

Cumulative Index 1958 to Present

Drum and Croaker
No. 1, June 15, 1958
Table of Contents

	<u>Page</u>
I. ANNOUNCEMENT OF NEXT AQUARIUM SYMPOSIUM	2
II. NEWS FROM THE AQUARIUM WORLD	
1. Caracas	3
2. Fort Worth	3
3. Marineland	3
4. Marineland of the Pacific	4
5. Ocean Park	4
6. Seaquarium	4
7. Scripps	4
8. Shedd	5
9. Steinhart	5
10. Vancouver	5
III. MIMEOGRAPHED PUBLICATIONS OF INTEREST	
"The Mariner"	5
"Vancouver Aquarium Newsletter"	6
"T. Wayland Vaughn Aquarium-Museum"	6
IV. LITERATURE REVIEW	
Lackey and Lackey: Some visibility problems in large aquaria	6
Gilbert and Wood: Method of anesthetizing large sharks and rays rapidly	6
Scholes: Three reasons for sudden mortalities in marine tanks	6
V. SPECIAL NOTES	
Leo Allison: Control of foam on sea water	7
Keith Kreag: Lindane insecticide for Argulus treatment	7
Donald Simpson: Synthetic plants for aquarium use.....	7
VI. SHORT ARTICLES	
Wm. McFarland: Collection of intertidal fishes or how to scuff your shins, <i>drown</i> and swear at the same time.	8
Craig Phillips: Use of neoprontosil azosulfamide in treating abrasion induced blindness in marine fishes.	9
Donald Simpson: Some notes on the compulsive behaviorism of an African Mormyrid of the genus <i>Gnathonemus</i>	10
Robert Dempster: Shipping test of the giant pacific octopus <i>apollyon</i> within a sealed container.....	11
VII. FISH AND <i>OTHER EXCHANGES</i>	12
VIII. MISCELLANEOUS.....	12
Paul Bruns Transshipment Fish Checking Service	12
Admittance charges at western aquaria.....	12
Pan American Airways Reptile Shipping requirements	13

DRUM AND CROAKER

Number 2, January 15, 1959

TABLE OF CONTENTS

	<u>Page</u>
I. THE AQUARIUM SYMPOSIA	
1. The 1958 meetings at Bloomington, Indiana.....	4
2. Announcement of 1959 meetings at LaJolla, California.....	5
II. NEWS FROM THE AQUARIUM WORLD	
1. Caracas, Venezuela.....	6
2. Cairns and Brisbane, Australia.....	6
3. Noumea, New Caledonia.....	6
4. South Africa.....	6
5. Shimonseki, Japan.....	6
6. Curacao, Netherlands Antilles.....	6
7. Marineland, Florida.....	7
8. Seaquarium. Miami. Florida.....	7
9. Cleveland, Ohio.....	7
10. Toledo, Ohio.....	7
11. New York Aquarium.....	7
12. Washington D.C. Aquarium.....	8
13. Shedd Aquarium, Chicago.....	8
14. Dallas, Texas	8
15. Hermosa Beach, California.....	8
16. Marineland of the Pacific.....	8
17. POP: Pacific Ocean Park, Santa Monica Calif.....	9
18. Steinhart Aquarium, San Francisco.....	10
19. Seattle, Washington.....	10
20. Vancouver, British Columbia.....	10
III. PEOPLE.....	10
IV. LITERATURE REVIEW	
McFarland and Norris: The control of pH by buffers in fish transport.....	11
Downing: Aeration in aquaria.....	12
V. SPECIAL NOTES	
Robert Dempster: More about lindane insecticide for Argulus treatment	13
Robert Dempster: Suggestions on air shipment of fishes.....	13
Donald Simpson- Steinhart's Blennies do not like living in glass houses.....	14
Donald Simpson: Semantics in the fish world.....	15

VI. SHORT ARTICLES

- a. William E. Kelley: Relative performance of
different depths of filtrant in sand filters..... 15

- b. Christopher W. Coates: The use of synthetic rubber in setting aquarium glass..... 17

VII. MISCELLANEOUS

- Announcement of new editor of DRUM AND CROAKER - Lee Finneran..... 19

Number 3, July 1959

CONTENTS

Aquariums Committee Report, Am. Inst. Park Exec., 1958. By K. Kroag	1
New Aquarium-Memphis, Tennessee. By R. Gray	3
Notes on Arapaima. by W. Kelley.....	4
“ “ “ . by L. Curtis	5
“ “ “ . by W. Braker.....	6
Short Note, NYA Annual Report.....	6
Arapaima Antics at Belle Isle. by L. Finneran	6plus1
Aquarium Signs. by George Spelvin.....	10
Aquarium signs correspondence to editor from S. Hinton	11
Aquarium sign by S. Hinton.....	12
Collaboration.....	13
Note Notes	14
Porpoise Bill. by W. F. Rolleston.....	15
Review	17
Correspondent Aesthetic	18
Aquarium Symposium 1959 Listing.....	19

DRUM AND CROAKER

October 26, 1961

CONTENTS

Cover	1
Contents.....	3
Menageries and Missions - Editorial.....	4
Self-Inhibition by Captive Fishes through the Water in which They Live by James W. Atz	5
The National Fish Hatchery Aquarium at Welaka Florida by Craig Phillips	8
Some Optical Properties of Aquaria and Their..... Application to Lighting and Design by William Kelley	13
Shedd Aquarium Briefs by William Braker	20
Note Notes.....	20
The Bureau of Commercial Fisheries Opens A..... New Summer Aquarium At Woods Hole by Charles Wheeler	21
Aquaria in Japan by Sergeant M. L. Jones	24
An Aquarium Exhibit with Polarized Light by William Kelley	32

DRUM AND CROAKER

April 23, 1962

CONTENTS

First is a Fashion - Editorial.....	4
Seven Seas Panorama - Donal Olsen	5
Exhibit Idea.....	8
Monaco Meetings - Hearld	9
Instant Ocean - R. M. Segedi & Kelley.....	13
Germanic Stuff.....	18
Lindane	19
Steinhart.....	20
Construction.....	21
Bibliographical Stuff.....	23
Arapaima at Memphis - Ronald Graves.....	25
Note Notes	26
Fish Names	27
On Harboring Seals - Kelley.....	30
Living Parasite Pickers - Atz	31
The Higher Sensitivity of Alice Mae	

by

F. Phillips

Page thirty-four

DRUM AND CROAKER
September 14, 1962

Table of Contents

Editorial - What is a Good Public Aquarium	4
Octopus Alive - John H. Prescott.....	5
Circulation and Chemistry of Sea Water - James W. Atz	8
Plastic Plumbing - James W. Atz.....	10
Aquarium Committee.....	10
New Approach - Ralph C. Morrill	11
Boston's Staff Additions.....	11
Ichs & Herps Meeting.....	12
Floor Space	13
Seattle Aquarium	14
Anonymous Minutes	16
Note on Rearing Brine Shrimp - James W. Atz.....	18
Label, Exhibit Height and Visitor Barriers	24

DRUM AND CROAKER
June 1, 1963

TABLE OF CONTENTS

	Page
Observations From Under the Right Gill Cover	4
Aquarium Symposium in Vancouver.....	15
Recent Publications of Interest to Aquarists - J. W. Atz.....	10
A Manatee Experience - Max Hofmeister.....	12
The Naked Goby, <i>Gobiosoma boscii</i> , Fin Nipper Extraordinary Gordon Gunter	13
Longevity at The Dallas Aquarium-Jeff Moore	14
A Simple and Effective Mechanical Feeding Mixture for Cold-blooded Vertebrates - Craig Phillips.....	15
A Visit to The Philadelphia Zoo and Aquarama "Theatre of The Sea "- Sfc. Marvin Jones.....	16
Mission Bay Oceanarium - Ken Norris	19
Sea Life Hawaii - Ken Norris	19
"Cortoons"- Dick Cortimillia	20

DRUM & CROAKER

Volume Sixty-Four, Number 1 [aka 6 (1):]

15 July 1964

	Page
Aquarium Symposium	1
Observations Near the Gill Cover or Ich.....	2
Notes	3
Publications of Note & Some Interest.....	4
Northern Fur Seals – Eric Friese.....	5
Tank Cleaning Made Easy – George Landis & Arthur C. Johnson	9
National Fisheries Center and Aquarium – Wm. Hagen.....	10
Statement of Intent – Earl Herald.....	12
Behavior of Pacific Bonito <u>Sarda chiliensis</u> at Marineland of the Pacific – J. J. Magnuson & J. H. Prescott	14

CONTENTS

	Page
Aquarium Symposia	
Past - New York.....	1
Future – Chicago.....	1
Our Delicate Fish - J. W. Atz.....	2
National Aquarium.....	3
Notes on the Fresh-water.....	4
Literature - Recent, & Helpful - Atz.....	6
New York Aquarium Other Changes.....	7
Dallas Aquarium - Jeff Moore.....	8
New Notes.....	11
R 7464 - A New Potent Anesthetic in Fish - D. Thienpont and C.J.E. Niemegeers.....	12
Sixgill Shark (<u>Hexanchus corinum</u>) - Eric Freese.....	17
Collecting with Pump and Garden Hose -- David C. Powell.....	20
Age of <u>Oodinium</u> Gives Way to <u>Pseudomonas</u> - Earl S. Herald.....	21

Drum and Croaker 65(2), Fall 1965

CONTENTS

	Page
Chicago -- Earl Herald, Steinhart Aquarium	1
Abstracts of Papers Presented at the Aquarium Symposium, Chicago, 1965	
The Decline and Demise of Vancouver's Killer Whale "Moby Doll" Vince Penfold	2
New England Aquarium, The Proposed Sea Water System -- Dave Miller.....	3
The National Fisheries Center -- Wm. Hagen.....	3
Aquarium of Niagara Falls -- William E. Kelley.....	4
Capture of the Lemon Shark (<i>Negaprion brevirostrus</i>) and its Maintenance at Philadelphia (a closed system inland aquarium) -- D. W. Wilkie.....	5
The Educational Program for School Groups, T. Wayland Vaughan - Aquarium-Museum, Scripps Institution of Oceanography -- D. W. Wilkie	5
Some Newly Developed Educational Aids -- Burton Clark	6
The Nitrogen Sequence in Fresh water and Sea water Aquaria -- James W. Atz	7
Miami Seaquarium Marine Microbiological Survey - Warren Zeiller.....	7
A Planned One-Level Aquatic Animal System for the Cleveland Aquarium D. H. Moreno	8
Progress Report on the Extension to the Vancouver Public Aquarium Vince Penfold	8
A Mechanical Device for Cleaning the Interior Surfaces of Large Aquarium Tanks Walter L. West.....	9
Use of Quinaldine as a Diving - Collecting Anesthetic - Vince Penfold.	9
Marineland, Morecambe, England -- Ken Denham	10
Interior Department Names Head of National Fisheries Center – Fish and Wildlife Service Bureau of Sport Fisheries and Wildlife.....	11
Literature -- James W. Atz.....	12
Notes and Observations -- Earl Herald	13

CONTENTS

Miami

Aquarium Symposium.....	1
A. S. I. H. Meetings.....	1
Anthium Dioxide -- Warren Zeiller.....	2
Observations on Hypochlorination -- R. A. Martin	5
The Basic Requirements of a Good Fish Feed -- A. M. Phillips, Jr.....	8
A Dietary Supplement for Sea Turtles -- Warren Zeiller.....	10
Undersea Gardens - Seattle -- Eric Friese.....	11
Maintenance Problems in Large Public Aquaria -- Frank de Graaf	13
A Tank for Exhibiting Tide Pool Invertebrates -- D. H. Moreno	15
A Beluga from Ile-Aux-Coudres Flies to Britain -- G. Morin.....	17

Drum and Croaker 68(1), January 1968
CONTENTS

	Page
<u>The Use of Quinaldine as a Tranquilizing Drug for Aquarium Fishes</u>	1
Robert P. Dempster	
<u>Bioluminescence in Marine Vertebrates (Fishes)</u>	3
Russell Ramski	
<u>The Osborn Laboratories of Marine Sciences – photograph</u>	7
<u>An Improved Type of Plywood for Use in Aquarium Construction</u>	8
Edward J. Peterson	
<u>Mechanical Testing and Bioassay of Adhesive/Sealants</u>	9
<u>for Use in Aquatic Environment</u>	
Walter L. West and Philip A. Butler	
<u>Some Unusual Aquatic Snakes</u>	11
Craig Phillips	
<u>Ultraviolet Irradiation of Marine Aquaria</u>	16
Billie M. Bevan and Warren Zeiller	
<u>A Meal-Gelatin Diet for Aquarium Fishes</u>	21
Edward J. Peterson, Rayburn C. Robinson and Harvey Willoughby	
<u>National Fisheries Center and Aquarium – photograph</u>	26

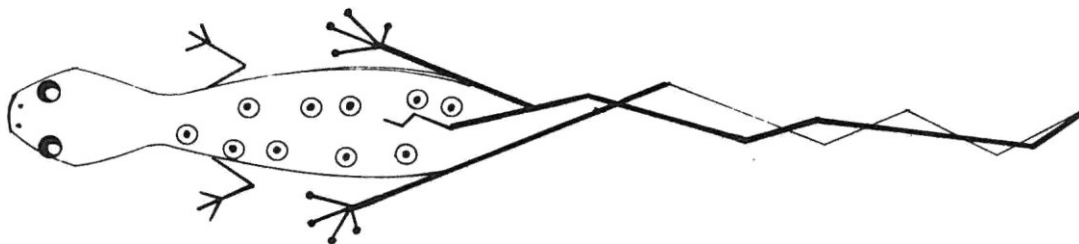
Drum and Croaker 68(2), May 1968
CONTENTS

	<u>Page</u>
<u>Aquarium Symposium</u>	1
<u>Paddlefish in Denmark's Aquarium</u> Jan Boëtius	3
<u>Excerpts from Recent Research</u> <u>Findings on the Biological</u> <u>Effects of Light: Their</u> <u>Application in the Dental</u> <u>Office</u> James W. Benfield	5
<u>Aquarium Therapy</u> Douglas Welch	7
<u>The Cleveland Aquarium</u> Daniel H. Moreno	9
<u>More on Plywood from the</u> <u>Veteran Aquarist</u> Christopher W. Coates	10
<u>Travels--Up Up and Away</u>	12
<u>New England Aquarium</u>	14
<u>A Look at Some Public</u> <u>Aquariums in Japan</u> Richard M. Segedi	16
<u>Oregon Salmon</u>	22
<u>Hippocampus Hippocampus</u> <u>erectus erectus</u> Warren Zeiller	23
<u>Aquarium Research at the</u> <u>Academy of Natural</u> <u>Sciences of Philadelphia</u> Neal R. Foster	24
<u>The Pittsburgh Aquarium</u> Bill Flynn	25
<u>Baby Nurse Sharks</u> Warren Zeiller	29
<u>Up-dating Mailing List</u>	31
<u>Prohibition of Harmful</u> <u>Fish Importations</u> <u>(Regulation)</u>	32

CONTENTS

The Aquarium Symposium	1
Abstracts:	
Chronic Effects of Heavy Metals on Fishes John G. Eaton	2
Ultraviolet Sterilization of Aquarium Water Earl S. Herald, Robert P. Dempster .and Marjorie Hunt	3
Some Observations of the Spawning Behavior of the Australian Lungfish (<i>Neoceratodus forsteri</i>) Daniel Moreno and Richard Segedi	5
The Effect of Fish Loading Rates on the Accumulation of Ammonia, Nitrites and Nitrates in Recirculating Fresh water Aquarium Systems John Leonard	6
The Pacific Octopus in a Closed Circulating Artificial Sea Water System Stephen Spotte	7
Thrombosis of the Aorta in a Small Aquarium Fish Sylvan Cohen	9
Experiences Keeping and Breeding <i>Osphronemus goramy</i> Ross Socolof	13
Grey Seal and Friends	15

