

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application for Certificates)
to provide Water and Wastewater) DOCKET NO. 961321-WC
Service in Clay County by Point)
Water and Sewer, Inc.)

TESTIMONY OF ROY R. LEWIS, III
ON BEHALF OF
THE POINT PROPERTY OWNERS ASSOCIATION, INC.

Q. Please state your name and address.

A. My name is Roy R. "Robin" Lewis, III, and my business address is 5454 Jet View Circle, Tampa, Florida, 33634.

Q. By whom are you employed?

A. I am employed by Lewis Environmental Services, Inc., an environmental consulting firm.

Q. What is your position with Lewis Environmental Services, Inc.?

A. I am the President of Lewis Environmental Services, Inc. I provide environmental consulting services to numerous clients.

Q. Please identify where you received your undergraduate degree and the area of concentration of your studies?

A. I received my Bachelors degree in Biology from the University of Florida in 1966.

Q. What post graduate degrees have you received and from what institutions were these degrees attained?

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FPSC-RECORDS/REPORTING

- 1 A. I received my Master's Degree from the University of
2 South Florida in 1968 in Zoology. I also did post
3 graduate work at the University of South Florida and
4 its Marine Science Institute through 1973.
- 5 Q. Please outline your employment experience since 1973?
- 6 A. I was professor of Biology at Hillsborough Community
7 College in Tampa, Florida from 1974 through 1982. I
8 served also as Chairman of the Biology Department for
9 two years during that span. I also served as
10 Scientific Advisor for the college's Environmental
11 Studies Center from 1974 through 1982. In 1975, I
12 founded Mangrove Systems, Inc., an environmental
13 consulting company, and served as its President from
14 1975 through 1987. In 1987, I became Vice President
15 and Director of the Environmental Division of Proctor
16 & Redfern, an engineering company. In 1989, I founded
17 Lewis Environmental Services, Inc., and have served as
18 its President since that time. I have designed more
19 than 125 wetland restoration or creation projects in
20 Florida, South Carolina, Puerto Rica and the U.S.
21 Virgin Islands. These projects include both fresh and
22 saltwater areas.
- 23 Q. Have you been certified by any associations?
- 24 A. Yes. I have been a Certified Professional Wetlands
25 Scientist-Society of Wetlands Scientists since 1996.

1 I have been a Certified Environmental Professional-
2 National Association of Environmental Professionals
3 since 1984. I have been a Certified Senior Ecologist-
4 Ecological Society of America since 1984, I have been
5 a Certified Prescribed Burn Manager-Florida Division of
6 Forestry since 1993.

7 Q. Are you a member of any professional associations?

8 A. Yes. I am a member of several associations, including
9 American Fisheries Society, Association for Tropical
10 Biology, Ecological Society of America, Estuarine
11 Research Federation, Florida Academy of Science,
12 Florida Assoc. Of Environmental Professionals, Florida
13 Native Plant Society, Gulf Estuarine Research Society,
14 National Assoc. Of Environmental Professionals,
15 International Society for Mangrove Ecosystems and the
16 International Society of Tropical Forestry. I served
17 as President of the Florida Chapter of the American
18 Fishery Society. I was a member of the National
19 Research Councils Committee on the Role of Technology
20 and Marine Habitat Protection.

21 Q. Have you presented papers or speeches on environmental
22 matters?

23 A. Yes. I have published more than 50 papers in the
24 environmental area, was the Editor of the Creation and
25 Restoration of Coastal Plant Communities, published by

1 CRC Press in 1985 and have made many speeches in the
2 environmental area.

3 Q. I show you an Exhibit marked RRL-1? Can you identify
4 it?

5 A. Yes. It is my curriculum vitae.

6 Q. Have you given testimony on environmental matters
7 before the courts or government agencies?

8 A. Yes. I have testified in numerous court and
9 administrative proceedings.

10 Q. Are you familiar with the service area sought by Point
11 Water & Sewer, Inc. ("PWS") in its application
12 ("Requested Area")?

