

CURRICULUM VITAE

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www.marine.unh.edu/facShort.htm
www.marine.unh.edu/jel/faculty/fred2/fredshort.htm
www.unh.edu/natural-resources/fac-freds.html

www.Seagrass.unh.edu
www.SeagrassNet.org

Professional Objective To understand, preserve and restore coastal, estuarine and oceanic ecosystems

Current Interests

Global seagrass monitoring
Restoration and mitigation of coastal and estuarine areas
Estuarine and marine seagrass habitat ecology
Seagrass decline worldwide
Modelling estuarine habitat change

Education

Ph.D. Oceanography; University of Alaska,
Institute of Marine Science, 1981

M.S., Biological Oceanography; University of Rhode Island
Graduate School of Oceanography, 1976

B.A., Mathematics; Plymouth State College of University of
New Hampshire, 1972

Professional Experience

1999 - present	Research Professor of Natural Resources and Marine Science, Jackson Estuarine Laboratory University of New Hampshire, Durham, New Hampshire
1993 - 1999 Hampshire	Research Associate Professor University of New
1989 - 1993	Research Assistant Professor University of New Hampshire
1983 - 1989 Hampshire	Research Scientist (II and III) University of New

1981 - 1983	Postdoctoral Fellowship with Dr. John H. Ryther Harbor Branch Institution , Ft. Pierce, Florida
1975 - 1981	Research Assistant Institute of Marine Science University of Alaska Fairbanks, Alaska
1972 - 1975	Research Assistant Graduate School of Oceanography University of Rhode Island, Kingston, Rhode Island

Professional Associations

World Seagrass Association (Vice-President)
 New England Estuarine Research Society (President 1996-98)
 Estuarine Research Federation
 The American Society of Limnology and Oceanography

Major Funding History

NOAA, NATIONAL ESTUARINE RESEARCH RESERVE PROGRAM. "Decline of Eelgrass in Estuarine Research Reserves Along the East Coast, USA: Problems of Pollution and Disease." \$216,000 (Project Director) April 1, 1987 to April 1, 1990.

NOAA, NATIONAL ESTUARINE RESEARCH RESERVE PROGRAM. "Developing Guidelines for the Management of Eelgrass Populations Within Estuarine Research Reserves." \$63,700. (Project Director) April 1, 1990 to March 31, 1991.

NOAA, COASTAL OCEAN PROGRAM. "Factors and Processes Controlling Eelgrass Habitat Persistence and Loss." \$465,000. (Project Director) June 1, 1990 to June 1, 1993.

NH DEPARTMENT OF TRANSPORTATION. "Mitigation for the Port of New Hampshire Expansion." \$1,800,000. (Project Director) May 1, 1993 to September 1, 1996.

NOAA, COASTAL OCEAN PROGRAM. "Modelling Eelgrass Habitat Change to Link Ecosystem Processes with Remote Sensing." \$300,000 (Project Director). October 1993 to May 1997.

NOAA, NATIONAL ESTUARINE RESEARCH RESERVE PROGRAM. "Developing Success Criteria for Eelgrass Restoration." \$99,992. (Project Director) May 1, 1995 to May 1, 1998.

NOAA/COOPERATIVE INSTITUTE FOR COASTAL AND ESTUARINE ENVIRONMENTAL TECHNOLOGY. "Eelgrass as an Indicator of Nutrient Over-enrichment in Estuaries." \$450,000. (Project Director) September 1, 1997 to August 31, 2000.

NOAA/COOPERATIVE INSTITUTE FOR COASTAL AND ESTUARINE ENVIRONMENTAL TECHNOLOGY. "Spatial Modeling of Eelgrass Habitat in the Great Bay Estuary." \$186,000 (Project Director) August 1, 1998 to July 31, 2001.

NOAA RESTORATION CENTER. "Eelgrass Restoration in New Bedford, Massachusetts.

\$400,000. (Project Director) February 1, 1998 to May 31, 2002.

NOAA RESTORATION CENTER. "Development of a Manual for Community-Based Restoration of Eelgrass Habitat." (Project Director) \$55,000 August 1, 2000 to January 31, 2002.

DAVID AND LUCILE PACKARD FOUNDATION. "Western Pacific Pilot Seagrass Monitoring Program." \$502,835 (Project Director) December 21, 2000 to February 28, 2003.

