

CURRICULUM VITAE

William E. Hawkins

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PRESENT POSITION:

Executive Director, Gulf Coast Research Laboratory
Professor, Department of Coastal Sciences
University of Southern Mississippi
P.O. Box 7000; 703 East Beach Drive (delivery address)
Ocean Springs, Mississippi 39564

EDUCATION:

B.S., General Science, 1968, Mississippi State University
M.S., Anatomy, 1970, University of Mississippi School of Medicine
Ph.D., Anatomy, 1973, University of Mississippi School of Medicine

PROFESSIONAL AND ADMINISTRATIVE EXPERIENCE:

2002- Executive Director, Gulf Coast Research Laboratory
1998-2002 Chair, Department of Coastal Sciences
1998- Professor, Department of Coastal Sciences
1979-1998 Senior Scientist, Gulf Coast Research Laboratory
1976-1979 Assistant Professor, Department of Anatomy, University of South Alabama,
College of Medicine
1974-1976 Assistant Professor, Department of Medical Anatomy and Embryology, Utrecht
State University, The Netherlands; Visiting Assistant Professor, Centre for
Electron Microscopy, Faculty of Medicine, Utrecht State University

RESEARCH SUPPORT- ACTIVE:

The Aquatic Research Consortium - Phase 2: A Genomic and proteomic approach for detection of environmental stress responses in small fish models. NOAA, Coastal Oceans Program, National Ocean Service, 2004-2006; W.E. Hawkins, Coordinator, \$839,016.00

Construction of an Aquaculture Visitor Pavilion at Cedar Point: Phase III; USDOC, NOAA, 2002-2006; W.E. Hawkins, Principal Investigator, \$1,774,182.00

The Aquatic Research Consortium - Phase 3: Morphological, Physiological, Genomic and Proteomic Responses to Environmental Stressors in Small Fish Models; USDOC, NOAA, Coastal Oceans Program, 2005-2007; W.E. Hawkins, Coordinator, \$416,940.00

NOAA Methylmercury Project, USDOC, NOAA, NASA; 2006-2009. W.E. Hawkins, Principal Investigator, \$1,200,000.00

RESEARCH INTERESTS:

Effects of environmental contaminants on aquatic organisms; Aquatic pathobiology; Use of aquatic organisms as medical models, especially for carcinogenesis studies; Histology, electron microscopy and cell biology of aquatic organisms; Intracellular protozoa of fishes; Environmentally-induced pathological responses in aquatic and other organisms; Diseases of aquaculture organisms; Marine Aquaculture

PROFESSIONAL ORGANIZATIONS:

Mississippi Academy of Sciences
American Fisheries Society, Fish Health Section
World Aquaculture Society

TEACHING EXPERIENCE:

Comparative Marine Histology; Techniques in Histology and Ultrastructure; Tropical Marine Biology; Histology, Embryology; Basic Histopathology; Marine Policy

OTHER PROFESSIONAL ACTIVITIES (Since 2000):

Technical review panel member, Mississippi-Alabama Sea Grant Consortium, appointed January 2000

Resource panel member, Reclaimed Water Quality Program, Ministry of the Environment and the Public Utilities Board of Singapore and the National University of Singapore, appointed February, 2000

Invited speaker, "Use of medaka (*Oryzias latipes*) to identify carcinogens and investigate carcinogenesis," seminar to the Department of Biological Sciences, National University of Singapore, April 14, 2000, Singapore

Invited speaker, "Fish as monitors of pollution," seminar to the Department of Civil Engineering, National University of Singapore, April 17, 2000.

Peer reviewer, STEP Program, United States Environmental Protection Agency, Gulf Breeze, FL, April, 2000

Invited speaker, 19th Annual Symposium Continuing Education Course: The utility of small fish models for toxicity and carcinogenicity testing, "Use of the medaka to identify carcinogens and investigate carcinogenesis," Society of Toxicologic Pathologists, The Wigwam Resort, Phoenix, AZ, June 25-29, 2000

Invited speaker, Large-scale carcinogen dose response studies with Japanese medaka (*Oryzias latipes*). Aquaria Fish Models of Human Disease, September 21-24, 2000, San Marcos, TX.