Miami Seaquarium Receives Killer Whale	17
Philadelphia Underwater Museum	18
Reproduction and Early Development in <i>Monodactylus sebae</i> Arthur I. Hegedus	19
Experimental Tank for Pelagic Sharks David C. Powell	25
Maintenance of the Yellowbellied Seasnake (<i>Pelamis platurus</i>) in Captivity Warren Zeiller	27
Recommended Standards for Tank Furnishings other than Fishes and Plants	31
The Curse of Copper-Bearing Minerals in Aquarium Sand and Gravel Robert P. Dempster, Earl S. Herald, and William H. Shipman	34
Aquarium Facility to be Built on Puget Sound	40



Drum and Croaker 69(1), January 1969

Contents

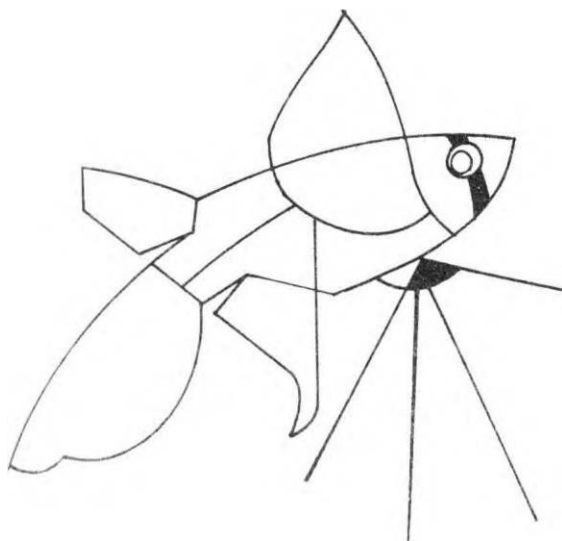
Bonnethead Shark (<i>Sphyna tiburo</i>) in Captivity Gerrit Klay	1
Killer Whale Growth Data Jesse R. White	7
Observations Made During the Breeding of Cuttle Fish Werner Schroeder	9
TV Show Stars Fish	17
Outbreak of Cryptocaryoniasis in Marine Aquaria Donald W. Wilkie and Hillel Gordin	23
Abstracts:	32
Educational Program and Policies at the T. Wayland Vaughn Aquarium-Museum	
Effects of Copper Sulfate on the California Spiny Lobster	
Notes on the Growth of a Fresh-water Dolphin (<i>Inia geoffrensis</i>) Donald Zumwalt	33
Miscellany	37
Some Parasitic Fungi Affecting Aquarium Fish Edward J. Peterson	39

DRUM AND
CROAKER
May 1969

CONTENTS

	Page
Use of Ultraviolet Irradiation in the Treatment of Abrasion• Induced Blindness <i>James S. Kepley</i>	1
The Training of Fishes <i>Shiro Takamatsu</i>	3
New Aquarium in Cologne	10
Legislation on Disease Control	14
Aquarium of Cape Cod on Parker 's River	15
Aquariums at National Fish Hatcheries	17
Mariculture	18
Juvenile Tropical Fish Raised in Lab	19
Glass for Underwater Windows <i>David Miller</i>	21
Tax Enigma <i>Earl S. Herald</i>	29

Conference on Exotic Fishes and Related Problems	31
Color Preservation in Fishes <i>Jerry LeTendre</i>	35
Piranha Outlawed	36



DRUM AND CROAKER
SEPTEMBER 1969

CONTENTS

Aquarium Symposium;	Page
Field and Aquarium Study of the 2 Blind River Dolphin, <i>Platanista gangetica</i> <i>Earl S. Herald & Robert L. Brownell</i>	2
Use of Various Salt-Adapted Plants in..... 2 the Tropical Shoreline Exhibit <i>Craig Phillips</i>	2
Aquarium Glass: A Structural Component 3 <i>Walter L. West</i>	3
Experiences with <i>Inia geoffrensis</i> 7 <i>William Flynn</i>	7
Reverse Osmosis for Aquarium Water 8 <i>Lee M. Kindley</i>	8
Survival of Corals in an Open..... 9 Aquarium System <i>Robert A. Martin</i>	9
Removal of Ammonia from Aquarium 12 Water by Chlorination and Activated Carbon <i>John C. Baummer & Loren D. Jensen</i>	12
Use of GPX High-Density Plywood in the 13 Construction of Aquaria <i>Richard H. Reckeweg</i>	13

More on Baby Nurse Sharks	17
<i>Warren Zeiller</i>	
Aquarium at the Gavins Point Hatchery.....	19
The Biology of Glass	21
<i>P.D. Adams</i>	
Tids & Bits from SIO.....	27
<i>Donald W. Wilkie</i>	
<i>Charles J. Farwell</i>	
The Use of Copper Sulfate as a Medicament.....	29
for Aquarium Fishes	
and as an Algaecide in Marine Mammal Water Systems--Review	
The Fishermen and the Whale.....	31
Will We Ever Learn?	33
Mystery Sound	37
<i>Herb Reichelt</i>	
The Design Approach	39
<i>Darrel Conybeare</i>	
National Aquarium Receives Russian Pike.....	43
Seashore Life of So. California--Review	44
We Stand Corrected	44
Automated Aquariums	45
Rhinomuraena ambonensis	46
The Salt Water Aquarium Manual--Review	47
Japanese Aquarium Tour.....	48
<i>Earl S. Herald</i>	
Index 1968-1969	49

CONTENTS

The Origins of Drum and Croaker <i>Wm. Hagen</i>	3
The Dolphinarium <i>Walter Van den Bergh</i>	9
Problem in the Pacific- <i>Acanthaster planci</i> <i>Craig Phillips</i>	13
Brackish Water as a Cure for Ichthyophthiriasis in Trout <i>Robert P. Dempster</i>	17
Dolphins in Japan <i>Masayuki Nakajima</i>	20
Artificial Coral Foods for Reef Fishes <i>W. Kymmerly Murphy</i>	23
Some Aquariums of Europe <i>George B. Rabb</i>	25
The Use of Hydrogen Peroxide in the Control of Fish Disease <i>Robert P. Dempster & William H. Shipman</i>	27
Keep them Moving <i>Don Fuhrman</i>	30
Sea World of Ohio <i>W. Kymmerly Murphy</i>	35
The Seafloor Aquarium <i>R.A. Martin</i>	37
Oceanarium Water Intake and Filtration Problems <i>C.K. Tayler</i>	41
Comments on Eye Damage to a White-Sided Dolphin <i>Lagenorhynchus obliquidens</i> <i>Richard Shopen</i>	47
Corrosion Control <i>Billie M. Bevan</i>	51
More on Corrosion <i>Walter L. West</i>	57

DRUM AND CROAKER Volume 11 (70), Number 2, May 1970
CONTENTS

Aquarium Symposium:

Ichs and Herps Meeting <i>Louis E. Garibaldi</i>	1
Abstract <i>Herman E. Kumpf</i>	4
The Periodic 24-Hour Monitoring of Selected Water Quality Criteria in Recirculating Freshwater Aquaria <i>John R. Leonard</i>	5
The Application of Fluidics in the Aquarium <i>Louis E. Garibaldi</i>	7
Some Inexpensive Electric Immersion Heaters for Large Tanks <i>Richard M. Segedi</i>	11
Nomenclature	14
A New Aquarium in Iceland <i>Richard M. Segedi</i>	15
Issues of DRUM AND CROAKER	18
Beware of Carpet Glue <i>Robert A. Morris and U. Erich Friese</i>	19
Plastic Plants Can Be Deadly <i>William Flynn and James S. Kepley</i>	21
Swimming Behavior of the Bonnethead in Shallow Water <i>Gerrit Klay</i>	23
Therapeutics of Malaria (<i>Plasmodium relictum</i>) in Penguins at Sea World in San Diego, California <i>David w. Kenney</i>	27
Algae Removal by Hermit Crabs <i>Sam Passalacqua</i>	35
The Quebec Aquarium <i>Karl-Heinz Krumke</i>	39
More on Adhesives/Sealants	42•

CONTENTS

On the Maintenance of Squid in Confinement <i>Edward T. LaRoe</i>	1
Sodium Chlorite for Water Clarity in the Marine Dolphin System <i>Robert P. Dempster</i>	5
Note of Appreciation <i>Paul and Lona Comley</i>	7
A Simple Airlift Filter <i>Elmer H. Taylor</i>	9
Spawning of Australian Lungfish <i>Arthur M. Hegedus</i>	11
Biology Laboratory at the Vancouver Public Aquarium <i>Sharon Proctor</i>	15
The Protein Skimmer <i>Bryce P. Anderson</i>	17
Aquarium Diet	22
Coastal Collecting <i>Steve McCusker</i>	23
Report on the Spawning of the Piranha, <i>Serrasalmus rhombeus</i> , at the New York Aquarium <i>Werner Schreiner</i>	26
Live Snowflakes <i>Louis Garibaldi</i>	29
Successful Maintenance of a Pacific Octopus <i>Stephen H. Spotte</i>	31
The Aquarium Reptile Building at the Milwaukee Zoo <i>Ken Schoenrock</i>	32
"Aquarium Design Criteria"	36

Drum and Croaker Special Edition #1
Aquarium Design Criteria, September 1970
CONTENTS

	Page
FOREWORD, by W. J. Wisby	iii
INTRODUCTION	1
THE NEED AND CONCEPT	3
THE PLANNERS	5
COORDINATION	6
DESIGN AND PEOPLE.....	7
THE OPERATIONS AREA	11
WATER QUALITY, by J. W Atz.....	15
WATER SYSTEMS	
Open System	21
Closed Systems	22
New England Aquarium System.....	24
Steinhart Water System (Semi-closed), by E. S. Herald.....	26
FILTRATION, by E. J. Peterson	
Mechanical	31
Chemical	32
Biological.....	33
Electro-Static (Protein removal)	35
The Protein Skimmer	36
WATER AND FILTER REQUIREMENTS - FORMULA.....	40
RESERVE WATER.....	41
PLUMBING.....	42
PUMPS	44
TEMPERATURE	47
DISPLAY TANKS	48
GPX Plywood, by R. H. Reckeweg	51
LEGEND BOXES.....	54

	Page
STERILIZATION AND ION REMOVAL	
Ultraviolet, by E. S. Herald	57
Reverse Osmosis	72
Ozone, by J. L. Leonard	74
OCEANARIUM INTAKES	
Port Elizabeth, by C. K. Taylor	77
Durban, by H. Murt.....	83
CORROSION CONTROL, by B. M. Bevan	
More on Corrosion, by W. L. West	86
More on Corrosion, by W. L. West	91
GLASS, by D. Miller	
Structural, by W. L. West.....	92
Structural, by W. L. West.....	99
ADHESIVES AND SEALANTS, by W. L. West and P. Butler.....	
	102
DESIGN FOR EXOTIC SPECIMENS, by W. J. Wisby	
	104

Volume 12 (71), Number 1, January 1971
CONTENTS

DRUM AND CROAKER Changes Hands	iv
Phase-out of the National Fisheries Center and Aquarium	1
Aquarium Symposium - An End to the Confusion	2
Experience in Blue (Sharks) <i>Louis Garibaldi and Ronald Lloyd</i>	3
Japanese Aquarium Tour	5
Use of Laminated Plastic in Wood Aquariums <i>Herbert W. Reichelt, Jr.</i>	6
Fish Medicine at Texas A&M <i>Carl W. Lahser, Jr.</i>	7
The Marine Aquarium in the Classroom <i>Rimmon C. Fay</i>	9
Toxicology of Common Metallic Salts: Fresh and Saltwater Fishes <i>Kym Murphy</i>	11
From the Medicine Chest (Electric eel) <i>Louis Garibaldi</i>	13
Second Generation Pirahna <i>Louis Garibaldi</i> _	14
Chlorine +3 <i>Louis Garibaldi</i>	15
A Description of the Method Used to Determine the Presence of Chlorite in Water when Sodium Chlorite is Added to a Fish Tank or Large Water System <i>Robert P. Dempster and Bruce P. Anderson</i>	20

Use of Copper Sulphate at Millen Aquarium <i>Herbert W. Reichelt, Jr.</i>	26
Of Manatees and Other Things <i>Earl S. Herald</i>	27
Signs and Sense <i>George B. Rabb</i>	29
Fish Louse Needed	31
S-E-A Scope	32
Book Review - Fish and Invertebrate Culture Water Management in Closed Systems	33
Live Fish Transport (Sharks)	34

Volume 13(72), Number 1, February 1972
CONTENTS

ON BILL HAGEN'S RETIREMENT Warren J. Wisby	
AQUARIUMS ARE FOR DIRECTORS William Hagen	3
A <u>DRUM AND CROAKER</u> NON-EDITORIAL	6
UPCOMING ASIH MEETINGS Louis Garibaldi	7
RECOLLECTIONS OF AAZPA MEETINGS IN SALT LAKE CITY Daniel H. Moreno	8
TO ALL AQUARISTS	9
SECOND KILLER WHALE SUCCESSFULLY FLOWN FROM UNITED STATES	11
LOSS OF WATER QUALITY IN CLOSED MARINE SYSTEMS Thomas R. Hablett	12
THE DEPLETION OF COPPER IN MARINE AND FRESHWATER ENVIRONMENTS BY ACTIVATED CARBON FILTRATION Brad Latvaitis	13
IT'S A RARE BIRD ...ER ...FISH!	17
ARAPAIMA DEATHS CAUSED BY PLASTIC PLANTS Elmer H. Taylor	18
THE AGE OF ARAPAIMA William P. Braker	19
LITTLE-KNOWN FISHES OF THE POTAMAC RIVER Craig Phillips	20
NEW LABELING SYSTEM AT JOHN G. SHEDD AQUARIUM Emanuel Ledecy-Janecek	21
NOTES FROM STEINHART AQUARIUM Earl S. Herald	27
RESEARCHERS AT THE SHEDD AQUARIUM Donald Zumwalt	29
NOTICE!!	30

THE CONSTRUCTION OF AN INEXPENSIVE SYNTHETIC ENVIRONMENT FOR COLD WATER, MARINE ORGANISMS Warren W. Burggren	31
LIMNO-LOONIES Craig Phillips	39
TOWARD UNITY IN CETACEAN MEASURING Craig R. Mosier	43
MIAMI SEAQUARIUM COOPERATIVE PROJECT WITH DADE COUNTY PUBLIC SCHOOLS LABORATORY RESEARCH PROGRAM Warren Zeiller	47
FISH DISEASE AT THE JOHN G. SHEDD AQUARIUM Donald Zumwalt	50