13 A. Yes. The Point Condominiums are located in Clay County,
14 on the east side of U.S. Highway 17, just south of
15 Doctor's Inlet, which is just south of the Town of
16 Orange Park. The site borders the western shore of the
17 St. Johns River and includes a shallow water area in
18 front of a seawall that supports a meadow of submerged
19 aquatic vegetation composed mainly of tape-grass,
20 Vallisneria americana.

21 Q. Have you inspected the waters in the St. Johns River
22 adjoining the Requested Area?

23 A. Yes. My sister owns a condominium in the complex and I
24 have observed the tape-grass meadow from her condo and
25 from the dock that runs east-west from the shoreline.

1 My initial observations we made five years ago and my
2 most recent observations were made on April 28 of this
3 year.

4 Q. Please discuss the results of your inspection.

5 A. My observations indicate that the tape-grass meadow has
6 declined in size with the major area of loss being
7 closest to the existing sewage outfall. My research on
8 submerged aquatic vegetation in Tampa Bay indicates
9 that increases in nutrient levels associated with
10 sewage discharges leads to eutrophication and
11 competition between nutrient-enriched algae and
12 submerged aquatic vegetation. Similar observations
13 have been made around the world where primary or
14 secondarily treated sewage are discharged near
15 submerged aquatic vegetation.

16 I am continuing my investigation of the causes of the
17 disappearance of portions of the tape-grass meadow, but
18 at this time I believe the existing sewage discharge is
19 the primary cause.

20 Q. Please discuss the impact the eel grass destruction
21 will have on the environment.

22 A. Submerged aquatic vegetation like tape-grass have true
23 roots and stems and are not algae. They stabilize the
24 bottom sediments in which they are rooted, provide food
25 and habitat for many species of fish and invertebrates

1 | like shrimp and crabs and are eaten by manatees as
2 | their preferred food. Loss of this vegetation will
3 | likely result in fewer fish and invertebrates being
4 | present in the St. Johns River and less food for the
5 | endangered Florida manatee which is known to frequent
6 | the area.

7 | Q. Is it in the public interest for PWS's outfall line to
8 | continue to discharge into the St. Johns River?

9 | A. No. The discharge of the effluent this close to shore
10 | and in the vicinity of this tape-grass meadow
11 | represents pollution of the river and could lead to the
12 | complete disappearance of all the tape-grass in the
13 | area over a period of just a few years.

14 | Q. Is it in the public interest for PWS to serve the
15 | Requested Area?

16 | A. No. As I discussed above, PWS service most likely
17 | causes severe damage to the environment. It is in the
18 | public interest for the area to be served by the Clay
19 | County Utility Authority. Clay County Utility
20 | Authority disposes of its treated effluent primarily
21 | through land application, which is much more
22 | environmentally friendly in that it reduces the
23 | potential nutrient loading to the river, and as a
24 | regional plant is more likely to receive constant
25 | maintenance to insure not potential upsets that can

1 | lead to even grater discharges of pollutants than
2 | currently occurs.

3 | Q. Does this complete your testimony in this matter?

4 | A. Yes, but I will answer any other questions.

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ROY R. LEWIS III

President / Principal Ecologist

Lewis Environmental Services, Inc.

Certified Environmental Professional (No. 1611), National Association of Environmental Professionals

Certified Senior Ecologist, Ecological Society of America

Certified Professional Wetland Scientist (No. 725), Society of Wetland Scientists

Certified Prescribed Burn Manager (No. 932194), Florida Division of Forestry

Roy R. (Robin) Lewis is the founder and president of Lewis Environmental Services, Inc., an environmental consulting firm located in Tampa, Florida, founded in 1989. Prior to that time, Mr. Lewis was vice president of an engineering company for two years, and president of Mangrove Systems, Inc., an environmental consulting company he founded in 1975.