Ad hoc reviewer, site visit member, National Cancer Institute Program Project Grant Application from Oregon State University, September 27-29, 2000, Corvallis, Oregon

Invited speaker, United States Environmental Protection Agency, Environmental Carcinogenesis Division, "Large Scale, Low Dose Carcinogenicity Studies with Japanese Medaka (*Oryzias latipes*), Research Triangle Park, NC, December 5, 2000

Member, *Pfiesteria* Expert Panel, Centers for Disease Control, 2000

Member, EPA Toxicology Fellowship Review Panel, 2001, 2005, 2006

Member, Review Panel for Ecology and Oceanography of Harmful Algal Blooms (ECOHAB), NOAA Coastal Oceans Program, Silver Spring, MD, 2001, 2003

Member, Review Panel for program on Non-mammalian Organisms as Models for Anticancer Drug Discovery, National Cancer Institute, November 14, 2001

Invited panelist, Oceans and Human Health Roundtable Discussion, sponsored by The National Institute of Environmental Health Sciences (NIEHS) and the National Science Foundation (NSF), Research Triangle Park, NC, December 17-18, 2001

Member, NASA Earth Space Applications Division, Program Planning and Analysis Panel, Crystal City, VA, January 29-30, 2002

Invited speaker, Society of Toxicologic Pathologists Annual Meeting, "Use of the Japanese Medaka (*Oryzias latipes*) in carcinogenicity testing under National Toxicology Program protocols." Society of Toxicologic Pathology Educational Symposium, Denver, CO, June 2-6, 2002

Invited speaker, Medaka Colloquium, US Environmental Protection Agency, "Use of the medaka to define the shape of the carcinogen dose response curve and other experiences in medaka testing," Duluth, MN, July 30- August 1, 2002

Member, Editorial Board, Comparative Hepatology, appointed 2002

Chairman, Technical Review Panel, Mississippi-Alabama Sea Grant Consortium, 2002-2005

Member, Mississippi Department of Marine Resources, Tidelands Merit Review Committee, appointed 2002

Member, Editorial Board, International Journal of Environmental Research and Public Health (ISSN 1 660-4601), appointed 2003

Member, Advisory Committee, Registry for Tumors in Lower Animals (National Cancer Institute), 2003-2005

Member, Review Panel NIH/NIEHS Centers for Oceans and Human Health, June 25-27, 2003, Research Triangle Park, NC (declined due to conflict)

Member, Policy Advisory Committee, Mississippi Remote Sensing and GIS Coordinating Council, appointed 2003

Invited speaker, Conference on Aquatic Models of Human Disease, Manassas, Virginia, September 29-October 2, 2003

Invited participant, Exploring Collaborative Research in Human Health Risks and Ecotoxicology using Medaka as a Model Organism, University of Georgia, Athens, GA, March 24-26, 2004

Panelist, NOAA Office of Global Programs, Oceans and Human Health Initiative, External Research Grants Program Review Panel, Washington, DC, 28-30 June 2005

Invited participant, Conference on Aquatic

Models of Human Disease, Athens, GA, October 29-November 1, 2005 (declined due to travel conflicts)

Invited participant, 34th US Japan Natural Resources Panel Aquaculture Symposium., Hubbs SeaWorld Research Institute, November 6-11, 2005, San Diego, CA

PUBLICATIONS (Peer-reviewed papers and book chapters):

Hawkins, W.E. and B.P. Clower. 1971. Myocardial damage after head trauma and simulated intracranial hemorrhage in mice: The role of the autonomic nervous system. *Cardiovascular Research* 5(4):524-529.

Howse, H.D., R.A. Woodmansee, W.E. Hawkins, and H.M. Perry. 1975. Microstructure of the heart of a copepod, *Anomalocera ornata*. *Transactions of the American Microscopical Society* 94:1-23.

Kendall, M.W. and W.E. Hawkins. 1975. Histology, histochemistry, and electron microscopy of the liver of the channel catfish. *Journal of the Fisheries Research Board of Canada* 32:1459-1464.

Hawkins, W.E., H.D. Howse, and V.J. Ferrans. 1977. Fine structure of the myocardium of the blue crab *Callinectes sapidus*. *Chesapeake Science* 18(2):197-207.

Hawkins, W.E. and J.J. Geuze. 1977. Secretion in the rat coagulating gland (anterior prostate) after copulation. *Cell and Tissue Research* 181:519-529.