NEW HAMPSHIRE PORT AUTHORITY. "Annual Port Mitigation Monitoring." \$124,199. (Project Director) July 1 2001 to June 30 2003.

NOAA/COOPERATIVE INSTITUTE FOR COASTAL AND ESTUARINE ENVIRONMENTAL TECHNOLOGY. "Interactive GIS-based, Site Selection Model for Eelgrass Restoration on CD-ROM." \$212,819 (Project Director) Sept 1, 2002 to Sept 1, 2004.

DAVID AND LUCILE PACKARD FOUNDATION. "SeagrassNet in the Western Pacific" \$380,000 (Project Director) July 1, 2003 to June 30, 2005 .

OAK FOUNDATION. "SeagrassNet: Belize Seagrass Monitoring Program." \$160,000 (Project Director) July 1, 2003 to June 30, 2005.

NOAA-NOS, INTERNATIONAL PROGRAMS. "SeagrassNet in Ha Long Bay, Viet Nam" \$30,000 (Project Director) June 1, 2003 to January 31, 2005

Recent Presentations

Seagrass Monitoring Workshop, January 2002, Puerto Galera, Philippines

Small Island and Coastal World Heritage Sites, February 2002, Hanoi, Vietnam

Coastal Habitats at Risk Workshop, March 2002, United Nations University, Tokyo, Japan

Pulse Amplitude Modulated Fluorometry Workshop, April 2002, Long Key, Florida

SeagrassNet Workshop, April 2002, University of Rio de Janeiro, Brazil

SeagrassNet Monitoring Workshop, July 2002, Komodo, Indonesia

The 5th International Seagrass Biology Workshop, October 2002, Ensenada, Mexico

US-EPA (Region I) Eelgrass Summit, January 2003, Boston, Massachusetts

Seagrass Restoration Workshop, March 2003, Sarasota, Florida

International Conference on the Environmental Future, March 2003, Zurich, Switzerland

Restore America's Estuaries Restoration Conference, April 2003, Baltimore, Maryland

SeagrassNet Monitoring Workshop, July 2003, Hai Phong, Viet Nam

Global Seagrass Monitoring, February 2004, World Wildlife Fund South Pacific Prog., Suva, Fiji

Global Seagrass Monitoring Overview, April 2004, Northern Fisheries, QDPI, Cairns, Australia

SeagrassNet Monitoring Workshop, April 2004, Kosrae, Federated States of Micronesia

Global SeagrassNet Monitoring, April 2004, Palau International Coral Reef Center, Koror, Palau

Improving Eelgrass Restoration Success, Univ. of Western Australia, May 2004, Perth, Australia

Courses Taught

Wetlands Restoration and Mitigation, WaRM 718/818, Department of Natural Resources; have taught alternate fall semesters since 1993.

Sustainability Analysis: Focus on Purchasing, EC 690, Department of Natural Resources; taught spring semester of 1997 and 1998.

Outreach and Service Activity

- Advise NH Department of Transportation on eelgrass ecology, restoration, and mitigation.

- Advise NH Department of Environmental Services on eelgrass dredging

- Advise US Army Corps of Engineers on eelgrass issues

- Advise National Marine Fisheries Service on eelgrass ecology and restoration

- Advise US EPA on eelgrass ecology and restoration

- Attend the New England Estuarine Research Society (NEERS) meetings

- New England Fisheries Management Council, Advisor to the Habitat Committee

- Reviewed manuscripts for the following journals: Aquatic Botany, Ecology, Restoration

Ecology, Marine

Environmental Conservation, Marine Pollution Bulletin, and Australian Journal of Marine

Science

- Reviewed grant proposals for the National Science Foundation, Sea Grant, National Estuarine Research Reserve Program, and the US EPA

- Member, New Hampshire Dredge Task Force

- Member, working group to identify potential Small Island and Coastal World Heritage Sites

- Member, Coastal Habitats at Risk working group

Peer Reviewed Publications

(1) Short, F.T. 1980. A simulation model of the seagrass production system. In R.C. Phillips and C.P. McRoy (eds.) Handbook of Seagrass Biology: An Ecosystem Perspective. Garland

STPM Press, NY pp. 275-295.

