



**INFORMATION RESOURCES FOR REPTILES, AMPHIBIANS, FISH, AND
CEPHALOPODS USED IN BIOMEDICAL RESEARCH**

Provided by the [Animal Welfare Information Center](#)

**United States Department of Agriculture
National Agricultural Library**

**United States Department of Agriculture
National Agricultural Library
10301 Baltimore Blvd.
Beltsville, Maryland 20705-2351**

**D'Anna J. Berry, Michael D. Kreger,
and Jennifer L. Lyons-Carter
Animal Welfare Information Center**

Updated by: [Information Resources on Amphibians, Fish & Reptiles Used in Biomedical Research, 2001](#)

*December 1992 with Organizational Resources Updated July 1995
National Agricultural Library Cataloging Record:*

Berry, D'Anna

Information resources for reptiles, amphibians, fish, and cephalopods used in biomedical research.

1. Animal models in research--Bibliography. 2. Reptiles as laboratory animals--Bibliography. 3. amphibians as laboratory animals--Bibliography. 4. Fish as laboratory animals-- Bibliography. 5. Cephalopoda--Bibliography. I. Kreger, Michael D. II. Lyons-Carter, Jennifer L. III. Title
aZ7994.L3

Copies of this bibliography may be made or used for distribution without prior approval. The inclusion or omission of a particular publication or citation may not be construed as endorsement or disapproval.

To request a copy of this publication, send the series title and self-addressed gummed label to:

U.S. Department of Agriculture
National Agricultural Library
Public Services Division, Room 111
Beltsville, Maryland 20705

This publication also may be downloaded from the Agricultural Library Forum (ALF), the National Agricultural Library's electronic bulletin board system. The filename for this publication is REPTILES.TXT.

Document Delivery information:

Read Bullet 16 on ALF for information on Document Delivery services. Read Bullet 15 for "Electronic Mail Access For Interlibrary Loan (ILL) Requests." If the text of this file is copied and/or distributed, please include in all copies, the information provided in these bulletins.

TABLE OF CONTENTS

PAGE BEGINNING

CITATION

<u>INTRODUCTION.</u>	<u>1</u>
—	
<u>GENERAL</u>	<u>1</u>
—	
<u>GENERAL REPTILES AND AMPHIBIANS</u>	<u>32</u>
—	
REPTILES	
<u>REPTILES AS BIOMEDICAL MODELS</u>	<u>48</u>
—	
<u>REPTILE CARE AND USE.</u>	<u>64</u>
—	
AMPHIBIANS	
<u>AMPHIBIANS AS BIOMEDICAL MODELS</u>	<u>111</u>
—	
<u>AMPHIBIAN CARE AND USE.</u>	<u>142</u>
—	
<u>GENERAL FISH AND CEPHALOPODS.</u>	<u>157</u>
—	
FISH	
<u>FISH AS BIOMEDICAL MODELS</u>	<u>167</u>
—	
<u>FISH CARE AND USE</u>	<u>223</u>
—	
CEPHALOPODS	

CEPHALOPODS AS BIOMEDICAL MODELS	62	321
<hr/>		
CEPHALOPOD CARE AND USE	67	351
<hr/>		
AUTHOR LISTING	71	
<hr/>		
INFORMATION RESOURCES	79	(Page 1)

INTRODUCTION

Rodents, non-human primates, dogs, cats, and farm animals have long been the preferred animal models in biomedical research. Their behavioral repertoire and physiological responses to stimuli are more similar to human systems than are lower organisms. However, as reptiles, amphibians, fish, and cephalopods become better understood in the field and laboratory, their advantages as alternative animal models are being revealed.

While there are about 4,000 known species of mammals, there are over 4,000 species of amphibians, 6,000 species of reptiles, and more than 20,000 species of fish. Such diversity allows for a wide range of research on specific organs, tissues, and systems that are similar in function, but often less complex than in mammals. Squid, for example, are frequently used as models for conduction of nerve impulses and sodium and potassium movement due to the large size and simplicity of the axon and nerve cells.

Their enlarged nerve cells also make the common squid ideal for testing the effects of anesthetics, insecticides, and environmental toxins. Due to differential rates of ova maturation and numbers of gametes produced, elasmobranchs (sharks, skates, rays) are used to study fetal nutrition and toxicology as well as gametogenesis. In the octopus, known for its well-developed central nervous system, a learning and memory center has been identified which makes it useful for studies in motivation, learning, and memory. The monkfish is an important insulin resource for researchers since it contains 20 to 40 times more insulin-producing tissue than the laboratory rat.

Reptiles and amphibians contribute to studies in genetics, embryology, developmental biology, ethology, endocrinology, and immunology. Salamanders and newts are models for limb regeneration. Fetal heart cells of the axolotl (Mexican salamander) will divide and beat in vitro. Frogs have played a major role in the development of communication theory. The common anole lizard is used in behavioral studies and can be induced to produce the symptoms of Parkinson's disease. Typical reptile and amphibian studies include aggression, stress physiology, reproductive cycles and dysfunction, and the effects of neurotoxins.

In contrast to mammals and birds which are endothermic (their body temperature is regulated and maintained internally), reptiles, amphibians, fish, and cephalopods are ectothermic with body temperature primarily regulated by ambient temperatures. Since metabolism is driven by body temperature, the rate of normal body functions in these species may be artificially increased or decreased. Thus endocrine, immunological, inflammation, cell physiology, and many other pathways can be easily manipulated.

A major concern to those who might use these species is the necessity of providing a suitable laboratory environment. Unlike mammals and birds, reptiles, amphibians, fish, and cephalopods require very specific microenvironments. For reptiles and amphibians, basking sites, water source and water temperature, relative humidity, photoperiod and type of lighting, ambient temperature, group density, cover, method of food preparation and presentation are all factors that influence whether or not the animals will function normally in the laboratory. Fish and cephalopods live in a totally aqueous environment. Type of water (fresh, salt, brackish), pH, salinity, school density, cover, dissolved oxygen, lighting, and filtration are necessary considerations that require monitoring. The animal's needs are often species-specific and failure to

meet them results in stress-induced diseases, low growth rate, poor feed efficiency, cannibalism, and failure to reproduce.

Information Resources for Reptiles, Amphibians, Fish, and Cephalopods Used in Biomedical Research is an attempt to collect in a single volume much of the current information regarding the care and use of these alternative animal models. It is intended only as an introduction to these species as comprehensive coverage would fill several volumes. The authors have selected sample articles that typify recent research. Each animal group has a section of articles and books pertaining to its use in biomedical research followed by a section on its care and use. The latter section highlights not only husbandry and maintenance of particular species, but also regulations, guidelines, and veterinary aspects such as appropriate anesthesia or euthanasia. Because several citations cross phyla, general sections are provided. A final section provides information resources with names and addresses of organizations and their publications that can provide further information. If the citation can be found at the National Agricultural Library (NAL), its call number is given.

Finally, the authors wish to acknowledge the valuable assistance of Dr. Donald Apt, Laboratory for Marine Animal Health, Marine Biological Laboratory, Woods Hole, John Forsythe, M.S., Division of Biology and Marine Resources, University of Texas Medical Branch at Galveston, and Dr. Harvey Pough, Section of Ecology and Systematics, Cornell University for their expert reviews and suggestions for this publication.

GENERAL

1 Alternatives to the use of mammals for pain research.

Stevens, C.W. *Life Science* 50(13):901-912 (1992).

NAL call number: 442.8 L62

Descriptors: pharmacology, physiology, biochemistry, ethics, lower vertebrates.

2 The Care and Use of Amphibians, Reptiles, and Fish in Research Schaeffer, D.O.; Kleinow, K.M. and Krulisch, L. (eds.), Scientists Center for Animal Welfare, Bethesda, MD; 1992, 204 pp.

Descriptors: anastheisa, euthanasia, husbandry, nutrition, behavior, disease, medicine.

3 Live Animal Regulations International Air Transport Association, Montreal-Geneva, 19th edition; 1992, 240 pp.

Descriptors: fish, reptiles, amphibians, container requirements, feeding requirements, and documents.

4 Recognition and Alleviation of Pain and Distress in Laboratory Animals Institute of Laboratory Animal Research, National Academy Press, Washington, DC; 1992, 137 pp.

NAL call number: SF996.5 R43

Descriptors: euthanasia, anesthesia, recommendations, animal welfare, hypothermia.

5 Activity-dependent plasticity in the visual systems of frogs and fish. Cline, H.T. *Trends in Neurosciences* 14(3):104-111 (1991).

NAL call number: RC321 T74

Descriptors: model, selective synapse, neurophysiology.

6 Atlas of Abnormalities. A Guide for Performance of Fetax Bantle, J.A.; Dumont, J.N.; Finch, R.A. and Linder, G.

American Society for Testing and Materials, 1991.

NAL call number: IPM920313742

- 7 The care and use of amphibians, reptiles and fish in research. (Special conference report, part 1) Guttman, H.N. SCAW Newsletter 13(2):5-7 (1991).
NAL call number: QL55 N48
Descriptors: IACUC, husbandry, guidelines.
- 8 The care and use of amphibians, reptiles and fish in research. (Special conference report, part 2) Guttman, H.N. SCAW Newsletter 13(3):10-11 (1991).
NAL call number: QL55 N48
Descriptors: handling, nutrition, health.
- 9 Energy requirements for maintenance and growth of wild mammals, birds and reptiles in captivity. Kirkwood, J.K. Journal of Nutrition 121(11):S29-S34 (1991).
NAL call number: 389.8 J82
Descriptors: nutrition, diet, metabolism, development.
- 10 Learning and Memory: A Biological View Martinez, J.L. and Kesner, R.P. (eds.), Academic Press, San Diego, CA; 1991, 563 pp.
Descriptors: brain-behavior relations, anatomy, pharmacology, lesions, electrophysiology, invertebrates, vertebrates.
- 11 National Institute on Aging, NIH, workshop on alternative animal models for research on aging. Anonymous. Experimental Gerontology 26(5):411-439 (1991).
NAL call number: QP86 E85
Descriptors: human aging, birds, mammals, fish, reptiles, invertebrates, cost analysis.
- 12 An overview of animal cancer registries in the United States and suggestions for improved applications. Monsein, D.L. Compendium on Continuing Education for the Practicing Veterinarian Princeton Jct., NJ; 13(7):1139-1146 (1991).
NAL call number: SF601 C66
Descriptors: fish, amphibians, reptiles, collection, storage, interpretation of data, data collecting, computerization.
- 13 The Experimental Animal in Biomedical Research, Vol. I: A Survey of Scientific and Ethical Issues for Investigators Rollin, B.E. and Kesel, M.L. (eds.), CRC Press, Inc., Boca Raton, FL; 1990, 452 pp.
NAL call number: R853 A53E86 1990
Descriptors: philosophy, pain, animal models, cognition.
- 14 Production of Aquatic Animals: Crustaceans, Molluscs, Amphibians, and Reptiles Nash, C.E. (ed.), Elsevier Science Publishing Co., New York, NY; 1991, 244 pp.
NAL call number: SH370 P76 1990
Descriptors: herpetoculture, aquaculture, shell fish culture.
- 15 Model Patients: Among the inhabitants of the animal world

are some that hold the cures for many human afflictions.

McCourt, R. Discover August 1990, pp. 36-41.

NAL call number: Q1 D57

Descriptors: fish, models cell culture, diabetes, amphibians, embryonic heart cell, biochemistry.

16 The relief of pain in cold-blooded vertebrates. Arena, P.C. and Richardson, K.C. ACCART News Australian Council for the Care of Animals in Research and Teaching 3(1):1-4 (1990).

NAL call number: SF405.5 A3

Descriptors: ectotherms, fish, amphibians, reptiles.

17 The choice of nonmammalian models in biomedical studies.

Kleinzeller, A. In: Nonmammalian Animal Models for Biomedical Research Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 1-9.

NAL call number: QL55 N66

Descriptors: osmoregulation, electrolytes, absorption, secretion, urine concentration, Krogh Principle.

18 Ethical and regulatory considerations in the use of cold-blooded vertebrates in biomedical research. Dresser, R. In: Nonmammalian Animal Models for Biomedical Research Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 369-376.

NAL call number: QL55 N66

Descriptors: Federal law, policy, ethics, issues, care and use.

19 Humane methods of killing fish, amphibians and birds.

Zwart, P.; De Vries, H.R. and Cooper, J.E. Tijdschrift Voor Diergeneeskunde 114(10):557-565 (1989).

NAL call number: 41.8 T431

Descriptors: euthanasia, Netherlands.

20 A molecular, evolutionary perspective of nonmammalian models in biological research. Bitensky, M.W. In:

Nonmammalian Animal Models for Biomedical Research Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 353-367.

NAL call number: QL55 N66

Descriptors: genes, conservative habit, parsimonious habit, extinctions, utility, metabolism, cloning, cell-adhesion, signal transduction, external awareness.

21 Use of ivermectin in laboratory and exotic mammals and in birds, fish, and reptiles. Soll, M.D. In: Ivermectin and Abamectin Campbell, W.E. (ed.), Springer-Verlag, New York, NY; 1989, pp. 260-286.

NAL call number: SF918 I83I83

Descriptors: snakes, chelonians, copepoda, nematodes, dose, toxicity.

22 Viruses of Lower Vertebrates Ahne, W. and Kurstak, E. (eds.), Springer-Verlag, New York, NY; 1989, 518 pp.

NAL call number: QR321 V57

Descriptors: virology, symposium, herpetology, ichthyology.

23 Field Research Guidelines Orlans, F.B. (ed.), Scientists Center for Animal Welfare, Bethesda, MD; 1988, 23 pp.

NAL call number: HV4704 F5

Descriptors: manipulation, observation, marking.

24 The UFAW Handbook on the Care and Management of Laboratory Animals Poole, T.B. Bath Press, Avon, Great Britain, 1987, pp. 753-783.

NAL call number: QL55.U5 1987

Descriptors: reptiles, amphibia, fish, environment, anesthesia, analgesia, euthanasia, housing.

25 Models for Biomedical Research: A New Perspective Morowitz, H.J. National Academy Press, Washington, DC; 1985, 180 pp.

NAL call number: R857 M3M9

Descriptors: in vitro, nonmammalian vertebrates, invertebrates, models, immunology, learning, disease and aging, development.

26 Comparative studies on the role of calcium in triggering subcellular damage in cardiac muscle. Rudge, M.F. and Duncan, C.J. *Comparative Biochemistry and Physiology. A: Comparative Physiology* 77(3):459-468 (1984).

NAL call number: QP1 C6

Descriptors: caffeine, toxicity, nonmammalian model.

27 Intra-renal renin angiotensin system in primitive vertebrates. Nishimura, H. and Bailey, J.R. *Kidney International* 27(12):S185-S192 (1981).

NAL call number: RC902 A1K53

Descriptors: kidney, ion regulation, polypeptide.

28 Appendix VIII to XVI. Canadian Council on Animal Care. Guide to the Care and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Ontario; 1980, Vol. 1, pp. 95-103.

NAL call number: SF406 C36

Descriptors: bleeding sites, tranquilizers, anesthetics, antimicrobial, euthanasia, dosage.

29 Animals for Research: A Directory of Sources Institute of Laboratory Animal Resources, National Research Council. National Academy of Sciences, Washington, DC; 10th edition, 1979, 141 pp.

NAL call number: SF77 S86

Descriptors: wild caught versus captive bred, suppliers, biological materials, availability, sources.

30 Diseases of lower vertebrates and biomedical research.

Cooper, J.E. *Laboratory Animals* 11(2):119-123 (1977).

NAL call number: QL55 A1L3

Descriptors: pathology, propagation, anatomy.

31 Recent advances in biotelemetry and their applications to measurements of pressure and electrical changes in the oviduct in vivo. Mackay, R.S. *Biotelemetry* 1(1):60-64 (1974).

NAL call number: QH324.9 B5B5

Descriptors: models, methods, ultrasonics.

GENERAL REPTILES AND AMPHIBIANS

32 *Environmental Physiology of the Amphibia* Feder, M.E. and Burggren, W.A. (eds.), University of Chicago Press, Chicago, IL; 1992.

Descriptors: anatomy, endocrinology, neurology, immunology.

33 Recommendations for the care of amphibians and reptiles in academic institutions. Pough, F.H. *ILAR News National Academy Press*, Washington, DC; 33(4):S1-S21 (1991).

NAL call number: QL55 A1I43

Descriptors: health, marking, care, lighting, temperature, vivarium design.

34 Anesthesia of amphibians and reptiles. Bush, M. In: *Anesthesia and Analgesia in Laboratory Animals: Proceedings of 1990 Forum American College of Lab Animal Medicine*, Hershey, PA; 1990, 3 pp.

NAL call number: IPM920511972

Descriptors: inhalants, injections, methods.

35 *Euthanasia of Amphibians and Reptiles: Report of a Joint UFAW/WSPA Working Party* Cooper, J.E.; Ewbank, R.; Platt, C. and Warwick, C. Universities Federation for Animal Welfare, Potters Bar, Herts, UK; 1989, 35 pp.

NAL call number: HV4731 E97

Descriptors: concussion, shooting, electrocution, decapitation.

36 *Herpetological Husbandry for the Naturalist* Demeter, B. Herpetology Department, National Zoological Park, Washington, DC; 1989.

Descriptors: housing, care, maintenance, disease, general biology.

37 Guidelines for reptiles and amphibians. Pisani, G. In: *Field Research Guidelines: Impact on Animal Care and Use Committees* Orlans, F.B. (ed.), Scientists Center for Animal Welfare, Bethesda, MD; 1988, p. 8.

NAL call number: HV4704 F5

Descriptors: manipulation, rain, field research, marking.

38 Guidelines for Use of Live Amphibians and Reptiles in Field Research American Society of Ichthyologists and Herpetologists (ASIH); the Herpetologists' League (HL) and Society for the Study of Amphibians and Reptiles (SSAR). American Society of Ichthyologists and Herpetologists, Lawrence, KS; 1987, 14 pp. NAL call number: QL641 G84 1987
Descriptors: restraint, handling, marking, maintenance.

39 The Encyclopedia of Reptiles and Amphibians Halliday, T.R. Facts on File, New York, NY; 1986, 143 pp.
NAL call number: IPM920529111
Descriptors: models, care and use, taxonomy, physiology, natural history.

40 A Review of Marking Techniques for Amphibians and Reptiles Ferner, J.W. Society for the Study of Amphibians and Reptiles, Miscellaneous Pubs., Herpetological Circular No. 9, 1979.
NAL call number: QL60.5 F4
Descriptors: identification, methodology.

41 Keeping Reptiles and Amphibians Leutscher, A. Scribner Publishing, New York, NY; 1976, 164 pp.
NAL call number: SF459 R4L48
Descriptors: herpetology, maintenance, pets, light, feeding, health.

42 Resources in Herpetology. Wake, D.B. Copeia 1975:391. (ISSN 0045-8511)

43 Chemical Zoology. Florkin, M. and Scheer, B.T. (eds.), In: Amphibia and Reptilia Academic Press, New York, NY; Vol. 9, 1974.
NAL call number: QL362 F5
Descriptors: thermoregulation, sodium and water balance, seasonal influences.