Hawkins, W.E., J.J. Geuze, and J.W. Slot. 1977. Ultrastructure of the rat coagulating gland after copulation. *Verhandlung der Anatomischen Gessellschaft* 71, S. 575-578.

Howse, H.D., A.R. Lawler, William E. Hawkins, and C.A. Foster. 1977. Ultrastructure of lymphocystis in the heart of the silver perch, *Bairdiella chrysura* (Lacepede), including observations on normal heart structure. *Gulf Research Reports* 6:39-57.

Hawkins, W.E. and H.D. Howse. 1978. The cardiac ganglion of the blue crab, *Callinectes sapidus* Rathbun. A light and electron microscopic study. *Transactions of the American Microscopical Society* 97:363-380.

Foster, C.A., T.G. Sarphie, and W.E. Hawkins. 1978. Fine structure of the peritrichous ectocommensal *Zoothamnium* sp., with emphasis on its mode of attachment to penaeid shrimp. *Journal of Fish Diseases* 1:321-335.

Hawkins, W.E., T.G. Sarphie, and L.G. Tate. 1978. Fine structure of an unusual cell-type in fish tissues. *Electron Microscopy* Vol. II, p. 689.

- Hawkins, W.E., H.D. Howse, and T.G. Sarphie. 1979. Ultrastructure of the molluscan heart. *Proceedings of the 37th Annual Meeting of Electron Microscopical Society of America*, pp. 212-213.
- Hawkins, W.E., T.G. Sarphie, and L.G. Tate. 1980. Ultrastructural observations on the kidney of a marine teleost. *Verhandlung der Anatomischen Gessellschaft* 74: S. 507-512.
- Hawkins, W.E., L.G. Tate, and T.G. Sarphie. 1980. Acute effects of cadmium on the spot *Leiostomus xanthurus* (Teleostei): Tissue distribution and renal Ultrastructure. *Journal of Toxicology and Environmental Health* 6:285-297.
- Hawkins, W.E., H.D. Howse, and T.G. Sarphie. 1980. Ultrastructure of the heart of the oyster *Crassostrea virginica* (Gmelin). *Journal of Submicroscopic Cytology* 12:359-374.
- Hawkins, W.E., H.D. Howse, and C.A. Foster. 1980. Prismatic and paracrystalline inclusions in mitochondria of myocardial cells of the oyster *Crassostrea virginica* Gmelin. *Cell and Tissue Research* 209:87-94.
- Hawkins, W.E., M.A. Solangi, and R.M. Overstreet. 1981. Ultrastructural effects of the coccidium *Eimeria funduli* on the liver of killifishes. *Journal of Fish Diseases* 4:281-295.
- Hawkins, W.E. and H.D. Howse. 1982. Ultrastructure of cardiac hemocytes and related cells in the oyster *Crassostrea virginica*. *Transactions of the American Microscopical Society* 101:241-252.
- Hawkins, W.E., M.A. Solangi, and R.M. Overstreet. 1983. Ultrastructure of the macrogamont of *Eimeria funduli*, a coccidium parasitizing killifishes. *Journal of Fish Diseases* 6:33-43.
- Hawkins, W.E., M.A. Solangi, and R.M. Overstreet. 1983. Ultrastructure of the microgamont and microgamete of *Eimeria funduli*, a coccidium parasitizing killifishes. *Journal of Fish Diseases* 6:45-57.
- Hawkins, W.E., J.W. Fournie, and R.M. Overstreet. 1983. Organization of sporulated oocysts of *Eimeria funduli* in the gulf killifish, *Fundulus grandis*. *Journal of Parasitology* 69:496-503.
- Hawkins, W.E., J.W. Fournie, and R.M. Overstreet. 1984. Intrahepatic stages of *Eimeria funduli* (Protista: Apicomplexa) in the longnose killifish *Fundulus similis*. *Transactions of the American Microscopical Society* 103:185-194.
- Hawkins, W.E., J.W. Fournie, and R.M. Overstreet. 1984. Ultrastructure of the interface between stages of *Eimeria funduli* (Apicomplexa) and hepatocytes of the longnose killifish, *Fundulus similis*. *Journal of Parasitology* 70:232-238.
- Morrison, C.M. and W.E. Hawkins. 1984. Coccidians in the liver and testis of the herring, *Clupea harengus* L. *Canadian Journal of Zoology* 62:480-493.