Volume 13 (72), Number 2, July 1972
CONTENTS

	Page
A LETTER TO THE EDITOR Thomas R. Hablett	1
EUROPEAN UNION OF AQUARIUM CURATORS FORMED Frank de Graaf	2
THE EDWARD H. BEAN MEMORIAL AWARDS Margaret A. Dankworth	3
TO ALL AQUARIUM DIRECTORS AND CURATORS	4
GUIDELINES - THE EDWARD H. BEAN AWARD William E. Meeker	4
AAZPA MEETING NOTICE	5
BEAN AWARD NOMINATION FORM	6
NEW TIDEPOOL DISPLAY AT SEA WORLD, SAN DIEGO Dave Powell	7
A PROGRAM FOR ENVENOMATION - DO YOU HAVE ONE? Alan M. Levitt	9
"REAL CHEAP" DE FILTER FOR SPOT-CLEANING SMALL SYSTEMS C. Darby Fulton	14
SHARK- QUARIUM (GROWING UP) Gerrit Klay	16
WHAT'S A PURPLE GUDGEON? Ross Socolof	17
OBSERVATIONS ON EGG LAYING IN THE HORN SHARK Charles Farwell	20
METHODS AND TECHNIQUES FOR COLLECTING AND MAINTAINING ALEWIVES FOR BIOLOGICAL RESEARCH Fred P. Binkowski	21
NURSE SHARK - 300 POUNDS OF HELL Gerrit Klay	28
ON THE PRESERVATION OF THE MANATEE Craig Phillips	30

INTRODUCTION TO KEY TO RECENT SIRENIA Craig Phillips	33
HOUSING REQUIREMENTS FOR MANATEES AND DUGONGS Craig Phillips	36
AQUARIUM DIRECTORY NOW AVAI LABLE	38
SNYDER OCEANOGRAPHY SERVICES OFFERS CATALOGUE OF POLLUTION PUBLICATI ONS	39
NOTES ON THE GALAPAGOS ISLANDS Ed Zern	40
SPAWNING THE CLOWN LOACHES Tom Cotten	42
KI LLER WHALE AT HOME DOWN UNDER	44
THE USE OF ULTRA-VIOLET LIGHT FOR WATER PURIFICATI ON Robert E. Flatow	46
THE FEATHER RIVER HATCHERY	46
CHEMOTHERAPY OF FISH DISEASES: A REVIEW Roger Lee Herman	50
FI SH CENSUS Craig Phillips	55
AN ANTIDOTAL STUDY ON THE SKIN EXTRACT OF THE PUFFER FI SH Sheridan Golin and Edward Larson	57
DIETARY DEFICIENCY IN LION FISH Dr. Sylvan Cohen	63
QUINALDINE: A RAY OF HOPE FOR AN OLD ENIGMA Warren Zeiller	65
AN UNUSUAL CASE OF TETRODOTOXICATION Merritt S. Keasey, III	68
MARINE ZOOPLANKTON AS FOOD FOR THE AQUARI UM K. G. Hewlett	69
AQUARIUM EXHIBITS AT THE GULF COAST RESEARCH LABORATORY Gordon Gunter	71
NEW EXHIBIT AQUARIA AT THE VIRGINIA INSTITUTE OF MARINE SCIENCE James Lanier	72

Volume 14 (73), Number 1, April 1973
CONTENTS

	Page
THE DEMISE OF THE NATIONAL FISHERIES CENTER AND AQUARIUM William Hagen	1
HISTORY OF THE NATIONAL AQUARIUM Craig Phillips and Carl F. Wall	3
CALGARY AQUARIUM CLOSED	7
SOME EDUCATIONAL PROGRAMS FOR AQUARIUMS WITH MINUSCULE BUDGETS Alan Levitt	8
THE LEGEND OF CHARLIE COPEPOD Jody Licht	13
COLORS BENEATH THE SEA David C. Powell	16
RECENT RESEARCH ON BIOLOGICAL FILTRATION Scott E. Siddall	18
GREEN LIGHT FOR OCEANARIUM	23
WATER QUALITY MONITORING AT THE NATIONAL AQUARIUM John R. Leonard	25
ESTIMATE OF AQUARIST POSITIONS IN THE UNITED STATES Glenn Burghardt	27
A NEW EXHIBIT CONCEPT FOR THE PITTSBURGH AQUAZOO Richard M. Segedi	29
AQUARISTS AND THE AAZPA Don Wilkie	31
CLEANING SYMBIOSIS Beverly A. Serrell	33
A REPORT ON P.V.C. COATED STEEL IN A LARGE MARINE EXHIBIT Paul Comley	36
WILL FALLOUT BE THE END OF THE GREAT WHALES? Georgina and Stephen Phillips	38

SEA TURTLE SHOW Robert A. Martin	39
OBSERVATIONS FROM INSIDE THE REEF TANK Kurt O. Thomsen	42
A LARGE INSECT EASILY REARED FOR FISH AND ANIMAL FOOD Craig Phillips	48

CONTENTS

	Page
EARL S. HERALD James W. Atz	1
EARL S. HERALD - DIRECTOR, STEINHART AQUARIUM George E. Lindsay	3
THYROID TUMORS IN INBRED GUPPIES Sylvan Cohen, M.D.	7
SHIFTING DOLPHINS Herman Buttron	10
THE SAN JUAN AQUARIUM Robert A. Martin and Ernest Bodner	12
SEA WORLD OF OHIO ANNOUNCES "WORLD OF THE SEA" TRIQUARUM	14
DEMONSTRATIONS OF ECOLOGICAL CONCEPTS BY THE ALEWIFE IN LAKEMICHIGAN Beverly Serrell	16
ALEWIVES AT SHEDD AQUARIUM Harry Cook	27
TRACE ELEMENTS -- ANDA PROPOSITION Richard M. Segedi	30
A FORMULA FOR A CALCULATED SALINITY CHANGE Louis Garibaldi and Bruce Poole	32
PRELIMINARY FISH TAGGING INVESTIGATIONS ON THE MISSISSIPPI RIVER Brad Latvaitis	36
REPRODUCTION IN THE GIANT OCTOPUS OF THE NORTH PACIFIC Susan Gabe	41
WHITE WATER, BLUE DEATH Kym Murphy	44
THEMATIC DISPLAYS: AQUARIUM U. E. Friese	47

Volume 16 (76), Number 1, March 1976
CONTENTS

REPRODUCTION AND POTENTIAL RESEARCH USE OF THE GYNOGENETIC TELEOST POECILLA FORMOSA R.W. Hart, H.R. Livesey and R.B. Setlow	1
MIAMI SEAQUARIUM'S LEATHERBACK TURTLE Pat Foster	11
INVESTIGATION OF SODIUM CHLORITE FOR USE IN MARINE SYSTEMS Bruce M. Poole	14
AN OVERVIEW OF MYSTIC MARINELIFE AQUARIUM	23
THOUGHTS ON PLANNING A ZOO AQUARIUM U. Erich Friese and Ronald Strahan	26
NOTES ON SOME PARASITES OF BAHAMA FISHES Harvey D. Blankespoor	35
SKIN INFECTIONS CAUSED BY INOCULATION OF <u>MYCOBACTERIUM</u> <u>MARINUM</u> FROM AQUARIUMS J. Walter Wilson, M.D.	39
A NEW AERATION SYSTEM DEVELOPED BY THE WAIKIKI AQUARIUM STAFF Frank Sutherland	43
AMMONIUM CHLORIDE AND BIOLOGICAL FILTRATION Stephen D. Walker	46
FISH FANCIERS CROSSWORD	49

Volume 16 (76), Number 2, December 1976
CONTENTS

	PAGE
THE STEINHART ROUNDABOUT: AN AQUARIUM FOR FISHES John E. McCosker	1
THE VOLUNTEER DILEMMA: or "DO MANY HANDS MAKE LIGHT WORK?" Paul L. Seiswerda	4
A GELATIN DIET FOR MARINE FISHES John B. Sciarra	7
MORTALITY IN A MIXED GROUP OF TROPICAL PACIFIC FISHES Cleveland Aquarium	13
DAVID BROWN MOVES TO TAHITI Spencer Tinker	14
LABORATORY REARING OF MARINE FISH LARVAE John B. Marliave	15
A REQUEST FOR INFORMATION Rick Segedi	20
WELCOME STRANDER W. Kym Murphy and Tom Otten	21
A FLOATING SUPPORT UNIT FOR A DEBILITATED PORPOISE K. Gilbey Hewlett	22
SEAQUARIUM HONORED FOR MANATEE BREEDING Warren Zeiller	24
LEATHERBACK TURTLE (<u>Dermochelys coriacea</u>) Sandi Edwards	25
THOUGHTS ON STARVATION IN NEWLY IMPORTED MARINE FISHES: THE CYANIDE SYNDROM Nelson Herwig	29
HEY MA, LOOK AT THIS FISH William A. Myers	35
ACRYLIC SHEET IN AQUARIUM GLAZING APPLICATIONS James S. Kepley	37
REMOVAL OF COPPER FROM A SALTWATER SYSTEM Arne Shiotz	44

VOLUME 17 (77), Number 1, APRIL 1977
CONTENTS

	PAGE
GATOR BILL OF SEA WORLD..... Michael Tolkin	1
THE MUDDY RUN FISH BEHAVIOR LABORATORY Robert M. Schutsky and Sherwood E. Peterson	3
SOME METHODS FOR THE CONTROL OF TOPICAL BACTERIAL INFECTION OF MARINE FISHES Raymond S. Keyes	5
AN UNUSUAL CAUSE OF DEATH..... Nelson Herwig	8
SOME NOTES ON THE HUSBANDRY AND MAINTENANCE..... OF THE DOLPHIN <u>Coryphaena hippurus Linnaeus</u> John C. Hewitt	9
THEMATIC AQUARIA Arne Schiøtz	11
SO YOU WANT TO BE A TRAINER..... David C. Powell	14
MORE ON 'THE ORIGINS OF DRUM AND CROAKER..... or SO YOU HAD TO ASK . . . Richard M. Segedi	17
SHARK NUTRITIONAL REQUIREMENTS IN CAPTIVITY Gerrit Klay	19
PLAYING AND LEARNING WITH THE BOTTLENOSED..... DOLPHIN (A Personal View) Hermon Buttron	23
AQUARIST RETIRES FROM STEINHART AQUARIUM LEAVING BEHIND LIVING LONGEVITY RECORDS Tom Tucker	25
MANAGEMENT OF THE MUSEUM-AQUARIUM Ronald L. Bilodeau	27
SHARK DYNAMICS AND EXHIBIT DESIGN..... Gerrit Klay	29
A NEW REFRIGERATED SEAWATER SYSTEM FOR..... INVERTEBRATES AT THE CLEVELAND AQUARIUM Daniel H. Moreno	33

CONTENTS (Continued)

	PAGE
PUBLIC AQUARIA AND SEALS IN THE GULF OF MEXICO	37
Gordon Gunter	
SAGA OF A SAWFISH.....	41
K. Gilbey Hewlett	
THE WORKING AQUARIUM	44
William A. Pearce	
A GELATIN DIET FOR MARINE FISHES.....	47
John B. Sciarra	

ILLUSTRATIONS

GATOR BILL OF SEA WORLD.....	5
OIL SPILLS (MacNelly Cartoon)	7
ARTIFICIAL FISHES EXHIBIT.	13
ARCHERFISH, STEINHART AQUARIUM.....	16
AN EXAMPLE OF SHARK FEEDING PREFERENCES CHART	22
AQUARIST FREDRICK W. HERMS, JR.	25
REFRIGERATED SEAWATER SYSTEM DIAGRAM	36
CAPE VINCENT AQUARIUM.....	46

CONTENTS

	Page
ANOTHER MONSTER TURNS OUT TO BE A MYTH James W. Atz	1
STOLEN AND LIBERATED Spencer Tinker	3
BREEDING OF THE GREEN SEA TURTLE (<u>Chelonia</u> mydas) AT SEA LIFE PARK, HAWAII R. E. Bourke, G. Balazs, and E. W. Shallenberger	4
A SAGA OF BATFISH AND SEA ROBIN or YOU'VE GOT TO BE KIDDING! Nelson Herwig	10
A PHOTOGRAPHIC TANK FOR AQUATIC ORGANISMS Robert Parker Hodge	14
THE PARASITIC DINOFLAGELLATE AMYLOODINIUM OCELLATUM IN MARINE AQUARIA Adrian R. Lawler	17
FIRST CROCODILE NURSERY PLANNED IN THE PHILLIPINES Reprinted from "Pacific Business News of Honolulu, Hawaii"	21
EDUCATIONAL PROGRAMME AT DANMARKS AKVARIUM Steen Lomholt	22
NEW DIRECTOR FOR FAMOUS AQUARIUM Reprinted from "Pacific Islands Monthly"	25
WHAT MAKES FISH POISONOUS? SCIENTISTS EXPOSE A VILLAIN Reprinted from "Pacific Islands Monthly"	26
DAVID BROWN OF TAHITI DIES Spencer Tinker	29
CORRECTIONS	30

CONTENTS

	Page
NOMEUS GRONOVII AS A COMMENSAL OF PHYSALIA PHYSALIA Robert L. Jenkins	1
NOTES ON THE TREATMENT OF CRYPTOCARYON Nelson Herwig	6
JAWS TOO?? John Allen Dinga	13
CHLORAMPHENICOL PALMITATE IN THE TREATMENT OF BACTERIAL DISEASES OF TROPICAL FISHES A. Baczewski and F. Kozlowski	16
GOOD NEWS FOR AQUACULTURE CONNOISSEURS Colin E. Nash	18
MAINTAINING A "HANDS-ON" EXHIBIT Judy Sullivan	19
A SYSTEM FOR REARING LARVAL MARINE FISH Stephen D. Walker	23
HER UNDERWATER YARD HAS PLENTY OF ROOM FOR MARINE RESEARCH Reprinted from "Miami Herald"	29
DEATHS OF AQUARIUM-HELD FISHES CAUSED BY MONOGENETIC TREMATODES. I. <u>ASPINATRIUM</u> POGONIAE (MACCALLUM, 1913) ON POGONIAS CROMIS (LINNAEUS) Adrian R. Lawler and R. Neil Cave	31
A PARTIALLY ALBINO BLUE CRAB Adrian R. Lawler and Steven L. Shepard	34
NEEDLEFISH Jackson Andrews	37
DETERMINATION OF pH OF SEAWATER AND FRESHWATER WITH A SPECTROMETER Robert P. Dempster	39
JAPANESE AQUARIUM TOUR Charles Farwell	45
ATTENTION! AAZPA Honors and Awards Committee	46

Volume 18 (78), Number 2, Fall 1978

CONTENTS

	Page
<u>TRICHODINELLA LAWLERI</u> LOM AND HALDAR, 1977, CAUSING DEATHS OF PINFISH IN AQUARIA Adrian R. Lawlor	1
PLANNING Marc Fleischmann	4
THE CUBAN SEA GAR: REPORTS OF LACK OF ACCEPTANCE BY LARGE SEGMENT OF AMERICAN POPULATION D. E. Rosinsky	9
OCCASIONAL REFERENCES ON AQUARIUM TECHNIQUE Tor J. Samuelsen	10
NEW ADDRESSES	32

Volume 19(79), Number 1, Spring 1979
CONTENTS

	Page
ARTIFICIAL GORGONIANS Marc Fleischmann	1
NORTH AMERICAN FISHES REPORTED AS HOSTS OF <u>AMYLOODINIUM OCELLATUM</u> (BROWN, 1931) Adrian R. Lawler	8
AN EVALUATION OF THE HOOK AND LINE METHOD TO OBTAIN WEAKFISH, <u>CYNOSCION REGALIS</u> , FOR ARTIFICIAL SPAWNING Larry O. Horseman	15
A CASE FOR AN UNDERWATER SLAVE UNIT Tor J. Samuelson	23
THEME AND DESIGN IN THE SMALL AQUARIUM Nelson Herwig	26
A REVIEW OF LARVAL FISH REARING TECHNIQUES USED IN OBTAINING A LARVAL SERIES FOR DESCRIPTIVE PURPOSES: THE SEATTLE AQUARIUM TECHNICAL REPORT NO. 2 Janet M. Ilg, Steven F. Borton, John W. Nightingale	31
A MYXOSPORIDIAN, <u>HENNEGUYA SP.</u> , INFECTING THE PERMIT, <u>TRACHINOTUS FALCATUS</u> Carl Herner	48
AIR LIFTS EXAMINED IN DEPTH OR HOW TO ACCOMPLISH AMAZING FEATS WITH MODIFIED WATER Georg Henkle	51