Mr. Lewis received his bachelor's degree in biology from the University of Florida in 1966 and master's degree from the University of South Florida in 1968. He did post-graduate work at the same university and its Marine Science Institute until 1973. Mr. Lewis was a professor of biology at Hillsborough Community College, and chairman of the department from 1974 to 1977.

Mr. Lewis' expertise includes the ecology, restoration and creation of fresh and saltwater marshes, mangrove forests, and seagrass meadows. He has studied the effects of oil spills on coastal ecosystems, plant and animal colonization of dredged material islands, and experimental revegetation of wetlands using both marine and freshwater species. He has published more than 50 papers on these subjects, and is the editor of *Creation and Restoration of Coastal Plant Communities*, published by CRC Press in 1985.

Mr. Lewis is a member of more than a dozen professional societies, including the Society of Wetland Scientists where he served on the Editorial Board of the journal of the Society, *Wetlands*, from 1982 to 1985. He was the 1985-86 President of the Florida Chapter of the American Fisheries Society, and has been the Convenor and Editor or Editorial Advisor of the annual Conference on Creation and Restoration of Wetlands, now in its 21st year. Mr. Lewis was a member of the National Research Council's Committee on the Role of Technology in Marine Habitat Protection, which recently

completed its final report to the Council entitled *Restoring and Protecting Marine Habitat*.

Mr. Lewis is the designer of the Bayport Plaza Environmental Restoration Project, location of the Hyatt Regency Westshore in Tampa and recipient of the 1985 Corporate Award from the Florida Audubon Society, awarded to the Wilson Company, developers of the project. His Land Stewardship Program developed for TECO Energy, Inc. (Tampa) earned a second Florida Audubon Society Corporate Award in 1991 and the Ecological Society of America's Corporate Award in 1993. Mr. Lewis received Honorable Mention in the 1994 National Wetlands Awards, cosponsored by the Environmental Law Institute and the Environmental Protection Agency.

Mr. Lewis has designed more than 125 completed wetland restoration or creation projects in Florida, South Carolina, Puerto Rico, and the U.S. Virgin Islands. Several of these have been featured in *The Wall Street Journal*, *The Washington Post*, and *The Orlando Sentinel*. His largest completed wetland restoration project, a 613-acre freshwater wetland, is in Broward County (Fort Lauderdale), Florida. Along with fellow wetland scientist Dr. Michael Josselyn, Mr. Lewis studied and proposed a restoration plan for nearly 10,000 acres (16 square miles) of diked former salt marsh in San Pablo Bay near San Francisco, for Cargill Salt. As a result the land was deemed acceptable for purchase and eventual restoration by the Shell Oil Spill Litigation Trust Committee. Sale and transfer of the land were completed in 1994.

Robin is a Florida native, and an active volunteer for many environmental projects. His expertise and ability to communicate bring frequent invitations to speak at professional meetings, and he regularly teaches wetland restoration courses for the U.S. Army Corps of Engineers.

Offices:

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Education

B.S.	University of Florida, Gainesville	Biology	1966
M.A.	University of South-Florida, Tampa	Zoology	1968

Professional Experience

President, Lewis Environmental Services, Inc., Tampa; 1989–present.
Vice President, Director of Environmental Division, Proctor & Redfern, Inc., Tampa; 1987–1989.
President, Mangrove Systems, Inc., Tampa; 1975–1987.
Hillsborough Community College, Tampa:
Professor of Biology and Scientific Advisor, Environmental Studies Center, 1974–1982.
Professor and Chairman, Department of Biology, 1973–1974.