- (2) Glime, J.M., S.E. Trynoski, and F.T. Short. 1981. Bryophyte diversity: case studies using the Billouin Index to describe epiphytes and an alkaline marsh. *J. Hattori Bot. Lab.* 50:179-190.
- (3) Short, F.T. 1983. Response of the interstitial ammonium in eelgrass (*Zostera marina* L.) beds to environmental perturbations. *Journal of Experimental Marine Biology and Ecology* 68:195-208.
- (4) Short, F.T. 1983. The seagrass, *Zostera marina* L.: Plant morphology and bed structure in relation to sediment ammonium in Izembek Lagoon, Alaska. *Aquatic Botany* 16:149-161.
- (5) Short, F.T. and M.L. Cambridge. 1984. Male flowers of *Halophila engelmanni*: Description and flowering ecology. *Aquatic Botany* 18:413-416.
- (6) Short, F.T. and C.P. McRoy. 1984. Nitrogen uptake by leaves and roots of the seagrass *Zostera marina* L. *Botanica Marina* 27:547-555.
- (7) Short, F.T. and C.A. Short. 1984. The seagrass filter: purification of coastal water. In V.S. Kennedy (ed.) *The Estuary as a Filter*. Academic Press. pp. 395-413.
- (8) Short, F.T. 1985. A method for the culture of tropical seagrasses. *Aquatic Botany* 22: 187-194.
- (9) Short, F.T., M.W. Davis, R.A. Gibson and C.F. Zimmermann. 1985. Evidence for phosphorus limitation in carbonate sediments of the seagrass *Syringodium filiforme*. *Estuarine, Coastal and Shelf Science*. 20, 419-430.
- (10) Braselton, J.P. and F.T. Short. 1985. Karyotypic analysis of *Plasmodiophora diplantherae* on the seagrass *Halodule wrightii*. *Mycologia*. 77:940-945.
- (11) Donard, O.F.X., W.F. Guerin, F.T. Short, S. Raspomanikis and J.H. Weber. 1985. Alkyltin in the Great Bay estuarine ecosystem (New Hampshire). *Proceedings Inter. Conf. Heavy Metals in the Environment*, Athens, Greece. September 1985.
- (12) Short, F.T. 1986. Ecology of Bahamian Seagrasses. In Smith (ed.) *Botany of the Bahamas*, CCFL Bahamian Field Station Publication, San Salvador, Bahamas, pp. 1-18.
- (13) Short, F.T., A.C. Mathieson and J.I. Nelson. 1986. Recurrence of the eelgrass wasting disease at the border of New Hampshire and Maine, USA. *Marine Ecology Progress Series* 29:89-92.
- (14) Howard, R. and F.T. Short. 1986. Seagrass epiphyte removal by grazing epifauna: effects on growth, morphology and survivorship of seagrass in culture. *Aquatic Botany* 24:287-302.
- (15) Short, F.T. 1987. (Editor) *Environmental Impacts on Seagrass*. Special Issue *Aquatic Botany* Vol. 27, No. 1.
- (16) Short, F.T. 1987. Effects of sediment nutrients on seagrasses: Literature review and

mesocosm experiments. *Aquatic Botany* 27:41-57.