- Overstreet, R.M., W.E. Hawkins, and J.W. Fournie. 1984. The coccidian genus *Calyptospora* n.g. and family Calyptosporidae n. fam. (Apicomplexa), with members infecting primarily fishes. *Journal of Protozoology* 31:332-339.
- Hawkins, W.E., R.M. Overstreet, and M.J. Provancha. 1984. Pathological effects of space shuttle exhaust plumes on gills of some estuarine fishes: a light and electron microscopic study of acute environmental stress. *Gulf Research Reports* 7:297-309.
- Hawkins, W.E. 1984. Ultrastructure of rodlet cells: response to cadmium damage in the kidneys of the spot, *Leiostomus xanthurus* Lacepede. *Gulf Research Reports* 7:365-372.
- Hawkins, W.E., R.M. Overstreet, W.W. Walker, and C.S. Manning. 1985. Tumor induction in several small fish species by classical carcinogens and related compounds. *Water Chlorination* Vol. 5, Chapter 34, pp. 429-438.
- Walker, W.W., R.M. Overstreet, C.S. Manning, and W.E. Hawkins. 1985. Small aquarium fishes as models for environmental carcinogenesis: exposure methodology. *Journal of Applied Toxicology* 5:255-260.
- Hawkins, W.E., R.M. Overstreet, J.W. Fournie, and W.W. Walker. 1985. Small aquarium fishes as models for environmental carcinogenesis: tumor induction in seven fish species. *Journal of Applied Toxicology* 5:261-264.
- Fournie, J.W., W.E. Hawkins, and R.M. Overstreet. 1985. *Calyptospora empristica* n. sp. (Eimeriorina: Calyptosporidae) from the liver of the starhead topminnow, *Fundulus notti*. *Journal of Protozoology* 32:542-547.
- Hawkins, W.E., J.W. Fournie, R.M. Overstreet, and W.W. Walker. 1986. Intraocular neoplasms induced by methylazoxymethanol acetate in Japanese medaka (*Oryzias latipes*). *Journal of the National Cancer Institute* 76:453-465.
- Hawkins, W.E., R.M. Overstreet, and W.W. Walker. 1986. Ultrastructural analysis of hepatic carcinogenesis in two small fish species. Proceedings of the 44th Annual Meeting of the Electron Microscopy Society of America, pp. 124-125.
- Fournie, J.W., W.E. Hawkins, R.M. Overstreet, and W.W. Walker. 1987. Exocrine pancreatic neoplasms induced by methylazoxymethanol acetate in the guppy (*Poecilia reticulata*). *Journal of the National Cancer Institute* 78:715-725.
- Hawkins, W.E., R.M. Overstreet, and W.W. Walker. 1988. Carcinogenicity tests with small fish species. *Aquatic Toxicology* 11:113-128
- James, M.O., C.S. Heard, and W.E. Hawkins. 1988. Effect of 3-methylcholanthrene on monooxygenase, epoxide hydrolase, and glutathione S-transferase activities in small estuarine and freshwater fish. *Aquatic Toxicology* 12:1-15.

Hawkins, W.E., J.W. Fournie, R.M. Overstreet, and W.W. Walker. 1988. Rhabdomyosarcoma in the Japanese medaka, *Oryzias latipes* (Temminck and Schlegel) and guppy, *Poecilia reticulata* Peters. *Journal of Fish Diseases* 11:259-266.

Hawkins, W.E., R.M. Overstreet, and W.W. Walker. 1988. Small fish models for identifying carcinogens in the aqueous environment. *Water Resources Bulletin* 24:941-949.

Hawkins, W.E., W.W. Walker, R.M. Overstreet, T.F. Lytle, and J.S. Lytle. 1988. Dose-related carcinogenic effects of waterborne benzo[a]pyrene on livers of two small fish species. *Journal of Ecotoxicology and Environmental Safety* 16:219-231.

Overstreet, R.M., R.A. Krol, W.E. Hawkins, and K.C. Stuck. 1988. Experimental infections with *Baculovirus penaei* in *Penaeus vannamei*. *Journal of the World Aquaculture Society* 19:175-187.