44 Physiology of the Amphibia Lofts, B. (ed.), Academic Press, New York, NY; Vol. 2, 1974.
Descriptors: anatomy, endocrinology, neurology, immunology.

45 State Laws Regulating the Collecting of Reptiles and Amphibians in the Fifty United States Czajka, A.F. and Nickerson, M.A. MPM Press, Milwaukee, WI; 1974, 79 pp.
NAL call number: KF5640 Z95C93
Descriptors: legislation, herpetology.

46 Biology of the Reptilia Gans, C. (ed.), Vol. 1-13, Academic Press, London; Vol. 14-15, Wiley Interscience, NY; Vol. 16, Alan R. Liss, NY; Vol. 17, University of Chicago Press, Chicago, IL; 1969 - present.
NAL call number: QL641.B5

Descriptors: immunology, anatomy, endocrinology, behavior, ecology, evolution.

47 Physiology of the Amphibia Moore, J.A. (ed.), Academic Press, New York, NY; 1964.

Descriptors: anatomy, endocrinology, neurology, immunology.

REPTILES

REPTILES AS BIOMEDICAL MODELS

48 Light adaptation in turtle cones: Testing and analysis of a model for phototransduction. Tranchina, D.; Sneyd, J. and Cadenas, I.D. Biophysics Journal 60(1):217-237 (1991).

NAL call number: 442.8 B5238

Descriptors: electrophysiology, sodium, potassium.

49 Iguana iguana: A model species for studying the ontogeny of behavior/hormone interactions. Phillips, J.A. Journal of Experimental Zoology Suppl.4:167-169 (1990).

NAL call number: 410 J825

Descriptors: diet, maturation, innate behavior.

50 Reptilian and avian follicular hierarchies: Models for the study of ovarian development. Etches, R.J. and Petite, J.N. Journal of Experimental Zoology Suppl.4:112-122 (1990).

NAL call number: 410 J825

Descriptors: atresia, androgens, estrogens.

51 Urinary bladders of freshwater turtles as a renal physiology model potentially biased by monogenean infections. Hanke, S.E.; Pence, D.B. and Tran, R.M. Laboratory Animal Science 40(2):172-177 (1990).

NAL call number: 410.9 P94

Descriptors: renal physiology, non-mammal alternative.

52 Vitellogenesis in reptiles as a model for mammalian sex-differentiated hepatic protein synthesis. Callard, I.P.; Riley, D. and Perez, L. Journal of Experimental Zoology Suppl.4:106-111 (1990).

NAL call number: 410 J825

Descriptors: embryo development, cardiovascular disease, estrogen.

53 Reptile models for biomedical research. Greenberg, N.; Burghardt, G.M.; Crews, D.; Font, E.; Jones, R.E. and Vaughan, G. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 289-308.

NAL call number: QL55 N66

Descriptors: Iguanidae, Teridae, Colubridae, behavior, endocrinology, neurology.

54 Sulfhydryl-rich hemoglobins in reptiles: A defense against reactive oxygen species. Reischl, E. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 309-318.

NAL call number: QL55 N66

Descriptors: turtles, snakes, lizards, crocodylians, physiology, activated oxygen, disease, protective mechanism, augmentation.

55 Fibrin assembly after fibrinopeptide: A release in model systems and human plasma studied with magnetic birefringence. Torbet, J. *The Biochemical Journal* 244(3):633-637 (1987).

NAL call number: QP501 B64

Descriptors: retinase, peptide, proteins.

56 Neurotoxins from *Agkistrodon halys* (Pallas) and *Bungarus fasciatus* venom. Heilbronn, E.; Jiang, M.S.; Zhou, H.; Haggblad, J. and Rydqvist, B. *Model Systems in Neurotoxicology: Alternative Approaches to Animal Testing: Proceedings of the 31st OHOLO Conference, Held in Tiberias, Israel, November 3-7, 1986* Shahar, A. and Goldberg, A.M. (eds.), Liss Publishing Co., New York, NY; 1987, pp. 265-275.

NAL call number: RC347 O37 1986

Descriptors: non-mammalian alternative, neurotoxicology, serpentes.

57 Study of cold-blooded animals helps surgery. Perkins, K. *The NIH Record* August 25, 1987.

Descriptors: cardiopulmonary bi-pass, pH management.

58 Muscle necrosis caused by the sub-units of crotoxin. Kouyoumdjian, J.A.; Harris, J.B. and Johnson, M.A. *Toxicon* 24(6):575-583 (1986).

NAL call number: 391.8 T66

Descriptors: venom, neurosurgery, diagnosis.

59 Phospholipases in snake venoms and their effects on nerve and muscle. Harris, J.B. *Pharmacology and Therapeutics* 31(1-2):79-102 (1985).

NAL call number: RM1 P477

Descriptors: drug therapy, central nervous system, neurotoxicity.

60 The anticoagulant effect of *Bothrops castelnaudi* snake venom (Castelnaud's pit viper). Kamiguti, A.S.; Sousa e

Silva, M.C.C.; Morena, P. and Nahas, L. *Toxicon* 23(3):383-391 (1985).

NAL call number: 391.8 T66

Descriptors: blood clotting, cardiovascular disease, diagnosis.

61 Parthenogenetic reptiles: New subjects for laboratory research. Cole, C.J. and Townsend, C.R. *Experientia* 33:285-289 (1977).

NAL call number: 475 Ex7

Descriptors: model, lizards, snakes, turtles, reproduction, review.

62 Animal model of human disease. Malignant tumors. Spang Thomsen, M. and Visfeldt, J. *American Journal of Pathology* 84(1):193-196 (1976).

NAL call number: 448.8 AM39

Descriptors: immunology, grafting, cancer.

63 The effect of diazepam on different patterns of epileptic electrographic activities in the turtle brain. Servit, Z. and Strejckova, A. *Physiologia Bohemoslovaca* 23(1):29-36 (1974). (ISSN# 0014-1291)

Descriptors: seizure, penicillin, psychotropic drugs.

REPTILE CARE AND USE

64 Effects of handling and restraint in the ball python (*Python regius*) and the blue-tongued skink (*Tiliqua scincoides*). (Abstract) Kreger, M.D. and Mench, J.A. *Journal of Animal Science* 70(1):173 (1992).

NAL call number: 49 J82

Descriptors: behavior, heterophil/lymphocyte ratio, chronic stress, captivity.

65 Medicine and diseases of reptiles. Schaeffer, D.O. In: *The Care and Use of Amphibians, Reptiles, and Fish in Research* Schaeffer, D.O.; Kleinow, K. and Krulisch, L. (eds.), Scientist Center for Animal Welfare, Bethesda, MD; 1992 (in press), 5 pp. NAL call number: in press

Descriptors: virus, bacteria, nematodes.

66 The Physiological and Behavioral Effects of Handling and Restraint in the ball python (*Python regius*) and the blue-tongued skink (*Tiliqua scincoides*) (Thesis) Kreger, M.D. University of Maryland, College Park, MD; 1992.

Descriptors: stress, photoperiod, radioimmunoassay, corticosterone, immunosuppression, activity.

67 Regarding reptiles. Kreger, M.D. *Science and Animal Care* 3(3):1,4 (1992).

NAL call number: IPSP2719

Descriptors: welfare, guidelines, policy.

68 *Biomedical and Surgical Aspects of Captive Reptile Husbandry* Frye, F.L. Krieger Publishing Company, Malabar, FL; 2 vol., 1991, 637 pp.

NAL call number: SF997.5.R4F78 1991

Descriptors: physiology, pathology, prevention, anatomy, post-operative care, anesthesia.

69 Cage design and configuration for arboreal reptiles.

Mason, R.T.; Hoyt, Jr., R.F.; Pannell, L.K.; Wellner, E.F. and Demeter, B. *Laboratory Animal Science* 41(1):84-86 (1991).

NAL call number: 410.9P94

Descriptors: policy, biophysics, housing, environment.

70 Energy requirements for maintenance and growth of wild mammals, birds and reptiles in captivity. Kirkwood, J.K. *The Journal of Nutrition* 121(Suppl.11):S29-34 (1991).

NAL call number: 389.8 J82

Descriptors: obesity, anorexia, feeding neonates.

71 Husbandry and clinical evaluation of Iguana iguana.

Anderson, N.L. *Compendium on Continuing Education for the Practicing Veterinarian* 13(8):1265-1272 (1991).

NAL call number: SF601 C66

Descriptors: husbandry, exam, diagnosis, treatment, thermoregulation, dietary needs.

72 Medical management of reptile patients. Jenkins, J.R.

The Compendium on Continuing Education for the Practicing Veterinarian 13(6):980-983, 988 (1991).

NAL call number: SF601.C66

Descriptors: pathology, preventative medicine.

73 *A Practical Guide for Feeding Captive Reptiles* Frye, F.L. Krieger Publishing Company, Malabar, FL; 1991, 171 pp.

NAL call number: SF515.F79 1991

Descriptors: health, nutrition, diet.

74 Prescribing for reptiles. Debuf, Y.M. (ed.), In: *The Veterinary Formulary: Handbook of Medicines Used in Veterinary Practice* The Pharmaceutical Press, London, England; 1991, pp. 43-45.

NAL call number: SF916.5 V37 1991

Descriptors: antibiotics, dosages, parasites.

75 Reciprocal changes in corticosterone and testosterone levels following acute and chronic handling stress in the tree lizard, *Urosaurus ornatus*. Moore, M.C.; Thompson, C.W. and Marler, C.A. *General and Comparative Endocrinology* 81(2):217-226 (1991). NAL call number: 444.8 G28

Descriptors: handling, captivity.

76 Recommendations for the care of amphibians and reptiles in academic institutions. Pough, F.H. ILAR News National Academy Press, Washington, DC; 33(4):S1-S21 (1991).

NAL call number: QL55 A1I43

Descriptors: breeding, housing, marking, care, photoperiod, thermoregulation.

77 A review of anesthesia and chemical restraint in reptiles. Bennett, R.A. Journal of Zoo and Wildlife Medicine 22(3):282-303 (1991).

NAL call number: SF601 J6

Descriptors: pre-anesthetics, local, injectable, hypothermia, inhalants, electro anesthesia.

78 The Snakes of Thailand and Their Husbandry Cox, M.J. Krieger Publishing Company, Malabar, FL; 1991, 526 pp.

NAL call number: SF515.5 S64C68 1991

Descriptors: housing, breeding, feeding.

79 A technique to anesthetize turtles with ether. Bello, A.A. and Bello-Klein, A. Physiology and Behavior 50(4):847-848 (1991).

NAL call number: QP1.P4

Descriptors: cannula, pump, ether.

80 Husbandry and Preventative Medicine Practices that Increase Reproductive Efficiency of Breeding Colonies of Alligators Cardeilhac, P. Florida Dept. of Agriculture and Consumer Services, Tallahassee, FL; 1990, 47 pp.

NAL call number: QL666 C929C37

Descriptors: housing, diet, propagation.

81 Growth rate and plasma corticosterone levels in juvenile alligators maintained at different stocking densities. Elsey, R.M.; Joanen, T.; McNease, L. and Lance, V. Journal of Experimental Zoology 255(1):30-36 (1990).

NAL call number: 410 J825

Descriptors: stress, juveniles, crowding.

82 A Step-by-step Book About Iguanas Harris, J.C., T.F.H. Publications, Neptune City, NJ; 1990, 64 pp.

NAL call number: SF459.I38H37

Descriptors: housing, breeding, feeding, nutrition, maintenance.

83 Stress in reptiles. Lance, V.A. In: Progress in Comparative Endocrinology: Proceedings of the Eleventh International Symposia on Comparative Endocrinology held in Malaga, Spain, May 14-20, 1989 August, E.; Scanes, C.G. and Stetson, M.H. (eds.), Wiley-Liss, Inc., New York, NY; 1990, pp. 461-466.

NAL call number: QP187 A1I52 1989

Descriptors: handling, crowding, physiology.

84 Alligator Aquaculture in the South Rollason, S.
Louisiana Cooperative Extension Service, Baton Rouge, LA;
videocassette (18 min.), 1989.

NAL call number: Videocassette no. 966

Descriptors: care of hatchlings, incubation, transport, feed.

85 Ketamine as an anesthetic for some squamate reptiles.
Font, E. and Schwartz, J.M. Life Sciences 2:484-486 (1989).

NAL call number: 442.8 L62

Descriptors: colubrids, iguanids, chloroform.

86 Reptilian surgery part I. Basic principles. Bennett,
R.A. Compendium on Continuing Education for the Practicing
Veterinarian 11(1):10-21 (1989).

NAL call number: SF601 C66

Descriptors: aseptic techniques, anatomical variation.

87 Reptilian surgery part II. Management of surgical
diseases. Bennett, R.A. Compendium on Continuing Education
for the Practicing Veterinarian Princeton Jct., NJ;

11(2):122-133. NAL call number: SF601 C66

Descriptors: bacterial infections, wound healing, celiotomy,
gastrointestinal abnormalities, treatments.

88 Evaluation of the reptile patient. Jacobson, E.R.
Contemporary Issues in Small Animal Practice 9:1-18 (1988).

NAL call number: SF601.C64

Descriptors: behavior, maintenance, care.

89 Hospital care of the reptile patient. Jarchow, J.L.
Contemporary Issues in Small Animal Practice 9:19-34 (1988).

NAL call number: SF601.C64

Descriptors: post-operative care, maintenance, analgesia,
anaesthesia.

90 Husbandry and Preventative Medicine Practices That
Increase Reproductive Efficiency of Breeding Colonies of
Alligators Cardeilhac, P. Florida Department of Agriculture
and Consumer Services, Tallahassee, FL; 1988.

NAL call number: SF459.A4C3

Descriptors: reproduction, maintenance, pathology.

91 Keeping and Breeding Snakes Mattison, C. Sterling
Publishing Co., New York, NY; 1988, 183 pp.

NAL call number: SF515.5 S64M38

Descriptors: husbandry, maintenance, environment, feeding,
diseases.

92 Practical Methodology Reptiles Mader, D.R. University
of California at Davis, School of Veterinary Medicine, Davis,
CA; 1988, 2 videocassettes, VHS, 35 minutes.

NAL call number: Videocassette no.414

Descriptors: euthanasia, handling, care.

93 Use of chemotherapeutics in reptile medicine. Jacobson, E.R. Contemporary Issues in Small Animal Practice 9:35-48 (1988). NAL call number: SF601.C64
Descriptors: methods, pathology, treatment.

94 Handbook on the Maintenance of Reptiles in Captivity Welch, K.R.G. Krieger Publishing Co., Malabar, FL; 1987, 156 pp.
NAL call number: QL665 W4 1987
Descriptors: care, husbandry, feeding.

95 Snakes & Lizards: Their Care and Breeding in Captivity Coborn, J. Newton Abbott Publishing, English, 1987, 208 pp.
NAL call number: SF515.5 L58C63 1987
Descriptors: husbandry, environment, maintenance.

96 The UFAW Handbook of the Care and Management of Laboratory Animals Poole, T.B. Bath Press, Avon, Great Britain, 1987, pp. 716-752.
NAL call number: QL55.U5 1987
Descriptors: reptiles, amphibia, fish, environment.

97 Anesthetic and sedative drug dosage - amphibians and reptiles. Canadian Council on Animal Care. Guide to the Care and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Ontario, 1984, Vol. 1, pp. 99.
NAL call number: SSF406 C36
Descriptors: primary agent, dose, route.

98 Antimicrobial drug dosage - reptiles, fish. Canadian Council on Animal Care. Guide to the Care and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Ontario, 1984, Vol. 1, pp. 102.
NAL call number: SF406 C36
Descriptors: penicillin G, chloramphenicol, erythromycin, streptomycin.

99 Diseases of Amphibians and Reptiles Hoff, G.L.; Frye, F.L. and Jacobson, E.R. Plenum Press, New York, NY; 1984, 784 pp. NAL call number: SF997.5 A45D57
Descriptors: pathology, medicine, prevention, diagnosis.

100 Reptiles. Canadian Council on Animal Care. In: Guide to the Care and Use of Experimental Animals Ottawa, Canada, Vol. 2, 1984, pp. 19-28.
NAL call number: SF406 C36
Descriptors: housing, nutrition, health care, restraint.

101 Diseases of the Reptilia Cooper, J.E. and Jackson, O.F. Academic Press, New York, NY; 1981, 2 volumes.
NAL call number: SF997.5 R4D57
Descriptors: pathology, parasitology, prevention,

epidemiology, treatment.

102 Investigatory behavior in snakes, II: Cage cleaning and the induction of defecation in snakes. Chiszar, D.; Wellborn, S.; Wand, M.A.; Scudder, K.M. and Smith, H.M. *Animal Learning and Behavior* 8:505-510 (1980).

Descriptors: housing, maintenance, substrate, captivity.

103 Reproductive Biology and Diseases of Captive Reptiles
Murphy, J.B. and Collins, J.T. (eds.), Society for the Study of Amphibians and Reptiles, Oxford, OH; 1980, 277 pp.

NAL call number: QL669.3 R4

Descriptors: Congresses, pathology, herpetology, seasonality, territoriality.

104 Temperature and light requirements of captive reptiles.

Regal, P.J. In: Reproductive Biology and Diseases of Captive Reptiles Murphy, J.B. and Collins, J.T. (eds.), Society for the Study of Amphibians and Reptiles, 1980, pp. 79-91.

NAL call number: QL669.3 R4

Descriptors: ectothermy, maintenance, thermoregulation.

105 Establishment and maintenance of colonies of parthenogenetic whiptail lizards. Townsend, C.R.

International Zoo Yearbook 19:80-86 (1979).

NAL call number: QL76 I5

Descriptors: housing, feeding, temperature.

106 Laboratory maintenance. Campbell, H.W. and Busack, S.D.

In: *Turtles: Perspectives and Research* Harless, M. and Morlock, H. (eds.), Wiley Publishing, New York, NY: 1979, pp. 109-125.

Descriptors: care, husbandry, nutrition.

107 A Review of Marking Techniques for Amphibians and Reptiles Ferner, J.W. Society for the Study of Amphibians and Reptiles, Miscellaneous Pubs., Herpetological Circular No. 9, 1979.

NAL call number: QL60.5 F4

Descriptors: identification, methodology.

108 Reptiles: Bacterial Diseases of Captive Reptiles Frye, F.L. Health Sciences Learning Resources Center, University of Washington, Seattle, WA; 1975, 55 slides, 1 sound cassette.

NAL call number: Slide no.222

Descriptors: handling, pathology, medicine, microorganisms, herpetology.

109 Reptilian Disease Recognition and Treatment Dobbs, J.S.

Curtis Books, Hollywood, FL; 1973, 42 pp.

NAL call number: SF997.5 R4D6

Descriptors: pathology, diagnosis, prevention.