- (17) Donard, O.F.X., F.T. Short and J.H. Weber. 1987. Regulation of tin and methyltin compounds by the green alga *Enteromorpha* under simulated estuarine conditions. *Canadian Journal of Fisheries and Aquatic Science* 44:140-145.
- (18) Short, F.T., L.K. Muehlstein and D. Porter. 1987. Eelgrass wasting disease: cause and recurrence of a marine epidemic. *Biological Bulletin* 173:557-562
- (19) Short, F.T., B.W. Ibelings, and C. den Hartog. 1988. Comparison of a current eelgrass disease to the wasting disease of the 1930's. *Aquatic Botany* 30:295-304.
- (20) Muelstein, L.K., D. Porter and F.T. Short. 1988. *Labyrinthula* sp., a marine slime mold producing the symptoms of wasting disease in eelgrass, *Zostera marina*. *Marine Biology* 99:465-472.
- (21) Francois, R., F.T. Short, and J.H. Weber. 1989. Accumulation and persistence of tributyltin in Eelgrass (*Zostera marina* L.) tissue. *Environmental Science and Technology* 23:191-196.
- (22) Short, F.T., J. Wolf, and G.E. Jones. 1989. Sustaining eelgrass to manage a healthy estuary. *Proceedings of Sixth Symposium on Coastal and Ocean Management/ASCE*. July 11-14/Charlestown, SC. pp. 3689-3706.
- (23) Short, F.T., W.C. Dennison and D.G. Capone. 1990. Phosphorus limited growth in the tropical seagrass *Syringodium filiforme* in carbonate sediments. *Marine Ecology Progress Series*, 62:169-174.
- (24) Short, F.T. 1990. Seagrass: Inorganic chemical constituents. In R.C. Phillips and C.P. McRoy (eds.) *Seagrass Research Methods*. UNESCO Press, Paris, France.
- (25) Buchsbaum, R.N., F.T. Short, and D.P. Cheney. 1990. Phenolic-nitrogen interactions in eelgrass, *Zostera marina* L.: possible implications for disease resistance. *Aquatic Botany*, 37:291-297.
- (26) Muehlstein, L.K., D. Porter, and F.T. Short. 1991. *Labyrinthula zosterae* sp. Nov., the causative agent of wasting disease of eelgrass, *Zostera marina*. *Mycologia*, 83(2):180-191.
- (27) Short, F.T., G.E. Jones, and D.M. Burdick. 1991. Seagrass Decline: Problems and Solutions. *Proceedings of Seventh Symposium on Coastal and Ocean Management/ASCE*. Long Beach, CA.
- (28) Newell, C.R., H. Hidu, B.J. McAlice, G. Podniesinski, F. Short and L. Kindblom. 1991. Recruitment and commercial seed procurement of the blue mussel *Mytilus edulis* in Maine. *Journal of the World Aquaculture Society*. 22:134-152.
- (29) Burdick, D.M., F.T. Short and J. Wolf. 1993. An index to assess and monitor the progression of the wasting disease in eelgrass, *Zostera marina*. *Marine Ecology Progress Series*, 94:83-90.

- (30) Short, F.T., J. Montgomery, C.F. Zimmermann, and C.A. Short. 1993. Seasonal seagrass abundance and nutrient dynamics of a *Syringodium filiforme* Kutz. bed in the Indian River Lagoon, Fl, USA., *Estuaries*, 16:323-334.
- (31) Short, F.T., D. Porter, H. Iizumi and K. Aioi. 1993. Occurrence of the eelgrass pathogen, *Labyrinthula zostera*, in Japan. *Disease of Aquatic Organisms*, 16:73-77.
- (32) Macloed, R., R. Congalton, and F. Short. 1995. Using quantitative accuracy assessment techniques to compare various change detection algorithms for monitoring eelgrass distributions in Great Bay, NH generated from Landsat TM data. *Proceedings of the Sixty-First Annual Meeting of the American Society of Photogrammetry and Remote Sensing*, Charlotte, North Carolina. Volume 3. pp. 876-885.
- (33) Short, F.T., D.M. Burdick and J.E. Kaldy. 1995. Mesocosm experiments quantify the effects of eutrophication on eelgrass, *Zostera marina* L., *Limnology and Oceanography* 40:740-749
- (34) Short, F.T., Burdick, D.M., Granger, S. & Nixon, S.W. 1996. Long-term decline in eelgrass, *Zostera marina* L., linked to increased housing development. In: *Seagrass Biology: Proceedings of an International Workshop, Rottnest Island, Western Australia, 25-29 January 1996*. ed. J. Kuo, R.C. Phillips, D.I. Walker, & H. Kirkman. pp. 291-98. Nedlands, Western Australia: Sciences UWA.
- (35) Short, F.T. and D. M. Burdick. 1996. Quantifying eelgrass habitat loss in relation to housing development and nitrogen loading in Waquoit Bay, Massachusetts. *Estuaries* 19:730-739.
- (36) Short, F.T. and S. Wyllie-Echeverria. 1996. Natural and human-induced disturbance of seagrasses. *Environmental Conservation* 23(1): 17-27.
- (37) Grizzle, R.E., F.T. Short, H. Hoven, L. Kindbloom and C.R. Newell. 1996. Hydrodynamically induced synchronous waving of seagrasses: "monami" and its possible effects on larval mussel settlement. *Journal of Experimental Marine Biology and Ecology* 206: 165-177.
- (38) Burdick, D. M., M. Dionne, R.M. Boumans and F.T. Short. 1997. Ecological responses to tidal restoration of two northern New England salt marshes. *Wetlands Ecology and Management* 4:129-144.
- (39) Davis, R. and F.T. Short. 1997. Restoring eelgrass, *Zostera marina* L., habitat using a new transplanting technique: the horizontal rhizome method. *Aquatic Botany* 59:1-15.
- (40) Davis, R, F.T. Short, and D. M. Burdick. 1998. Quantifying the effects of green crab damage to eelgrass transplants, *Restoration Ecology* 6:297-302.
- (41) Burdick, D.M. and F.T. Short. 1999. The effects of boat docks on eelgrass beds in coastal waters of Massachusetts. *Environmental Management* 23:231-240.