Hawkins, W.E., W.W. Walker, J.S. Lytle, T.F. Lytle, and R.M. Overstreet. 1989. Carcinogenic effects of 7,12-dimethylbenz[a]anthracene in the guppy (*Poecilia reticulata*). *Aquatic Toxicology* 15:63-82.

Krol, R.A., W.E. Hawkins, W.K. Vogelbein, and R.M. Overstreet. 1989. Histopathology and Ultrastructure of the hemocytic response to bacterial infection in cultured *Penaeus vannamei*. *Journal of Aquatic Animal Health* 1:37-42.

Heard, C.S., W.W. Walker, and W.E. Hawkins. 1989. Aquatic toxicological effects of organotins: an overview. Proceedings Oceans '89. IEEE Publication No. 89CH2780-5.2:554-563.

Walker, W.W., C.S. Heard, K. Lotz, T.F. Lytle, W.E. Hawkins, C.S. Barnes, D.H. Barnes, and R.M. Overstreet. Tumorigenic, growth, reproductive, and developmental effects in medaka exposed to bis(tri-n-butyltin) oxide. Proceedings Oceans '89 IEEE Publication No. 89CH2780-5.2:516-524.

Hawkins, W.E., W.W. Walker, R.M. Overstreet, J.S. Lytle and T.F. Lytle. 1990. Carcinogenic effects of some polycyclic aromatic hydrocarbons on the Japanese medaka and guppy in waterborne exposures. *The Science of the Total Environment* 94:155-167.

Krol, R. M., W.E. Hawkins, and R. M. Overstreet (1990) Reo-like virus in white shrimp *Penaeus vannamei* (Crustacea, Decapoda): Co-occurrence with *Baculovirus penaei* in experimental infections. *Diseases of Aquatic Organisms* 8: 45-49.

Battalora, M.St.J., W.E. Hawkins, W.W. Walker, and R. M. Overstreet. 1991. Occurrence of thymic lymphoma in carcinogenesis bioassay specimens of the Japanese medaka (*Oryzias latipes*). *Cancer Research* (Suppl.) 50: 5675-5678.

Krol, R.A., W.E. Hawkins, and R.M. Overstreet.

1991. Rickettsial and mollicute infections in hepatopancreatic cells of cultured Pacific white shrimp (*Penaeus vannamei*). *Journal of Invertebrate Pathology* 57: 362-370.

Hawkins, W.E., W.W. Walker, T.F. Lytle, J.S. Lytle, and R.M. Overstreet. 1991. Studies on the carcinogenic effects of benzo(a)pyrene and 7,12-dimethylbenz(a)anthracene on the sheepshead minnow (*Cyprinodon variegatus*). *Aquatic Toxicology and Risk Assessment: Fourteenth Volume, ASTM STP 1124*, M.A. Mayes and M.G. Barron, Eds., American Society for Testing and Materials, pp. 97-104.

Hawkins, W. E., J. W. Fournie, M. St. J. Battalora, and W. W. Walker. 1991. Carcinoma of the exocrine pancreas in medaka. *Journal of Aquatic Animal Health* 3: 213-220.

Fournie, J.W., W.E. Hawkins, and W. W. Walker. 1992. Adenocarcinoma of the retinal pigment epithelium in the guppy *Poecilia reticulata* Peters. *Journal of Comparative Pathology* 106: 429-434

Hinton, D.E., P.C. Baumann, G. Gardner, W.E. Hawkins, J.D. Hendricks, R. Murchelano, and M.S. Okihira. 1992. Histopathologic biomarkers. *In Biomarkers: biochemical, physiological, and histological markers of anthropogenic stress*. Edited by R.J. Huggett, R.A. Kimerle, P.M. Mehrle, and H.L. Bergman, Lewis Publishers, Inc. pp. 155-209.

Overstreet, R.M., I. Dykova, and W.E. Hawkins. 1992. Branchiura. *In Microscopic Anatomy of Invertebrates, Volume 9, Decapod Crustacea*, Chapter 8, edited by Frederick W. Harrison and Arthur G. Humes. Wiley-Liss, Inc., New York 385-413.

Krol, R.M., W.E. Hawkins, and R. M. Overstreet. 1992. Reproductive components. *In Microscopic Anatomy of Invertebrates, Volume 10, Decapod Crustacea*, Chapter 10, edited by Frederick W. Harrison and Arthur G. Humes. Wiley-Liss, Inc., New York 295-343.