110 The Temperature and Water Relations of Reptiles

Cloudsley-Thompson, J.L. Mellow Publishing Co., Watford,
Herts, England, 1971, 159 pp.
NAL call number: QL669 C63
Descriptors: ectothermy, maintenance, physiology, rhythmicity.

AMPHIBIANS

AMPHIBIANS AS BIOMEDICAL MODELS

111 An assay system for developmental toxicity using embryos and larvae of *Xenopus laevis*. Sakamoto, M.K.; Mima, S. and Tanimura, T. Alternatives to Animal Testing and Experimentation Japanese Society of Alternatives to Animal Experiments, Nagasaki University, Nagasaki, Japan; 1(3):172-178 (March 1992).
NAL call number: not at NAL
Descriptors: embryology, abnormalities, chemical testing, teratogenesis.

112 Amphibian Cytogenetics and Evolution Green, D.M. and Sessions, S.K. (eds.), Academic Press, San Diego, CA; 1991, 456 pp.
NAL call number: QL668.5.A56 1991
Descriptors: phylogeny, evolution, cytotaxonomy, DNA sequences, chromosome heteromorphism, meiosis, chromosomes, sex determination, nomenclature, classification, polyploidy.

113 Evaluation of the frog embryo teratogenesis assay: *Xenopus* (FETAX) as a model system for mixture toxicity hazard assessment. Dawson, D.A. and Wilke, T.S. Environmental Toxicology and Chemistry 10(7):941-948 (1991).
NAL call number: QH545.A1E58
Descriptors: small-clawed frog, malformation, lethality.

114 Genes encoding receptors for insulin and insulin-like growth factor I are expressed in *Xenopus* oocytes and embryos. Scavo, L.; Shuldiner, A.R.; Serrano, J.; Dashner, R.; Roth, J. and dePablo, F. Proceedings of the National Academy of Sciences of the United States of America 88(14):6214-6218 (1991).
NAL call number: 500 N21P
Descriptors: receptors, embryology, proteins.

115 A minimal cascade model for the mitotic oscillator involving cyclin and CDC2 kinase. (Abstract) Goldbeter, A. Proceedings of the National Academy of Science of the United

States of America 88(20):9107-9111 (1991).

NAL call number: 500 N21P

Descriptors: mitosis, oscillation, cell cycle.

116 A model for compound action potentials and currents in a nerve bundle III: A comparison of the conduction velocity distributions calculated from compound action currents and potentials. Wijesinghe, R.S.; Gielen, F.L.H. and Widswo, Jr., J.P. *Annals of Biomedical Engineering* 19(1):97-121 (1991).

NAL call number: TA164 J6

Descriptors: frog sciatic nerves, CVD variation, neurophysiology.

117 Somatostatin inhibits pepsinogen secretion via a cyclic AMP-independent pathway. Fong, J.C.; Hong, S.J. and Wang, F.F. *Regulatory Peptides* 32(3):351-360 (1991).

NAL call number: QP572 P4C66

Descriptors: model, hypothalamic releasing hormones.

118 Transgenic *Xenopus laevis* tadpoles: A transient in vivo model system for the manipulation of lens function and lens development. Brakenhoff, R.H.; Ruuls, R.C.; Jacobs, E.H.M.; Schoemakers, J.G.G. and Lubsen, N.H. *Nucleic Acids Research* 19(6):1279-1284 (1991).

NAL call number: QD341.A2N8

Descriptors: CAT reporter gene, promoter, small-clawed frog.

119 Two nonallelic insulin genes in *Xenopus laevis* are expressed differentially during neurulation in prepancreatic embryos. Shuldiner, A.R.; dePablo, F.; Moore, C.A. and Roth, J. *Proceedings of the National Academy of Sciences of the United States of America* 88(17):7679-7683 (1991). (ISSN #0027-8424) NAL call number: 500 N21P

Descriptors: physiology, embryogenesis, transcription.

120 Amphibian model system for problems in behavioral neuroendocrinology. Moore, F.L. *Journal of Experimental Zoology Suppl.*4:157-158 (1990).

NAL call number: 410 J825

Descriptors: rough-skinned newt, non-mammalian alternatives.

121 Characterization of human phagocytic cell receptors for C5A and platelet activating factor expressed in *Xenopus* oocytes. Murphy, P.M.; Gallin, E.K. and Tiffany, H.L. *Journal of Immunology* 145(7):2227-2234 (1990).

NAL call number: 448.8 J8232

Descriptors: immunology, inflammation, anaphylotoxins.

122 Chromosomes of amphibian oocytes as a model for gene expression: Significance of lampbrush loops. Angelier, N.; Bonnanfant-Jais, M.L.; Herberts, C.; Lautredou, N.; Moreau, N.; N'Da, E.; Penrad-Mobayed, M.; Rodriguez-Martin, M.L. and Sorrouille, P. *International Journal of Development Biology*

34(1):69-80 (1990).

Descriptors: NP matrix, RNA synthesis, immunology.

123 The frog spinal cord: A model to study methanethiol-central nervous system interaction. De Santis, A.; Loguericio, C. and Nardi, G. *Comparative Biochemistry and Physiology. C: Comparative Pharmacology and Toxicology* 96C(1):115-118 (1990). NAL call number: QP901.C6

Descriptors: neurophysiology, interneurons.

124 Observations on cardiac ultrastructure of the adult Japanese newt, *Cynops pyrrhogaster*. Pfeiffer, C.J.; Asashima, M.; Cho, C.H. and Shimada, K. *Journal of Submicroscopic Cytology* 22(1):17-26 (1990).

NAL call number: QH573 J62

Descriptors: endocrine cells, prolonged in vitro study, myocardium, microscopy.

125 Amphibian models in endocrine research. Norris, D.O. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 279-288.

NAL call number: QL55 N66

Descriptors: applications, biomedical applications, differentiation.

126 Amphibians: A rich source of biological diversity. Pough, F.H. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 245-278.

NAL call number: QL55 N66

Descriptors: reproduction, temperature regulation.

127 Amphibian sympathetic ganglia as a model system for investigating regeneration in the vertebrate peripheral nervous system. Kelly, M.E.M.; Traynor, P. and Smith, P.A. *Comparative Biochemistry and Physiology. A: Comparative Physiology* 93A(1):133-140 (1989).

NAL call number: QP1.C6

Descriptors: axotomy, nerve growth factor.

128 The egg of *Xenopus laevis*: A model system for studying cell activation. Charbonneau, M. and Grandin, N. *Cell Differentiation and Development: The Official Journal of the International Society of Developmental Biologists* 28(2):71-94 (1989).

NAL call number: QH607 A1C4

Descriptors: embryology, egg plasma membrane.

129 Is the supply of axoplasmic proteins a burden for the cell body? Morphometry of sensory neurons and amino acid incorporation into their cell bodies. von Bernhadi, R. and Alvarez, J. *Brain Research* 478(2):301-308 (1989).

Descriptors: neuroanatomy, axoplasm, amino acids.

130 Distribution and characterization of neuropeptide Y-like immunoreactivity in the brain of the crested newt. Perroteau, I.; Danger, J.M.; Biffo, S.; Pelletier, G.; Vaudry, H. and Fasolo, A. *The Journal of Comparative Neurology* 275(3):309-325 (1988). NAL call number: QP351 J68
Descriptors: Salamandridae, cytology, nerve fibers, mapping.

131 Influence of prostaglandins on electrical and mechanical activities of gastric muscles of *Bufo marinus*. Shonnard, P.; Ary, T. and Sanders, K.M. *Comparative Biochemistry and Physiology. C: Comparative Pharmacology and Toxicology* 90(2):325-333 (1988). NAL call number: QP901 C6
Descriptors: Bufonidae, acetylcholine, indomethacin, contractions, membrane potential, physiology, pharmacology.

132 Opioid antinociception in amphibians. Stevens, C.W. *Brain Research Bulletin* 21(6):959-962 (1988).
Descriptors: rana pipiens, antinociception, endogenous opioid, endorphinis, pain.

133 *Xenopus* egg extracts: A model system for chromatin replication. Almouzni, G. and Mechali, M. *Biochimica et Biophysica Acta: International Journal of Biochemistry and Biophysics* 951(2-3):443-450 (1988).
NAL call number: 381 B522
Descriptors: gene, DNA replication, nucleosomes.

134 *Xenopus laevis* in developmental and molecular biology. Dawid, I.B. and Sargent, T.D. *Science* 240:1443-1448 (1988).
NAL call number: 470 SCI2
Descriptors: polarity determination, cytoplasmic localization, embryonic induction, expression system.

135 Amphibian skin as a model in studies on epidermal homeostasis. Budtz, P.E. In: *Skin Models* Marks, R. and Plewig, G. (eds.), Springer-Verlag, Berlin, Germany, 1986, pp. 58-72. NAL call number: RL79.S55
Descriptors: in vivo, epidermis, influx, efflux, toads, axolotl.

136 The breeding of *Xenopus laevis* on a large scale in the laboratory. Davys, J.S. *Animal Technology: Journal of the Institute of Animal Technicians Sussex; the Institute of Animal Technology* 37(3):217-233 (1986).
NAL call number: QL55 I55
Descriptors: African clawed frog, housing, laboratory rearing, husbandry.

137 New amphibian models for the study of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine. Barbeau, A.; Dallaire, L.; Buu, N.T.; Veilleux, F.; Boyer, H.; De Lanney, L.E.; Irwin, I.; Langston, E.B. and Langston, J.W. *Life Sciences* 36(11):1125-1134 (1985). NAL call number: 442.8 L62
Descriptors: Parkinson's disease, toxicity, nucleic acids.

138 Frog dissection. Newby, L. Frog Cross Educational Software, Ruston, LA; 1984, 2 computer discs.
NAL call number: QA76.8 A662N4
Descriptors: computer simulation, education.

139 In vivo sister chromatid exchanges in amphibia: A convenient model for mutagenicity bioassay. Chakrabarti, S.; Banerjee, S.N. and Chakrabarti, A. Indian Journal of Experimental Biology 22(7):347-349 (1984).
NAL call number: 442.8 IN2
Descriptors: genes, alternatives.

140 Differential activation and blockade of excitatory amino acid receptors in the mammalian and amphibian central nervous system. Davies, J.; Evans, R.H.; Jones, A.W.; Smith, D.A.S. and Watkins, J.C. Comparative Biochemistry and Physiology C: Comparative Pharmacology 72(1):211-224 (1982).
NAL call number: QP901.C6
Descriptors: in vitro, in vivo, spinal cords, neurons, NMDA receptors, antagonist, quisqualate, kainate polysynaptic, monosynaptic.

141 The use of amphibians in biomedical research. Nace, G.W. In: Animal Models for Biomedical Research III. Symposium National Academy of Sciences, Washington, DC; 1974, pp. 103-124. NAL call number: QL53 S9 1970
Descriptors: experimentation, breeding, review.

AMPHIBIAN CARE AND USE

142 Alternatives to the use of mammals for pain research. Stevens, C.W. Life Science 50(13):901-912 (1992).
NAL call number: 442.8 L62
Descriptors: amphibia, pharmacology, physiology, biochemistry.

143 Creature comforters. University of Calgary. Future Health/Perspectives Sante Westmount, Quebec, Canada, Summer 1992, pp. 14-16.
Descriptors: improved housing, frogs.

144 Intracelomic use of tricaine methane sulfonate for anesthesia of bullfrogs (*Rana catesbeiana*) and leopard frogs (*Rana pipiens*). Letcher, J. Zoo Biology Wiley-Liss, Inc., New York, NY; 11:243-251 (1992).
NAL call number: QL77.5 Z6
Descriptors: MS-222, anurans, intracelomic injection.

145 Laboratory care and breeding of the African clawed frog.

- Dawson, D.A.; Schultz, T.W. and Shroeder, E.C. Lab Animal University of Tennessee, College of Veterinary Medicine, Knoxville, TN; 21(4):31-36 (April 1992).
NAL call number: QL55 A1L33
Descriptors: housing, water quality, breeding, parasite treatment, embryo handling, tadpole care, *Xenopus*, reproduction.
- 146 Managing a bullfrog research colony. Culley, D.D. In: The Care and Use of Amphibians, Reptiles, and Fish in Research Schaeffer, D.O.; Kleinow, K.M. and Krulisch, L. (eds.), Scientists Center for Animal Welfare, Bethesda, MD; 1992 (in press), 25 pp.
NAL call number: in press
Descriptors: water quality, housing, diet, health.
- 147 A new method for feeding captive frogs (*Xenopus laevis*). Sackin, N. and Sackin, H. Lab Animal 20(8):44-46 (1991).
NAL call number: QL55 A1L33
Descriptors: African clawed frogs, diet.
- 148 A man and his frogs. Zasloff, M. The Washington Post February 16, 1988.
Descriptors: magainin, antibiotic, cancer.
- 149 An economical, balanced diet for *Xenopus*. Able, D.J. ILAR News 30(3):20-21 (1988).
NAL call number: QL55 A1I43
Descriptors: *Xenopus laevis*, South African clawed frog, hormones, guidelines, formulation, ingredients.
- 150 Rearing and Breeding Amphibia in the Laboratory and Terrarium (German) Herrmann, H.J. Naturhistorisches Museum, 1988, 64 pp.
NAL call number: SF407 A45H3
Descriptors: husbandry, feeding, environment.
- 151 The I.U. Axolotl Colony's short guide to the care and feeding of axolotls. An overview of the methods used at the Indiana University Axolotl Colony. Duhon, S. ILAR News Institute of Laboratory Animal Resources, National Research Council, Washington, DC; 30(3):18-20 (1988).
NAL call number: QL55 A1I43
Descriptors: water quality, housing.
- 152 Amphibians. Stewart, K.W. Guide to the Care and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Canada, Vol. 2, 1984, pp. 11-17.
NAL call number: SF406 C36
Descriptors: housing, nutrition, health care, restraint, thermoregulatory needs.
- 153 Anesthetic and sedative drug dosage - amphibians and reptiles. Canadian Council on Animal Care. Guide to the Care

and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Canada, 1980, Vol. 1, pp. 99.

NAL call number: SF406 C36

Descriptors: agent, dose, route.

154 *Xenopus laevis*: Rearing and Breeding the African Clawed Frog Etheridge, A.L. and Richter, S.M.A. NASCO, Fort Atkinson, WI; 1978, 14 pp.

NAL call number: QL668 E265E8

Descriptors: feeding, frogs, tadpoles, housing, disease.

155 Amphibians: Medicine and Husbandry Ringler, D.H. Health Sciences Learning Resources Center, University of Washington, Seattle, WA; 1975, 64 slides, 23 min. sound cassette.

NAL call number: Slide no. 226

Descriptors: environment, health, maintenance, maintenance.

156 Amphibians. Guidelines for the Breeding, Care, and Management of Laboratory Animals Nace, G.W. (ed.), Institute of Laboratory Animal Resources, National Academy of Sciences, Washington, DC; 1974, pp. 153.

NAL call number: SF407 A45N37

Descriptors: husbandry, health, nutrition, anesthesia, analgesia, euthanasia, disease.

GENERAL FISH AND CEPHALOPODS

157 Ecology and Classification of North American Freshwater Fisheries Seaman, Jr., W. and Sprague, L.M. (eds.), Academic Press, San Diego, CA; 1991, 285 pp.

Descriptors: taxonomy, niche, habitat, community.

158 Ecology and Classification of North American Freshwater Invertebrates Thorpe, J.H. and Covich, A.P. (eds.), Academic Press, San Diego, CA; 1991, 911 pp.

NAL call number: QL151 E36

Descriptors: protozoa, porifera, flatworms, mollusca.

159 Marine life and medical research. IIFAR Sighted Report 5(1):1-2 (1991).

NAL call number: HV4701 I55

Descriptors: diabetes, squid, cancer, epilepsy, leukemia, monkfish, trout, cardiology, biochemistry, embryology.

160 Marine animals and medical research. MBL Science 4(1):2-4 (1990).

Descriptors: fish, invertebrates, squid, epilepsy, diabetes, fertility, leukemia, muscle, Alzheimer's, birth defects, cancer, Marine Biology Laboratory, neurobiology, crustaceans.

161 Biomedical applications of marine animals. Smith, A.C.
In: Nonmammalian Animal Models for Biomedical Research
Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp.
149-159.

NAL call number: QL55 N66

Descriptors: human disease, pathology, marine products,
evolution, marine biology.

162 Marine models in biomedical research: A report from the
Marine Life Resources Workshop at Duke University Marine
Laboratory, Beaufort, North Carolina, May 1988. Duke
University Marine Laboratory. Biological Bulletin 176:337-348
(1989).

NAL call number: 442.8 B52

Descriptors: funding, fish, recommendations, cephalopods,
molluscs, aquaculture, resources, toxicology, carcinogens.

163 Marine models in biomedical research. The Collecting Net
Marine Biological Laboratory, Woods Hole, MA; 7(1):1-3 (1989).

Descriptors: Beaufort Symposium, benefits, summary,
invertebrates, nonmammalian, vertebrates.

164 Marine (and freshwater) models in biomedical research.
Marine Life Resources Workshop Beaufort, NC, May 1988.
Anonymous. The Biological Bulletin Marine Biology Laboratory
(Informational Bulletin Marine Biological Laboratory) Woods
Hole, MA; 176(3):337-348 (1989).

Descriptors: pharmacology, test organisms, marine organisms.

165 Funduscopy morphology of selected marine animals as
photographed in vivo. Grover, D.A. and Zigmen, S. Canadian
Journal of Zoology 62:563-566 (1984).

NAL call number: 470 C16D

Descriptors: ophthalmoscopy, histopathology aid, eye
photography.

166 Fish collections in the United States and Canada.
Collette, B.B. and Lachner, E.A. Copeia 1976:618. (ISSN
0045-8511)

FISH

FISH AS BIOMEDICAL MODELS

167 Arterial response to mechanical injury: Balloon catheter de-endothelialization. Ferns, G.A.A.; Stewart, A.L. and Anggard, E.E. *Atherosclerosis* 92(2-3):89-104 (1992).
NAL call number: RC692 A8
Descriptors: fish, techniques.

168 Acute toxicity of pentachlorophenol (PCP) on goldfish (*Carassius auratus*) under laboratory conditions. Fernandez-Casalderrey, A. *Toxicological and Environmental Chemistry* 31/32:395-400 (1991).

NAL call number: QD241 T6

Descriptors: pollution, toxicant, degradation, environment.

169 Fish as human disease models. Contie, V.L. *Reporter* 15(11):1-4 (1991).

NAL call number: IPSTG1655

Descriptors: carcinogens, Wilson's Disease, environmental toxicity, medaka, copper metabolism, lysosomes, liver, neurology.

170 Using white perch (*Morone americana*) to study abnormal hepatic copper metabolism. Bunton, T.E. and Frazier, J.M. *Lab Animal* 19(5):48-50 (1990).

NAL call number: QL55 A1L33

Descriptors: toxicology, model, heavy metals, liver.

171 Aging and calcium metabolism. Fujita, I. *Advances in Second Messenger and Phosphoprotein Research* 24:542-547 (1990).