- (42) Short, F.T. and H. Neckles. 1999. The effects of global climate change on seagrasses. *Aquatic Botany*, 63:169-196.
- (43) Hoven, H.M., H.E. Gaudette, and F.T. Short. 1999. Isotope ratios of $^{206}\text{Pb}/^{207}\text{Pb}$ in eelgrass, *Zostera marina* L., indicate sources of Pb in an estuary. *Marine Environmental Research*, 48:377-387.
- (44) Dionne, M., F.T. Short and D.M. Burdick. 1999. Fish utilization of restored, created and reference salt marsh habitat in the Gulf of Maine. *Journal of the American Fisheries Society*. 22:384-404.
- (45) Short, F.T., D.M. Burdick, C.A. Short, R.C. Davis and P.A. Morgan. 2000. Developing success criteria for restored eelgrass, salt marsh and mud flat habitats. *Ecological Engineering* 15: 239-252.
- (46) Short, F.T. and C.A. Short. 2000. Identifying seagrass growth forms for leaf and rhizome marking applications. *Biol. Mar. Medit.* 7(2): 131-134.
- (47) Short, F.T. and S. Wyllie-Echeverria. 2000. Global seagrass declines and effect of climate change. pp. 10-11. In: C.R.C. Sheppard (ed.) *Seas at the Millennium: An Environmental Evaluation*. Vol. III: Global Issues and Processes. Pergamon, Elsevier. Amsterdam.
- (48) Roman, C.T. N.Jaworski, F.T. Short, S. Findlay, and R.S. Warren. 2000. Estuaries of the Northeastern United States: Habitat and Land Use Signatures. *Estuaries* 23: 743-764.
- (49) Short, F.T., K. Matso, H. Hoven, J. Whitten, D.M. Burdick and C.A. Short. 2001. Lobster use of eelgrass habitat in the Piscataqua River on the New Hampshire/Maine Border, USA. *Estuaries* 24: 277-284.
- (50) Short, F.T., R.G. Coles, and C. Pergent-Martini. 2001. Global seagrass distribution. pp. 5-30. In: Short, F.T. and R.G. Coles (eds.) *Global Seagrass Research Methods*. Elsevier Science B.V., Amsterdam.
- (51) Short, F.T. and C.M. Duarte. 2001. Methods for the measurement of seagrass growth and production. pp. 155-182. In: Short, F.T. and R.G. Coles (eds.) *Global Seagrass Research Methods*. Elsevier Science B.V., Amsterdam.
- (52) Short, F.T., R.C. Davis, B.S. Kopp, C.A. Short and D.M. Burdick. 2002. Site selection model for optimal restoration of eelgrass, *Zostera marina* L. *Marine Ecology Progress Series* 227: 253-267.
- (53) Morgan, P.A. and F.T. Short. 2002. Using functional trajectories to track constructed salt marsh development in the Great Bay Estuary, ME/NH, USA. *Restoration Ecology* 10: 461-473
- (54) Ralph, P.J. and F.T. Short. 2002. Impact of the wasting disease pathogen, *Labyrinthula zosterae*, on the photobiology of eelgrass, *Zostera marina*. *Marine Ecology Progress Series*. 228: 265-271.