Howse, H.D., R.M. Overstreet, W.E. Hawkins, and J.S. Franks. 1992. Ubiquitous perivenous smooth muscle cords in viscera of teleost (*Rachycentron canadum*) with special emphasis on liver. *Journal of Morphology* 212: 175-189.

Theodorakis, C.W., S.J. D'Surney, J.W. Bickham, B. Bradley, W.E. Hawkins, W.L. Farkas, L.R. Shugart and J.F. McCarthy. 1992. Sequential expression of biomarkers in bluegill sunfish exposed to contaminated sediment. *Ecotoxicology* 1: 45-73.

Howse, H.D., W.E. Hawkins, and H.M. Perry. 1992. A note on the fine structure of myoskeletal junctions in *Acartia tonsa* (Copepoda, Calanoida). *Gulf Research Reports* 8:431-434.

Everaarts, J.M, L.R. Shugart, M.K. Gustin, D. Morgan, D. Millsap, W.E. Hawkins, and W.W. Walker. 1993. Biological markers in fish: DNA integrity, hematological parameters, and liver somatic index. *Marine Environmental Research* 35: 101-107.

DiGiulo, R.T., J.K. Chipman, M. Feeley, W.E.

Hawkins, K. Smith, G. Suter, and G. Winston. 1993. Interpretation of biomarker responses. *In* Biomarkers: research and application in the assessment of environmental health. Edited by D.B. Peakall and L.R. Shugart, Chapter 4, pp. 49-61, NATO ASI Series, Vol. H 68, Springer-Verlag, Berlin, Heidelberg.

Oliveira, M.F.T., W.E. Hawkins, R.M. Overstreet, and J.W. Fournie. 1993. *Calyptospora funduli* (Apicomplexa, Calyptosporidae) in the liver of the Gulf toadfish, *Opsanus beta*. *Journal of the Helminthological Society of Washington* 60: 273-277

Law, J.M., W.E. Hawkins, R.M. Overstreet, and W.E. Walker. 1994. Hepatocarcinogenesis in western mosquitofish (*Gambusia affinis*) exposed to methylazoxymethanol acetate. *Journal of Comparative Pathology* 110: 101-111.

James, M.O., W.E. Hawkins, and W.W. Walker. 1994. Phase 1 and phase 2 biotransformation and carcinogenicity of 2- acetylaminofluorene in medaka and guppy. *Aquatic Toxicology* 28: 79-95

Oliveira, M.F.T., W.E. Hawkins, R.M. Overstreet, and W.W. Walker. 1994. Hepatocellular neoplasm in a wild-caught sheepshead minnow (*Cyprinodon variegatus*) from the northern Gulf of Mexico. *Gulf Research Reports* 9: 65-67.

Abner, S.R., C.L. Frazier, J.S. Scheibe, R.A. Krol, R.M. Overstreet, W.W. Walker, and W.E. Hawkins. 1994. Chronic inflammatory lesions in two small fish species, medaka (*Oryzias latipes*) and guppy (*Poecilia reticulata*), used in carcinogenesis bioassays. *Modulators of Fish Immune Responses*, Chapter 19, Vol. 1. (J.S. Stolen and T.C. Fletcher, editors). SOS Publications; Fairhaven, NJ

Ortego, L.S., W.E. Hawkins, W.W. Walker, R.M. Krol, and W.H. Benson. 1994. Detection of proliferating cell nuclear antigen (PCNA) in tissues of three small fish species. *Biotechnic and Histochemistry* 69: 317-323.

Ortego, L.S., W.E. Hawkins, W.W. Walker, R.M. Krol, and W.H. Benson. 1995. Immunohistochemical detection of proliferating cell nuclear antigen (PCNA) in tissues of aquatic animals utilized in toxicity bioassays. *Marine Environmental Research* 39:271-273.

Ostrander, G.K., J.B. Blair, B.A. Stark, G.M. Marley, W.E. Bales, R.W. Veltri, D.E. Hinton, M. Okihiro, L.S. Ortego, W.E. Hawkins. 1995. Long-term primary culture of epithelial cells from rainbow trout (*Onchorynchus mykiss*). *In Vitro Cellular and Developmental Biology* 31: 367-378.