NAL call number: QP801 N82A3

Descriptors: arteriosclerosis, metabolism, calcitonin, diabetes, concentration gradient, deficiency.

172 Effect of low-temperature culture and L3T4 antibody on the survival of pancreatic islets xenograft (fish to mouse). Morsiani, E. and Lacy, P.E. *European Surgical Research* 22(2):78-85 (1990).

Descriptors: catfish, diabetes, transplantation, organ culture, monoclonal antibodies.

173 Fish hepatocytes accumulate herpes: A potential source of error in studies of intracellular pH regulation. Walsh, P.J. *Journal of Experimental Biology* 148:495-499 (1990).

NAL call number: 442.8 B77

Descriptors: techniques, physiological techniques, physiological solution, Good's Buffer accumulation, in vitro, toadfish, temperature.

174 Light elements: Caviar emptor. Stone, J. *Discover* August 1990, pp. 32-35.

NAL call number: Q1 D57

Descriptors: fish eggs, antimetabolic, embryonic diapause, development, killifish, growth, AIDS, environment toxins, hatchery.

- 175 Purification of prosomatostatin-converting enzymes. Mackin, R.B.; Noe, B.D. and Spiess, J. *Metabolism, Clinical and Experimental* 39(9 Suppl.2):30-32 (1990).
NAL call number: 448.8 M56
Descriptors: metabolism, Islets of Langerhans, peptide, chromatography.
- 176 The use of an aquatic bioassay in carcinogenicity testing. Bunton, T.E. *Lab Animal* 19(5):46-47 (July/Aug. 1990).
NAL call number: QL55 A1L33
Descriptors: environmental pollution, health risk, rainbow trout, guppy, zebra fish, medaka, advantages to use.
- 177 Using white perch (*Morone americana*) to study abnormal hepatic copper metabolism. Bunton, T.E., and Frazier, J.M. *Lab Animal* 19(5):48-50 (July/Aug. 1990).
NAL call number: QL55 A1L33
Descriptors: Wilson's disease, heavy metal, liver disease, copper storage, copper excretion.
- 178 Elasmobranchs (sharks, skates, and rays) as animal models for biomedical research. Luer, C.A. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 121-148
NAL call number: QL55 N66
Descriptors: carcinogenesis, embryology, cardiology, kidney function.
- 179 Electric organ discharge and electrosensory reafference in the little skate, *Raja erinacea*. New, J.G. *Biological Bulletin of the Marine Biological Laboratory General scientific meeting of the Marine Biological Laboratory, Woods Hole, MA; August 14-16, 1989.* 177(2):324 (1989).
Descriptors: nervous system, axons, sensory.
- 180 Evolution of urea synthesis in vertebrates. The piscine connection. Mommsen, T.P. and Walsh, P.J. *Science* 243(4887):72-75 (1989).
NAL call number: 470 Sci2
Descriptors: toad fish, osmolyte, CPS I, CPS III, mitochondrial arginase.
- 181 Fish as model systems. Powers, D.A. *Science* 246:352-358 (1989).
NAL call number: Q1 A3S3
Descriptors: research, neurobiology, endocrinology, toxicology.
- 182 Freshwater fish in research on radiation biology. Shirma, A. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), Boca Raton, FL; 1989 pp. 215-223.
NAL call number: QL55 N66
Descriptors: gnathostomata, teleostomi, *Oryzias latipes*,

poeciliaformosa, genetics, mutations, multiple receptor tester.

183 Genetics of melanomas in Xiphophorus fishes. Vielkind, J.R. and Kallman, K.D. *Journal of Aquatic Animal Health American Fisheries Society*, Bethesda, MD; 1(1):69-77 (1989).
NAL call number: SH171 J68
Descriptors: tumorigenesis, cancer heterogeneity.

184 The goldfish visual pathway: Intermediate filament proteins in nerve growth and development. Schechter, N.; Jones, P.S.; Quitschke, W. and Tesser, P. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 225-244.
NAL call number: QL55 N66
Descriptors: classification, structure, synthesis, nerve injury. 185 In vitro metabolism of the pro-carcinogen aflatoxin B1 by liver preparations of the calf, nurse shark and clearnose skate. Bodine, A.B. *Comparative Biochemistry and Physiology. C: Comparative Pharmacology and Toxicology* 94(2):447-453 (1989). NAL call number: QP901 C6
Descriptors: comparative physiology, pharmacology, toxicology.

186 Nervous control of ventilation and heart rate in elasmobranch fish, a model for the study of the central neural mechanisms mediating cardiorespiratory interactions in mammals. Taylor, E.W. In: *Nonmammalian Animal Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 161-183.
NAL call number: QL55 N66
Descriptors: chemoreceptor responses, cardiorespiratory.

187 Properties of detached nerve terminals from skate electric organ: A combined biochemical, morphological, and physiological study. Dowdall, M.; Pappas, G. and Kriebel, M. *Biological Bulletin of the Marine Biological Laboratory General scientific meeting of the Marine Biological Laboratory*, Woods Hole, MA; August 14-16, 1989. 177(2):322 (1989).
Descriptors: comparative medicine, receptors, anatomy.

188 Regulation of insulin release from pancreatic islet cells by norepinephrine and neuropeptide Y. Milgram, S.L.; McDonald, J.K. and Noe, B.D. *Biological Bulletin of the Marine Biological Laboratory General scientific meeting of the Marine Biological Laboratory*, Woods Hole, MA; August 14-16, 1989. 177(2):324-325 (1989).
Descriptors: nephrology, kidney, insulin regulation.

189 Use of small fish in biomedical research, with special reference in inbred strains of medaka. Hyodo-Taguchi, Y. and Egami, N. In: *Nonmammalian Models for Biomedical Research* Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL, 1989, pp. 185-214.

NAL call number: QL55 N66

Descriptors: gnathostomota, *Oryzias latipes*, carcinogenesis, neural regeneration.

190 Control of testis function in fish: In vitro studies of gonadotropic regulation in the trout (*Salmo gairdneri*). Le Gac, F. and Loir, M. *Reproduction Nutrition Development* 28(4B):1031-1046 (1988).

Descriptors: hormone, gonad, In vitro, chemical regulation.

191 Fish Acute Toxicity Syndromes: Application to the development of mechanism-specific QSARS (Quantitative Structure Activity Relationships). Bradbury, S.P. *Government Reports Announcements & Index (GRA&I)* 1988, issue 19. NAL call number: 157.8 B47

Descriptors: hazardous chemicals, alternative, rainbow trout, narcotics, phosphorylation, inhibitors, seizure.

192 Modification of the vestibulo-ocular reflex (VOR) after 6-OHDA induced catecholamine depletion in the CNS of goldfishes. McElligott, J.G.; Weiser, M. and Baker, R. *The Biological Bulletin Marine Biological Lab, General Scientific Meeting of the Marine Biological Lab. (Woods Hole, MA, USA) August 22-24, 1988. Vol. 175, 1988, pp. 307-308.*

Descriptors: sight response, chemical induced, nervous system.

193 On the shores of medical research. University of Washington School of Medicine. *Medicine Northwest* 4(1):22-27 (1988).

Descriptors: steelhead, cardiovascular disease, reproduction, growth, movement, behavior, carcinogens, tumors, parasites.

194 Recent applications of fish cell culture to biomedical research. Hightower, L.E. and Renfro, J.L. *Journal of Experimental Zoology* 248(3):290-302 (1988).

NAL call number: 410 J825

Descriptors: immune system, cancer, cytology, neoplasm, ion transport, cellular stress response, tissue culture, teleost, epithelial, in vitro, toxicology, heat shock, thermo tolerance.

195 Simultaneous assessment of prohormone transport and processing in four separate islet cell types: A combined autoradiographic and biochemical study. Noe, B.D.; Amherdt, M.; Perrelet, A. and Orci, L. *Pancreas* 3(6):700-713 (1988). (ISSN 0885-3177)

Descriptors: diabetes, cell culture, anglerfish, transport, metabolism, protein, precursors, proinsulin, pharmacokinetics.

196 Advantages of using aquatic animals for biomedical research on reproductive toxicology. Mottet, N.K. and Landolt, M.L. *Environmental Health Perspectives Mechanisms of Pollutant Action in Aquatic Organisms, Research Triangle Park, NC; vol. 71., 1987, pp. 69-75.*

NAL call number: RA565 A1E54

Descriptors: gametes, mechanisms, aquatic animals, microtubules, toxicants, toxicology, animal models, trout, sea urchins, flagella, morphology.

197 Guidelines For Use of Fishes in Field Research American Society of Ichthyologists and Herpetologists (ASIH); American Fisheries Society (AFS) and American Institute of Fisheries Research Biologists (AIFRB). Lawrence, KS; 1987, 12 pp.

NAL call number: QL618.5 G85

Descriptors: euthanasia, anesthesia, analgesia, sampling capture, IACUC, restraint, radiotelemetry, radioisotopes, housing, maintenance, release.

198 Using fish as models in biomedical research. May, E.B.; Bennett, R.D.; Lipsky, M.M. and Reimschuessel, R. Lab Animal 16(4):23-28 (1987).

NAL call number: QL55 A1L33

Descriptors: cephalaspidomorphi, chondrichthyes, osteichthyes, salmondia, design, water quality, aquarium, construction.

199 Ionic regulation in fish: The influence of acclimation temperature on plasma composition and apparent set points. Burton, R.F. Comparative Biochemistry and Physiology. A: Comparative Physiology 85(1):23-28 (1986).

NAL call number: QP1.C6

Descriptors: circulatory fluid, blood, osmotic composition, osmotic relations, temperature relationships, thermal acclimation, plasma ionic concentration, physical environment.

200 Spermatogenesis and spermatology of some teleost fish species. Billard, R. Reproduction Nutrition and Development 26(4):877-920 (1986).

Descriptors: endocrine system, hormones, cyclical functions, seasonal functions, environmental factors, physical environment, light, photoperiod, gametes, sperm, structural complexity, production and yield, testicular structure, lobule organization, endocrine regulation.

201 Establishment of inbred strains of medaka *Oryzias latipes* and the usefulness of the strains for biomedical research.

Hyodo-Taguchi, Y. and Egami, N. Zoological Science 2(3):305-316 (1 Alter NAL call number: QL1 Z68

Descriptors: nonmammalian, models, pisces, gnathostomata, *Oryzias latipes*.

202 White perch horizontal cells in culture: Methods, morphology and process growth. Dowling, J.E. and Pak, M.W. Brain Research 360(1-2):331-338 (1985).

Descriptors: nerve cells, cell culture, fish.

203 Debate: Mouse versus minnow: The future of fish in carcinogenicity testing. Dawe, C.J. and Couch, J.A. NCI Monographs U.S. Department of Health and Human Services,

Public Health Service, National Institutes of Health, National Cancer Institute, Bethesda, MD; Vol. 65, 1984, pp. 223-227.

NAL call number: RC261 A1N37

Descriptors: evolutionary theory, branchial cysts, thyroid gland, parathyroid gland.

204 Serological alterations in carcinogen-exposed teleosts: Procedures for preparation and analysis of samples from small fish. Meador, C.B.; Middlebrooks, R.L. and Martin, B.J. (eds.), NCI Monographs U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, Vol. 65, 1984.

NAL call number: RC261 A1N37

Descriptors: oncology, cancer, hematology.

205 The use of fish in biomedical research. Wolke, R. Comparative Pathology Bulletin 16(4):1,5-6 (1984).

NAL call number: QL55 A1C66

Descriptors: laboratory rearing, disease, physiology, pathology, anatomy, immunology, melanin, carcinogens, biochemistry.

z06 Effects of anaesthesia and surgery on levels of adrenaline and noradrenaline in blood plasma of the eel (*Anguilla anguilla* L.). LeBras, Y.M. Comparative Biochemistry and Physiology. C: Comparative Pharmacology 72C(1):141-144 (1982).

NAL call number: QP901.C6

Descriptors: levels, baseline, trauma, post-operative, sampling.

207 The fishy side. Couch, J.A. NCI Monographs U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, Bethesda, MD; Vol. 65, 1984, pp. 229-235.

NAL call number: RC261 A1N37

Descriptors: trifluralin, aflatoxin, sensitivity, non-neoplastic lesions.

208 Ichthyotoxins from the oyster toadfish *Opsanus tau*. Nair, M.S.R. and Leong, I. Toxicon 20(5):933-935 (1982).

NAL call number: 391.8 T66

Descriptors: toxicology, neurology, effects.

209 In vitro study on the interactive effects of heavy metals on catalase activity of *Sarotherodon mossambicus* (Peters) (Fish, sublethal metal stress, toxicity). Singh, S.M. and Sivalingam, P.M. Journal of Fish Biology 20(6):683-699 (1982).

NAL call number: QL614.J68

Descriptors: metal stress, antagonistic, synergistic, bioaccumulation, mortality, cellular, pollution, liver enzyme catalase, toxicity.

210 Neuropharmacology of adrenergic neurons in teleost fish. Holmgren, S. and Nilsson, S. *Comparative Biochemistry and Physiology. C: Comparative Pharmacology* 722c(1):289-302 (1982). NAL call number: QP901.C6

Descriptors: similarities, neurotransmission, parasympathetic, sympathetic, transmitters, adrenoceptors, catecholamines.

211 Proposal from a plan of study of stress in fish caused by abnormal environmental factors (Ecophysiology, Ecotoxicology).

[Proposition d'un pln pour l'etude du "stress" provoqué chez le poisson par des facteurs anormaux de l'environnement.]

Peres, G. *Bulletin de la Societe des Sciences Veterinaires et de Medicine Comparee de Lyon* 84(6):353-355 (1982).

NAL call number: 41.9 L99

Descriptors: stress, pH, heavy metals, osmotic stress, environmental stress.

212 Effects of low oxygen and pollution on the respiratory systems of fish (Hypoxia, respiratory physiology, stress).

Hughes, G.M. In: *Stress and Fish* Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 121-146.

NAL call number: QL615.S7

Descriptors: responses, hypoxia, heavy metals, pollution.

213 Reproduction in fish experiencing acid and metal stress.

Peterson, R.H.; Daye, P.G.; Lacroix, G.L. and Garside, E.T. *Acid Rain/Fisheries: Proceedings of an International Symposium on Acidic Precipitation and Fishery Impacts in Northeastern North America*, Cornell University, Ithaca, NY; August 2-5, 1981 Johnson, R.E. (ed.), American Fisheries Society, Bethesda, MD; 1982, pp. 177-196.

NAL call number: SH174.I5 1981

Descriptors: acidification, reproduction, recruitment failure, populations, low pH, pH toxicity, mortality, larvae, teleost, embryo.

214 Animal models and systems for risk evaluation of low-level carcinogenic contaminants in water. Kraybill, H.F. In: *Water Chlorination Environmental Impact and Health Effects* Ann Arbor Science Publishers, Inc., Ann Arbor, MI; Volume 3, 1980, pp. 973-982.

Descriptors: fish, alternative, toxicity, water monitor, bioassay, drinking water.

215 Biological monitoring of chlorine-induced ventilatory changes in bluegill sunfish (*Lepomis macrochirus*). Miller, W.R.; Gruber, D.; Cairns, J.; Hendricks, A.C. and Hoehn, R.C. In: *Water Chlorination Environmental Impact and Health Effects* Ann Arbor Science Publishers, Inc., Ann Arbor, MI; Volume 3, 1980, pp. 589-597.

Descriptors: toxicity, water quality, pollution, chlorine, respiration rates.

216 Comparison of the toxicities of monochloramine and

dichloramine to rainbow trout, *Salmo gairdneri*, under various time conditions. Thomas, P.; Bartos, J.M. and Brooks, A.S. In: Water Chlorination Environmental Impact and Health Effects Ann Arbor Science Publishers, Inc., Ann Arbor, MI; Volume 3, 1980, pp. 581-588.

Descriptors: toxicity, disinfectant, anti-fouling, chlorine.

217 Effects on carp embryos (*Cyprinus carpio*) and *Daphnia pulex* of chlorinated organic compounds produced during control of fouling organisms. Trabalka, J.R.; Tsai, S.C.; Mattice, J.S. and Burch, M.B. In: Water Chlorination Environmental Impact and Health Effects Ann Arbor Science Publishers, Inc., Ann Arbor, MI; Volume 3, 1980, pp. 599-606.

Descriptors: human health, environmental quality, toxicity, chlorine, trihalomethanes, THM's.

218 A sister chromatid exchange assay for detecting genetic damage to marine fish exposed to mutagens and carcinogens. Maddock, M.B. and Kelly, J.J. In: Water Chlorination Environmental Impact and Health Effects Ann Arbor Science Publishers, Inc., Ann Arbor, MI; Volume 3, 1980, pp. 835-844.

Descriptors: chlorination, pollutant, toxicity, cytogenetic damage.

219 Pollution-associated diseases and abnormalities of fish and shellfish: A review. Sindermann, C.J. Fishery Bulletin National Marine Fisheries Service, Washington, DC; 76(4):717-749 (1979).

NAL call number: 157.5 B87

Descriptors: fin erosion, ulcers, environmental stress, toxicology.

220 The use of otoliths for age determination. Williams, T. and Bedford, B.C. International Symposium on the Ageing of Fish, The University of Reading, England, July 19-20, 1973 Unwin Brothers Ltd., The Gresham Press, Old Woking, Surrey, England; 1974, 234 pp.

Descriptors: aging, ear, calcareous concretion.

221 Fish as biomedical research models. Klontz, G.W. In: Animal Models for Biomedical Research Proceeding, Vol. 4, 1970 National Academy of Sciences, Washington, DC; 1971, pp. 27-30.

NAL call number: QL53 S9 1970

Descriptors: chordates, pisces, vertebrates, laboratory animal, nonhuman vertebrates.

222 Retinal tapetum lucidum: A novel reflecting system in the eye of teleosts. Arnott, H.J. and Maciolek, N.J. Science 169:478-480 (1970).

NAL call number: 470 Sci2

Descriptors: bony fishes, pigment epithelial cells, lipid particles, dim-light vision.

FISH CARE AND USE

223 Common disorders of marine fish. Whitaker, B.R. The Compendium on Continuing Education for the Practicing Veterinarian 13(6):961-966 (1991).

NAL call number: SF601 C66

Descriptors: fish disease, anesthetics, drug therapy, stress, bacteria, parasites, diagnosis.

224 Laboratory management and husbandry of the Japanese medaka. Grady, A.W.; Greer, I.E. and McLaughlin, R.M. Lab Animal 20(3):22-28 (1991).

NAL call number: QL55.A1L33

Descriptors: ricefish, biology, husbandry, environmental conditions, reproduction, spawning, diet, cleaning, health, hatching, rearing, oviparous, development, toxicity.

225 Non-invasive ventilation monitoring in fish. Gehrke, P.C. ACCART News 4(4):10-11 (1991).

NAL call number: SF405.5 A3

Descriptors: c Alternatives to the use of mammals for pa monitoring, anaesthesia.