Professional Certification

Certified Professional Wetland Scientist No. 725, Society of Wetland Scientists
Certified Environmental Professional No. 1611, National Association of Environmental Professionals
Certified Senior Ecologist, Ecological Society of America
Certified Prescribed Burn Manager No. 932194, Florida Division of Forestry

Honors and Awards

Florida Audubon Society Corporate Award, for Habitat Restoration at Bayport Plaza (Tampa) — 1985
Florida Audubon Society Corporate Award, for Tampa Electric Company Environmental Stewardship Program — 1991.
Ecological Society of America Corporate Award, for Tampa Electric Company Environmental Stewardship Program — 1993.
Honorable Mention, 1994 National Wetlands Awards (U.S. Environmental Protection Agency and Environmental Law Institute)

Professional Memberships

American Fisheries Society	Florida Native Plant Society
Association for Tropical Biology	Gulf Estuarine Research Society
Ecological Society of America	National Assoc. of Environmental Professionals
Environmental Law Institute	North American Benthological Society
Estuarine Research Federation	International Society for Mangrove Ecosystems
Florida Academy of Science	International Society of Tropical Forestry
Florida Assoc. of Environmental Professionals	

Professional Activities

- Mangrove Technical Advisory Committee, Florida Dept. of Environmental Protection, 1994–present.
 Technical Advisory Committee, Tampa Bay National Estuary Program, 1991–present.
 Board of Directors, Association of Wetland Managers, 1987–present.
 U.S. Environmental Protection Agency Gulf of Mexico Program Habitat Degradation Subcommittee, 1990–present.
 National Research Council Committee on the Role of Technology in Marine Habitat Protection and Enhancement, 1990–1993.
 Agency on Bay Management, Tampa Bay Regional Planning Council, 1985–1993.
 U.S. Fish & Wildlife Service Habitat Evaluation Procedures Workshop, 1991.

Invited Speaker

- Keynote Speaker, Society of Ecological Restoration Annual Conference (Lansing, Michigan), 1994.
 Workshop on Brazilian Pepper Control, University of Florida Institute of Food and Agricultural Sciences, 1993. Topic: Large scale Brazilian pepper control in Tampa Bay.
 The Ecological Basis of Restoration of Wetlands in the Mediterranean Basin, a training course at the Hispanoamerica University of La Rábida (Huelva), Spain, 1993. Topic: Lessons Learned from Five Decades of Wetland Restoration and Creation in North America.
 Environmental Management Workshop, Florida Dept. of Transportation, 1993. Topic: Wetland Mitigation in Tidal Systems.
 American Society of Civil Engineers Technical Seminar, New Opportunities for Engineering and Environmental Professionals, 1993. Topic: Habitat Restoration.
 Wetlands: Critical Land Use & Development Issues in Florida (CLE International), 1992. Topic: Wetlands Due Diligence (with Ronald L. Weaver, Esq.).
 National Wetland Symposium — Effective Mitigation: Mitigation Banks and Joint Projects in the Context of Wetland Management Plans, Palm Beach, 1992. Topic: Scientific Perspectives on On-Site/Off-Site In-Kind/Out-of-Kind Mitigation.
 Florida Engineering Society Conference on Water Management, 1992. Topic: Project Examples, Wetland Resource Dredge and Fill Permitting.
 Annual Conference on Wetland Restoration and Creation, Tampa, 1992. Topic: Restoration Follies.
 Association of State Wetland Managers National Symposium: Altered, Artificial and Managed Wetlands with Special Emphasis on Agricultural Wetlands, Chicago, 1991. Topics: Special Restoration Issues and Approaches; Wetland Restoration: Restoration Issues in Severely Altered Wetlands (moderator).
 Florida Cooperative Extension Service Coastal Vegetation Workshop, Homestead, 1991. Topic: Planting and Maintenance of Coastal Vegetation.
 U.S. Army Corps of Engineers Environmental Advisory Board 50th Meeting, St. Louis, 1991. Topic: Technical Aspects of Environmental Protection and Restoration — Can It Be Accomplished? (panel discussion).
 South Carolina Water Resources Commission and the Interstate Council on Water Policy Joint Annual Meeting, Charleston, 1991. Topic: Responding to Environmental Demands — Wetlands Restoration.
 America's Sea — The Gulf of Mexico, a symposium, 1990. Topic: Current Status and Future Needs.
 Ecotourism 2nd International Symposium and Workshop, Miami Beach, 1990. Topic: Environmentally Sensitive Areas — Design and Restoration of Damaged Areas (moderator).
 Wetland Mitigation Workshop, U.S. Army Corps of Engineers, Jacksonville, 1990. Topic: Successful Wetland Mitigation.
 Wetland Resource Workshop, Florida Department of Environmental Regulation, 1990. Topic: Mitigation.