Volume 19 (79), Number 2, Winter 1979
CONTENTS

	Page
CLEANING SYMBIOSES FOR TEMPERATE MARINE FISHES IN DISPLAY AQUARIA Jeffrey B. Marliave and Victor J. Elderton	1
WAVE TANK - SPLASH TANK- DUMP BUCKET (Call It What You Will) Here's One That Works Paul L. Seiswerda	9
JULIDOCHROMIS REGANI A BAP ARTICLE Paul D. Harvey	11
TILEFISH IN CAPTIVITY Jack Schneider	13
FISHING FOR PADDLEFISH Ray Robinson	23
A NEW FOOD SOURCE FOR FUSSY INVERTEBRATES Frank L. Murru	25
SNIPEFISH IN CAPTIVITY <u>Macrorhamphosus scolopax</u> Jack Schneider	27
HUSBANDRY OF FRESHWATER STINGRAYS James K. Langhammer	31
SPECIAL NOTICE 33 From The Seattle Aquarium	
OCEANARIUM FACT SHEET Mark Suiso	34
EXOPHIALA-LIKE FUNGUS IN AN ALEWIFE Dianne Lieberman, D.V.M. Greg Early	37
BABY FRESHWATER DOLPHIN BORN IN JAKARTA AQUARIUM Sukiman Hendrokusumo	40
WHAT MAKES WATER RUN? George Henkel	41
BABY DOLPHIN BORN AT NEW ENGLAND AQUARIUM Sue Miller Sinclair	46

A NEW FEEDING TECHNIQUE FOR A LARGE COMMUNITY DISPLAY TANK Alan Baker and Doug Leitz.....	8
AN INEXPENSIVE PLANKTON TRAP, THE SEATTLE AQUARIUM TECHNICAL REPORT NO. 12 John W. Eddy II	10
RESEARCH AT MYSTIC MARINELIFE AQUARIUM Stephen Spotte.....	19
A QUICKLY CONSTRUCTED UNDERWATER HOLDING CAGE FOR USE ON MARINE HARD BOTTOMS P. J. Mohan and G. C. Violetta.....	32
WATER LIGHTER? BAH HUMBUG! George Henkel	36
BABY STINGRAYS <u>Dasytis americana</u> BORN AT CORAL WORLD Jim Mayer	39
THE CAPTIVE HUSBANDRY OF <u>Aurelia aurita</u> Dave Caughlan	46
MAHIMAHI: RESEARCH AT THE WAIKIKI AQUARIUM Syd Kraul	50
MIAMI SEAQUARIUM - SEA TURTLES.....	53
PRESENT STATUS AND FUTURE PLANS AT OCEAN PARK, HONG KONG Chiu Lam.....	55
THE NANCY AQUARIUM (FRANCE) Dan Spotts	58
THE STUTTGART AQUARIUM: OH THE JOYS OF SPACE! Dan and Jan Spotts	63
NORTH CAROLINA'S THREE MARINE RESOURCE CENTRES Rhett B. White.....	68
ONCE UPON A TIME..... A FAIRY TALE Stephen Spotte.....	71

**Reconstructed Contents of the 1989 to 1991 Issues
(The “Pamphlet” Issues)**

Volume 22, Number 1, Summer 1989

Observations of Sea Snakes in Captivity – (Genus <i>laticauda</i>)	2
J. West and T. Boylan	
Shark Births on Video Tape.....	3
Staff of Sea World Marine Science and Conservation Center	
Practical Ideas for Constructing and Organizing Fish Collecting Gear	5
William Gibbs and Donald Chittick	
Chloramine Removal from Municipal Water Supplies for Aquatic Organisms	7
Gary Zimmerman	
Design and Construction of a Wave Pulse Tank.....	12
Craig J. Hoff, Donald O’Conner (author), et al.	
Notes from the Shedd Aquarium.....	16
Abstracts from International Association of Aquatic Animal Medicine	16

Volume 22, Number 2, Fall 1989

IAAAM News.....	2
Michael Stoskopf	
Grants Awarded and Available	3
Don Johnson, Today’s Aquarist	
The Aquarium – Resource and Stimulus for Multidisciplinary Interpretation in the Work of the Norwegian Forestry Museum	3
Christian Andersen	
Addition of Artificial Corals and Mirrors to the Great Barrier Reef Tank of the Fort Wayne Zoo.....	8
Warren Pryor	
The Editor (fishy poetry).....	10
Jerry Corcoran	
Aquatic Data Center is Here!	12
John Farrell Kuhns	

Volume 22, Number 3, Winter 1989

A Reported Case of Head and Lateral Line Erosion (HLLE), Potentially Caused by a Bacterial Infection in a Marine Angelfish, *Pomacanthus semicirculatus*2
Jay Hemdal

Simple Chemical Control of Ammonia and Other Toxic Substances in Freshwater and Saltwater3
John Farrell Kuhns

Caulk is Probable Cause of Death in Two Captive Personifer Angelfish7
Warren Pryor

Bonnethead Sharks Born at SeaWorld8
Daniel LeBlanc

Recent Progress of Aquarium Working Group at CBSG Meeting10
Les Kaufman

Open Letter to All Midwest Public Aquariums10
Jay Hemdal
2020 Editor's Note: This meeting launched the Regional Aquatics Workshop (RAW)

Sharks Down Under10
John West

J. L. Scott Aquarium Hosts Annual Kids Fishing Rodeo11
Jerry Corcoran

Suggested Research Protocol for Estimation of Seawater Ingestion by Marine Teleost Fish (*Halichoeres bivittatus*) Based on Urinary Output11
Thomas Frakes

Volume 22, Number 4, Spring 1990

Aquatic Data Center – Public Aquarium Directory2
Art Deacon

Diagnostic Bath Procedures2
Jay Hemdal

The Aquarium Resource and Stimulus for Multidisciplinary Interpretation in the Work of the Norwegian Forestry Museum (*apparent repeat of 1989 paper*)4
Coristian Andersen

The Thinking Gallery: Developing Interactive Exhibits at the New England Aquarium	8
Richard Duggan	
The Second Marine Aquarium Conference of North America	14
Aquatic Data Center – Public Aquarium Profile Form	15

Volume 23, Number 1, Summer 1990

(misprinted as Volume 22, Number 4, Summer 1990 – Both appear on Issue)

Aquarium Nets Sturgeon.....	2
From Sun Herald, Biloxi, MS	
An Amelanistic Loggerhead Acquired.....	2
Jerry Corcoran	
Development of the Bite Manipulandum for Use in the Conditioning of the Nurse Shark (<i>Ginglymostoma cirratum</i>)	3
Lisa Michelle Pearman	
Studbook Petition (for Lake Victoria Cichlids)	6
Les Kaufman	

Volume 23, Number 2, Winter 1990

Aqua-Pro Database.....	2
Jay Hemdal	
Loggerhead Sea Turtle Head-start Evaluation Project: A Classic Example of the Conservation Role of Zoological Parks and Aquariums	3
Mark Swingle, Doug Warmolts, and John Keinath	
Regional Aquatics Workshop Established	6
Captive Rearing of the Zebra Mussel, <i>Dreissenia polymorpha</i>	6
Jay Hemdal	
Highlights of the International Zebra Mussel Research Conference (December 5-7, 1990)	8
Pete Mohan	

Volume 23, Number 3, Summer 1991

Captive Husbandry of the Japanese Reef Squid at the National Aquarium in Baltimore2
Mark Verbin

News from the Cleveland Metroparks Zoo4
Dan Moreno

Regional Aquatics Workshop4

American Elasmobranch Society Annual National Inventory.....4
Beth Firchau

The Grim Reaper (Newsletter of the Lake Victoria Research and Conservation Program ...5
The Editor

Volume 24, Number 1, January 1993

TABLE OF CONTENTS

- 5 Observations of Rostral Tooth Regrowth in Smalltooth Sawfish Pristis pectinata. David Clippinger
- 8 Recent Australian Lungfish Breeding Studies and Efforts: Have We Made a Difference? Dan Moreno
- 12 Habitat and Natural Breeding of the Australian Lungfish. Jean Joss
- 17 Simple Aquarium Water Analysis for total Aerobic Bacteria. Jay Hemdal & Lisa Scafidi
- 21 Maintaining Moonjellys, Aurelia aurita, in a Modified Closed Kreisel System at the St. Louis Zoological Park. Joseph Norton
- 24 Design and Practical Application of a Unique Ozone Treatment System with Multiple Aquatic Exhibits. David LaBonne & Perry Hampton
- 32 Jordanella Floridae - American Flagfish (An Aquarium Society BAP Contribution.) Anna Stevenson

POSTER ABSTRACTS: from "Conservation Genetics and Evolutionary Ecology: A case study of the Cichlid Fauna of Lake Victoria". Poster Session S. Columbus, OH. Oct 30-Nov 2, 1992.

- 34 "Getting in Touch": A proactive Approach to Conservation Education. Effects of Urban Pollution on Genetic Variation of Notropis Species. A. Larsson, S. Allan, C. Lutmerding, S. Parker, V. Weaver, K. Brown
- Loggerhead Sea Turtle Head-Start Evaluation: Captive Growth Rates and Post Release Movements and Behavior. W. Swingle, D. Warmolts, J. Keinath, J. Musick
- 35 Fish Breeding Program at the National Aquarium in Baltimore. RAPD Genetic Analyses of Endangered Populations. Correlation Between Genetic Diversity in the Nuclear Genome and Genetic Diversity in the Mitochondrial Genome. G. Hoelzer, P. Stacey, C. Stockwell, R. Gerhardt, A. Hodgson, T. Thompson, D. Moore
- 36 Analysis of the Primary and Secondary Structure of the 18SrDNA from a Representative Haplochromine Species of Lake Victoria. Captive Living Ecosystems: Just Another Fishtank??? G. Booton, M. Kart, P. Fuerst, T. Goertmiller
- 37 FishNet, The International Computer Network. Preliminary Determination of Species Specific Genetic Profiles (SSGP's) Using Randomly Amplified Polymorphic DNA (RAPD) Primers in Lake Victoria Cichlids. John R. Benn, G. Booton, H. Cooper, P. Fuerst
- 38 Genetic Considerations in the Status Review of Lower Columbia River COHO Salmon. Extensive Mhc Variability in African Cichlid Fishes. O. Johnson, G. Milner, F. Waknitz, D. Klein, H. Ono, C. O'hUigin, V. Vincek, J. Klein
- 39 Lack of Population Variation for the First Intron of Beta-Globin Between Blue Hole Populations of Gambusia hubbsi. Melanotaenia eachamensis...Resurrecting a Species from Extinction. M. Schug, G. Booton, P. Fuerst, D. Stephon
- 40 Alpha-Taxonomical Studies on Tanganyika Cichlidae using mtDNA Sequences. Recovery of the Western Banded Killifish: A Unique Partnership and Approach. E. Verheyen, D. Warmolts, S. Andromeda, D. Ross

ICHTHYOLOGICAL NOTES & ANNOUNCEMENTS

- 41 Water volume in Aquarium Gravel (Or: How I Spent my Lunch Hour). FishFAX. Jay Hemdal
- 42 1993 Electronic Aquarium Conference on FISHNET. New England Aquarium to Host 3rd International Aquarium Congress. John Benn, Andrea Conley
- 43 The Regional Aquatics Workshop. FWTAG Fax Tree. Pete Mohan, Doug Warmolts

TABLE OF CONTENTS

- 3 Drum & Croaker 35 Years Ago Rick Segedi
4 *A Request For Otoliths* A Letter From R. W. Gauldie

ARTICLES

- 5 The Immobilisation Of Spotted Sevengill Sharks (*Notorynchus cepedianus*)
To Facilitate Transport L. Vogelnest, D.S. Spielman, H.K. Ralph
7 Propagation And Rearing Of *Neomysis mercedis* For Use As Food Ed Comer, Jason Watters
9 Another Look At The Use Of Supplemental Algae Scrubbers On
Cold Water Systems Pete Mohan
15 A Brine Shrimp Hatchery Roland C. Anderson, Jeffrey A. Christiansen
18 A High Capacity Protein Skimmer Ed Comer
20 Clogged Air Injectors And Gravel Plugs In Hydrocleaner Tubes:
Two Low-Tech Solutions Richard M. Segedi
22 Bubbles, Bubbles Everywhere - Until Now! Staff, Aquatics Dept. Cleveland Metroparks Zoo
24 Aquarium Feeding At The Visitor Center Sam Gamble

ICHTHYOLOGICAL NOTES & ANNOUNCEMENTS

- 26 Sweden's Aquaria Water Museum Ulf Teräs
27 The One That Got Away Mark S. Fisher
28 FishFax Update
29 AES Captive Elasmobranch Census Warren Pryor
30 Carbon And Calcium Budgets In Closed And Semi-Closed
Coral Mesocosms Jean Jaubert, Nadia Ounaïs, Thierry Thevenis
31 Aquatic Fauna In Peril: The Southeastern Perspective
(A symposium to be presented by the Tennessee Aquarium)
14 1994 Regional Aquatics Workshop

POSTER ABSTRACTS FROM THE THIRD INTERNATIONAL AQUARIUM CONGRESS

- 32 The Use Of Praziquantel Against Cestodes In Creole Wrasse James A. Anderson
32 Concrete In Marine Aquariums: An Analysis Of Concrete At The
Monterey Bay Aquarium John Christianses, Leroy Yglesias
33 Life Support Waste Water: How Dirty Is It? Michael M. Beatey, Quentina Avakian
33 Fish And Lobsters Are Not Just For Eating Jeanne M. Rankin
34 Non-Scientists Making Science Happen Scott Dowd
34 The Captive Ocean: A Systemic Approach To Address Problems Of
Water Management In Public Aquaria Jean Jaubert, Nadia Ounaïs, François Doumenge
35 A Method Of Force Feeding Small Bluefin Tuna Paula Sylvia, George Tzinas, Mike Kelleher, John Daydon
35 Reproduction And Embryonic Development In Sea Ravens Alejandro Vagelli
36 Regional Aquatics Workshop: Networking For The Future Douglas I. Warmolts, Pete Mohan

Volume 26, February 1995

TABLE OF CONTENTS

- 2 Drum & Croaker 35 Years Ago Richard Segedi
3 Back Issues of Drum & Croaker on Fishnet A Letter From John R. Benn

ARTICLES

- 4 Strobilation Induction In Cold-Water (*Aurelia aurita*) At The Cabrillo Marine Aquarium Lisa Gershwin-Nelson, Michael S. Schaadt
9 Some Unusual Deaths Of Cobia *Rachycentron canadum* In Display Tanks Adrian Lawler
11 Using The Hach DR/2000 Spectrophotometer To Determine The Relative Water Clarity Of Aquarium Systems Jay Hemdal
14 Aquarium Husbandry Of The Giant Pacific Octopus Roland C. Anderson
24 A Case History: The Columbus Zoo Discovery Reef Douglas Warmolts, Randall Kirschner

ANNOUNCEMENTS & ICHTHYOLOGICAL NOTES

- 23 1995 Regional Aquatic Workshop (RAW)
31 Australian Lungfish Spawn Again in Cleveland Richard M. Segedi
31 Version 3 Of The Aquapro Computer Program Jay Hemdal
32 An Inexpensive Heat Exchanger Jason Watters, Ed Comer

ACKNOWLEDGEMENTS

Aniko Allen typed and helped assemble much of this volume. Diane Gregg created the cover design. Bruce Axelrod and the staff of Sea World of Ohio's print shop produced this issue.