226 Prescribing for fish. The Veterinary Formulary: Handbook of Medicines Used in Veterinary Practice Debuf, Y.M. (ed.), The Pharmaceutical Press, London, 1991, pp. 29-34.

NAL call number: SF916.5.V37 1991

Descriptors: anesthesia, analgesia, euthanasia, antibiotic, infection, preparations, dosages.

227 Stress--it's role in fish disease. Francis-Floyd, R. Circular - Florida Cooperative Extension Service Vol. 919, 1991, 4 pp.

NAL call number: 275.29 F66C

Descriptors: resistance, prevention, infection.

228 Acute correlated changes in plasma T sub(4) and glucose in physically disturbed cannulated rainbow trout (*Oncorhynchus mykiss*). Himick, B.A. and Eales, J.G. Comparative Biochemistry and Physiology. A: Comparative Physiology 97A(2):165-167 (1990). NAL call number: QP1.C6

Descriptors: fish physiology, blood, biological stress, biochemical composition, *Salmo gairdneri*, *Oncorhynchus mykiss*.

229 Animal protection aspects on killing of fish.

[Tierschutzaspekte bei der Toetung von Fischen]. Bernoth, E.M. and Wormuth, H.J. Deutsche Tieraerztliche Wochenschrift Institut fuer Veterinaermedizin, Germany, 97(4):154-157 (1990).

Descriptors: animal welfare, euthanasia, pain, humane death.

230 Fish diseases and diagnostic services. Beem, M. OSU Current Report Oklahoma State University, Cooperative Extension Service, Vol. 9204, November 1990, 4 pp.
NAL call number: S451 O5O8
Descriptors: etiology, management, water quality, stress, natural defenses, symptoms, diagnosis, treatment, pesticides.

231 Fishes. American Association for Laboratory Animal Science. In: Laboratory Animal Technician Stark, D.M. and Ostrow, M.E. (eds.), Cordova, TN; Training Manual Series, Vol. 2, 1990, pp. 87-90.
NAL call number: SF77.L25
Descriptors: behavior, husbandry, diet, handling.

232 An introduction to fish hematology. Campbell, T. and Murru, F. Compendium on Continuing Education for the Practicing Veterinarian 12(4):525-533 (1990).
NAL call number: SF601 C66
Descriptors: leukocytes, blood collection, diagnostic tool.

233 Laboratory culture of jacksmelt, *Atherinopsis californiensis*, and topsmelt, *Atherinopsis affinis* (Pisces: Atherinidae), with a description of larvae. Middaugh, D.P.; Hemmer, M.J.; Shenker, J.M. and Takita, T. California Fish and Game Environmental Research Laboratory, Gulf Breeze, FL; 76(1):4-13 (1990).
Descriptors: husbandry, water chemistry, facility design.

234 Phenotypic plasticity in the sailfin molly, *Poecilia latipinna* (Pisces: Poeciliidae). II. Laboratory experiment. Trexler, J.C.; Travis, J. and Trexler, M. Evolution 44(1):157-167 (1990).
NAL call number: QH301 B543 J.13, H.1
Descriptors: genetics, variation, selection.

235 Relationship between ECG, EEG and SPS responses during arousal in the goldfish (*Carassius auratus*). Quick, I.A. and Laming, P.R. Comparative Biochemistry and Physiology. A: Comparative Physiology 95A(3):459-471 (1990)
NAL call number: QP1 C6
Descriptors: restraint, environmental stimuli, brady cardia, forebrain, midbrain, hindbrain, physiology, habituation.

236 Clinical studies of fish blood: Importance of sample collection and measurement techniques. Heming, T.A. American Journal of Veterinary Research American Veterinary Medical Association, Chicago, IL; 50(1):93-97 (1989).
NAL call number: 41.8 AM3A
Descriptors: effects, blood gas tensions, pH, hematology, plasma values, rainbow trout.

237 Current and power determinations for electrically anesthetized fish. Lolz, M.L. The Progressive Fish-Culturist 51(3):168-169 (1989).

NAL call number: 157.5 P94

Descriptors: zero resistance, ammeter, electrical measurements, direct current, power level.

238 Efficacy of benzocaine as an anesthetic for salmonid fishes. Gilderhus, P.A. *North American Journal of Fisheries Management* 9(2):150-153 (1989).

NAL call number: SH219 N66

Descriptors: effective concentrations, water temperature, water hardness, handling, recovery, water quality, fish size.

239 Heart frequency as stress indicator in fishes.

[Hjertefrekvensen som indikator paa stress hos fisk]. Aarstad, I.; Knudsen, F. and Enger, P.S. *Norsk Fiskeoppdrett (Norwegian)* 14(6):50-51 (1989).

Descriptors: heart rate, behavior, distress.

240 Multiple-tank aquarium system with recirculating water for laboratory studies of freshwater fishes. Rottman, R.W. and Capton, D.E. *The Progressive Fish-Culturist* 51(4):238-243 (1989).

NAL call number: 157.5 P94

Descriptors: water level, filters, green swordtails, mosquitofish, ammonia concentration, nitrate concentration.

241 Plasma catecholamine concentrations in rainbow trout (*Salmo gairdneri*) at rest and after anesthesia and surgery. Gingerich, W.H. and Drottar, K.R. *General and Comparative Endocrinology* 73(3):390-397 (1989).

NAL call number: 444.8 G28

Descriptors: hormones, serological studies, biological stress, steroids, blood, fish physiology, *Salmo gairdneri*.

242 Some observations on the narcotizing ability of electric currents on the common carp *Cyprinus carpio*. Barham, W.T.; Schoonbee, H.J. and Visser, J.G.J. *The Onderstepoort Journal of Veterinary Research University of Zululand, KwaDlangezwa, South Africa* 56(3):215-218 (1989).

NAL call number: 41.8 ON1

Descriptors: alternating current, electronarcosis, convulsive spasms, hemorrhaging, carp, anesthesia.

243 The use of electronarcosis as anaesthetic in the cichlid, *Oreochromis mossambicus* (Peters). 3. The effects of changing physical and electrical parameters on the narcotizing ability of half-wave rectified currents. Barham, W.T.; Schoonbee, H.J. and Visser, J.G.J. *The Onderstepoort Journal of Veterinary Research* 56(1):66-71 (1989).

NAL call number: 41.8 ON1

Descriptors: freshwater fish, electric current, narcosis, South Africa, physiology.

244 Cage culture: Handling and feeding caged fish. Masser, M.P. *SRAC Publication Vol. 164*, 1988, 4 pp.

NAL call number: SH151 S62

Descriptors: fish culture, food, growth, stress.

245 Effect of stocking density on the growth and stress-response in brook charr, *Salvelinus fontinalis*. Vijayan, M.M. and Leatherland, J.F. *Aquaculture* 75(1):159-170 (1988).

NAL call number: SH1 A6

Descriptors: plasma protein levels, liver glycogen content, hepatosomatic index, splensomatic index, stocking density, cortisol, feed consumption.

246 Fish Vaccination Ellis, A.E. (ed.), Academic Press, San Diego, CA; 1988, 255 pp.

NAL call number: SH171 F59

Descriptors: diseases, prevention, inoculation, control.

247 The Manual of Fish Health Andrews, C.; Exell, A. and Carrington, N. Tetra Press, Morris Plains, NJ; 1988, 208 pp.

NAL call number: SH171 A52

Descriptors: fish biology, water chemistry, disease prevention, symptom recognition, treatment.

248 Physiologic mechanisms governing the cardiovascular compensation to gravity in bluefish. Ogilvy, C.S.; Fox, S.H. and DuBois, A.B. *The Biological Bulletin Marine Biological Lab, Woods Hole, General Scientific Meeting of the Marine Biological Lab. (Woods Hole, MA) August 22-24, 1988. Vol. 175, 1988, p. 308.*

Descriptors: heart, hemodynamics, aqueous environment.

249 Stress in cultivated fish: Possible causes, biological reactions, preventative measures. [Le stress chez les poissons d'élevage. Origines possible, reactions, elements de prevention]. Bry, C. *Recueil de Medecine Veterinaire (French)* 164(10):863-869 (1988).

Descriptors: observation, minimization, fish culture, metabolic changes.

250 A method to minimize stress during fish transport. Winkler, P. *The Progressive Fish-Culturist Southwest Harbor, ME;* 49(2):154-155 (1987).

NAL call number: 157.5 P94

Descriptors: thermal tolerance, mosquito fish, anaerobic respiration.

251 Aspects of disease and parasite problems in cultured salmonids in Canada, with emphasis on the Pacific region, and regulatory measures for their control. Margolis, L. and Evelyn, T.P.T. *Parasites and Diseases in Natural Waters and Aquaculture in Nordic Countries* Stenmark, A. and Malmberg, G. (eds.), Symposium Stockholm, Sweden, December 2-4, 1986, Naturhistoriska Riksmuseet, 1987, pp. 4-19.

Descriptors: parasitology, symptoms, treatments, etiology.

252 Fish. In: The UFAW Handbook on the Care and Management of Laboratory Animals Poole, T.B. (ed.), Bath Press, Avon, Great Britain, 1987, pp. 784-847.

NAL call number: QL55.U5 1987

Descriptors: fish, reptiles, amphibia, environment.

253 Fish and natural protection. [Fisch und Naturechutz]. Reichenbach-Klinke, H.H. Tierärztliche Praxis Muenchen University, Germany 15(1):99-106 (1987).

Descriptors: toxins, coloration, morphology, behavior.

254 Fish blood osmolality, gill histology and oocyte atresia as early warning acid stress indicators. McCormick, J.H.; Stokes, G.N.; Jensen, K.M. and Leino, R.L. Ecophysiology and Acid Stress in Aquatic Organisms Witters, H. and Vanderborght, O. (eds.), International Symposium, organized by the Belgian Royal Zoological Society, Antwerpen, Belgium, January 13-16, 1987, pp. 309-319.

Descriptors: pH, osmosis, prevention, egg damage.

255 Recirculation anaesthesia for laboratory fish. Brown, L.A. Laboratory Animals 21(3):210-215 (1987).

NAL call number: QL55.A1L3

Descriptors: tricaine methanesulphonate, surgery, water quality, ammonia, catfish, equipment design.

256 Using fish as models in biomedical research. May, E.B.; Bennett, R.D.; Lipsky, M.M. and Reimschuessel, R. Lab Animal 16(4):23-28 (1987).

NAL call number: QL55 A1L33

Descriptors: cephalaspidomorphi, chondrichthyes, osteichthyes, salmondia, cycle, design, filtration, construction.

257 Anesthesia for fish. Sedgwick, C.J. The Veterinary Clinic of North America: Food Animal Practice W.B. Saunders Co., Philadelphia, PA; 2(3):737-742 (1986).

NAL call number: SF601.V535

Descriptors: handling, examination, diagnostic sampling, transport, sedation, techniques, biology.

258 Disease resistance of fish (also include immune system). [Sjukdomsresistens hos fisk]. Lillehaug, A. Norsk Veterinaertidsskrift (Norwegian) 98(11):855-861 (1986).

NAL call number: 41.8 N81

Descriptors: immunity, disease prevention, disease control.

259 Immediate influence of tank scrubbing on some blood parameters of cultured European sea bass, *Dicentrarchus labrax* L.: Effect of stress. [Influence immediate du brossage des bacs sur certains parametres sanguins de loup d'eleveage, *Dicentrarchus labrax* L.: Effet de stress]. Hadj Kacem, N.; Aldrin, J.F. and Romestand, B. Aquaculture (French) 59(1):53-59 (1986).

NAL call number: SH1 A6

Descriptors: distress, tank cleaning, blood chemistry.

260 Propanidid, a new stressless anesthetic to improve fish propagation. Jeney, Z.; Jeney, G.; Olah, J.; Siwicki, A. and Danko, I. Aquaculture of Cyprinids [Papers of the International Colloquium on the Aquaculture of carps and related species held at Evry (France), September 2-5, 1985], 1986, (poster summary), pp. 167.

NAL call number: SH167 C3C6

Descriptors: 3-4/4-methoxyphenyl/propil acetate, MS-222 comparison, stress, adrenalin, blood glucose, transaminases.

261 Evolution of the renin-angiotensin system and its role in control of cardiovascular function in fishes. Nishimura, H. Evolutionary Biology of Primitive Fishes Foreman, R.E.; Gorbman, A.; Dodd, J.M. and Olsson, R. (eds.), Plenum Press, New York, NY; 1985, pp. 275-293.

NAL call number: QH301.N32 V103 1985

Descriptors: protein enzyme, juxtaglomerular cells, renal lymph, venin substrate, L-globulin, octapeptide angiotensin, hydromineral homeostasis, teleost, tetrapods.

262 Hagfish insulin: Evolution of insulin. Emdin, S.O.; Steiner, D.F.; Chan, S.J. and Falkmer, S. Evolutionary Biology of Primitive Fishes Foreman, R.E.; Gorbman, A.; Dodd, J.M. and Olsson, R. (eds.), Plenum Press, New York, NY; 1985, pp. 363-378. NAL call number: QH301.N32 V103 1985

Descriptors: regulation, carbohydrate transport, amino acid transport, biosynthesis, lipids, nutrition, receptors-effectors, anabolic needs.

263 Niacin requirement for optimum growth, feed conversion and protection of rainbow trout, *Salmo gairdneri* from ultraviolet-B irradiation. Poston, H.A. and Wolfe, M.J. Journal of Fish Diseases 8(5):451-460 (1985).

NAL call number: SH171 A1J68

Descriptors: niacinamide, dermatopathy, UV, depigment, fin erosion, desquamation, sunburn.

264 Principal Diseases of Farm Raised Catfish Meyer, F.P. (ed.), Auburn University, Alabama Agricultural Experimental Station, Auburn, AL; 1985.

Descriptors: disease prevention, fish culture, physiology.

265 Regulation of blood and body fluids in primitive fish groups. NATO Advanced Research Workshop on Evolutionary Biology of Primitive Fishes, Bamfield, British Columbia, Canada, April 14-17, 1985. Faenge, R. Evolutionary Biology of Primitive Fishes Foreman, R.E.; Gorbman, A.; Dodd, J.M. and Olsson, R. (eds.), Plenum Press, New York, NY; 1985, pp. 253-274.

NAL call number: QH302 N32 V103 1985

Descriptors: ichthyology, non-teleostean fishes, tetrapods, hagfishes, lampreys, agnathans, teleosts, composition, lymph,

water balance.

266 Adaptation to thermal stress in the freshwater eurythermal teleost *Sarotherodon mossambicus*: Lactate dehydrogenase activity (Fish). Radhakrishnaiah, K. Proceedings of the Indian Academy of Sciences (Animal Sciences) 93(2):115-119 (1984).

NAL call number: QL1.I48

Descriptors: LDH activity, osmoregulation, enzyme activity, size, dependence, metabolism.

267 Anaesthetic and Sedative Techniques for Fish Ross, L.G. and Ross, B. University of Stirling, Institute of Aquaculture, Scotland, 1984, 35 pp.

NAL call number: SH156.9.R6 1984

Descriptors: physiology, anesthesia, welfare, pain, stress, procedures.

268 ASFA Aquaculture Abstracts United Nations Department of International Economic and Social Affairs, Food and Agriculture Organization of the United Nations, and Cambridge Scientific Abstracts, Bethesda, MD; Vol. 1 No. 1, 1984.

NAL call number: SH135 A8

Descriptors: fish culture, data base, bibliographies.

269 Disease in marine aquaculture. Sinderman, C.J. Helgoländer Meeresuntersuchungen Biologische Anstalt Helgoland, Hamburg, Germany, 37:505-532 (1984).

NAL call number: QH91 A1H4

Descriptors: pathogen control, prevention, fish culture, pH, housing, stress.

270 Fish. Canadian Council on Animal Care. Guide to the Care and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Ontario, 1984, Vol. 2, pp. 1-10.

NAL call number: SF406 C36

Descriptors: housing, feeding, anesthesia, analgesia, euthanasia, disease.

271 Nutritional requirements of experimental fish. Dupress, H.K. (ed.), NCI Monographs U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, Bethesda, MD; 1984.

NAL call number: R261 A1N37

Descriptors: analysis, nutritional breakdown, captive fish.

272 Principal bacterial diseases of cultured marine fish.

Fryer, J.L. and Rohovec, J.S. Helgoländer Meeresuntersuchungen Biologische Helgoland, Hamburg, Germany, 37:533-545 (1984). NAL call number: QH91 A1H4

Descriptors: gram negative bacteria, gram positive bacteria, anaerobic bacteria, etiological agents, pathogen control.

273 Physiological responses of experimental fish to stressful

conditions. Gratzek, J.B. and Reinert, R. NCI Monographs
U.S. Department of Health and Human Services, Public Health
Service, National Institutes of Health, National Cancer
Institute, Bethesda, MD; Vol. 65, 1984.
NAL call number: RC261 A1N37
Descriptors: glucocorticoids, adrenal, husbandry, housing.

274 Tables of sample size requirements for detection of fish
infected by pathogens: Three confidence levels for different
infection prevalence and various population sizes. Simon,
R.C. and Schill, W.B. *Journal of Fish Diseases* 7(6):515-520
(1984). NAL call number: SH171 A1J68
Descriptors: carriers, sublethal infections, detection
methods.

275 The adaptation to salinity: Response of fish gill
mitochondria to salinity stress (*Tilapia mossambica*,
Sarotherodon mossambicus). Suresh, N. and Jayaraman, J.
Journal of Bioenergetics and Biomembranes 15(6):363-377
(1983).
NAL call number: QH511.A1J68
Descriptors: freshwater fish, response, ion-osmotic shock,
phosphorylate, transhydrogenase, salinity adaption, calcium
uptake.

276 Etomidate as an anesthetic for fish: Its toxicity and
efficacy (*Ictalurus punctatus*, *Notemigonus crysoleucas*,
Lepomis macrochirus). Limsuwan, C.; Grizzle, J.M. and Plumb,
J.A. *Transactions of the American Fisheries Society*
112(4):544-550 (1983).
NAL call number: 414.9 AM3
Descriptors: channel catfish, golden skinners, LC50,
induction, recovery, water hardness, pH, opercular movement,
survival, exposure time.

277 Experimental anesthesia of three species of freshwater
fish with etomidate (*Notemigonus crysoleucas*, *Morone*
saxatilis, *Ictalurus punctatus*). Plumb, J.A.; Schwedler, T.E.
and Limsuwan, C. *The Progressive Fish Culturist United States*
Fish and
Wildlife Service, 45(1):30-33 (1983).
NAL call number: 157.5 P94
Descriptors: ethyl-1-methylbenzoyl-imidazole-5-carboxylate,
non-barbiturate, hypnotic agent, golden skins, channel
catfish, sedation.

278 The Influence of Stress Factors on the Physiological
Status of Cultured Fish. [Die Einwirkung von Stressoren auf
den Physiologischen Zustand von Nutzfischen] Blum, V. and
Borchard, B. West Germany, 1983, 73 pp.
NAL call number: SH171.B5
Descriptors: physiology, pH, housing, nutrition, aquaculture.