Recent Publications

- Ballou, T. G. and R. R. Lewis. 1989. Environmental assessment and restoration recommendations for a mangrove forest affected by jet fuel. Pp. 407-412 in Proceedings, 1989 Oil Spill Conference (Prevention, Behavior, Control, Cleanup). February 13-16, 1989.
- Lewis, R. R. 1990. Creation and restoration of coastal plain wetlands in Florida. Pp. 73-101 in J. A. Kusler and M. E. Kentula (eds.), Wetland Creation and Restoration: The Status of the Science. Island Press, Washington, D.C. xxv + 595 pp.
- Lewis, R. R. 1990. Creation and restoration of coastal wetlands in Puerto Rico and the U.S. Virgin Islands. Pp. 103-123 in J. A. Kusler and M. E. Kentula (eds.), Wetland Creation and Restoration: The Status of the Science. Island Press, Washington, D.C. xxv + 595 pp.
- Lewis, R. R. 1990. Wetlands Restoration/Creation/Enhancement Terminology: Suggestions for Standardization. Pp. 417-422 in J. A. Kusler and M. E. Kentula (eds.), Wetland Creation and Restoration: The Status of the Science. Island Press, Washington, D.C. xxv + 595 pp.
- Lewis, R. R. 1990. Ch. 4. Laboratory culture methods. Pp. 37-41 in R. C. Phillips and C. P. McRoy (eds.), Seagrass Research Methods.
- Crews, D. W. and R. R. Lewis. 1991. An evaluation of historical attempts to establish emergent vegetation in marine wetlands in Florida. Florida Sea Grant Technical Paper No. 60. Florida Sea Grant College, Gainesville.
- Lewis, R. R., K. D. Haddad and J. O. R. Johansson. 1991. Recent areal expansion of seagrass meadows in Tampa Bay, Florida: real Bay improvement or drought-induced? Pp. 189-192 in S. F. Treat and P. A. Clark (eds.), Proceedings, Tampa Bay Area Scientific Information Symposium 2 [February 27 - March 1, 1991]. Tampa BASIS 2, c/o TEXT, P.O. Box 291387, Tampa, FL 33687. vii + 528 pp.
- Lewis, R. R. 1992. Coastal habitat restoration as a fishery management tool. Pp. 169-173 in R. H. Stroud (ed.), Stemming the Tide of Coastal Fish Habitat Loss. Proceedings of a Symposium on Conservation of Coastal Fish Habitat, Baltimore, Md., March 7-9, 1991. National Coalition for Marine Conservation, Inc., Savannah, Ga.
- Lewis, R. R. 1992. Why Florida Needs Mitigation Banking. National Wetlands Newsletter 14(1):7.