"NOT RESPONSIBLE"

The contents of manuscripts submitted to Drum and Croaker are not edited before printing. However, articles may be retyped as needed to accommodate a standard format and figures may be reduced to conserve paper.

Materials in Drum and Croaker may be reproduced unless otherwise specified. Please credit Drum and Croaker and the author of photographer for materials used.

We assume that the submission of any contribution to Drum & Croaker has been approved by all original authors or co-authors.

Volume 27, February 1996
TABLE OF CONTENTS

2 A letter from the Newfoundland Freshwater Resources Centre re: fluvariums

3 Drum & Croaker 35 Years Ago (almost) Richard Segedi

ARTICLES

4 Constructing Small Aquariums - Some Alternative Ideas Stephen Walker

7 Sedating & Euthanizing Octopuses Roland Anderson

9 Fabrication of Natural-Looking Fiberglass Backdrops at the Seattle Aquarium Roland Anderson

12 Behavioural Enrichment Activities Developed for the Marine Mammals
at the Sydney Aquarium Lynne McLachlan

CROAKERLOGIA

15 Morphology of the Fish Louse (*Argulus:Branchiura*) George Benz and Ryan Otting

23 Fish Culture of the Pirarucu Translation from J. Bard and E.P. Imbiriba

ICHTHYOLOGICAL NOTES & ANNOUNCEMENTS

29 Aquariums in China David Hardley

30 New Monsanto Eco-Center Opens at Springfield Science Museum

ACKNOWLEDGMENTS

Special thanks go again to Aniko Allen (Sea World of Ohio) who had to deal with a whole new software package just as she began to reformat articles for this issue. Rick Segedi (Cleveland Zoo) again compiled the "35 Years Ago" section. Jay Hemdal (Toledo Zoo) represented Drum and Croaker at the Regional Aquatics Workshop. George Benz (Tennessee Aquarium) provided the guide to authors for the new "journal-style" format option.

"NOT RESPONSIBLE"

The contents of original manuscripts submitted to Drum and Croaker are not edited before printing. However, articles may be retyped as needed to accommodate a standard format and figures may be reduced to conserve paper. Announcements may be edited because of space considerations.

Materials in Drum and Croaker may be reproduced unless otherwise specified. Please credit Drum and Croaker and the author or photographer for materials used.

We assume that the submission of any contribution to Drum and Croaker has been approved by all original authors or co-authors.

Volume 28, January 1997

TABLE OF CONTENTS

- 2 **Drum and Croaker 35 Years Ago**
Rick Segedi

ARTICLES

- 3 **Husbandry of Pacific Angel Sharks at Cabrillo Marine Aquarium**
Michael S. Schaadt and Jeffrey Landesman
- 6 **Collection and Husbandry of Veiled Chitons**
Roland C. Anderson
- 9 **The Dallas World Aquarium**
Paula B. Powell
- 11 **Maintenance of Pre-term Embryos of the Lesser-Spotted Dogfish, *Scyliorhinus canicula*, in Artificial Egg Cases**
Gordon S. Croft
- 13 **Results of a Survey of Cold Water Anemones**
Melissa C. Hedstrom
- 17 **A Tag and Release Program for Grey Nurse Sharks**
Marnie Horton
- 20 **Using Stomatopod Crustaceans (Mantis Shrimps) in Display Aquaria**
Pamela A. Jutte
- 23 **Salinity and pH Adjustments for Quarantine Procedures for Marine Teleost Fishes**
Randolph Goodlett and Lance Ichinotsubo
- 27 **Nauticus, The National Maritime Center - A Quick Tour**
P. Jeff Campsen
- 29 **What Balances a Balanced Aquarium?**
James W. Atz
- 31 **Collection Methods For, and Observations of Deepwater Fishes Using Mixed Gas SCUBA Technology**
Forrest A. Young (with Billy Deans)
- 34 **Decapsulation of Brine Shrimp (*Artemia sp.*) Cysts**
Kerry Sanna
- 36 **Feeding and Growth of an Uncommon Sea Star, *Gephyreaster swifti* (Asteroidea: Radiasteridae)**
Roland C. Anderson
- 38 **The Capture and Handling of Cape Fur Seals**
Dr. B. S. Noruka

ICHTHYOLOGICAL NOTES AND ANNOUNCEMENTS

- 40 **Dan Moreno Retires**
- 41 **A "Calcium Reactor" for Reef Systems**
Ed Comer and Jack Jewell
- 42 **Prop C Passes with 80% of Vote Providing \$29 Million for Aquarium Renovations**
Steinhart Aquarium, San Francisco
- 43 **Capture and Acclimation of Menhaden *Brevoortia tyrannus* and *Brevoortia brevicaudata***
Thomas K. Ford Jr.
- 44 **Making a "Big" Public Aquarium out of a "Little" Public Aquarium**
Dennis Kelly

TABLE OF CONTENTS

- 2 **Drum and Croaker 35 years ago**
Rick Segedi
- 3 **The Care and Display of the Prowfish, *Zaprora silenus***
Marty Carollo and Polly Rankin
- 7 **Introduction to the Prowfish, *Zaprora silenus***
Akira Kanezaki
- 9 **Husbandry Observations, and Treatment of Fungal Infection in a Tiger Shark, *G. cuvier***
Andrew Dehart and Gary Stoops
- 14 **Shark Myths - A Problem for Marine Education**
Gordon Croft
- 16 **The Story of the Cape Pigmy Clawed Lobster (*Homarus capensis*)**
Willie Maritz
- 18 **Curacao Seaquarium Initiates Deep-Reef Exploration Program**
Paul Hoetjes
- 21 **Aquatic Specimen Acquisition and Inventory Methods: A Survey of AZA Zoos and Aquariums**
Jay Hemdal
- 25 **A New Aquarium in the Norwegian Forestry Museum with Focus on Spreading of Unwanted Fish Species in Norway**
Christian Andersen and Kjetil Ruka
- 30 **The Alliance For Aquatic Conservation (ACONS)**
S. Bailey, C. Coco, M. Demlong, D. Harrelson, M. Hutchins, P. Loiselle, F. Panek, & D. Warmolts
- 37 **Spawning *Arius jordani*, the "Sea Cat"**
Jo Meade
- 41 **Minutes Of The 11th Regional Aquatics Workshop**
,

SHORT COMMUNICATIONS

- 24 **Seahorse Propagation Update**
Julie Wang
- 29 **Air: A Simple Solution**
Chris Koberna
- 39 **Transferring Giant Octopuses**
Roland Anderson
- 40 **Fish in Wolves Clothing**
Eric Johnson

ANNOUNCEMENTS

- 8 **AZA Western Regional Conference**
- 8 **Third International Aquarium Congress Proceedings Still Available**
- 13 **AZA Aquatic Invertebrate TAG**
- 15 **12th Regional Aquatics Workshop**
- 17 **Freshwater Mussel Symposium**

TABLE OF CONTENTS

2	Drum and Croaker 30 Years Ago Rick Segedi		
3	Goby Research At The New Jersey State Aquarium Alejandro Vagelli		
8	Shark Tails Suzanne Gendron		
10	A High Pressure Aquarium For Deep Sea Animals David C. Powell		
14	Culturing The Mysid Shrimp, <i>Mysidopsis Bahía</i> As An Aquarium Food Jay Hemdal		
17	Accuracy In Exhibitory: Does It Really Matter? J. Charles Delbeek		
20	Update On The South Carolina Aquarium Christopher Andrews		
21	News From The Orange Coast College Public Aquarium Dennis L. Kelly		
	SHORT COMMUNICATIONS AND ANNOUNCEMENTS	24	White Sharks In Scotland - A Case Of Mistaken Identity? Gordon S. Croft
6	1999 National Freshwater Mollusk Symposium (Tennessee Aquarium)	25	Rare Fishes On Display At Cleveland Metroparks Zoo Nick Zarlinga
9	JOHN H. PRESCOTT March 16, 1935 - June 30, 1998	25	New Cleaning Tools Alan Young
19	The 13th Regional Aquatics Workshop (RAW) (Underwater World - MN)	26	The Control Of A Dinoflagellate Bloom In A Reef Exhibit Jim Prappas and Ken Billin
23	Acuario Nacional Of The Dominican Republic Enrique Pugibet and Monica Vega	27	Jelly Directory Michael S. Schaadt

Volume 31, February 2000
TABLE OF CONTENTS

- 2 **Drum and Croaker 30 Years Ago**
Rick Segedi
- 4 **Improvements in Water Flow Design for a Kelp Forest Exhibit**
Fernando Nosratpour
- 7 **The Release of a Captive-Reared Giant Pacific Octopus**
Roland C. Anderson
- 11 **Some Length-Weight Relationships for Sharks and Their Use in Husbandry Programs**
Pete Mohan
- 17 **Renovation of a 20,000 Gallon Marine Aquarium**
Mirage Aquarium Staff
- 22 **A Log of Captive Births by An Atlantic Nurse Shark, “Sarah”**
Maureen Kuenen
- 25 **A Case History of a Severe Bite Wound and Its Repair in a Juvenile Sand Tiger, *Carcharias taurus***
Tobi Pledger and Pete Mohan

SHORT COMMUNICATIONS AND ANNOUNCEMENTS

- 21 **Regional Aquatics Workshop (Raw 2000)**
- 27 **Automatic Feeders for Filter Feeding Animals in Large Exhibits**
David Cripe
- 28 ***An Optimist In Hell.* A Review of New Fiction by Stephen Spotte.**
Pete Mohan
- 29 **Aquarium Temperature Reduction Using a Thermostatically-Controlled Fan**
Jay Hemdal
- 30 **Cataract Surgery on Giant Sea Bass**
Eric Johnson, Walter Eddy Aquarists

Volume 32, January 2001
TABLE OF CONTENTS

- 2 Drum And Croaker 30 Years Ago**
Richard M. Segedi
- 3 Fishing at The Speed of Light**
Scott DePalma
- 5 The Transportation of Live Silky Sharks (*Carcharhinus Falciformis*)
On Standard Palletized Aircraft Cargo Positions for Long Distance and Time Period Transports**
Forrest A. Young, David C. Powell, & Richard Lerner
- 8 Octopus Enrichment Techniques**
Mark J Rehling
- 15 First Rearing of the Hawaiian Seahorse, *Hippocampus Fisheri* at the Waikiki Aquarium**
Karen Brittain
- 18 Increased Visitor Residency Time at a Renovated Aquarium Exhibit**
Jay Hemdal
- 20 Size Distribution of a Population of Giant Floater Mussels (*Pyganodon Grandis*) in Bowman Lake, Allen
County, Indiana**
Warren Pryor
- 23 Freshwater R&D at Monterey Bay Aquarium**
Mark Faulkner
- 27 More Tips on Planted Aquariums from the Editor**
- 29 Advances in Coral Husbandry: Propagation for the Future**
Sandra E. Trautwein
- 35 Brine Shrimp Holding**
Mark Schick
- 38 Culturing The Umbrella Jelly, *Eutonina Indicans* (Romanes, 1876)**
Barbara Utter

SHORT COMMUNICATIONS AND ANNOUNCEMENTS

- | | |
|---|--|
| 4 Tennessee AZA Regional Workshop | 46 Name Change of Giant Pacific Octopus
Roland C. Anderson |
| 7 RAW 2001 at Atlantis (Nassau, Bahamas) | 47 Elasmobranch Husbandry Symposium: October
3-7, 2001 |
| 45 Bat Star (<i>Asterina Miniata</i>) Wasting Disease
Nancy Lightowler Caruso | |

TABLE OF CONTENTS

1. Drum and Croaker 30 Years Ago

Richard Segedi

2. Collection and Husbandry of Dolphinfish at Monterey Bay Aquarium, Monterey, California

David J. Cripe

5. Dinoflagellate Culture and Notes: A Possible Food Source for Ctenophore, *Pleurobrachia bacheri*, Hatchlings?

Katrina M. Cross

8. Captive Rearing of Garibaldi

Michele Castley-Wright and Michael S. Schaadt

13. Diving for Candy Bass, *Liopropoma carmabi*, off of Curacao

Forrest A. Young

16. Preliminary Evaluation of Selected Nutrient Composition of Two Life Stages of *Artemia salina* Before and After Feeding an Enriched Torula Yeast Product

Frank M. Greco, Marianne P. Fitzpatrick, M.S, Wendy S. Graffam, Ellen S. Dierenfeld, and Dennis A. Thoney

26. Windows into Elasmobranch Embryonic Development: A Method to Install a Window on the Egg Case of the Big Skate, *Raja binoculata* (Girard 1855), before the Completion of the First Trimester

Michael J. Howard

31. Size Relationships between Egg Capsules and Female Big Skates, *Raja binoculata* (Girard, 1855)

Michael J. Howard

35. Husbandry of The Big-Fin Reef Squid (*Sepiateuthis lessoniana*) at the Waikiki Aquarium

J. Charles Delbeek

38. A Design for a Securable Isolation Basket

Brian Nelson

SHORT CONTRIBUTIONS, ANNOUNCEMENTS, AND BOOK REVIEWS

30. Second Generation Whitetip Reef Sharks at SeaWorld San Antonio

Joe Keyon

34. RAW 2002 at Colorado's Ocean Journey

40. Review: *Aquarium Careers* by Jay Hemdal

Roland Anderson

41. Review: *A Fascination for Fish: Adventures of an Underwater Pioneer* by Dave Powell

Pete Mohan

Volume 34, January 2003
TABLE OF CONTENTS

- 2 **Drum And Croaker 30 Years Ago**
Richard M. Segedi
- 3 **Capture and Feeding Techniques for Pacific Angel Sharks, *Squatina californica***
Christina J. Slager and Kevin Lewand
- 5 **About the Art of *Gyotaku*...**
Bruce Koike
- 7 **Enhancing the Effect of Back-Lighted Panels on Aquatic Exhibits**
Justin Pierce
- 9 **Salmon Return Provides Food for Aquarium Animals**
Roland C. Anderson
- 11 **<Insert Amusing Title Here>**
Jay Hemdal
- 13 **The Saga of the Drumming Kob – A Musical Experience**
Dr. Patrick A. Garratt
- 16 **“What Ever Came of That Survey We Filled Out Last Year?” Results of a Nation-Wide Survey of Aquatic Animal Husbandry Professionals**
Bruce Koike
- 19 **Feeding Techniques for the Pacific Torpedo Ray, *Torpedo californica***
Kevin Lewand and Christina J. Slager
- 22 **Currents and Surge and Tides, Oh My!**
Brian Nelson
- 25 **RAW 2003 Announcement**
- 26 **Worldwide Review of the Grey Nurse Shark, *Carcharias taurus*, as a Contribution towards Its Conservation in Australia. A Bibliography**
Rodney Garner
- 43 **Breeding of the Marine Ostracod *Cypridina hilgendorfi***
Liu Weibin and Bruce Mackay
- 45 **Review: Aquarium Husbandry of Pacific Northwest Marine Invertebrates, by Roland Anderson**
Jay Hemdal
- 46 **Review: Candiru. Life and Legend of the Bloodsucking Catfishes, by Stephen Spotte**
Pete Mohan
- 47 **Guide to Authors and Other Information**

