the western North Atlantic.	39-52		

	Page		Page
Farris, David A.: ABUNDANCE AND DISTRIBUTION OF EGGS AND LARVAE AND SURVIVAL OF LARVAE OF JACK MACKEREL ( <i>Trachurus symmetricus</i> )	247-279	Larvae, jack mackerel, abundance, distribution, and survival	247-279
FECDITY OF RED SALMON AT BROOKS AND KARLUK LAKES, ALASKA, by Wilbur L. Hartman and Charles Y. Conkle	53-60	Life history of sandbar shark	1-38
FILEFISHES (MONACANTHIDAE) OF THE WESTERN NORTH ATLANTIC, by Frederick H. Berry and Louis E. Vogele	61-109	Mackerel:	
Fishery, Hawaii, 1952-53, skipjack distribution and abundance in	281-300	jack, egg abundance and distribution	247-279
Florida pink shrimp, early developmental stages in	321-349	jack, larvae abundance, distribution, and survival	247-279
Grice, George D.: CALANOID COPEPODS FROM EQUATORIAL WATERS OF THE PACIFIC OCEAN	171-246	Mairs, Donald F., and Carl J. Sindermann: BLOOD PROPERTIES OF PRESPAWNING AND POSTSPA WNING ANADROMOUS ALEWIVES ( <i>Alosa pseudoharengus</i> )	145-151
GROWTH OF BLUEFIN TUNA OF THE WESTERN NORTH ATLANTIC, by Frank J. Mather III and Howard A. Schuck	39-52	Major, Richard L., and Donovan R. Craddock: INFLUENCE OF EARLY MATURING FEMALES ON REPRODUCTIVE POTENTIAL OF COLUMBIA RIVER BLUEBACK SALMON ( <i>Oncorhynchus nerka</i> )	429-437
Haddock, young, age determined from scales	439-450	Marvin, Kenneth T., Larence M. Lansford, and Ray S. Wheeler: EFFECTS OF COPPER ORE ON THE ECOLOGY OF A LAGOON	153-160
Hartman, Wilbur L., and Charles Y. Conkle: FECDITY OF RED SALMON AT BROOKS AND KARLUK LAKES, ALASKA	53-60	Massachusetts, raft culture of oysters in	481-495
Hawaii fishery, 1952-53, skipjack distribution and abundance in	281-300	Mather, Frank J., III, and Howard A. Schuck: GROWTH OF BLUEFIN TUNA OF THE WESTERN NORTH ATLANTIC	39-52
Hawaiian Islands region, atlas of the oceanographic climate of	371-427	Monacanthidae of the western North Atlantic	61-109
INFLUENCE OF EARLY MATURING FEMALES ON REPRODUCTIVE POTENTIAL OF COLUMBIA RIVER BLUEBACK SALMON ( <i>Oncorhynchus nerka</i> ), by Richard L. Major and Donovan R. Craddock	429-437	Moore, Donald: DEVELOPMENT, DISTRIBUTION, AND COMPARISON OF RUDDER FISHES, <i>Kyphosus sectatrix</i> (Linnaeus) and <i>K. incisor</i> (Cuvier), IN THE WESTERN NORTH ATLANTIC	451-480
Jack mackerel:		NATURAL HISTORY OF THE SANDBAR SHARK, <i>Eulamia milberti</i> , by Stewart Springer	1-38
egg abundance and distribution	247-279	Oceanographic climate of the Hawaiian Islands region, atlas of	371-427
larvae abundance, distribution, and survival	247-279	<i>Oncorhynchus nerka</i> , blueback salmon, influence of early maturing females on reproductive potential of Columbia River	429-437
Jensen, Albert C., and John P. Wise: DETERMINING AGE OF YOUNG HADDOCK FROM THEIR SCALES	439-450	Ore, copper, effects on ecology of a lagoon	153-160
Judy, Mayo H.: VALIDITY OF AGE DETERMINATION FROM SCALES OF MARKED AMERICAN SHAD	161-170	Oysters raised on raft in Massachusetts	481-495
KarluK Lake, Alaska, red salmon fecundity at	53-60	Pacific Ocean, calanoid copepods from equatorial waters of	171-246
Kerns, Orra E., Jr.: ABUNDANCE AND AGE OF KVICHAK RIVER RED SALMON SMOLTS	301-320	<i>Penaeus duorarum</i> , pink shrimp, early developmental stages in Florida waters	321-349
Kvichak River red salmon smolts, abundance and age of	301-320	Piavis, George W.: EMBRYOLOGICAL STAGES IN THE SEA LAMPREY AND EFFECTS OF TEMPERATURE ON DEVELOPMENT	111-143
<i>Kyphosus sectatrix</i> (Linnaeus) and <i>K. incisor</i> (Cuvier), rudder fishes, in western North Atlantic, development, distribution, and comparison of	451-480	Pink shrimp, <i>Penaeus duorarum</i> , early developmental stages in Florida waters	321-349