- Lewis, R. R. 1992. Coastal Ecosystems. Columbian Quincentennial Issue, Restoration & Management Notes 10(1):18-20.
- Johansson, J. O. R. and R. R. Lewis. 1992. Recent improvements of water quality and biological indicators in Hillsborough Bay, a highly impacted subdivision of Tampa Bay, Florida, U.S.A. International Conference on Marine Coastal Eutrophication, Bologna, Italy, March 1990. Pp. 1199-1215 in Science of the Total Environment, Supplement 1992. Elsevier Publishers, Amsterdam.
- Lewis, R. R., J. A. Kusler and K. L. Erwin. 1993. Lessons learned from five decades of wetland restoration and creation in North America. Presented at the Ecological Basis of Restoration of Wetlands in the Mediterranean Basin, University of La Rábida, Spain, 7-11 June 1993.
- Lewis, R. R. 1993. Boating impacts to seagrass flats and development impacts to shorelines in the Florida Keys Marine Sanctuary. Summary of a presentation, Proceedings of the Second Annual Coral Reef Coalition Conference, May 13-15, 1993. Islamorada, Fla.
- Lewis, R. R. 1994. Scientific perspectives on on-site/off-site, in-kind/out-of-kind mitigation. Pp. 101-106 in J. A. Kusler and C. Lassonde (eds.), Effective Mitigation: Mitigation Banks and Joint Projects in the Context of Wetland Management Plans. Proceedings of the National Wetland Symposium, 24-27 June 1992. U.S. Environmental Protection Agency, Washington, D.C.
- Lewis, R., C. Krueger and S. Treat. 1994. Wetland Mitigation Evaluation Report, Florida Keys Bridge Replacement. Fla. Dept. of Transportation WPI No. 6116901, SP No. 90000-1560.
- Lewis, R. R. 1994. Enhancement, restoration and creation of coastal wetlands. Ch. 8 in D. M. Kent, ed., Applied Wetlands Science and Technology. Lewis Publishers, Inc. xii+388 pp. + apps.
- Lewis, R. R. 1994. Ecological restoration of lands infested with non-indigenous plant species. Pp. 248-254 in D. C. Schlunitz and T. C. Brown (eds.), An Assessment of Invasive Non-Indigenous Species in Florida's Public Lands. Fla. Dept. of Environmental Protection Tech. Rep. No. TSS-94-100.
- Lewis, R. R. 1995. Habitat and Enforcement: Key Fisheries Issue for the 1990s. [opinion] Sea Technology 37(1):89.