TABLE OF CONTENTS

- 2 **Drum And Croaker 30 Years Ago**
Richard M. Segedi
- 3 **Occurrence of the Jumbo Squid, *Dosidicus gigas*, off the Oregon Coast: Its Capture and Life in Captivity**
Jim Burke and Colleen Newberg
- 8 **Vitamin C, An Alternative to Sodium Thiosulfate for Bleach Neutralization**
Eric Kingsley, Sarah Mansergh, Jennifer Dreyer, and Roger Phillips
- 13 **Observation of Whitetip Reef Shark (*Triaenodon obesus*) Parturition in Captivity**
Pamela Schaller
- 18 **How to Install a *Phyllospadix* Planter**
Stefanie A. McDaniel and Mark Ferguson
- 22 **A New Natural Feeding Method for the Reef Aquarium**
Andrew Caine and Mark Howarth
- 30 **Transplanting *Macrocystis pyrifera* in The Monterey Bay Aquarium**
Barbara Utter
- 43 **A Discussion of a Nudibranch Specimen, *Dirona aurantia*, Found South of Normal Range with Notes on Its Occurrence, History and Behavior in Captivity**
Colleen L. Newberg
- 46 **Preliminary Notes on the Husbandry of The Pygmy Seahorse, *Hippocampus bargibanti* Whiteley, 1970 and Its Coral "Host", *Muricella plectana*, Verrill, 1869 at the Waikiki Aquarium, Honolulu, Hawaii, USA**
Norton Chan and J. Charles Delbeek
- 50 **RAW 2003 ABSTRACTS**
- 59 **Using Garlic as an Appetite Stimulant in Sandtiger Sharks (*Carcharias Taurus*)**
Denise Ashdown and Gary Violetta

SHORT CONTRIBUTIONS AND ANNOUNCEMENTS

- 17 **Nelson Herwig Retires**
- 29 **RAW 2004 at Mote Marine Lab**

The Shark Supplement
Special Edition Number 2, December 2004
TABLE OF CONTENTS

1 Preface

SPECIES ACCOUNTS

ANGEL SHARKS

- 5 Husbandry of Pacific Angel Sharks at Cabrillo Marine Aquarium**
Michael S. Schaadt and Jeffrey Landesman
Drum and Croaker 28: 3-5. January 1997
- 8 Capture and Feeding Techniques for Pacific Angel Sharks, *Squatina californica***
Christina J. Slager and Kevin Lewand
Drum and Croaker 34: 3-4. January 2003

BONNETHEAD SHARKS

- 13 Bonnethead Shark (*Sphyrna tiburo*) in Captivity**
Gerrit Klay
Drum and Croaker 69(1): 1-5. January 1969
- 16 Swimming Behavior of the Bonnethead (*Sphyrna tiburo*) in Shallow Water**
Gerrit Klay
Drum and Croaker 11(2), aka 70(2): 23-26. May 1970
- 19 Experience in Blue (Sharks)**
Louis Garibaldi and Ronald Lloyd
Drum and Croaker 12(1), aka 71(1): 3-5. January 1971
- 21 Shark Births on Video Tape**
The Staff of Sea World Marine Science and Conservation Center
Drum and Croaker 22(1): 3-5. Summer 1989
- 24 Bonnethead Sharks Born at Sea World**
Daniel LeBlanc
Drum and Croaker 22(3): 8-9. Winter 1989

COW SHARKS

- 27 Experiences with Sixgill Sharks (*Hexanchus corinum*) at the Seattle Marine Aquarium**
Eric Friese
Drum and Croaker 65(1): 17-19. March 1965
- 30 The Immobilisation of Spotted Sevengill Sharks (*Notorynchus cepedianus*) to Facilitate Transport**
L. Vogelnest, D.S. Spielman and H.K. Ralph
Drum and Croaker 25: 5-6. January 1994

ATLANTIC NURSE SHARKS

- 35 **Baby Nurse Sharks**
Warren Zeiller
Drum and Croaker 68(2): 29-31. May 1968
- 37 **More on Baby Nurse Sharks**
Warren Zeiller
Drum and Croaker 69(3): 17. September 1969
- 38 **Nurse Shark - 300 Pounds of Hell**
Gerrit Klay
Drum and Croaker 13(2): 28-29. July 1972
- 40 **Development of the Bite Manipulandum for Use in the Conditioning of the Nurse Shark (*Ginglymostoma cirratum*)**
Lisa Michelle Pearman
Drum and Croaker 23(1), aka 22(4):3-5. Summer 1990
- 46 **A Log of Captive Births by an Atlantic Nurse Shark, “Sarah”**
Maureen Kuenen
Drum and Croaker 31: 22-23. February 2000

SAND TIGER/GREY NURSE SHARKS

- 51 **Observations on the Behavior of Captive Sand Tiger Sharks, *Carcharias taurus*, (Rafinesque, 1810)**
Gary E. Hannon and Anne C. Crook
Elasmobranch Husbandry Symposium
- 62 **A Tag and Release Program for Grey Nurse Sharks**
Marnie Horton
Drum and Croaker 28: 17-19. January 1997
- 65 **A Case History of a Severe Bite Wound and Its Repair in a Juvenile Sand Tiger, *Carcharias taurus***
Tobi Pledger and Pete Mohan
Drum and Croaker 31: 25-26. February 2000
- 68 **Worldwide Review of the Grey Nurse Shark, *Carcharias taurus*, as a Contribution Towards Its Conservation in Australia. A Bibliography**
Rodney Garner
Drum and Croaker 34: 26-42. January 2003
- 85 **Using Garlic as an Appetite Stimulant in Sand Tiger Sharks (*Carcharias taurus*)**
Denise Ashdown and Gary Violetta
Drum and Croaker 35: 59-61. January 2004

WHITETIP REEF SHARKS

- 91 **Second Generation Whitetip Reef Sharks at Seaworld San Antonio**
Joe Keyon
Drum and Croaker 33: 30. February 2002
- 92 **Observation of Whitetip Reef Shark (*Triaenodon obesus*) Parturition in Captivity**
Pamela Schaller
Drum and Croaker 35: 13-17. January 2004

RAYS AND SAWFISHES

- 99 **Summary of the Capture, Husbandry, and Release of Manta Rays (*Manta birostris*) Maintained at Atlantis Resort, Bahamas.**
Natasha Christie
Elasmobranch Husbandry Symposium
- 104 **Successful Spotted Eagle Ray (*Aetobatis narinari*) Breeding Program and Details of an Assisted Birth**
Jeffrey Mahon, Frederic Chua, and Paige Newman
Elasmobranch Husbandry Symposium
- 108 **History of Fresh-Water Stingrays, Genus *Potamotrygon*, at Chester Zoo Aquarium**
Mike Crumpler, Stephanie Wehnelt, and Gordon Mcgregor Reid
Elasmobranch Husbandry Symposium
- 111 **Amputation of a Fractured Snout in a Giant Shovelnose Ray (*Rhinobatos typus*)**
Using Cryosurgery
Nuno M. Pereira, Gonçalo D. Nunes, and Joao P. Correia
Elasmobranch Husbandry Symposium
- 113 **Saga of a Sawfish**
K. Gilbey Hewlett
Drum and Croaker 17(1, mislabeled as "2"): 41-43. April 1977
- 116 **Husbandry of Freshwater Stingrays**
James K. Langhammer
Drum and Croaker 19(2): 31-33. Winter 1979
- 118 **Baby Stingrays *Dasyatis americana* Born at Coral World**
Jim Mayer
Drum and Croaker 21(1): 39-45. May 1984
- 122 **Observations of Rostral Tooth Regrowth in Smalltooth Sawfish, *Pristis pectinata***
David H. Clippinger
Drum and Croaker 24(1): 31-33. January 1993

- 125 **Feeding Techniques for the Pacific Torpedo Ray, *Torpedo californica***
Kevin Lewand and Christina J. Slager
Drum and Croaker 34: 19-21. January 2003

OTHER SPECIES: HAMMERHEAD, LEMON, TIGER, AND SILKY SHARKS

- 130 **Collection and Transport of Hammerhead Sharks, with Emphasis on the Greater Hammerhead, *Sphyrna mokarran*.**
Forrest Young, Angus Barnhart, Ben Daughtry, and Cory Walter
Elasmobranch Husbandry Symposium
- 135 **Night Lights in the Aquarium - From Observations Made With a Captive Lemon Shark**
Colin Grist
Drum and Croaker 20(1): 20-21. January 1982
- 137 **Husbandry Observations, and Treatment of Fungal Infection in a Tiger Shark, *Galeocerdo cuvier***
Andrew H. Dehart and Gary L. Stoops
Drum and Croaker 29: 9-13. February 1998
- 142 **The Transportation of Live Silky Sharks (*Carcharhinus falciformis*) on Standard Palletized Aircraft Cargo Positions for Long Distance and Time Period Transports**
Forrest A. Young, David C. Powell, and Richard Lerner
Drum and Croaker 32: 5-7. January 2001

**OTHER PAPERS FROM THE ELASMOBRANCH HUSBANDRY SYMPOSIUM
AND DRUM AND CROAKER**

DIET MANAGEMENT

- 147 **Shark Nutritional Requirements in Captivity**
Gerrit Klay
Drum and Croaker 17(1, mislabeled as "2"): 19-22. April 1977.
- 151 **Some Length-Weight Relationships for Sharks and their Use in Husbandry Programs**
Peter J. Mohan
Drum and Croaker 31: 11-16. February 2000

EDUCATION AND INTERACTION

- 161 **Community Relations and Elasmobranchs in Public Aquaria**
Kelvin Boot
Elasmobranch Husbandry Symposium
- 164 **Science and Aesthetics: An Educational Insight**
Rolf Williams
Elasmobranch Husbandry Symposium

- 168 **Discover Scuba: Dive with the Sharks Program at Deep Sea Leisure**
Matt Walker
Elasmobranch Husbandry Symposium
- 172 **Elasmobranch Common Name Use in Marine Aquarium Education**
Rod Garner
Elasmobranch Husbandry Symposium
- 176 **Hands-On and Child Friendly Shark Displays**
Marilyn Margold and Leonard Sonnenschein
Elasmobranch Husbandry Symposium
- 179 **Shark Myths - A Problem for Marine Education.**
Gordon S. Croft
Drum and Croaker 29: 14-15. February 1998
- 181 **Shark Tails**
Suzanne Gendron
Drum and Croaker 30: 8-9. February 1999
- 183 **White Sharks in Scotland - A Case of Mistaken Identity?**
Gordon S. Croft
Drum and Croaker 30: 24. February 1999

EGG CASES

- 187 **Observations on Egg Laying in the Horn Shark, *Heterodontus francisci* (Girard)**
Charles Farwell
Drum and Croaker 13(2): 20. July 1972.
- 188 **Maintenance of Pre-Term Embryos of the Lesser-Spotted Dogfish, *Scyliorhinus canicula*, in Artificial Egg-Cases.**
Gordon S. Croft
Drum and Croaker 28: 11-12. January 1997
- 190 **Windows into Elasmobranch Embryonic Development: A Method to Install a Window on the Egg Case of the Big Skate, *Raja Binocularata* (Girard 1855), before the Completion of the First Trimester**
Michael J. Howard
Drum and Croaker 33: 26-30. February 2002
- 195 **Size Relationships between Egg Capsules and Female Big Skates, *Raja binocularata* (Girard, 1855)**
Michael J. Howard
Drum and Croaker 33: 31-34. February 2002

EXHIBITRY AND DESIGN

- 201 Shark Aquarium – One of the Largest Elasmobranch Collections**
Suzanne Gendron, David Lai, Cheng Chor Luk, Yvonne Lim, Ho Kam Fook, Yeung Tao Kan,
and Samuel Li
Elasmobranch Husbandry Symposium
- 208 Experimental Tank for Pelagic Sharks**
David C. Powell
Drum and Croaker 68(3): 24-26. September 1968
- 210 Shark-Quarium (Growing Up)**
Gerrit Klay
Drum and Croaker 13(2): 16. July 1972
- 211 The Steinhart Roundabout: An Aquarium for Fishes**
John E. McCosker
Drum and Croaker 16(2), aka 76(2): 1-3. December 1976
- 214 Shark Dynamics and Exhibit Design**
Gerrit Klay
Drum and Croaker 17(1, mislabeled as "2"): 29-32. April 1977

Volume 36, January 2005
TABLE OF CONTENTS

- 2 Drum And Croaker 35 Years Ago**
Richard M. Segedi
- 3 Of Sea Stars and Jellyfish**
Paul Sieswerda
- 4 Preliminary Results of Giant Pacific Octopus Behavior Study on Enrichment**
Alan Peters and David Powell
- 9 Notes from a Swordfish (*Xiphias gladius*) Transport**
Akira Kanazaki and Pietro Pecchioni
- 19 Advanced Techniques for Quarantining Blue Spotted Stingrays, *Taeniura lymma* and *Dasyatis kuhlii***
Heather Thomas
- 23 Use of Contrast Radiograph to Determine Trauma to the Valvular Intestine in the Blacktip Reef Shark (*Carcharhinus melanopterus*)**
Pamela Schaller and Freeland Dunker
- 29 The Effects of Rearing Vessels and Laboratory Diets on Growth of Northeast Pacific Jellyfish Ephyrae (Cnidaria: Scyphozoa)**
Chad L. Widmer, Jennifer P. Voorhees, Michael A. Badger, John W. Lambert, and Nicholas M. Block
- 37 RAW 2004 ABSTRACTS (Regional Aquatics Workshop, May 18-23, Mote Marine Laboratory Aquarium, Sarasota, FL)**
- 50 Communications Resources**
Pete Mohan
- 59 RAW 2005 at Long Beach**

TABLE OF CONTENTS
Volume 37, 2006

- 2 **Drum and Croaker 35 Years Ago**
Richard M. Segedi
- 3 **Classical Conditioning of *Myliobatis Californica***
Anita Baker
- 5 **The Use of a Hyperbaric Chamber with Fish Exposed to Exceedingly High Levels of Dissolved Oxygen**
Jack Schneider and Amy Rollinson
- 10 **"Look Mom, Fish Sticks!" When Good Education Goes Wrong**
Compiled by Brian Dorn
- 15 **Sun Pen: A Useful Penguin Exhibit Addition**
Pamela Schaller
- 20 **Underwater Training, Feeding and Medication for California Bat Rays, *Myliobatis californica* in Large Community Exhibits**
Kevin Lewand
- 24 **Treatment of a Musculo-skeletal injury in a Broad nose seven gill shark (*Notorynchus cepedianus*). Bella's Rehabilitation**
Alex Hauler and Alison Edmunds
- 28 **RAW 2006 at Moody Gardens, Galveston, TX**
- 29 **International Aquarium Forum**
Paul Van den Sande
- 33 **Seasonal Observations and Potential Collections Sites of Four Local Jellies Species; *Aurelia labiata*, *Chrysaora fuscescens*, *Chrysaora colorata*, and *Phacellophora camtschatica***
Katrina Cross
- 43 **Hatching of *Nautilus pompilius* in a Closed System Using Artificial Seawater**
Rubin I. Fields, Jr.
- 48 **Captive Reproduction in the Sargassum Fish, *Histrion Histrion*; with Notes Regarding Estimated Fecundity**
Barrett L. Christie
- 50 **An Evaluation of the Aquarium Science Program at Oregon Coast Community College**
Catherine Ellis
- 53 **RAW 2005 ABSTRACTS (Regional Aquatics Workshop, June 20-23, Cabrillo Marine Aquarium and Aquarium of the Pacific, Long Beach, CA)**
- 73 **Alternate Aquarium Foods**
Tony Moore

cover photo: cropped and posterized image from Rubin Fields' Nautilus article.