279 Possibility of applying anesthesia by carbon dioxide in

the transportation of live fish. Takeda, T. and Itazawa, Y. Bulletin of the Japanese Society of Scientific Fisheries 49(5):725-731 (1983).

NAL call number: 414.9 J274

Descriptors: sedation, transport, handling, sodium bicarbonate, sulphuric acid, suitability, safety, labor intensive, effectiveness.

280 The role of the pituitary-interrenal axis during osmotic stress in the teleost fish (*Sarotherodon mossambicus*, *Cyprinus carpio*). Gupta, O.P. and Hanke, W. Zoologische Jahrbucher: Abteilung fur Allgemeine Zoologie und Physiologie der Tiere 87(1):79-91 (1983).

NAL call number: 410 Z751Z

Descriptors: plasma cortisol, urea stress, mannitol stress, response, intoxication, pituitary-interrenal axis, hypophysectomized, acclimation.

281 Sustained anesthesia with 2-phenoxyethanol in yearling rainbow trout (fish, *Salmo gairdneri*). Takashima, F.; Zhaoming, W.; Kasai, H. and Asakawa, O. Journal of the Tokyo University of Fisheries 69(2):737-742 (1983).

NAL call number: 414.9 T57

Descriptors: long-term, appearance, behavior, cortisol levels, agitation, stress, transport.

282 Etomidate: Effective dosages for a new fish anesthetic. Amend, D.F.; Goven, B.A. and Elliot, D.G. Transactions of the American Fisheries Society 111(3):337-341 (1982).

NAL call number: 414.9 AM3

Descriptors: dose response, immobilizing fish, paraffin embedding techniques, hematoxylin, eosin, acid-shiff stains, black tetra.

283 Hepatic microsomes from freshwater fish, II. Reduction of benzo(a)pyrene metabolism by the fish anesthetics quinaldine sulfate and tricaine (*Brook trout*, {*Salvelinus fontinalis*}).

Fabacher, D.L. Comparative Biochemistry and Physiology. C: Comparative Pharmacology 73(2):285-288 (1982).

NAL call number: QP901.C6

Descriptors: brook trout, decapitation, in vitro, spectral analysis.

284 Levels of CO₂ (carbon dioxide) in arterial blood of carp under carbon dioxide anesthesia (Transportation of live fish). Mitsuda, H.; Ueno, S.; Mizuno, H.; Ueda, T.; Fujikawa, H.; Nohara, T. and Fukada, C. Journal of Nutritional Science and Vitaminology 28(1):35-39 (1982).

NAL call number: 389.8 J825

Descriptors: transport, PaO₂, PaCO₂, pH, electrocardiogram, opercular rate, *Cyprinus carpio*.

285 Physiological effects of acid stress on fish. Leivestad, H. In: Acid Rain/Fisheries: Proceedings of an International

Symposium on Acidic Precipitation and Fishery Impacts in Northeastern North America, Cornell University, Ithaca, NY; August 2-5, 1981, Johnson, R.E. (ed.), American Fisheries Society, Bethesda, MD; 1982, pp. 157-164.

NAL call number: SH174.I5

Descriptors: necrotic gill damage, mortality, oogenesis, pH toxicity.

286 Respiration of carp under anesthesia induced by mixed bubbling of carbon dioxide and oxygen (*Cyprinus carpio*, means for live transport of fish). Itazawa, Y. and Takeda, T.

Bulletin -Japanese Society of Scientific Fisheries

48(4):489-493 (1982). NAL call number: 414.9 J274

Descriptors: transportation, anesthetic, reduced stress, CO₂.

287 Use and efficacy of methomidate as an anesthetic on ten Mediterranean fish species. [Utilisation et efficacite du metomidate comme anesthésiant sur dix especes de poissons mediterraneens]. Escoubet, P. Bulletin de la Societe des Sciences Veterinaires et de Medicine Comparee de Lyon 84(6):357-362 (1982).

NAL call number: 41.9 L99

Descriptors: anesthesia, effects, transport, handling, care.

288 Use of adenylate concentrations and adenylate energy charge as indicators of hypoxic stress in estuarine fish.

Vetter, R.D. and Hodson, R.E. Canadian Journal of Fisheries and Aquatic Sciences [Journal Canadien des Sciences Halieutiques et Aquatiques] 39(4):535-541 (1982).

NAL call number: 442.9 C16J

Descriptors: ATP concentrations, stoichiometric, stress assessment.

289 Adrenergic responses to stress in fish (mortality, osmoregulatory disturbances). Mazeaud, M.M. and Mazeaud, F. Stress and Fish Academic Press, London, England, 1981, pp. 49-75.

NAL call number: QL615.S7

Descriptors: catacholamines, stress actions, physiologic parameters.

290 Aquarium Systems Hawkins, A.D. (ed.), Academic Press, New York, NY; 1981, 452 pp.

NAL call number: SF457 A67

Descriptors: laboratory animals, fish culture, shellfish culture.

291 Aspects of water quality producing stress in intensive fish culture (physiological disturbances). Smart, G.R.

Stress and Fish Academic Press, London, England, 1981, pp. 277-293.

NAL call number: QL615.S7

Descriptors: dissolved oxygen, rainbow trout, salmonid farming, nephrocalcinosis.

- 292 Effects of stress on osmotic and ionic regulation in fish. Eddy, F.B. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 77-102.
NAL call number: QL615.S7
Descriptors: regulation, endocrinology, effects, pollution, temperature, anaesthesia, handling.
- 293 Introduction: The concept of biological stress (fish). Pickering, A.D. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 1-9.
NAL call number: QL615.S7
Descriptors: terminology, stress responses, relevance.
- 294 Non-antibody molecules and the defence mechanisms of fish (metabolism, stress). Fletcher, T.C. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 171-183.
NAL call number: QL615.S7
Descriptors: skin, mucous, blood, fever.
- 295 Physiological stress in captive fish. Wardle, C.S. In: Aquarium Systems Hawkins, A.D. (ed.), Academic Press, New York, NY; 1981, pp. 403-414.
NAL call number: SF457.A67
Descriptors: osmoregulation, hypoxia, pH, housing, handling.
- 296 The pituitary-interrenal axis as an indicator of stress in fish. Donaldson, E.M. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 11-47.
NAL call number: QL615.S7
Descriptors: hypothalamus, pituitary, interrenal, hypothalamic-pituitary-interrenalaxis, HPI axis, stress evaluation response.
- 297 The Seawater Manual: Fundamentals of Water Chemistry for Marine Aquarists Mowka, E.J. Aquarium Systems, Inc., Mentor, OH; 1981, 43 pp.
NAL call number: SF457.5 M68 1981
Descriptors: water quality, salinity, health, marine fishes.
- 298 Some aspects of thermal stress on freshwater teleosts. Elliott, J.M. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 209-245.
NAL call number: QL615.S7
Descriptors: thermal limits, tolerance, resistance, body temperature, thermoregulation.
- 299 Stress and compensation in teleostean fishes: Responses to social and physical factors. Schreck, C.B. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 295-321.
NAL call number: QL615.S7
Descriptors: components, stress conceptualization, stress

control.

300 Stress and the modulation of defence mechanisms in fish (physiological systems). Ellis, A.E. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 147-169.

NAL call number: QL615.S7

Descriptors: hormones, immunosuppressive factors, macrophages.

301 Stress, environment and reproduction in teleost fish.

Billard, R.; Bry, C. and Gillet, C. In: Stress and Fish Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 185-208.

NAL call number: QL615.S7

Descriptors: photoperiod, water quality, synergism, mechanisms.

302 Vivisection, anaesthetics and minor surgery. Tytler, P. and Hawkins, A.D. In: Aquarium Systems Hawkins, A.D. (ed.), University Stirling, Glasgow, UK; 1981, pp. 247-278.

NAL call number: SF457 A67

Descriptors: surgical technique, humane care and use, animal rights.

303 Anesthetic and sedative drug dosage - fish and crustaceans. In: Guide to the Care and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Ontario, 1980, Vol. 1, pp. 100. NAL call number: SF406 C36

Descriptors: housing, stress, handling, analgesia, guidelines.

304 Anesthetics for Fish = Bedoevningsmedel Foer Fisk Johansson, N. NOAA, Washington, DC; 16 leaves, 1980.

NAL call number: TRANSL 26797

Descriptors: selection, methods, guidelines, suitability, technique.

305 Antimicrobial drug dosage - reptile, fish. In: Guide to the Care and Use of Experimental Animals Canadian Council on Animal Care, Ottawa, Ontario, 1980, Vol. 1, pp. 102.

NAL call number: SF406 C36

Descriptors: dosages, antifungal, antibacterial, recommendations, guidelines.

306 The aquatic environment in health and disease.

Leibovitz, L. Journal of the American Veterinary Medical Association The Association, Ithaca, NY; 176(9):824-826 (1980).

NAL call number: 41.8 AM3

Descriptors: maintenance, water quality, diagnosis, temperature, hemostasis, growth.

307 Fish reproduction and stress. Gerking, S.D.

Environmental Physiology of Fishes 35:569-587 (1980).

NAL call number: QH301.N32

Descriptors: spawning periodicity, fathead minnow, thermal limit, oogenesis.

308 Carbonic acid anesthesia for aquatic organisms. Post, G. *The Progressive Fish-Culturist* 41(3):142-144 (1979).
NAL call number: 157.5 P94

Descriptors: sedation, quantity calculation, method of induction, benefits.

309 Culture of algae for larval fish and shellfish rearing. Helm, M.M.; Laing, I.; Jones, E.; Baynes, S.M.; Emerson, L. and Scott, A.P. Fisheries Research Technical Report No. 53 Fisheries and Food Ministry of Agriculture Directorate of Fisheries Research (ed.), Lowestoft, Suffolk, Great Britain; 1979.

NAL call number: SH255 F47

Descriptors: fishfood, fish culture, nutrition, larval development.

310 Sedation of warm-water fish species in aquaculture research. Ross, L.G. and Geddes, J.A. *Aquaculture* 16:183-186 (1979). NAL call number: SH1 A6

Descriptors: anesthesia, benzocaine, dosages, temperature, recommendations, recovery.

311 The leukocytes of fish: A review. Ellis, A.E. *Journal of Fish Biology* 11:453-491 (1977).

NAL call number: QL614 J68

Descriptors: thrombocytes, lymphocytes, immunity, monocytes, macrophages, morphology, mastcells, eosinophils.

312 Rapid start-up of a biological filter in a closed aquaculture system. Carmignani, G.M. and Bennett, J.P. *Aquaculture* 11:85-88 (1977).

NAL call number: SH1 A6

Descriptors: nitrifying bacteria, activation time, equilibrium.

313 The immune response in fish: A review. Corbel, M.J. *Journal of Fish Biology* 7:539-563 (1975).

NAL call number: QL614 J68

Descriptors: cell-mediated immunity, humoral antibody system.

314 Fishes: Guidelines for the Breeding, Care, and Management of Laboratory Animals: A Report Institute of Laboratory Animal Resources (U.S.), National Academy of Sciences, Washington, DC; 1974, 85 pp.

NAL call number: SF407 F5N37

Descriptors: lab animal, standards, use, handling, growth, maintenance.

315 Routine hematological methods for use with fish blood.

Blaxhall, P.C. and Daisley, K.W. *Journal of Fish Biology* 5:771-781 (1973).

NAL call number: QL614 J68

Descriptors: normal values, blood sampling.

316 The hematological assessment of the health of freshwater fish. A review of selected literature. Blaxhall, P.C.

Journal of Fish Biology 4:493-604 (1972).

NAL call number: QL614 J68

Descriptors: hematology, normal values, blood sampling.

317 A small unit closed system for catfish. Lomax, K.M. and Harman, O.R. Bulletin - University of Delaware, Agricultural Experiment Station University of Delaware, Newark, DE; Vol. 394, 1971, 6 pp.

NAL call number: 100 D37S

Descriptors: design, growth, development, disease, flexibility.

318 Differential blood cell counts of 50 species of fishes from the Red Sea. Saunders, D.C. Copeia 1968(3):491-498 (1968).

Descriptors: normal values.

319 Erythrocyte counts and hemoglobin content in nine species of marine teleosts. Eisler, R. Chesapeake Science Maryland Department of Research and Education, Chesapeake Biological Laboratory, Solomon, MD; 6(2):119-120 (1965).

NAL call number: 409.6 C42

Descriptors: mean length, erythrocyte number, hemoglobin content

320 A technique for age determination in the skate, *Raja eglanteria*. Daiber, F.C. Copeia 1960(3):258-260 (1960).

Descriptors: aging, sexing, physical observations.

CEPHALOPODS

CEPHALOPODS AS BIOMEDICAL MODELS

321 Deoxyglucose labelling of functional activity in the cephalopod central nervous system. Novicki, A.; Messenger, J.B.; Budelmann, B.U.; Terrell, M.L. and Kadekaro, M. Proceedings of the Royal Society of London. Series B: Biological Sciences 249:77-82 (1992).

NAL call number: 501 L84B

Descriptors: radioautography, brain activity, physiology, brain functional organization.

322 Hearing in crustacea. Budelmann, B.U. In: The Evolutionary Biology of Hearing Webster, D.B.; Fay, R.R. and Popper, A.N. (eds.), Springer-Verlag, New York, NY; 1992, pp. 131-139.

Descriptors: auditory, anatomy and physiology, receptor systems, sound production, sound reception.

323 Hearing in nonarthropod invertebrates. Budelmann, B.U. In: The Evolutionary Biology of Hearing Webster, D.B.; Fay, R.R. and Popper, A.N. (eds.), Springer-Verlag, New York, NY; 1992, pp. 141-155.

Descriptors: superficial receptor systems, internal statocyst receptor systems, evolution, underwater sound, auditory anatomy.

324 Observational learning in *Octopus vulgaris*. Fiorito, G. and Scotto, P. *Science* 256:545-547 (1992).

NAL call number: Q1 A3S3

Descriptors: behavior, conditioned, untrained, task selection.

325 Peripheral and central nervous responses evoked by small water movements in a cephalopod. Bleckmann, H.; Budelmann, B.U. and Bullock, T.H. *Journal of Comparative Physiology. A: Sensory, Neural, and Behavioral Physiology* 168:247-257 (1991).

NAL call number: QP33 J68

Descriptors: lateral line, mechanoreception, epidermal lines, microphonic potential, cephalopods, *Sepia officinalis*.

326 Sensory evoked potentials in unanesthetized unrestrained cuttlefish: A new preparation for brain physiology in cephalopods. Bullock, T.H. and Budelmann, B.U. *Journal of Comparative Physiology. A: Sensory, Neural, and Behavioral Physiology* 168:141-150 (1991).

NAL call number: QP33 J68

Descriptors: visual evoked potentials, event related potentials, microelectrode monitoring without anesthetic or restraint.

327 Structure, function, biological significance of the cuttlefish "lateral lines". Budelmann, B.U.; Riese, U. and Bleckmann, H. *The Cuttlefish* Boucaud-Camou, E. (ed.), 1991, pp. 201-209.

Descriptors: convergent evolution, prey detection, *Sepia*, epidermal lines.

328 Comparative Morphology and Function of Dermal Structures in Oceanic Squids (Cephalopoda) Roper, C.F.E. and Lu, C.C. Smithsonian Institution Press, Washington, DC; 1990, 40 pp.

NAL call number: QL21 U5S6 no.493

Descriptors: anatomy, classification, structure, processes.

329 Squid as Experimental Animals Gilbert, D.L.; Adelman,

Jr., W.J. and Arnold, J.M. (eds.), Plenum Press, New York, NY; 1990, 516 pp.

NAL call number: QL430.2 S66

Descriptors: laboratory animals, welfare, nervous system, mollusks, cytology.

330 The statocysts of squid. Budelmann, B.U. In: Squid as Experimental Animals Gilbert, D.L.; Adelman, W.J. and Arnold, J.M. (eds.), Plenum Press, New York, NY; 1990, pp. 421-439.

NAL call number: QL430.2 S66

Descriptors: movement, linear gravity, angular accelerations, morphology, gravity receptor systems, octopods, decapods.

331 Hydrodynamic receptor systems in invertebrates.

Budelmann, B.U. In: The Mechanosensory Lateral Line: Neurobiology and Evolution Coombs, S.; Görner, P. and Münz, H. (eds.), Springer-Verlag, New York, NY; 1989, pp. 607-631.

Descriptors: ciliated sensory cells, angular acceleration receptor systems, similarities to vertebrates.

332 Non-associative learning in the squid *Lolliguncula brevis* (Mollusca, Cephalopoda). Long, T.M.; Hanlon, R.T.; Maat, A. and Pinsker, H.M. *Marine Behavioral Physiology* 16:1-9 (1989).

Descriptors: behavior, anatomy, physiology.

333 Toxic exposure to ethylene dibromide and mercury chloride: Effects on laboratory-reared octopuses. Adams, P.; Hanlon, R.T. and Forsythe, J.W. *Neurotoxicology and Teratology* 10(6):519-523 (1989).

Descriptors: toxicity, behavior, disease, stress.

334 A lateral line analogue in cephalopods: Water waves generate microphonic potentials in the epidermal head lines of *Sepia* and *Lolliguncula*. Budelmann, B.U. and Bleckman, H. *Journal of Comparative Physiology. A: Sensory, Neural, and Behavioral Physiology* 164:1-5(1988).

NAL call number: QP33 J68

Descriptors: convergent evolution, ciliated cells, mechanoreception.

335 Morphological diversity of equilibrium receptor systems in aquatic invertebrates. Budelmann, B.U. In: *Sensory Biology of Aquatic Animals* Atema, J.; Fay, R.R.; Popper, A.N. and Tavolga, W.N. (eds.), Springer Verlag Pub., New York, NY; 1988, pp. 757-782.

Descriptors: gravity receptor systems, cell organelles, cuticular sensory hairs, hair cells, kinocilia, physiology, angular.

336 The angular acceleration receptor system of *Octopus vulgaris*: Morphometry, ultrastructure, and neuronal and synaptic organization. Budelmann, B.U.; Sachse, M. and Staudigl, M. *Philosophical Transactions of the Royal Society*

London; Series B: Biological Sciences 315:305-343 (1987).
Descriptors: crista/cupula system, receptor hair cells.

337 Evidence for acetylcholine as neurotransmitter in the statocyst of *Octopus vulgaris*. Auerbach, B. and Budelmann, B.U. *Cell and Tissue Research* 243:429-436 (1986).
NAL call number: QH581 A1Z4
Descriptors: statocyst receptor systems, efferent fibre system, ACh, sensory and receptor epithelia.

338 Neural control of cephalopod behavior. Boyle, P.R. In: *The Mollusca, Vol. 9. Neurobiology and Behavior* Willows, A.O.D. (ed.), Academic Press, Orlando, FL; 1986, pp. 1-99.
Descriptors: axons, camouflage, predator/prey relationship.

339 Advances in the laboratory culture of octopuses for biomedical research. Hanlon, R.T. and Forsythe, J.W. *Laboratory Animal Science* 35(1):33-40 (1985).
NAL call number: 410.9 P94
Descriptors: *Octopus bimaculoides*, growth, behavior, management.