Publications prior to 1989

- Lewis, R. R. and W. M. Courser. 1972. McKay Bay: past, present and future. Save Our Bay, Inc. and the Tampa Audubon Society. 57 pp.
- Lewis, R. R. and F. M. Dunstan. 1974. Possible use of dredged material to replace lost coastal vegetation in Florida. Pp. 35-36 in R. R. Lewis and J. Thomas (eds.) Proceedings of the First Annual Conference on Restoration of Coastal Vegetation in Florida. Florida Audubon Society, Maitland.
- Detweiler, T., F. M. Dunstan, R. R. Lewis and W. K. Fehring. 1975. Patterns of secondary succession in a mangrove community, Tampa Bay, Florida. Pp. 52-81 in R. R. Lewis (ed.) Proceedings of the Second Annual Conference on Restoration of Coastal Vegetation in Florida. 203 pp.
- Lewis, R. R. and F. M. Dunstan. 1975. Possible role of *Spartina alterniflora* Loisel in establishment of mangroves in Florida. Pp. 82-100 in R. R. Lewis (ed.) Proceedings of the Second Annual Conference on Restoration of Coastal Vegetation in Florida. 203 pp.
- Lewis, R. R. and F. M. Dunstan. 1975. Use of spoil islands in re-establishing mangrove communities in Tampa Bay, Florida. Pp. 766-775 in G. Walsh et al. (eds.) Proceedings of the International Symposium on Biology and Management of Mangroves, Vol. II. Gainesville, Florida.
- Lewis, R. R. 1977. Impacts of dredging in the Tampa Bay estuary, 1876-1976. Pp. 31-55 in E. L. Pruitt (ed.) Proceedings of the Second Annual Conference of the Coastal Society — Time-stressed Environments: Assessments and Future Actions. Coastal Society, Arlington, Virginia.
- Lewis, R. R. and C. S. Lewis. 1977. Tidal marsh creation on dredged material in Tampa Bay, Florida. Pp. 45-47 in R. R. Lewis and D. P. Cole (eds.) Proceedings of the Fourth Annual Conference on Restoration of Coastal Vegetation in Florida. 187 pp.
- Lewis, R. R. and C. S. Lewis. 1978. Colonial bird use and plant succession on dredged material islands in Florida. Volume II. Patterns of Vegetation Succession. Environmental Effects Laboratory, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi. 196 pp.
- Lewis, R. R. 1979. Mangroves and oil spills: the aftermath of the Howard Star oil spill. Fla. Scientist (suppl):26. Abstract.
- Lewis, R. R., C. S. Lewis, W. K. Fehring and J. R. Rodgers. 1979. Coastal habitat mitigation in Tampa Bay, Florida. Pp. 136-140 in W. C. Melander and G. A. Swanson (eds.) Proceedings of the Mitigation Symposium. General technical report RM-63. U.S. Dept. of Agriculture, Ft. Collins, Colorado. 696 pp.
- Lewis, R. R. 1979. Large scale mangrove planting on St. Croix, U.S. Virgin Islands. Pp. 231-242 in D. P. Cole (ed.) Proceedings of the Sixth Annual Conference on Wetlands Restoration and Creation. Hillsborough Community College, Tampa, Florida. 357 pp.
- Lewis, R. R. 1980. Bibliography on impacts of oil spills in mangrove forests. Mangrove Systems, Inc., Tampa, Florida. 4 pp.
- Lewis, R. R. 1980. Oil and mangrove forests: observed impacts 12 months after the Howard Star oil spill. Fla. Scientist 43 (suppl.):23. Abstract.
- Lewis, R. R. and R. C. Phillips. 1980. Occurrence of seeds and seedlings of *Thalassia testudinum* Banks ex König in the Florida Keys. U.S.A. Aq. Botany 9(4):377-380.
- Lewis, R. R. 1981. Economics and feasibility of mangrove restoration. Pp. 88-94 in Proceedings of the Coastal Ecosystems Workshop, U. S. Fish and Wildlife Service. FWS/OBS-80/59.
- Lewis, R. R. and K. C. Haines. 1981. Large scale mangrove planting on St. Croix, U. S. Virgin Islands: Second year. Pp. 137-148 in D. P. Cole (ed.) Proceedings of the Seventh Annual Conference on Restoration and Creation of Wetlands. Hillsborough Community College, Tampa, Florida. 294 pp.
- Lewis, R. R. and R. C. Phillips. 1981. Experimental seagrass mitigation in the Florida Keys. Pp. 155-173 in D. P. Cole (ed.) Proceedings of the Seventh Annual Conference on Restoration and Creation of Wetlands. Hillsborough Community College, Tampa, Florida. 294 pp.