TABLE OF CONTENTS
Volume 38, 2007

- 2 Drum and Croaker 35 Years Ago**
Richard M. Segedi
- 3 Bio-Mos® Improves the Growth and Survival of Cultured European Lobster**
C. Daniels, D. Boothroyd, S. Davies, R. Pryor, D. Taylor and C. Wells
- 8 Benzocaine in the Euthanasia of the Giant Pacific Octopus, *Enteroctopus dofleini* (Wülker, 1910)**
Gregory J. Barord and Barrett L. Christie
- 13 What Are They Thinking? A Look into the Cognitive Abilities of Stingrays**
Kari Olson and Jennifer O'Quin
- 20 Book Review: Advanced Marine Aquarium Techniques, by Jay Hemdal**
Pete Mohan
- 21 RAW 2007 at the Pittsburgh Zoo and PPG Aquarium**
- 22 RAW 2006 ABSTRACTS** (Regional Aquatics Workshop, May 15-19, Moody Gardens, Galveston, TX)
- 43 The Training of a Male Giant Pacific Octopus, *Enteroctopus dofleini* to Assess Health and Weight**
Jennifer Moffatt

cover photo: from Daniels et al.

TABLE OF CONTENTS
Volume 39, 2008

- 1** **A Letter from the Editor: 50 Years of Drum and Croaker**
Pete Mohan
- 3** **Drum and Croaker 50 Years Ago and 30 Years Ago**
Richard M. Segedi
- 5** **The Husbandry of Poriferans in Public Aquaria**
Peter Gawne and Joe Masi
- 13** **Target Training and Tactile Conditioning of Two Zebra Sharks,**
Stegostoma fasciatum
Robert Snowden
- 19** **The Natural History and Aquarium Husbandry of the Atlantic Sharpnose Shark, *Rhizoprionodon***
terraenovae
Barrett L. Christie
- 40** **Therapeutic Pressure Chambers for Fish**
John Ballard
- 47** **The Effects of Background Colors in the Toddler Tanks at the Monterey Bay Aquarium**
Barbara Utter
- 55** **Improving Larval Survival at the National Lobster Hatchery through Live Feed Disinfection**
C.D. Ellis, D. Boothroyd, S. Davies, C. Daniels, R. Pryor, and D.J. Taylor
- 59** **Schematics for an In-House Built Calcium Reactor**
Dave Berkley and Jesse Gilbert
- 62** **Novel Foods as Enrichment for Giant Pacific Octopuses (GPOs)**
Roland C. Anderson
- 66** **A Large Mobile Fluidized Bed Filter**
Dave Berkley and Jesse Gilbert
- 68** **Treatment of Negative Buoyancy in a Captive Chambered Nautilus,**
Nautilus pompilius
Gregory J. Barord, and Richard Henderson
- 82** **Diversity in Aquarium Collections**
Jay Hemdal
- 87** **RAW 2007 ABSTRACTS (Regional Aquatics Workshop, June 18-21, Pittsburgh Zoo and PPG**
Aquarium, Pittsburgh, PA, USA)
Compiled by Bill Langbauer, Jr.
- 111** **RAW 2008 at Atlantis Marineworld, Long Island, New York, USA**

TABLE OF CONTENTS
Volume 40, 2009

- 2 **Drum and Croaker 35 Years Ago**
Richard M. Segedi
- 3 **Notes on Captive Propagation and Rearing of Zebra Sharks, *Stegostoma fasciatum*,
at John G. Shedd Aquarium**
Lise Christopher and Heather Thomas
- 9 **Feeding Octopuses Live Crabs is Good Enrichment**
Roland C. Anderson and James B. Wood
- 12 **BZZZZ....**
Gregory J. Barord
- 15 **Announcement: RAW 2009 and Jellyfish Symposium – Newport Aquarium (KY)**
- 17 **Why and How to Make a Penguin Wetsuit**
Pam Schaller
- 26 **Observations on the Reproduction of Blacktip Sharks (*Carcharhinus limbatus*) in Captivity**
Becky Wegner
- 33 **Investigations into the Nutritional Composition of Moon Jellyfish, *Aurelia aurita***
Marnie Rackmil, Amy Messbauer, Michael Morgano, David Denardo, and Ellen S. Dierenfeld
- 48 **Parasites of the Syngnathiform Fishes and the Implications for Husbandry and Quarantine**
Barrett L. Christie
- 60 **RAW 2008 Abstracts – Atlantis Marine World (NY)**

TABLE OF CONTENTS
Volume 41, 2010

- 2 **Drum and Croaker 40 Years Ago**
Richard M. Segedi
- 3 **Notes on Captive Breeding of White Spotted Eagle Ray (*Aetobatus narinari*) with Specific Emphasis on the Parturition**
Max Janse, Miranda Verbeek, Frank Wennekers, Ruud Hendriks, Tim Te Vruchte, Rob Dogger, Bas Arentz, Arjan Rozier and Rik Kolkman
- 8 **Display, Husbandry and Breeding of Dwarf Cuttle, *Sepia bandensis*, at the California Academy of Sciences**
Richard Ross
- 17 **Calcium Budget and Depletion Test in the Coral Reef Display at Burgers' Zoo**
Max Janse and Frank Wennekers
- 22 **Refinement of a Technique for Remote Measurement of Captive Fishes Using Parallel Lasers**
Jay Hemdal,
- 31 **Proximal Mechanisms for Cleaning Behavior in the Scarlet Cleaner Shrimp *Lysmata amboinensis*: A Preliminary Study**
Bob Snowden
- 39 **Movements of Pacific Angel Sharks, *Squatina californica*, in Bodega Bay Channel: Tagging Project Preliminary Results**
Erin Carter, Christina Slager, Jill Spangenberg, Keith Herbert, and Phillip Sandstrom
- 50 **The Evolution of The Pacific Spiny Lumpsucker (*Eumicrotremus orbis*) Larval Rearing Program at Seattle Aquarium**
Angela Smith
- 54 **Accurate Testing for Low Levels of Orthophosphate in Aquarium Water**
Laurie Kormos
- 58 **Sam Hinton and Craig Phillips, Aquarium Networking Pioneers**
- 62 **Sam Hinton (1917-2009)**
- 65 **P. Craig Phillips. Aquarist, Author, and Artist (1922-2009)**
- 69 **RAW 2010 Announcement (Omaha's Henry Doorly Zoo, June 7-11)**
Mitch Carl
- 71 **Snarfugglins**
Gregory J. Barord (*Enrichment Conspiracy Theorist*)
- 77 **RAW 2009 Abstracts**
- 99 **Chillin'. Island Style.**
Allan Marshall, Barrett Christie, Nick Ireland, and Robert Snowden

*Cover Art: Original Drum and Croaker Logo (1963) by Sam Hinton; Shrimp by Craig Phillips (1968).
Line drawings placed at ends of articles are by Craig Phillips (1968).*

TABLE OF CONTENTS
Volume 42, 2011

- 2 Drum and Croaker 40 Years Ago**
Richard M. Segedi
- 3 A Versatile Algae Anchoring System**
Mark Loos
- 7 Managing a South American Passerine Population in the Largest Spherical Rainforest Exhibit in the World**
Victoria McCloskey
- 20 Post-Mortem Analysis of Cuttlebones Provides Critical Insight into the Natural History of Captive Cuttlefish, *Sepia***
Gregory J. Barord
- 30 Captive Calamari: The Challenge of Keeping Captive Squid**
Roland C. Anderson and James B. Wood
- 39 Book Review: Octopus. The Ocean's Intelligent Invertebrate by Jennifer A. Mather, Roland C. Anderson, and James B. Wood**
Jay Hemdal
- 41 The Data Dump Project - An Aquarist's "Cookbook" – Gelatin-Based Diets**
Pete Mohan
- 46 RAW 2011 Announcement (Virginia Aquarium, May 2-6)**
Beth Firchau
- 48 RAW 2010 Abstracts**

Cover Art: Spot prawn gyotaku by Bruce Koike.

TABLE OF CONTENTS
Volume 43, 2012

- 2 Drum and Croaker 30 Years Ago**
Richard M. Segedi
- 3 The Use of Sequential Coded Wire Tags™ in a Public Aquarium**
Todd Harmon & Magan Celt
- 10 Animal Care Practices and Observations of Growth in Captive-Born Pacific Angel Sharks, *Squatina californica*, at Aquarium of the Bay**
Michael Grassmann, Christina J. Slager, and Keith Herbert
- 27 HLLE Research at Shark Reef Aquarium**
Jack Jewell
- 29 Underwater Photography in Aquariums**
Jay Hemdal
- 34 Raising Baby Octopuses**
Roland C. Anderson and James B. Wood
- 41 A Simple D.I.Y. Electric Eel Detector**
Markus Dernjatin
- 47 Solar Dermatitis with Secondary Bacterial Infections in Swell Sharks (*Cephaloscyllium ventriosum*)**
Megan Olhasso and Janna Wynne
- 50 RAW 2012 Announcement (John G. Shedd Aquarium, April 10-13, Chicago, IL)**
Mark Schick
- 52 RAW 2011 Abstracts (Virginia Aquarium)**

Cover Photo: Jay Hemdal.

TABLE OF CONTENTS
Volume 44, 2013

- 2 Drum and Croaker 50 Years Ago**
- 4 The Metamorphosis of the Dallas Aquarium at Fair Park into the Children’s Aquarium at Fair Park, with Historical Annotations**
Barrett L. Christie
- 16 Small Fish Feeding in a 212,000 Gallon Coral Reef Exhibit**
Richard Ross, Matt Wandell, and J. Charles Delbeek
- 21 Aquarium Cleaning Using Melamine Foam Pads**
Richard Ross and Matt Wandell
- 24 A Unique Program for Aspiring Aquarists**
Christina J. Slager, Bruce Koike, and Chris Spaulding
- 28 RAW 2013 Announcement (Georgia Aquarium, April 22-26, Atlanta, GA)**
- 29 RAW 2012 Abstracts (John G. Shedd Aquarium)**

Cover Photo: J. C. Delbeek.

TABLE OF CONTENTS
Volume 45, 2014

- 2 Drum and Croaker 50 Years Ago**
- 3 Behavioral Conditioning of the Broadnose Sevengill Shark, (*Notorynchus cepedianus*) at Aquarium of the Bay**
Michael Grassmann, Christina Slager, and Melissa Schouest
- 14 The Creation of the World’s First Peanut Butter and Jellyfish**
P. Zelda Montoya and Barrett L. Christie
- 19 Ovariectomy of Sub-Adult Southern Rays (*Dasyatis americana*) as a Tool for Managing an Exhibit Population**
Robert H. George, Rebecca Gangler, James Steeil, and Katherine Baine
- 24 1 – 800 Diagnose My Nautilus**
Gregory J. Barord
- 35 Behavior Modification to Alleviate Stereotypic Behavior in a Whale Shark (*Rhincodon typus*)**
Alex Collier and Chris Schreiber
- 43 Buff Guys Buffing: A Guide to Buffing Acrylic**
Ryan Czaja and Ramon Villaverde
- 55 Institutional Collection Planning for Aquariums**
Jay Hemdal
- 58 The Biological Characteristics, Life Cycle, and System Design for the Flamboyant and Paintpot Cuttlefish, *Metasepia* sp., Cultured Through Multiple Generations**
Bret Grasse
- 72 RAW 2014 Announcement (North Carolina Aquariums, April 21-25, Wilmington)**
- 74 RAW 2013 Abstracts (Georgia Aquarium)**
- 95 Abstracts of the First Giant Pacific Octopus (*Enteroctopus dofleini*) Workshop**

(Cover photo by Randy Wilder: Adult *Metasepia* female pulsing hypnotic bands over her mantle)

TABLE OF CONTENTS
Volume 46, 2015

- 2 Drum and Croaker 50 Years Ago**
Richard M. Segedi
- 3 In-House Live *Artemia* Culture: A Simple, Low-Cost, Low-Maintenance Design**
Shelley L. Anthony and Rich Bamberger
- 8 Aquatic-Focused Experimental Learning**
Jay Hemdal
- 11 When Do Giant Flashlight Fish (*Anomalops katoptron*) Light-Up the Most, and What May Cause It?**
Caroline Edmonds and Dee Ann Auten
- 16 RAW 2016 Announcement (New Orleans, Louisiana, USA)**
Dee Murphy
- 18 RAW 2014 Abstracts (North Carolina Aquariums, Wilmington, NC)**

(Cover photo © Hans Hillewaert, via Wikimedia Commons)
http://commons.wikimedia.org/wiki/File:Artemia_salina_4.jpg#mediaviewer/File:Artemia_salina_1.jpg

TABLE OF CONTENTS
Volume 47, 2016

- 2 **Drum and Croaker 50 Years Ago**
Richard M. Segedi
- 3 **iPad Signage for “Drummies”**
Stephen Walker
- 6 **The Natural History and Husbandry of the Walking Batfishes (Lophiiformes:
Ogcocephalidae)**
Barrett L. Christie, P. Zelda Montoya, Lyssa A. Torres, and John W. Foster IV
- 41 **Effects of Aquarium-Bath Pharmaceuticals on Spectrophotometric Water-Quality Tests**
John Foster IV
- 50 ***Mylobatis goodei* Conditioning for Research and Veterinary Treatments**
Marco Rossi, Cristian Gillet, Julieta Jañez, and Federico Argemi
- 56 **Calcium Carbonate as a Reservoir for Copper in Seawater**
Barrett L. Christie
- 62 **Corn and Clownfish: Marine Science in Iowa**
Gregory Jeff Barord and Kirk Embree
- 71 **RAW 2017 Announcement (New England Aquarium, Boston, MA)**
- 72 **Book Review - *The Salt Smart Guide to Preventing, Diagnosing, and Treating Diseases of
Marine Fishes*, by Jay Hemdal**
Paul Poeschl
- 73 **Enriching the Lives of Touch Tank Southern Cownose Rays (*Rhinoptera bonasus*) at
Phoenix Zoo**
Lindsey McLaurin
- 84 **RAW 2015 Abstracts (Monterey Bay Aquarium, California)**
- 112 **A Brief Guide to Authors**

Cover Photos:

Top – The Children’s Aquarium at Fair Park today. Cathy Burkey, Dallas Zoo.
Bottom – Dallas Aquarium Concept Drawing, *Dallas Morning News*, Sept. 28, 1935.

Interior Art: Gytaku by Bruce Koike

Page 2 – Pirarucú, *Arapaima gigas*
Page 61 – Bank Butterflyfish, *Prognathodes aya*

TABLE OF CONTENTS
Volume 48, 2017

- 2 Drum and Croaker ~50 Years Ago**
Richard M. Segedi
- 3 On the Art of Kuragedo: A Philosophy for Jelly Teams**
Chad Widmer
- 5 Rising Tide Conservation – 2016 Review**
Judy St. Leger
- 10 Observations on The Subjectivity of Epaulette Sharks (*Hemiscyllium ocellatum*) to Temperature Dependent Sex Determination**
Kyle McPheeters
- 15 A Simpler Electric Eel Detector**
Stephen Walker
- 16 Chloroquine Phosphate and Praziquantal as a Means to Eradicate *Decacoytle floridana* in Spotted Eagle Rays**
Kelly Sowers, Ed Latson, Robert George, and Leah Neal
- 21 Culture Methods of the Grass Shrimp, *Palaemonetes sp.***
Hanna Walker and Gregory J. Barord
- 28 RAW 2017 Announcement (Wicked RAWesome, New England Aquarium, Boston, MA)**
- 29 RAW 2018 Announcement (Florida Aquarium, Tampa, FL)**
- 30 RAW 2016 Abstracts (MardiRAW, New Orleans, LA)**
- 55 A Brief Guide to Authors**

Cover Photos: Larval Progression of the Pacific Blue Tang (*Paracanthurus hepatus*). Also see p.7

Interior Line Art: Craig Phillips, D&C 1968-1969

TABLE OF CONTENTS
Volume 49, 2018

- 2 Drum and Croaker ~50 Years Ago**
Richard M. Segedi
- 3 Tonic Immobility in the Paddlefish, *Polyodon spathula* (Polyodontidae)**
Joleena Jewell, Brittany Barbieri, Evan Kinn, Nicole Schueller, and Barrett L. Christie
- 11 Public Aquariums in the 21st Century – What’s Next?**
Christopher Andrews
- 18 Successful Treatment of Chronic Swim Bladder Distension in a Leather Bass (*Dermatolepis dermatolepis*) at The Birch Aquarium**
Melissa Torres and Jennifer Frohlich
- 26 Biological Control for Hydroids in a Sub-Tropical Exhibit**
Steven Yong
- 29 RAW 2018 Announcement (The Florida Aquarium, Tampa, FL, May 14-18)**
- 31 RAW 2017 Abstracts (Wicked RAWesome, New England Aquarium, Boston, MA)**
- 55 A Brief Guide to Authors**

Cover Art: “White Bass.” Gyotaku print by Bruce Koike.