340 The response of the *Octopus* angular acceleration receptor system to sinusoidal stimulation. Williamson, R. and Budelmann, B.U. *Journal of Comparative Physiology. A: Sensory, Neural, and Behavioral Physiology* 156:403-412 (1985).
NAL call number: QP33 J68
Descriptors: crista/cupula, electrophysiological, functional response, statocysts, semi circular canal system.

341 *The Squid Axon* Baker, P.F. (ed.), Academic Press, Orlando, FL; 1984, 593 pp.
NAL call number: QH506 C8 v.22
Descriptors: nervous system, cytology, membranes, transport.

342 The statocyst-oculomotor system of *Octopus vulgaris*: Eye muscles, eye muscle nerves, statocysts nerves, and the oculomotor centre in the central nervous system. Budelmann, B.U. and Young, J.Z. *Philosophical Transactions of the Royal Society London; Series B: Biological Sciences* 306:159-189 (1984).
Descriptors: anatomy, stimulation, extraocular, chromatophores.

343 Histochemical evidence for catecholamines as neurotransmitters in the statocyst of *Octopus vulgaris*. Budelmann, B.U. and Bonn, U. *Cell and Tissue Research* 227:475-483 (1982).
NAL call number: QH581 A1Z4
Descriptors: formaldehyde-induced fluorescence, neural plexus, statocyst receptor system, efferent fibre system, physiology.

344 *Lolliguncula brevis* - a new squid species for the

neuroscience laboratory. Hulet, W.H.; Hanlon, R.T. and Hixon, R.F. Trends in Neurosciences 3(4):4-5 (1980).

NAL call number: RC321 T74

Descriptors: culture, case, handling, neurobiology.

345 Hair cell polarization in the gravity receptor systems of the statocysts of the cephalopods *Sepia officinalis* and *Loligo vulgaris*. Budelmann, B.U. Brain Research 160:261-270 (1979).

Descriptors: sensory epithelia, decapods, receptor cell, physiology.

346 Octopus: Physiology and Behaviour of an Advanced Invertebrate Wells, M.J. Halsted Press, New York, NY; 1978, 417 pp.

NAL call number: QL430.3 O2W44

Descriptors: mollusks, anatomy, models of learning.

347 The Biology of Cephalopods: the Proceedings of a Symposium Held at the Zoological Society of London on April 10-11, 1975 Messenger, J.B. and Nixon, M. (eds.), Zoological Society of London, Academic Press, London, England; 1977, 615 pp.

NAL call number: QL430 B5

Descriptors: anatomy, physiology, function, structure, zoology, evolution, bioluminescence, nerve fibers, giant axon, optic testing, neuronal calcium metabolism.

348 Gravity receptor function in cephalopods with particular reference to *Sepia officinalis*. Budelmann, B.U. Fortschritte der Zoologie 23:84-96 (1975).

NAL call number: 410 F77

Descriptors: statocyst structure and function, cuttlefish, gravity receptor systems, nautiloids, octopus.

349 Invertebrate Learning Corning, W.C.; Dyal, J.A. and Willows, A.O.D. Plenum Press, New York, NY; 1973-1975, 3 volumes.

NAL call number: QL364.2 I59

Descriptors: psychology, behavior, octopus, squid.

350 The Anatomy of the Nervous System of Octopus Vulgaris Young, J.Z. Clarendon Press, Oxford, England, 1971, 690 pp.

NAL call number: QL430.3 O2Y6

Descriptors: axons, invertebrates, physiology, behavior.

CEPHALOPOD CARE AND USE

351 "Larval" and Juvenile Cephalopods: A Manual for Their

Identification Sweeney, M.J. Smithsonian Institution Press, Washington, DC; 1992, 282 pp.

NAL call number: QL21 U5S6 no.513

Descriptors: octopus, squid, larvae, classification, zoology.

352 Culture of Cephalopods at the Marine Biomedical Institute. Moon, M.A. Reporter 15(11):13-14 (1991).

NAL call number: IPSG1655

Descriptors: aquaculture, squids, neurology, octopus, diet, maintenance.

353 Design and economic analyses of airlift versus electrical pump driven recirculating aquaculture systems. Turk, P.E. and Lee, P.G. In: Engineering Aspects of Intensive Aquaculture Proceedings from the Aquaculture Symposium at Cornell University, Northeast Regional Aquaculture Engineering Service, Ithaca, NY; 49:271-283 (1991).

Descriptors: offspring, egg incubation, water quality, operating costs.

354 Pilot large-scale culture of Sepia in biomedical research. Forsythe, J.W.; Hanlon, R.T. and DeRusha, R. In: The Cuttlefish: Acta I. International Symposium Cuttlefish Sepia Boucaud-Camou, E. (ed.), Centre de Publications de l'Universite de Caen, France; 1991, pp. 313-323.

Descriptors: Sepia, cuttlefish, mariculture, reproduction, neurobiology.

355 Squid and cuttlefish mariculture: An updated perspective. Hanlon, R.T.; Turk, P.E. and Lee, P.G. Journal of Cephalopod Biology 2(1):31-40 (1991).

Descriptors: mariculture, nutritin, water quality.

356 The UFAW Handbook on the Care and Management of Cephalopods in the Laboratory Boyle, P.R. Universities Federation for Animal Welfare, Potters Bar, Herts, England; 1991, 63 pp.

NAL call number: SF407 M37B68

Descriptors: handling, use, animal welfare, husbandry.

357 Diseases caused by microorganisms. Hanlon, R.T. and Forsythe, J.W. In: Diseases of Marine Animals, Vol. III: Cephalopoda to Urochordata Kinne, O. (ed.), Biologisch, Hamburg, W. Germany; 1990, pp. 23-46.

Descriptors: wound healing, haemoglutinin, immune response, octopus, squid, cuttlefish.

358 Diseases of mollusca: Cephalopoda. Hanlon, R.T. and Forsythe, J.W. In: Diseases of Marine Animals, Vol. III: Cephalopoda to Urochordata Kinne, O. (ed.), Biologisch, Hamburg, W. Germany; 1990, pp. 21-22.

Descriptors: skin, origin, treatment, pathology.

359 A formulary for treating cephalopod mollusc diseases.

Forsythe, J.W.; Hanlon, R.T. and Lee, P.G. In: Pathology in Marine Science Perkins, F.O. and Cheng, T.C. (eds.), Academic Press, Inc., San Diego, CA; 1990, pp. 51-63

NAL call number: SH171 I56

Descriptors: treatment, skin diseases, bacteria, parasites, therapeutic agents, safe concentrations, method of application. 360 Maintenance, rearing and culture of Teuthoid and Sepioid squids. Hanlon, R.T. In: Squid as Experimental Animals Gilbert, D.; Adelman, H. and Arnold, J. (eds.), Plenum Press, New York, NY; 1990, pp. 35-62.

NAL call number: L430.2 S66

Descriptors: transport, maintenance, *Loligo*, *Sepia* rearing, culture.

361 Structural abnormalities and neoplasia. Hanlon, R.T. and Forsythe, J.W. In: Diseases of Marine Animals, Vol. III: Cephalopoda to Urochordata Kinne, O. (ed.), Biologisch, Hamburg, W. Germany; 1990, pp. 203-204.

Descriptors: oddities, bifurcations, dysfunction, eye abnormalities.

362 Alternative diets for maintaining and rearing cephalopods in captivity. DeRusha, R.H.; Forsythe, J.; DiMarco, F.P. and Hanlon, R.T. *Laboratory Animal Science* 39(4):306-312 (1989).

NAL call number: 410.9 P94

Descriptors: polychaete worms, marine crabs, brine shrimp, crayfish, *Octopus maya*, *Octopus bimaculoides*, growth rates, cuttlefish, juveniles.

363 Design and function of closed seawater systems for culturing loliginid squids. Yang, W.T.; Hanlon, R.T.; Lee, P.G. and Turk, P.E. *Aquacultural Engineering* 8:47-65 (1989).

NAL call number: SH1 A6

Descriptors: housing, care, husbandry, growth rate, recirculatory systems, bioloads, water quality, behavior, physiology, maintenance, rearing.

364 Laboratory culture and estimated life span of the Eastern Atlantic squid *Loligo forbesi* (Mollusca: Cephalopoda).

Hanlon, R.T.; Yang, W.T.; Turk, P.E.; Lee, P.G. and Hixon, R.F. *Aquaculture Fish. Manag.* 20:15-33 (1989).

Descriptors: eggs, hatching, feeding, growth, survival, behavior, sexual maturation, survivability.

365 Advances in the laboratory culture of octopuses for biomedical research. Hanlon, R.T. and Forsythe, J.W. *Laboratory Animal Science* 35(1):33-40 (1985).

NAL call number: 410.9 P94

Descriptors: octopus-bimaculoides, behavior, growth, management, culture, mortality, reproduction.

366 Laboratory maintenance and culture of octopuses and loliginid squids. Hanlon, R.T. and Hixon, R.F. In: *Culture of Marine Invertebrates: Selected Readings* Berg, Jr., C.J.

(ed.), Hutchinson Ross Publishing Co., Stroudsburg, PA; 1983, pp. 44-61. NAL call number: QL362.8 C84
Descriptors: capture, maintenance, care, requirements, culture, housing, tank design.

367 Survival, growth, and behavior of the loliginid squids *Loligo plei*, *Loligo pealei*, and *Lollinguncula brevis* (Mollusca: Cephalopoda) in closed sea water systems. Hanlon, R.T.; Hixon, R.F. and Hulet, W.H. *Biological Bulletin* 165(3):637-685 (1983). NAL call number: 442.8 B52
Descriptors: recirculation systems, survival rates, growth rates, health, aggression, transport, feeding, behavior.

368 Marine Invertebrate: Laboratory Animal Management Committee on Marine Invertebrates - Institute of Laboratory Animal Resources, Assembly of Life Sciences, and National Research Council. National Academy Press, Washington, DC; 1981, 382 pp. NAL call number: SF407 M37M37
Descriptors: normal values, fish, squid, care, suppliers, permit organizations.

369 Methods for the aquarium maintenance of the common octopus of British waters, *Eledone cirrhosa*. Boyle, P.R. *Laboratory Animals* 14:327-331 (1981). NAL call number: QL55 A1L3
Descriptors: salinity, pH, temperature, growth rates, feeding, breeding, maturation, life span, survival, transport, handling, anaesthesia

370 A closed marine culture system for rearing *Octopus joubini* and other large-egged benthic octopods. Forsythe, J.W. and Hanlon, R.T. *Laboratory Animals* 14:137-142 (1980). NAL call number: QL55 A1L3
Descriptors: water conditioning, water quality, pH, nitrate levels, hatchlings, feeding, disinfection, absorption.

371 Laboratory maintenance of wild-caught loliginid squids. Hanlon, R.T.; Hixon, R.F. and Hulet, W.H. In: *Fisheries and Marine Service Technical Report 833* Balch, N.; Amaratunga, T. and O'Dor, R.K. (eds.), Dalhousie University, Halifax, Nova Scotia, Canada; 1978, pp. 20.1-20.14.
Descriptors: distribution, stress, capture, physical conditions, care maintenance, growth, tank systems, raceway system, circular system.

(Page 71)

AUTHOR LISTING (by citation number)

- Aarstad, I. 239
- Able, D.J. 149
- Adams, P. 333
- Aldrin, J.F. 259

- Almouzni, G. 133
- Alvarez, J. 129
- Amend, D.F. 282
- American Association for Laboratory Animal Science 231
- American Fisheries Society 183
- American Society of Ichthyologists and Herpetologists 38, 197
- Amherdt, M. 195
- Anderson, N.L. 71
- Andrews, C. 247
- Angelier, N. 122
- Anggard, E.E. 167
- Arena, P.C. 16
- Arnott, H.J. 222
- Ary, T. 131
- Asakawa, O. 281
- Asashima, M. 124
- Assembly of Life Sciences 368
- Auerbach, B. 337
- Bailey, J.R. 27
- Baker, R. 192
- Banerjee, S.N. 139
- Bantle, J.A. 6
- Barbeau, A. 137
- Barham, W.T. 242, 243
- Bartos, J.M. 216
- Baynes, S.M. 309
- Beem, M. 230
- Bello, A.A. 79
- Bello-Klein, A. 79
- Bennett, J.P. 312
- Bennett, R.A. 77, 86, 87
- Bennett, R.D. 198, 256
- Bernoth, E.M. 229
- Biffo, S. 130
- Billard, R. 200, 301
- Bitensky, M.W. 20
- Blaxhall, P.C. 315, 316
- Bleckman, H. 325, 327, 334
- Blum, V. 278
- Bodine, A.B. 185
- Bonn, U. 347
- Bonnanfant-Jais, M.L. 122
- Borchard, B. 278
- Boyer, H. 137
- Boyle, P.R. 338, 356, 369
- Bradbury, S.P. 191
- Brakenhoff, R.H. 118
- Brooks, A.S. 216
- Brown, L.A. 255
- Bry, C. 249
- Budelmann, B.U. 321, 322, 323, 325, 326, 327, 330, 331, 334,
335, 336, 337, 340, 342, 343, 345, 348
- Bullock, T.H. 325, 326
- Bunton, T.E. 170, 176, 177

- Burch, M.B. 217
- Burghardt, G.M. 53
- Burton, R.F. 199
- Busack, S.D. 106
- Bush, M. 34
- Buu, N.T. 137
- Cadenas, I.D. 48
- Cairns, J. 215
- Callard, I.P. 52
- Campbell, H.W. 106
- Campbell, T. 232
- Capton, D.E. 240
- Canadian Council on Animal Care 28, 97, 98, 100, 152, 153,
• 270, 303, 305
- Cardeilhac, P. 80, 90
- Carmignani, G.M. 312
- Carrington, N. 247
- Chakrabarti, A. 139
- Chakrabarti, S. 139
- Chan, S.J. 262
- Charbonneau, M. 128
- Chiszar, D. 102
- Cho, C.H. 124
- Cline, H.T. 5
- Cloudsley-Thompson, J.L. 110
- Coborn, J. 95
- Collette, B.B. 166
- Contie, V.L. 169
- Cooper, J.E. 19, 30, 35, 101
- Corbel, M.J. 313
- Corning, W.C. 353
- Couch, J.A. 203, 207
- Cox, M.J. 78
- Crews, D. 53
- Culley, D.D. 146
- Czajka, A.F. 45
- Daiber, F.C. 320
- Daisley, K.W. 315
- Dallaire, L. 137
- Danger, J.M. 130
- Danko, I. 260
- Davies, J. 140
- Davys, J.S. 136
- Dawe, C.J. 203
- Dawid, I.B. 134
- Dawson, D.A. 113, 145
- Daye, P.G. 212
- De Lanney, L.E. 137
- Demeter, B. 36, 69
- dePablo, F. 114, 119
- DeRusha, R.H. 354, 362
- De Santis, A. 123
- DeVries, H.R. 18
- DiMarco, F.P. 362

- Dobbs, J.S. 109
- Donaldson, E.M. 296
- Dowdall, M. 187
- Dowling, J.E. 202
- Dresser, R. 18
- Drottar, K.R. 241
- DuBois, A.B. 248
- Duhon, S. 151
- Duke University Marine Laboratory 162
- Dumont, J.N. 6
- Duncan, C.J. 26
- Dyal, J.A. 349
- Eales, J.G. 228
- Eddy, F.B. 292
- Egami, N. 189, 201
- Eisler, R. 319
- Elliot, D.G. 282
- Elliott, J.M. 298
- Ellis, A.E. 300, 311
- Elsey, R.M. 81
- Emdin, S.O. 262
- Emerson, L. 309
- Enger, P.S. 239
- Escoubet, P. 287
- Etches, R.J. 50
- Etheridge, A.L. 154
- Evans, R.H. 140
- Evelyn, T.P.T. 251
- Ewbank, R. 35
- Exell, A. 247
- Fabacher, D.L. 283
- Faenge, R. 265
- Falkmer, S. 262
- Fasolo, A. 130
- Fernandez-Casalderrey, A. 168
- Ferner, J.W. 40, 107
- Ferns, G.A.A. 167
- Finch, R.A. 6
- Fiorito, G. 324
- Fletcher, T.C. 294
- Fong, J.C. 117
- Font, E. 53, 85
- Forsythe, J.W. 333, 339, 354, 357, 358, 359, 361, 362, 365,
370
- Fox, S.H. 248
- Francis-Floyd, R. 227
- Frazier, J.M. 170, 177
- Frye, F.L. 68, 73, 99, 108
- Fryer, J.L. 272
- Fujikawa, H. 284
- Fujita, I. 171
- Fukada, C. 284
- Gallin, E.K. 121
- Garside, E.T. 212
- Geddes, J.A. 310

- Gehrke, P.C. 225
- Gerking, S.D. 307
- Gielen, F.L.H. 116
- Gilderhus, P.A. 238
- Gillet, C. 301
- Gingerich, W.H. 241
- Goldbeter, A. 115
- Goven, B.A. 282
- Grady, A.W. 224
- Grandin, N. 128
- Gratzek, J.B. 273
- Greenberg, N. 53
- Greer, I.E. 224
- Grizzle, J.M. 276
- Grover, D.A. 165
- Gruber, D. 215
- Gupta, O.P. 280
- Guttman, H.N. 7, 8
- Hadj Kacem, N. 259
- Haggvlad, J. 56
- Halliday, T.R. 39
- Hanke, S.E. 51
- Hanke, W. 280
- Hanlon, R.T. 332, 333, 339, 344, 354, 355, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 370, 371
- Harman, O.R. 317
- Harris, J.B. 58, 59
- Harris, J.C. 82
- Hawkins, A.D. 302
- Heilbronn, E. 56
- Helm, M.M. 309
- Heming, T.A. 236
- Hemmer, M.J. 233
- Hendricks, A.C. 215
- Herberts, C. 122
- Herrmann, H.J. 150
- Hightower, L.W. 194
- Himick, B.A. 228
- Hixon, R.F. 344, 364, 366, 367, 371
- Hodson, R.E. 288
- Hoehn, R.C. 215
- Hoff, G.L. 99
- Holmgren, S. 210
- Hong, S.J. 117
- Hoyt, Jr., R.F. 69
- Hughes, G.M. 213
- Hulet, W.H. 344, 367, 371
- Hyodo-Taguchi, Y. 189, 201
- Institute of Laboratory Animal Resources 4, 29, 314, 368
- International Air Transport Association 3
- Irwin, I. 137
- Itazawa, Y. 279, 286
- Jackson, O.F. 101
- Jacobs, E.H.M. 118