- Courser, W. D. and R. R. Lewis. 1981. The use of marine revegetation for erosion control on the Palm River, Tampa, Florida. Pp. 125-136 in Proceedings of the Seventh Annual Conference on Restoration and Creation of Wetlands. Hillsborough Community College, Tampa, Florida. 294 pp.
- Lewis, R. R., R. C. Phillips and R. Lombardo. 1981. Seagrass mapping project, Hillsborough County, Florida. Fla. Scientist 44(suppl.):25. Abstract.
- Lewis, R. R., editor. 1982. Creation and Restoration of Coastal Plant Communities. CRC Press, Boca Raton, Florida. 219 pp.
- Lewis, R. R. 1982. Low Marshes, Peninsular Florida. Ch. 7, pp. 147-152 in R. R. Lewis (ed.) Creation and Restoration of Coastal Plant Communities. CRC Press, Boca Raton, Florida. 219 pp.
- Lewis, R. R. 1982. Mangrove Forests. Ch. 8, pp. 153-172 in R. R. Lewis (ed.) Creation and Restoration of Coastal Plant Communities. CRC Press, Boca Raton, Florida. 219 pp.
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- E. D. Estevez, S. A. Rice, R. R. Lewis and B. D. Fortune. 1983. Lower Hillsborough River shoreline inventory. Fla. Scientist 46(Suppl.):55 abst.
- Lewis, R. R. 1983. Protection and management of seagrass meadows — is it working? Fla. Scientist 46(Suppl.):15 abst.
- Lewis, R. R., J. M. Carlton and R. Lombardo. 1983. Algal consumption by the manatees (*Trichechus manatus* L.) in Tampa Bay, Florida. Fla. Scientist 47(2):189-191.
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- Palik, T. F. and R. R. Lewis. 1983. Southwestern Florida ecological characterization: an ecological atlas. Map narratives. U.S. Fish and Wildlife Service, Division of Biological Services. FWS/OBS-82/47. 329 pp.
- Phillips, R. C. and R. R. Lewis. 1983. Influence of environmental gradients on variations in leaf widths and transplant success in North American seagrasses. J. Mar. Tech. Soc. 17(2):59-68.
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- Lewis, R. R. and R. L. Whitman. 1985. A new geographic description of the boundaries and subdivisions of Tampa Bay, Florida. Pp. 10-18 in S. F. Treat, J. L. Simon, R. R. Lewis III and R. L. Whitman, Jr. (eds.), Proceedings, Tampa Bay Area Scientific Information Symposium [May 1982]. Burgess Publishing Co., Minneapolis. 663 pp.
- Hoffman, W. E., M. J. Durako and R. R. Lewis. 1985. Habitat restoration in Tampa Bay. Pp. 636-657 in S. F. Treat, J. L. Simon, R. R. Lewis III and R. L. Whitman, Jr. (eds.), Proceedings, Tampa Bay Area Scientific Information Symposium [May 1982]. Burgess Publishing Co., Minneapolis. 663 pp.
- Derrenbacker, J. A. and R. R. Lewis. 1985. Live bottom communities of Tampa Bay, Florida. Pp. 385-392 in S. F. Treat, J. L. Simon, R. R. Lewis III and R. L. Whitman, Jr. (eds.), Proceedings, Tampa Bay Area Scientific Information Symposium [May 1982]. Burgess Publishing Co., Minneapolis. 663 pp.
- Lombardo, R. and R. R. Lewis. 1985. Commercial fisheries data: Tampa Bay, Florida. Pp. 614-634 in S. F. Treat, J. L. Simon, R. R. Lewis III and R. L. Whitman, Jr. (eds.), Proceedings, Tampa Bay Area Scientific Information Symposium [May 1982]. Burgess Publishing Co., Minneapolis. 663 pp.
- Treat, S. F., J. L. Simon, R. R. Lewis and R. L. Whitman, Jr., editors. 1985. Proceedings, Tampa Bay Area Scientific Information Symposium [May 1982]. Burgess Publishing Co., Minneapolis. 663 pp.
- Lewis, R. R., R. G. Gilmore, Jr., D. W. Crews and W. E. Odum. 1985. Mangrove habitat and fishery resources of Florida. Pp. 281-336 in W. Seaman, Jr. (ed.), Florida Aquatic Habitat and Fishery Resources. Florida Chapter, American Fisheries Society, Kissimmee, Florida. 543 pp.

- Lewis, R. R. 1986. Marine wetland loss in Tampa Bay and management/restoration recommendations. Pp. 159-174 in E. D. Estevez, J. Miller, J. Morris and R. Hamman (eds.), *Proceedings of the Conference: Managing Cumulative Effects in Florida Wetlands*. Sarasota, Florida. 326 pp. + app.
- Lewis, R. R. 1987. The restoration and creation of seagrass meadows in the southeastern United States. Pages 153-173 in M. J. Durako, R. C. Phillips and R. R. Lewis (eds.), *Proceedings of the Symposium on Subtropical Seagrasses of the Southeastern United States*. Fla. Dept. of Natural Resources Mar. Res. Pub. No. 42. St. Petersburg, Florida.
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