Lagoon, copper ore effects on ecology of	153-160	RAFT CULTURE OF OYSTERS IN MASSACHUSETTS, by William N. Shaw	481-495
Lamprey, sea:		Red salmon:	
development affected by temperature	111-143	escapements estimated by sample counts from	
embryological stages in	111-143	observation towers	355-369
Lansford, Larence M., Kenneth T. Marvin, and Ray S. Wheeler: EFFECTS OF COPPER ORE ON THE ECOLOGY OF A LAGOON	153-160	fecundity at Brooks and KarluK Lakes, Alaska	53-60
		smolts, abundance and age in Kvichak River	301-320
		Redfish, Atlantic, serological studies	351-354
		Rudder fishes, <i>Kyphosus sectatrix</i> (Linnaeus) and <i>K. incisor</i> (Cuvier) in the western North Atlantic, development, distribution, and comparison of	451-480

	Page		Page
Salmon:		Sindermann, Carl J., and Donald F. Mairs: BLOOD	
blueback, of Columbia River, influence of early		PROPERTIES OF PRESPAWNING AND POSTSPAWN-	
maturing females on reproductive potential		ING ANADROMOUS ALEWIVES ( <i>Alosa pseudohar-</i>	
of.....	429-437	<i>engus</i> ).....	145-151
red, escapements estimated by sample counts		Skipjack distribution and abundance in the Hawaii	
from observation towers.....	355-369	fishery, 1952-53.....	281-300
red, fecundity at Brooks and Karluk Lakes,		Spawning:	
Alaska.....	53-60	postspawning anadromous alewives ( <i>Alosa</i>	
red, smolts, abundance and age in Kvichak		<i>pseudoharengus</i> ), blood properties of.....	145-151
River.....	301-320	prespawning anadromous alewives ( <i>Alosa pseu-</i>	
Sandbar shark, <i>Eulamia milberti</i> , natural history..	1-38	<i>doharengus</i> ), blood properties of.....	145-151
Scales:		Springer, Stewart: NATURAL HISTORY OF THE	
reveal age of American shad.....	161-170	SANDBAR SHARK, <i>Eulamia milberti</i> .....	1-38
reveal age of young haddock.....	439-450	Temperature effects on sea lamprey development..	111-143
Schuck, Howard A., and Frank J. Mather, III:		<i>Trachurus symmetricus</i> , jack mackerel:	
GROWTH OF BLUEFIN TUNA OF THE WESTERN		egg abundance and distribution.....	247-279
NORTH ATLANTIC.....	39-52	larvae abundance, distribution, and survival..	247-279
Sea lamprey:		Tuna:	
development affected by temperature.....	111-143	bluefin growth in western North Atlantic.....	39-52
embryological stages in.....	111-143	skipjack distribution and abundance in the	
Seckel, Gunther R.: ATLAS OF THE OCEANOGRAPHIC		Hawaii fishery, 1952-53.....	281-300
CLIMATE OF THE HAWAIIAN ISLANDS REGION..	371-427	VALIDITY OF AGE DETERMINATION FROM SCALES OF	
SEROLOGICAL STUDIES OF ATLANTIC REDFISH, by		MARKED AMERICAN SHAD, by Mayo H. Judy..	161-170
Carl J. Sindermann.....	351-354	Vogele, Louis E., and Frederick H. Berry: FILE-	
Shad, American, age determined from scales....	161-170	FISHES (MONACANTHIDAE) OF THE WESTERN	
Shark, sandbar, natural history.....	1-38	NORTH ATLANTIC.....	61-109
Shaw, William N.: RAFT CULTURE OF OYSTERS IN		Wheeler, Ray S., Kenneth T. Marvin, and Larence	
MASSACHUSETTS.....	481-495	M. Lansford: EFFECTS OF COPPER ORE ON THE	
Shippen, Herbert H.: DISTRIBUTION AND ABUN-		ECOLOGY OF A LAGOON.....	153-160
DANCE OF SKIPJACK IN THE HAWAII FISHERY,		Wise, John P., and Albert C. Jensen: DETERMIN-	
1952-53.....	281-300	ING AGE OF YOUNG HADDOCK FROM THEIR	
Shrimp, pink, <i>Penaeus duorarum</i> , early develop-		SCALES.....	439-450
mental stages in Florida waters.....	321-349		
Sindermann, Carl J.: SEROLOGICAL STUDIES OF			
ATLANTIC REDFISH.....	351-354		