Kuehn, R.L., K.D. Berlin, W.E. Hawkins, and G.K. Ostrander. 1995. Relationships among petroleum refining; water and sediment contamination, and fish health. *Journal of Toxicology and Environmental Health* 46: 101-116.

- Hawkins, W.E., W.W. Walker, and R.M. Overstreet. 1995. Practical carcinogenicity tests with small fish species. *In* Fundamentals of Aquatic Toxicology: Effects, Environmental Fate, and Risk Assessment, G.M. Rand, editor, Chapter 14, pp. 421-446, Taylor and Francis.
- Ostrander, G.K., R.L. Kuehn, K.D. Berlin, and W.E. Hawkins. 1995. Anthropogenic contaminants and fish health along an urban waterway. *Environmental Toxicology and Water Quality* 10: 207-215.
- Ostrander, G.K., W.E. Hawkins, R.L. Kuehn, A.D. Jacobs, K.D. Berlin, and J. Pigg. 1995. Pigmented subcutaneous spindle cell tumors in native gizzard shad (*Dorosoma cepedianum*). *Carcinogenesis* 16: 1529-1995.
- Overstreet, Robin M., William E. Hawkins, and Thomas L. Deardorff. 1996. The western mosquitofish as an environmental sentinel: parasites and histological lesions. *In* Environmental Fate and Effects of Pulp Mill Effluents, edited by M.R. Servos, J. Cary, K. Munkittrick, and G. Van Der Kraak. St. Lucie Publisher, 495-509.
- Ortego, L.S., W.E. Hawkins, R.M. Krol, and W.W. Walker. 1996. Immunohistochemical Assay for Proliferating Cell Nuclear Antigen (PCNA) in Aquatic Organisms. *In*: Techniques in Aquatic Toxicology, G.K. Ostrander, ed., Lewis Publishers, Chapter 18, pp. 327-339.
- Fournie, J.W., W.E. Hawkins, R. M. Krol, and M. J. Wolfe. 1996. Preparation of Whole Small Fish for Histological Evaluation. *Techniques in Aquatic Toxicology*, G.K. Ostrander, ed., Lewis Publishers, Chapter 31: 577-587.
- Hawkins, W.E., J. W. Fournie, T. Ishikawa, and W.W. Walker. 1996. Germ cell neoplasms in Japanese medaka. *Journal of Aquatic Animal Health* 8: 120-129.
- Hawkins, W.E., D.G. Gregory, A.D. Jacobs, and G.K. Ostrander. 1996. Poorly differentiated dermal neoplasm in a white bass, *Morone chrysops*. *Journal of Aquatic Animal Health* 8: 150-154.
- Ortego, L.S., W.E. Hawkins, Y. Zhu and W.W. Walker. 1996. Chemically-induced hepatocyte proliferation in the medaka (*Oryzias latipes*). *Marine Environmental Research* 42: 75-79.
- Yano, I., R.M. Krol, R.M Overstreet, and W.E. Hawkins. 1996. Route of egg yolk protein uptake in the oocytes of kuruma prawn, *Peneaus japonicus*. *Marine Biology* 125: 773-781.
- Boorman, G.A., S. Botts, T.S. Bunton, J.W. Fournie, J.C. Harshbarger, W.E. Hawkins, D.E. Hinton, M.P. Jokinen, M.S. Okihiro, M.J. Wolfe. 1997. Diagnostic criteria for degenerative, proliferative nonneoplastic (hyperplastic) and neoplastic liver lesions in medaka (*Oryzias latipes*): consensus of a National Toxicology Program Pathology Working Group. *Toxicologic Pathology* 25: 202-210.

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- Ostrander, G.K., R. Parker, R., and W. E. Hawkins. 1998. Persistent expression of tumors in Lake of the Arbuckles gizzard shad: a summary of six years of study. *Park Science* 19: 34-36.
- Gete, D.R., Hawkins, W.E., Means, J.C., and Ostrander, G.K. 1998. Pigmented skin tumors in gizzard shad (*Dorosoma cepedianum*) from the south-central United States: Range extension and further etiological studies. *Environmental Toxicology and Chemistry* 17: 2282-2287
- Hawkins, W.E. 1999. Report on the Species Selection Workshop Convened by the US Gulf of Mexico Marine Stock and Submitted to The National Marine Fisheries Service. 40 pages. (Non-peer reviewed)
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