- (55) Short, F.T., B. S. Kopp, J. Gaeckle and H. Tamaki. 2002. Seagrass ecology and estuarine mitigation: a low-cost method for eelgrass restoration. *Japan Fisheries Science* 68:1759-1762.
- (56) Johnston, R.K., W.R. Munns, Jr., P.L. Tyler, P. Marajh-Whittemore, K. Finkelstein, K. Munney, F.T. Short, A. Melville and S.P. Hahn. 2002. Weighing the evidence of ecological risk from chemical contamination in the estuarine environment adjacent to the Portsmouth Naval Shipyard, Kittery, Maine, USA. *Environmental Toxicology and Chemistry* 21: 182-194.
- (57) Gaeckle, J. and F.T. Short. 2003. A plastochrone-based method for measuring leaf growth in eelgrass, *Zostera marina* L., *Bulletin of Marine Science* 71(3): 1237–1246.
- (58) Spalding, M., M. Taylor, C. Ravilious, F. Short and E. Green. 2003. Global overview: the distribution and status of seagrasses. pp. 5-26. In: Green, E.P. and Short, F.T. (eds.). *World Atlas of Seagrasses: Present Status and Future Conservation*. University of California Press, Berkeley, USA.
- (59) Short, F.T. and C.A. Short. 2003. Seagrasses of the western North Atlantic. pp. 225-233. In: Green, E.P. and Short, F.T. (eds.). *World Atlas of Seagrasses: Present Status and Future Conservation*. University of California Press, Berkeley, USA.
- (60) Coles, R., L. McKenzie, S. Campbell, M. Fortes, F. Short. 2003. The seagrasses of the western Pacific islands. pp. 177-186. In: Green, E.P. and Short, F.T. (eds.). *World Atlas of Seagrasses*. University of California Press, Berkeley, USA.
- (61) Behm, P.M., R.M.J. Boumans and F.T. Short. 2003. Spatial Modeling of Eelgrass Distribution in Great Bay, New Hampshire. In: R. Costanza and A. Voinov (eds.) *Spatially Explicit Landscape Simulation Modeling*. Springer-Verlag.
- (62) Lee, K.S., F.T. Short, D.M. Burdick. 2004. Development of a nutrient pollution indicator using the seagrass, *Zostera marina*, along nutrient gradients in three New England estuaries. *Aquatic Botany*, 78: 197–216.
- (63) Short, F.T., R. Davis, B.S. Kopp, J.L. Gaeckle and D.M. Burdick. In press. Using TERFS and Site Selection for Improved Eelgrass Restoration Success. Florida Workshop Publication
- (64) Duarte, C.M., J. Borum, F. T. Short and D. I. Walker. In press. Seagrass Ecosystems: Their Global Status and Prospects. ICEF Symposium Volume.
- (65) Lee, K.S., F.T. Short, D.M. Burdick. In review. Seasonal changes in plant morphology and leaf tissue nutrient constituents of eelgrass, *Zostera marina* L., for use in a nutrient pollution indicator. *Mar. Ecol. Prog. Ser.*
- (66) Moore, K.A. and F.T. Short. In review. Comparative Biology of *Zostera*. In R. Orth, C. Duarte and T. Larkin. *Treatise on Seagrass*.

- (67) Peck, N.T. and F.T. Short. In review. Functional trajectory models for assessment of transplant development of seagrass, *Zostera marina* L., beds in the Great Bay Estuary, NH, USA. Mar. Ecol. Prog. Ser.
- (68) Lee, K.S., F.T. Short, D.M. Burdick. In prep. Morphological and tissue content responses of eelgrass *Zostera marina* to water column nitrogen enrichment: Mesocosm and deployment experiments. Mar. Ecol. Prog. Ser.

Books Published

- Short, F.T. 1992. (ed.) The Ecology of the Great Bay Estuary, New Hampshire and Maine: An Estuarine Profile and Bibliography. NOAA - Coastal Ocean Program Publ. 222 pp.
- Short, F.T. and R.G. Coles (eds.) 2001. Global Seagrass Research Methods. Elsevier Science B.V., Amsterdam. 473pp.
- Short, F.T., L.J. McKenzie, R.G. Coles, and K.P. Vidler. 2002. SeagrassNet Manual for Scientific Monitoring of Seagrass Habitat. Queensland Department of Primary Industries, QFS, Cairns, Australia. 56pp.
- Green, E.P. and Short, F.T. (eds.). 2003. World Atlas of Seagrasses. University of California Press, Berkeley, USA. 324pp.