Interior Line Art: Craig Phillips, D&C 1968.

TABLE OF CONTENTS
Volume 50, 2019

- 2 Drum and Croaker ~50 Years Ago**
Richard M. Segedi
- 4 Collecting and Exhibiting *Lyrocteis imperatoris* Komai 1941, a Sessile Ctenophore from Mesophotic Ecosystems**
Bart Shepherd, Steven Yong, and Matt Wandell
- 12 A Novel Method of Administering Drugs to Free Swimming Large Aquarium Fish at Ushaka Sea World**
Cameron Glancey
- 18 On Giving the Appearance of Solidity to Pure Wind**
An Anonymous Opinion Piece
- 20 Creation of a Global Sea Life Octopus Working Group to Improve Cephalopod Husbandry**
Kerry Perkins and Marie Collins
- 26 Ten Minutes to Train: Target Training Fresh Water Stingrays (*Potamotrygon leopoldi* & *P. motoro*)**
Mari Belko, Kelsey Ray, Ryan Zach, and C. Drew Foster
- 34 Never Have I Ever, Aquarium Edition**
“C.M Schwimm”
- 35 How to Become the Life of the Party You Weren’t Invited To: A Guide to Getting Involved in AZA Programs**
Kelli Cadenas
- 39 Movement and Transport of 200+ Kg Grey Nurse Sharks (*Carcharias taurus*)...What Could Go Wrong?**
Aaron Sprowl and Rob Jones
- 50 Nitrification Efficacy with Supplemental Phosphorus and Organic Carbon**
Barrett L. Christie
- 63 RetroRAW 2019 Announcement (The Columbus Zoo and Aquarium, Columbus, OH, USA, May 13-17)**
- 65 Effect of Screen Size on *Leuckartiara* spp. Medusa Growth**
Valerie Kleitman
- 71 RAW 2018 Abstracts (The Florida Aquarium, Tampa, FL)**
- 98 A Brief Guide to Authors**
- 100 RAW 2020 – Preliminary Information**

Cover Photo: *Lyrocteis*, Bart Shepherd, California Academy of Sciences

Interior Gyotaku: Bruce Koike (pp. 17, 25, 33 & 75).

Interior Line Art: Craig Phillips, D&C 1969 (2), etc.

TABLE OF CONTENTS
Volume 51, 2020

- 2 Drum and Croaker ~50 Years Ago**
Richard M. Segedi
- 3 The Culture of *Sepioteuthis lessoniana* (Bigfin Reef Squid) at the Monterey Bay Aquarium**
Alicia Bitondo
- 15 Comparison of Mean Abundances of Ectoparasites from North Pacific Marine Fishes**
John W. Foster IV and Tai Fripp
- 39 A Review of the Biology of *Neobenedenia melleni* and *Neobenedeniagirellae*, and Analysis of Control Strategies in Aquaria**
Barrett L. Christie and John W. Foster IV
- 86 Trends in Aquarium Openings and Closings in North America: 1856 To 2020**
Pete Mohan
- 99 *Daphnia* Culture Made Simple**
Doug Sweet
- 109 Hypersalinity Treatment to Eradicate *Aiptasia* in a 40,000-Gallon Elasmobranch System at the Indianapolis Zoo**
Sally Hoke and Indianapolis Zoo Staff
- 121 German Oceanographic Museum, Zooaquarium de Madrid and Coral Doctors Cluster to Develop a Project on Training of Locals on Reef Rehabilitation in the Maldives**
Pablo Montoto Gasser
- 125 Efficacy of Ceramic Biological Filter Bricks as a Substitute for Live Rock in Land-Based Coral Nurseries**
Samantha Siebert and Rachel Stein
- 132 AALSO & RAW Joint Conference Announcement for 2020**
Johnny Morris' Wonders of Wildlife National Museum and Aquarium in Springfield, Missouri, USA, March 28 - April 1
- 136 RetroRAW 2019 Abstracts**
The Columbus Zoo and Aquarium, Columbus, OH, USA, May 13-17
- 162 A Brief Guide to Authors**

Cover Photo: Bigfin Reef Squid - Alicia Bitondo
Interior Gyotaku: Bruce Koike
Interior Line Art Filler: Craig Phillips, D&C Archives

TABLE OF CONTENTS

Volume 52, 2021

- 2 **Drum and Croaker 50 Years Ago**
Richard M. Segedi
- 3 **Aquaculture of *Patiria miniata***
Ben Morrow
- 11 **The Use of Antibiotics to Treat Brown Jelly Disease within a Closed System Aquarium**
Jack Willans and Matthew Bradshaw
- 18 **Collection, Culture, and Display of *Gonionemus vertens* at the Maritime Aquarium at Norwalk**
Bianca Milano, Lindsey Levine, and Rachel Stein
- 24 **Book Review - Frogfishes: Biodiversity, Zoogeography, and Behavioral Ecology**
Theodore W. Pietsch and Rachel J. Arnold
Reviewed by Barrett L. Christie
- 26 **Behavioral Responses of Bonnethead Sharks (*Sphyrna tiburo*) to Changing Exhibit Salinity**
Lindsay Phenix and Michael O'Neill
- 36 **Visual Signals of the East Pacific Red Octopus (*Octopus rubescens*) During Conspecific Interactions**
Rachel L. Borisko, Kirt L. Onthank, and E. Alan Verde
- 57 **The Use of Visible Implant Elastomer Tags in Jellyfish**
Rachel Stein, Bianca Milano, and Lindsey Levine
- 69 **Historical Book Review - A Summer Cruise on the Coast of New England**
Robert Carter, 1865
Reviewed by Pete Mohan
- 71 **Case Report of the Leech *Zeylanicobdella arugamensis* in a Public Aquarium Setting, with a Review of Management Options**
Timothy Smith, Malini Pather, José Ganess, and Kerry Lavender
- 84 ***Stegostoma fasciatum* Breeding Program at Loro Parque Aquarium**
Héctor Toledo and Ester Alonso
- 91 **Husbandry Techniques and Medical Intervention in the Care of Green Morays (*Gymnothorax funebris*) at New England Aquarium**
Chris Bauernfeind, Melissa Joblon, and Michael O'Neill
- 99 **The End of the Dallas Aquarium/Children's Aquarium at Fair Park?**
Barrett L. Christie, Stephen D. Walker, David M. Schleser, and Ruston Hartdegen
- 123 **The 1955 Joint Symposium on Aquaria: The First Public Aquarium Meeting in North America?**
Pete Mohan
- 127 **Buoyancy Compensation Device for a Large Mouth Bass, *Micropterus salmoides*, to Help Alleviate Negative Buoyancy Disorder**
Melissa Morrow
- 133 **A Sea Turtle Wetsuit as a Therapeutic for Buoyancy Issues**
Aiyana Reissman
- 139 **Guide to Authors**

Cover Photo: Bat Stars from B. Morrow's paper, p. 3

Interior Gyotaku: Bruce Koike

Interior Line Art: Craig Phillips, D&C Archives

TABLE OF CONTENTS

Volume 53, 2022

- 2 **Drum and Croaker 50 Years Ago**
- 3 **Culture and Display of the Ctenophore *Beroe cucumis***
Josh Wagner
- 11 **Developmental Progression of Captive Reared *Phyllobates vittatus* Tadpoles Under Differing Water Sources**
Melissa Sheffer, Caitlin McHaffie, Harley Yerdon, Mackenzie Nichting, and David Madison
- 17 **Successfully Breeding *Phyllopteryx taeniolatus* at Poema Del Mar Aquarium**
Álvaro Albela, Javier Landa, and Patricia Campos
- 27 **Low Voltage Simple DIY Electric Eel Detector**
Melissa Sheffer
- 30 **Egg Retention and Assisted Expulsion in the Striped Eel Catfish, *Plotosus lineatus* (Siluriformes: Plotosidae)**
Sandi Schaefer-Padgett, Robert Sadler, Mason Murrell, and Barrett L. Christie
- 36 **Ride the Lightning: Feasibility of Electrosterilization of Aquarium Seawater**
Barrett L. Christie
- 44 **The Aquarium Symposia from the 1956 and 1957 Meetings of the American Society of Ichthyologists and Herpetologists**
- 46 **Minorities in Aquarium & Zoo Science (MIAZS)**
Jennie Janssen and Meghan Holst
- 48 **Monitoring, Training and Diet of the Zebra Shark (*Stegostoma fasciatum*) at the Aquarium of Loro Parque**
Héctor Toledo Padilla, Pedro Callejas Moraga, Ana Helena Alfaro, Henrique Guimeráns Rúa, and Ester Alonso Gómez
- 56 **How Home Brewing Saved My Fish**
Jay Hemdal
- 57 **Abstracts from RAW 2022, Moody Gardens, Galveston, TX**
- 80 **RAW 2023 Announcement: Virginia Aquarium and Marine Science Center, Virginia Beach, VA**
- 81 **Guide to Authors**

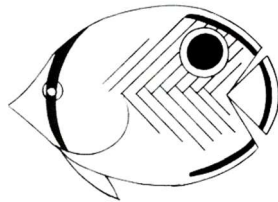
Cover Photo: Pete Mohan, RAWdemic 2022, Moody Gardens, Galveston, TX

Interior Gyotaku: Bruce Koike

Interior Line Art: Craig Phillips, D&C Archives

TABLE OF CONTENTS
Volume 54, 2023

- 2 **Letter from the Editor – The Great Migration**
- 5 **Drum and Croaker 50 Years Ago**
Steven L. Bailey
- 8 **Novus Aquas (New Waters)**
A New Feature Looking at the Future of Public Aquariums
Barrett L. Christie
- 12 **A Novel Approach to Managing Sea Star Illness and Injury
Through Complete Immune Support**
Tiffany Rudek and Evonne Mochon Collura
- 18 **How to Break All the Rules and Still Succeed at Algae Culture**
Barrett L. Christie
- 26 **RAW 2023 Announcement:**
**RAW on the River, The National Mississippi River Museum & Aquarium,
Dubuque, Iowa, USA (*Note a Change from the Original Venue*)**
- 28 **Management of Infection Following Injury to the Spiral Colon
in a Sand Tiger Shark, *Carcharias taurus***
Sandi Schaefer-Padgett, Bert Sadler, Rachel Stein, and Barrett L. Christie
- 37 **An Ethogram for the Oyster Toadfish, *Opsanus tau*:**
Sampling the Behavioral Diversity of a Common Benthic Fish
Bernd H. A. Sokolowski and Peter J. Mohan
- 55 **The Aquarium Symposia from the 1958 to 1970 Meetings of the American Society of
Ichthyologists and Herpetologists**
- 65 **Guide to Authors**
- 67 **Some Useful Links: Aquality Chapters and the 2022 International Aquarium Conference
Abstracts**



Main Cover Photo: Male Sand tiger Shark, “Nacho,” showing spiral colon issue. Sandi Schaefer-Padgett
Inset Cover Photo of Sea Star: Barrett Christie; **Inset Cover Drawing:** Pete Mohan
Interior Gyotaku: Bruce Koike
Interior Line Art: Craig Phillips, D&C Archives

TABLE OF CONTENTS
Volume 55, 2024

- 3 **Letter from the Editor**
Pete Mohan
- 4 **Drum and Croaker 50 Years Ago**
Steven L. Bailey and Pete Mohan
- 6 **Novus Aquas (New Waters)**
Looking at the Future of Public Aquariums
Barrett L. Christie
- 9 **Aquaculture of the Warty Sea Cucumber, *Apostichopus parvimensis*,
at the Monterey Bay Aquarium**
Ellen Umeda
- 18 **Shark Body Condition Scoring Tool Described**
Megan A. Perry and Jillian M. Sawyna
- 21 **Stirring the Pot: A Novel Method for Rearing Marine Invertebrates**
Mariah (Riah) Evin and Margarita Upton
- 29 **Remembering Dave Powell**
Ken Peterson
- 35 **Comments on “Watson and the Shark” by John Singleton Copley:
History Always Matters**
Pete Mohan
- 39 **Sturgery: Surgical Foreign Object Removal from *Acipenser transmontanus*
at Wonders of Wildlife**
Briana Schmidt
- 48 **In Memoriam: Alan David Henningsen (24 December 1959 – 29 July 2021)**
Emily Anderson Kelly, Allan Kottyan, Elizabeth Schneble Claus, Lindsey Fitzpatrick, and
Jennie D. Janssen
- 69 **Interannual Variation of Appetite and Reproductive Behavior in Sea Turtles
(*C. caretta* and *C. mydas*) on Exhibit at New England Aquarium**
Matthew Samara and Michael O’Neill
- 83 **Announcement for RAW 2024, “TacomRAW.” May 5-9. Point Defiance Zoo and
Aquarium, Tacoma, Washington, USA.**
- 85 **Abstracts from “RAW on the River,” May 6-11, 2023. National Mississippi River
Museum & Aquarium, Dubuque, IA, USA**
- 115 **Using Zims Data to Develop Average Longevity Values**
Jay Hemdal

- 118 **Captive Longevity of a Butterflyfish *Heniochus acuminatus* at the Tulsa Zoo**
Stephen Walker
- 119 **Abstracts from AALSO 2023, March 25-29. Milwaukee County Zoo,
Milwaukee, WI, USA**
- 125 **In Memoriam: Charles J. Yancey (1959-2023)**
Barrett L. Christie
- 127 **Modeling Lanthanum Chloride Reaction Rates and Precipitate Formation for
Applications in LSS Particle Capture**
Barrett L. Christie
- 138 **Poster Abstracts from Jelly Camp 2023. October 7-9, Baltimore, MD, USA**
Jennie D. Janssen
- 147 **Paul L. Sieswerda, 06 March 1942 – 10 December 2023**
Steven L. Bailey
- 150 **John Culbertson, 1944-2023**
Jay Hemdal
- 152 **A Literature Review on the Fascinating Larger Pacific Striped Octopus**
Zalel Schwarz
- 155 **A Brief Guide to Authors**

Cover Credit: John Singleton Copley, *Watson and the Shark*, 1782, oil on canvas.
Detroit Institute of Arts, Founders Society Purchase, Dexter M. Ferry, Jr. Fund, 46.310.

Used by permission from DIA.

Interior Gyotaku: Bruce Koike, <https://www.brucekoike.com/>

Interior Line Art: Craig Phillips, D&C Archives