- Jacobson, E.R. 88, 93, 99
- Jarchow, J.L. 89
- Jayaraman, J. 275
- Jeney, G. 260
- Jeney, Z. 260
- Jenkins, J.R. 72
- Jensen, K.M. 254
- Jiang, M.S. 56
- Joanen, T. 81
- Johansson, N. 304
- Johnson, M.A. 58
- Jones, A.W. 140
- Jones, E. 309
- Jones, P.S. 184
- Jones, R.E. 53
-
- Kadekaro, M. 321
- Kallman, K.D. 183
- Kamiguti, A.S. 60
- Kasai, H. 281
- Kelly, J.J. 218
- Kelly, M.E.M. 127
- Kirkwood, J.K. 9, 70
- Kleinzeller, A. 17
- Klontz, G.W. 221
- Knudsen, F. 239
- Kouyoumdjian, J.A. 58
- Kraybill, H.F. 214
- Kreger, M.D. 64, 66, 67
- Kriebel, M. 187
- Lachner, E.A. 166
- Lacroix, G.L. 212
- Lacy, P.E. 172
- Laing, I. 309
- Laming, P.R. 235
- Lance, V. 81
- Lance, V.A. 83
- Landolt, M.L. 196
- Langston, E.B. 137
- Langston, J.W. 137
- Lautredou, N. 122
- Leatherland, J.F. 245
- LeBras, Y.M. 206
- Lee, P.G. 353, 359, 363, 364
- Le Gac, F. 190
- Leibovitz, L. 306
- Leino, R.L. 254
- Leivestad, H. 285
- Leong, I. 208
- Letcher, J. 144
- Leutscher, A. 41
- Lillehaug, A. 258
- Limsuwan, C. 276, 277
- Linder, G. 6

- Lipsky, M.M. 198, 256
- Loguericio, C. 123
- Loir, M. 190
- Lolz, M.L. 237
- Lomax, K.M. 317
- Long, T.M. 332
- Lu, C.C. 328
- Lubsen, N.H. 118
- Luer, C.A. 178
- Maat, A. 332
- Maciolek, N.J. 222
- Mackay, R.S. 31
- Mackin, R.B. 175
- Mader, D.R. 92
- Maddock, M.B. 218
- Margolis, L. 251
- Mason, R.T. 69
- Masser, M.P. 244
- Mattice, J.S. 217
- Mattison, C. 91
- May, E.B. 198, 256
- Mazeaud, F. 289
- Mazeaud, M.M. 289
- McCormick, J.H. 254
- McCourt, R. 15
- McDonald, J.K. 188
- McElligott, J.G. 192
- McLaughlin, R.M. 224
- McNease, L. 81
- Mechali, M. 133
- Mench, J.A. 64
- Messenger, J.B. 321
- Middaugh, D.P. 233
- Milgram, S.L. 188
- Miller, W.R. 215
- Mima, S. 111
- Mitsuda, H. 284
- Mizuno, H. 284
- Mommsen, T.P. 180
- Monsein, D.L. 12
- Moon, M.A. 352
- Moore, C.A. 119
- Moore, F.L. 120
- Moreau, N. 122
- Morena, P. 60
- Moroitz, H.J. 25
- Morsiani, E. 172
- Mottet, N.K. 196
- Mowka, Jr., E.J. 297
- Murphy, P.M. 121
- Murru, F. 232
- Nace, G.W. 141
- Nair, M.S.R. 208
- N'Da, E. 122

- Nahas, L. 60
- Nardi, G. 123
- National Research Council 368
- New, J.G. 179
- Newby, L. 138
- Nickerson, M.A. 45
- Nilsson, S. 210
- Nishimura, H. 27, 261
- Noe, B.D. 175, 188, 195
- Nohara, T. 284
- Norris, D.O. 125
- Novicki, A. 321
- Ogilvy, C.S. 248
- Olah, J. 260
- Orci, L. 195
- Pak, M.W. 202
- Pannell, L.K. 69
- Pappas, G. 187
- Pelletier, G. 130
- Pence, D.B. 51
- Penrad-Mobayed, M. 122
- Peres, G. 211
- Perez, L. 52
- Perkins, K. 57
- Perrelet, A. 195
- Perroteau, I. 130
- Peterson, R.H. 212
- Petite, J.N. 50
- Pfeiffer, C.J. 124
- Phillips, J.A. 49
- Pickering, A.D. 293
- Pinsker, H.M. 332
- Pisani, G.R. 37
- Platt, C. 35
- Plumb, J.A. 276, 277
- Poole, T.B. 24, 96, 252
- Post, G. 308
- Poston, H.A. 263
- Pough, F.H. 33, 76, 126
- Powers, D.A. 181
- Quick, I.A. 235
- Quitschke, W. 184
- Radhakrishnaiah, K. 266
- Regal, P.J. 104
- Reichenbach-Klinke, H.H. 253
- Reimschuessel, R. 198, 256
- Reinert, R. 273
- Reischl, E. 54
- Renfro, J.L. 194
- Richardson, K.C. 16
- Richter, S.M.A. 154
- Riese, U. 327
- Riley, D. 52
- Ringler, D.H. 155

- Rodriguez-Martin, M.L. 122
- Rohovec, J.S. 272
- Rollason, S. 84
- Romestand, B. 259
- Roper, C.F.E. 328
- Ross, B. 267
- Ross, L.G. 267, 310
- Roth, J. 114
- Rottman, R.W. 240
- Rudge, M.F. 26
- Ruuls, R.C. 118
- Rydqvist, B. 56
- Sachse, M. 336
- Sackin, H. 147
- Sackin, N. 147
- Sakamoto, M.K. 111
- Sanders, K.M. 131
- Sargent, T.D. 134
- Saunders, D.C. 318
- Scavo, L. 114
- Schaeffer, D.O. 65
- Schechter, N. 184
- Schill, W.B. 274
- Schoemakers, J.G.G. 118
- Schoonbee, H.J. 242, 243
- Schreck, C.B. 299
- Schultz, T.W. 145
- Schwartz, J.M. 85
- Schwedler, T.E. 277
- Scott, A.P. 309
- Scotto, P. 324
- Scudder, K.M. 102
- Sedgwick, C.J. 257
- Serrano, J. 114
- Servit, Z. 63
- Shenker, J.M. 233
- Shimada, K. 124
- Shirma, A. 182
- Shonnard, P. 131
- Shroeder, E.C. 145
- Shuldiner, A.R. 114, 119
- Simon, R.C. 274
- Sinderman, C.J. 215, 269
- Singh, S.M. 209
- Sivalingam, P.M. 209
- Siwicki, A. 260
- Smart, G.R. 291
- Smith, A.C. 161
- Smith, D.A.S. 140
- Smith, H.M. 102
- Smith, P.A. 127
- Sneyd, J. 48
- Soll, M.D. 21
- Sorrouille, P. 122

- Sousa e Silva, M.C.C. 60
- Spang Thomsen, M. 62
- Spiess, J. 175
- Staudigl, M. 336
- Steiner, D.F. 262
- Stevens, C.W. 1, 132, 142
- Stewart, A.L. 167
- Stewart, K.W. 152
- Stokes, G.N. 254
- Stone, J. 174
- Strejckova, A. 63
- Suresh, N. 275
- Sweeney, M.J. 351
- Takashima, F. 281
- Takeda, T. 279, 286
- Takita, T. 233
- Tanimura, T. 111
- Taylor, E.W. 186
- Terrell, M.L. 325
- Tesser, P. 184
- Thomas, P. 216
- Tiffany, H.L. 121
- Torbet, J. 55
- Townsend, C.R. 61, 105
- Trabalka, J.R. 217
- Tran, R.M. 51
- Tranchina, D. 48
- Travis, J. 234
- Traynor, P. 127
- Trexler, J.C. 234
- Trexler, M. 234
- Tsai, S.C. 217
- Turk, P.E. 353, 355, 363, 364
- Tytler, P. 302
- Ueda, T. 284
- Ueno, S. 284
- University of Washington School of Medicine 193
- University of Calgary 143
- Vaudry, H. 130
- Vaughan, G. 53
- Veilleux, F. 137
- Vetter, R.D. 288
- Vielkind, J.R. 183
- Vijayan, M.M. 245
- Visfeldt, J. 62
- Visser, J.G.J. 242, 243
- von Bernhadti, R. 129
- Wake, D.B. 42
- Walsh, P.J. 173, 180
- Wand, M.A. 102
- Wang, F.F. 117
- Wardle, C.S. 295
- Warwick, C. 35
- Watkins, J.C. 140

- Weiser, M. 192
- Welch, K.R.G. 94
- Wellborn, S. 102
- Wellner, E.F. 69
- Wells, M.J. 346
- Whitaker, B.R. 223
- Widswo, Jr., J.P. 116
- Wijesinghe, R.S. 116
- Wilke, T.S. 113
- Williams, T. 220
- Williamson, R. 340
- Willows, A.O.D. 349
- Winkler, P. 250
- Wolfe, M.J. 263
- Wolke, R. 205
- Wormuth, H.J. 229
- Yang, W.T. 363, 364
- Young, J.Z. 342, 350
- Zasloff, M. 148
- Zhaoming, W. 281
- Zhou, H. 56
- Zigmen, S. 165
- Zwart, P. 19

(Page 79)

INFORMATION RESOURCES

American Federation of Herpetoculturists (AFH)

P.O. Box 1131

Lakeside, CA 92040-0905

Specializes in information and issues concerning the breeding and natural history of reptiles and amphibians.

Publications: Vivarium.

American Fisheries Society (AFS)

5410 Grosvenor Lane, Suite 110

Bethesda, MD 20814

Phone: (301) 897-8616

Publications: AFS Membership Directory and Handbook, annual.

Fisheries: Bulletin of the American

Fisheries Society, bimonthly.

Journal of Aquatic Animal Health, quarterly.

North American Journal of Fisheries Management, quarterly.

Progressive Fish-Culturist, quarterly.

Transactions of the American Fisheries Society, bimonthly.

American Institute of Fisheries Research Biologists (AIFRB)

Attn: Dr. Joseph W. Rachlin

Lehman College of CUNY
Department of Biological Sciences
Bedford Park Blvd., W.
Bronx, NY 10468
Phone: (212) 960-8239
Publications: Briefs, bimonthly newsletter.

American Society of Ichthyologists and Herpetologists
(Herpetology) (ASIH)
Department of Zoology
Southern Illinois University
Carbondale, IL 62901-6501
Phone: (618) 453-4113
Scientists, educators, students, and others interested in the
study of reptiles, amphibians, and fishes.
Committees: Common Names of Fishes; Environmental Quality;
Herpetological and Ichthyological Resources; Program
Excellence; Zoological Nomenclature.
Affiliated With: International Union of Conservation of Nature
and Natural Resources.
Publications: Copeia, quarterly. Also, leaflets on career
opportunities.

Animal Welfare Information Center
National Agricultural Library
10301 Baltimore Blvd., Room 205
Beltsville, MD 20705
Phone: (301) 504-6212
Part of the United States Department of Agriculture that can
provide information, literature searches, workshops, and
referrals related to animals used in biomedical research and
exhibition.
Publications: Animal Welfare Information Center Newsletter -
quarterly. Animal welfare-related
bibliographies and information publications.

Aquarium Systems
Academic Press
New York, NY
Publications: Aquarium Systems - NAL call number: SF457 A67

Aquatic Research Institute (ARI)
2242 Davis Ct.
Hayward, CA 94545
Phone: (415) 785-2216
Publications: Aquaculture, quarterly.
Aquatika, periodic.
Special Reports, Periodic.

ASFA (Aquatic Sciences and Fisheries Abstracts) Aquaculture
Abstracts
United Nations Department of International Economic and Social

Affairs
Food and Agriculture Organization of the United Nations
Rome, Italy
and
Cambridge Scientific Abstracts
Bethesda, MD
Publications: ASFA Aquaculture Abstracts -
NAL call number: SH135 A8

Association of Amphibian and Reptilian Veterinarians
Gladys Porter Zoo
500 Ringgold Street
Brownsville, TX 78520
ATT: Michelle Frahm, D.V.M.

Biological Models and Materials Research Program
National Center for Research Resources
U.S. Department of Health and Human Services
National Institutes of Health
5333 Westbard Avenue
Westwood Building, Room 10A15
Bethesda, MD 20892
Phone: (301) 402-0630
Carolina Biological Supply Company
2700 York Road
Burlington, NC 27215
Phone: (919) 584-0381
Supplier of various species of fish, amphibians and reptiles.

Chicago Herpetological Society
2001 North Clark Street
Chicago, IL 60614
Publishes periodic bulletins. Funding source for research on
reptiles and amphibians.

Department of Food Science & Technology
College of Agricultural Sciences
Oregon State University
Attn: Dr. George S. Bailey
Corvallis, OR 97331
Phone: (503) 737-3164
Fax: (503) 737-1877
NIEHS-funded Marine and Freshwater Biomedical Sciences Center
specializing in metabolic toxicology.

Duke University Marine Laboratory
Pivers Island
Attn: Dr. Joseph Bonaventura
Beaufort, NC 28516
Phone: (919) 728-2111
Fax: (919) 728-2514
NIEHS-funded Marine and Freshwater Biomedical Sciences Center

specializing in biochemical toxicology

Fisheries Review
Department of the Interior
U.S. Fish and Wildlife Service
Fort Collins, CO
Publications: Fisheries Review, periodical -
NAL call number: Z5973 A3S6

Fund for Replacement of Animals in Biomedical Research
Eastgate House
34 Stoney Street
Nottingham NG1 1NB
England
Phone: 011 44 602 584740
Publications: Alternatives to Laboratory Animals

Gulf Specimen Company
P.O. Box 237
Panacea, FL 32346
Phone: (904) 984-5297
Supplier of various marine and freshwater species.

Herpetocultural Library
Advanced Vivarium Systems
P.O. Box 76
Lakeside, CA 92040
Publications: Booklets covering care and maintenance of
tree frogs, and care and breeding of select
reptile and amphibian species.

Herpetologists' League (Herpetology) (HL)
Texas Natural Heritage Program
Texas Park and Wildlife Department
4200 Smith School Road
Austin, TX 78744
Phone: (512) 448-4311
Fax: (512) 389-4394
Persons interested in the study of amphibians and reptiles.
Publications: Herpetologica -
NAL call number: QL640 H4 quarterly.
Herpetological Monographs, annual.
Index to Herpetologica.

Institute of Aquaculture
University of Stirling
Stirling, Scotland

Institute of Laboratory Animal Resources
National Academy of Sciences
2101 Constitution Avenue, NW

Washington, DC 20418
Phone: (202) 334-2590
Publications: ILAR News, quarterly newsletter.
Animals for Research: A Directory of Sources
(suppliers).

International Zoo Yearbook
Zoological Society of London
London, England
1959-present
Publications: International Zoo Yearbook -
NAL call number: QL76.I5
Contains sections on care, breeding, and exhibition of zoo and
aquarium animals.

Lacerta
Nederlandse Vereniging voor Herpetologie en Terrariumkunde
Utrecht, The Netherlands
1941-present
Publications: Lacerta - NAL call number: QL640 L3

Marine Biological Laboratory
Woods Hole, MA 02543
Phone: (508) 548-3705
Publications: Biological Bulletin
Maintains extensive materials on the use of marine animals in
biomedical research.

National Institute of Environmental Health Sciences (NIEHS)
P.O. Box 12233
Attn: Dr. Thorsten Ejellstedt
Research Triangle Park, NC 27709
Phone: (919) 541-0131
A source of funding for centers for marine and freshwater
biomedical sciences.

National Museum of Natural History
Smithsonian Institution
Department of Invertebrates
Attn: Dr. Clyde Roper
Mr. Mike Sweeney
Washington, DC 20560
Phone: (202) 786-2076
Fax: (202) 357-3043

Northeast Marine Environmental Institution, Inc.
P.O. Box 666
Monument Beach, MA 02553
Phone: (508) 759-4055

Northern California Herpetological Society
P.O. Box 1363
Davis, CA 95617-1363

Pacific Bio-Marine Laboratories, Inc.
P.O. Box 536
Venice, CA 90291
Phone: (213) 822-5757

Reptile & Amphibian Magazine
RD3, Box 3709
Pottsville, PA 17901
1989-present
Publications: Published quarterly. Articles on husbandry
methods, advertisements from equipment and
animal suppliers.

Rosenstiel School of Marine and Atmospheric Science
University of Miami
Attn: Dr. Daniel G. Baden
4600 Rickenbacker Causeway
Miami, FL 33149
Phone: (305) 361-4738 (Center No.)
(305) 361-4691 (Dr. Baden's Office)
Fax: (305) 361-4600
NIEHS-funded Marine and Freshwater Biomedical Sciences Center
specializing in seafood borne toxins and biochemical
toxicology.

Salamandra
Deutsche Gesellschaft fr
Herpetologie und Terrarienkunde
Frankfurt am Main, Germany
1965-present
Publications: Salamandra - NAL call number: QL640.S3

Scientists Center for Animal Welfare
4805 St. Elmo Avenue
Bethesda, MD 20814
Phone: (301) 654-6390
Fax: (301) 654-3993
Purpose: conferences, publications, educational materials on
animal welfare topics.
Publications: Quarterly newsletter, conference proceedings.
Publisher of The Care and Use of Amphibians,
Reptiles, and Fish in Research.

Sea Life Supply
740 Tioga Avenue
Sand City, CA 93955
Phone: (408) 394-0828
Supplier of various marine and freshwater species.

Society for the Study of Amphibians and Reptiles (Herpetology)
(SSAR)
c/o Dr. Douglas Taylor
Miami University
Department of Zoology
Oxford, OH 45056
Phone: (513) 529-4901
Purposes are education, conservation, and research.
Publications: Herpetological Circulars, annual.
Herpetological Review -
NAL call number: QL640 H47, quarterly.
Journal of Herpetology -
NAL call number: QL640 J6, quarterly.
Also, publishes books, reprints, and
brochures.

Universities Federation for Animal Welfare
8 Hamilton Close, South Mimms
Potters Bar, Herts EN6 3QD
Telephone: 0707 58202
Publications: The UFAW Handbook on the Care and Management
of Laboratory Animals -
NAL call number: QL55.U5 1987
The UFAW Handbook on the Care and Management
of Cephalopods in the Laboratory -
NAL call number: SF407 M37B68

University of Texas Marine Biomedical Institute
Cephalopod Biology Program
Att: Dr. Roger T. Hanlon
UTMB
Galveston, TX 77555-0863
Phone: (409) 772-2133
Fax: (409) 772-6993

University of Wisconsin-Milwaukee
Department of Chemistry
Attn: Dr. David Petering
P.O. Box 413
3210 N. Cramer Street
Milwaukee, WI 53201
Phone: (414) 229-5853

Fax: (414) 229-5530

NIEHS-funded Marine and Freshwater Biomedical Sciences Center
specializing in biochemical toxicology.

Winkler Enterprises

722 S. Ellery Dr.

San Pedro, CA 90732

Phone: (213) 548-5070

Specializing in live octopuses.

Yale University

Attn: Dr. James L. Boyer

Chief, Digestive Diseases

Box 3333

New Haven, CT 065100

Phone: (203) 785-4138

Fax: (203) 785-72273

NIEHS-funded Marine and Freshwater Biomedical Sciences Center
specializing in membrane toxicology.