Reports and Other Publications

- Short, F.T., S.W. Nixon, and C.A. Oviatt. 1974. Field studies and simulation with a fine grid hydrodynamic model - seagrass and circulation in Charlestown Pond. In An Environmental Study of a Nuclear Power Plant at Charlestown, R.I., University of Rhode Island 33, VI-B, pp. 1-27.
- Short, F.T. 1981. Nitrogen resource analysis and modelling of an eelgrass (*Zostera marina* L.) meadow in Izembek Lagoon, Alaska. Ph.D. dissertation. University of Alaska. Available in University Microfilms.
- Short, F.T., D.M. Burdick, J. Wolf and G.E. Jones. 1993. Eelgrass in Estuarine Research Reserves Along the East Coast, U.S.A., Part I: Declines from Pollution and Disease and Part II: Management of Eelgrass Meadows. NOAA - Coastal Ocean Program Publ. 107 pp.
- Bosworth, W. and F. T. Short. 1993. Mitigation Plan for the New Hampshire Commercial Marine Terminal Development Project in Portsmouth, New Hampshire. Balsam Environmental Consultants, Inc., Jackson Estuarine Laboratory and Great Meadow Farms Rpt. to US Army Corps of Engineers, New England Division, Waltham, MA. 98 pp.
- Johnston, R.K., W.R. Munns, Jr., F.T. Short and S. Hahn. 1994. The use of ecological risk assessment data to establish surface water and sediment media protection standards for the Portsmouth Naval Shipyard Kittery, Maine USA. Proc. of the Environmental Restoration

Opportunities Conference, 25-27 October, Munich.

Johnston, R.K., W.R. Munns, Jr., F.T. Short and H.A. Walker (eds.). 1994. An Estuarine Ecological Risk Assessment Case Study for Portsmouth Naval Shipyard, Kittery, Maine. Naval Command, Control and Ocean Surveillance Center and U.S. Environmental Protection Agency, Environmental Research Laboratory Narragansett.

Short, F.T., H. Hoven, J. Whitten, B. Johnston, R.E. Grizzle, L.G. Ward and D.M. Burdick. 1994. Lobster use of eelgrass habitat in the Piscataqua River on the New Hampshire/Maine Border. 10 pp. In: F.T. Short and L.G. Ward (eds.), Collection and Analysis of Ecological Data from the Great Bay Estuary. Report to the US Navy.

Short, F.T. 1994. Proposed plan for long term monitoring of contaminant levels in the estuary near the Portsmouth Naval Shipyard. 33 pp. In: F.T. Short and L.G. Ward (eds.), Collection and Analysis of Ecological Data from the Great Bay Estuary. Report to the US Navy.

Short, F.T. 1994. Status of blue mussels in Portsmouth Harbor and the Great Bay Estuary: their use in assessment of contaminant levels in the Estuary near the Portsmouth Naval Shipyard. 25 pp. In: F.T. Short and L.G. Ward (eds.), Collection and Analysis of Ecological Data from the Great Bay Estuary. Report to the US Navy.

Short, F.T. 1994. Status of eelgrass in Portsmouth Harbor and its use in assessing heavy metal contaminants in the estuary near the Portsmouth Naval Shipyard. 37 pp. In: F.T. Short and L.G. Ward (eds.), Collection and Analysis of Ecological Data from the Great Bay Estuary. Report to the US Navy.

Short, F.T. and D.M. Burdick. 1995. The effects of boat docks on eelgrass beds in Massachusetts coastal waters. Final Report to Waquoit Bay National Estuarine Research Reserve and Massachusetts Coastal Zone Management.

Short, F.T., R.G. Congalton, D.M. Burdick, and R.M. Boumans. 1997. Modelling eelgrass habitat change to link ecosystem processes with remote sensing. Final Report to NOAA Coastal Ocean Program and NOAA Coastal Change Analysis Program.

Short, C.A. and F.T. Short. 1997. The port that supports. Conservation Matters, Journal of the Conservation Law Foundation.

Short, F.T., L. Ward, R. Langan, B. Celikkol, and J. Scott. 1998. Piscataqua River open cut impact analysis: joint pipeline project. Maritimes and Northeast and PNGTS. Final Report to Earth Tech, Inc.

Short, F.T., C.A. Short, D.M. Burdick, R.C. Davis. 1998. Restoration of seagrass habitat functions and values: transplanting, monitoring, and success evaluation. First Joint Meeting of the Coastal Environmental Science and Technology (CEST) Panel of UJNR. 17-20 March 1998. Hayama, Japan pp.19.1-19.9.

Short, F.T., Burdick, D.M., Bosworth, W., Grizzle, R.E., Davis, R.C. 1998. New Hampshire Port Authority Mitigation Project Progress Report, June 1998 Prepared for the New Hampshire

Port Authority and the New Hampshire Dept. of Transportation, 59 p.

Short, F.T. and R.C. Davis. 1999. Critical factors in eelgrass habitat restoration: a site selection model. Second Joint Meeting of the Coastal Environmental Science and Technology (CEST) Panel of UJNR. October 1999. Charleston, SC pp. 154-174.

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