

Richard Scott Appeldoorn

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EDUCATION:

Institution	Degree	Year
Graduate School of Oceanography, University of Rhode Island	Ph.D., (Biological) Oceanography	1980
Cook College, Rutgers University	B.S., Environmental Science	1974

PRESENT RESEARCH ACTIVITIES:

Reef fish movement, habitat utilization
Design criteria for marine protected areas
Population and fishery dynamics of queen conch
Analysis of reef fisheries, grouper spawning aggregations
Ecology of mesophotic coral ecosystems

EMPLOYMENT:

2004- Executive Director, Caribbean Coral Reef Institute, University of Puerto Rico, Mayaguez.
1990- Professor (Fisheries Biology). Department of Marine Sciences, University of Puerto Rico, Mayaguez.
1985-1990 Associate Professor. Department of Marine Sciences, University of Puerto Rico, Mayaguez.
1981-1985 Assistant Professor. Department of Marine Sciences, University of Puerto Rico, Mayaguez.
1981 Marine Research Associate. Graduate School of Oceanography, University of Rhode Island.
1980 Instructor (General Oceanography). Graduate School of Oceanography, University of Rhode Island.
1975-1980 Graduate Research Assistant. Graduate School of Oceanography, University of Rhode Island
1974 Summer Research Assistant. New Jersey Oyster Research Laboratory (Cape Shore Laboratory), Rutgers University.
1973 Summer Research Assistant. New Jersey Oyster Research Laboratory (Bivalve Laboratory), Rutgers University.

HONORS RECEIVED:

Rutgers University - *Magnum Cum Laude* (1974)
Sigma Xi - Full Member (1988)
University of Puerto Rico - Scholarly Productivity Award (1988-1991, 2001*)
University of Puerto Rico, Mayaguez - Merit Pay Award (1994-1995*)
All years of eligibility
University of Puerto Rico – Productivity Award (2000)
Caribbean Fishery Management Council - Career Service (2000)
Gulf and Caribbean Fisheries Institute – Career Service (2010)
Profiled in International Innovation (2013)
US Coral Reef Task Force (2015)

GRADUATE STUDENTS SUPERVISED:

Major Professor - Ph.D. 18; Masters 22

COURSES TAUGHT:

General Oceanography: introduction to general oceanographic processes integrating the four basic disciplines of biology, geology, physics and chemistry.
Fishery Biology: basics of population dynamics including determination and modeling of growth, mortality, stock and recruitment, abundance and yield.
Advanced Fishery Biology: methods applicable to tropical fisheries with emphasis on length-structured models and multispecies assessments.
Biological Oceanography: introduction to marine organisms and biological processes.
Length-frequency Analysis: theory & practical application of LFA to problems in fisheries stock assessment.
Critical Analysis: Dissection of current literature, reviewing objectives, results and interpretations
Marine Reserves and Fisheries: Importance of MRs in fisheries management & production; MR design principles

Analysis of Spatial Data in Marine Ecology: Use of GIS to analyze geospatial data to address ecological questions
Use of Bayesian Statistics in Fisheries: Introduction to the use of Bayesian statistics
Fisheries Conservation and Management

PROFESSIONAL SOCIETIES:

GCFI, Gulf and Caribbean Fisheries Institute

PROPOSALS REVIEWED FOR:

Sea Grant (National, Hawaii, Puerto Rico, Rhode Island)
National Marine Fisheries Service
National Undersea Research Program
National Geographic Society
National Fish and Wildlife Foundation
International Foundation for Science
U.S. - Mexico Foundation

MANUSCRIPTS REVIEWED FOR:

Canadian Journal of Fisheries & Aquatic Sciences
Journal of Experimental Marine Biology and Ecology
Journal of Shellfish Research
Marine Ecology Progress Series
Proceedings of the Gulf and Caribbean Fisheries Institute
Transactions of the American Fisheries Society
Environmental Conservation
PLoS ONE
Environmental Biology of Fishes
Hydrobiology
Animal Conservation
Bulletin of Marine Science
Caribbean Journal of Science
Conservation Biology
Marine Biology
U.S. Fishery Bulletin
Fisheries
Marine Ecology
Ecology and Society
Various proceedings and books

OTHER PROFESSIONAL ACTIVITIES:

Associate Editor, Proc. Gulf Caribb. Fish. Inst., 1989 - 1994
Board of Governors, Gulf & Caribbean Fisheries Institute, 1994 - 2007
P.R. Legislature, Ad Hoc Comm. on Conserv., Mgt. & Admin. of Fisheries in Puerto Rico. 1987-1989
Scientific & Statistics Comm., Caribbean Fishery Management Council, 1985 - present
Queen Conch Task Force, Caribbean Fishery Management Council, 1988 - 1989
Spiny Lobster Stock Assessment & Fishery Evaluation Work Group, Caribbean Fishery Management Council, 1990
Habitat Advisory Panel, Caribbean Fishery Management Council, 1989 - 1995
Reef Resources Work Group, Southeast Area Monitoring & Assess. Prog. (SEAMAP)-Caribbean, 1988 - present
Sea Grant Representative, Southeast Area Monitoring & Assess. Prog. (SEAMAP)-Caribbean, 1995 - present
Co-Organizer, Internatl. Queen Conch Workshop, First Latin Amer. Malacological Congress, Caracas, Ven. 1991
Editor, Queen Conch Newsletter (produced by Univ. Puerto Rico Sea Grant), 1991 - 1997
Associate Scientist, Fundación Científica Los Roques, Caracas, Venezuela, 1994 - present
Organizer, UPR Sea Grant Symposium on Marine Fisheries Reserves as Management Tools, La Parguera, PR, 1995
Scientific Advisor, International Queen Conch Management Program, 1995 - present
Scientific Advisor for queen conch stock assessment: Dominican Republic, Jamaica, Belize, 1994 - present
Organizer, Symposium on Ecological Goals for Marine Fishery Reserve Design, at GCFI, Merida, Mex. 1997.
Co-Organizer, Joint GCFI-IUCN Symposium on Marine Reserves in the Caribbean, St. Croix, USVI 1998.
Taking Action for Coral Reefs, Organizing Board (Fisheries), Mayaguez, PR, Nov. 1999
Chair, Organiz. Comm. - Caribbean MPA's. Special mini-symposium. GCFI, Turks and Caicos, Nov. 2001
Guest Editor - Gulf and Caribbean Research, Vol. 14(2), Caribbean MPA's
Scientific Advisory Group, Western Central Atlantic Fishery Commission, FAO, 2006 - present

GRANTS OBTAINED:

National Science Foundation.
1986 - \$300,000 over 4 yrs from EPSCOR program to study movement and dispersal of fish eggs away from coral reefs (co-PI with D.Y. Shapiro, D.A. Hensley, A. Okubo).
1988 - \$69,263 for laboratory construction and equipment (co-PI with D.L. Ballantine).
1990 - \$30,000 for 1-year extension from EPSCOR program to study movement and dispersal of fish eggs away from coral reefs (with D.Y. Shapiro, D.A. Hensley).
1990 - \$28,000 to study effects of wind stress on current flow with respect to the dispersal of fish eggs away from coral reefs (B.G. Sanderson, Co-PI).

NOAA National Marine Fisheries Service.

1983 - \$20,000 for queen conch research (with D.L. Ballantine, co-investigator).

1985 - \$35,000 for queen conch research (with D.L. Ballantine, co-investigator).
1989 - \$83,090 for queen conch research (with J. Beets, co-PI)
1997-99 - \$42,000 to study essential fish habitat in tropical reef systems (with J. Rivera, co-PI).
2002-05 - \$45,000 to study the impact of fish traps on coral habitat (Co-PI with P. Sheridan, R. Hill)
2002-05 - \$27,000 to construct a spatially explicit ECOPATH model for marine reserves (Co-PI with R. Hill)
2002-05 - \$22,500 to monitor coral reef recovery from ship groundings on Mona Island (Co-PI with R. Hill)
2015-17 - \$339,195 to monitor grouper spawning aggregations (Co-PI with M. Schärer, R. Hill)

NOAA National Ocean Service

2000-03 - \$115,000 to study EFH and habitat use for coral reef fishes.
2002-09 - \$5,000,000 Coral Reef Ecosystems Studies (with 13 Co-PIs from 7 institutions)
2004-05 - \$959,000 Establish a Caribbean Coral Reef Institute (with D. Ballantine, Co-PI)
2004-06 - \$351,576 Coral reef research in Puerto Rico (with D. Ballantine, Co-PI)
2005-08 - \$1,442,000 Caribbean Coral Reef Institute – Phase 2 (with D. Ballantine, Co-PI)
2006-09 - \$1,500,000 Deep Coral Reef Ecosystem Studies (with 9 Co-PIs)
2006-08 - \$78,600 to study Cellular Diagnostics and Coral Diseases (with C. Downs, C. Rogers, C. Woodly, Co-PI's)
2007-09 - \$305,386 Caribbean Coral Reef Institute – Phase 3 (with D. Ballantine, Co-PI)
2009-10 - \$678,262 Caribbean Coral Reef Institute – Phase 4
2010-11 - \$99,900 Caribbean Coral Reef Institute – Phase 4, Year 2
2010-11 - \$1,014,297 Caribbean Coral Reef Institute – Phase 4, Year 2 Supplement
2011-12 - \$100,000 Caribbean Coral Reef Institute – Phase 4, Year 3
2011-12 - \$152,836 Support of shiptime for mesophotic cruise
2012-13 - \$115,000 Caribbean Coral Reef Institute – Phase 4, Year 4

Earth Watch.

1989 - \$15,000 for study of fish egg dispersion from spawning sites (co-PI with D.Y. Shapiro, D.A. Hensley).

Puerto Rico Sea Grant.

1983 - \$1,200 for exploratory deep-sea shrimp trapping.
1985 - \$3,000 for support of submersible based resource assessment.
1985 - \$15,610; 1986-\$18,000; 1987-\$27,100 to model lumped-species unit stocks.
1987 - \$2,300 to initiate studies on conch stock structure.
1988 - \$10,200 (UPR component) to quantify fish-trap catches (joint UPR-URI project with C.W. Recksiek; URI component - \$40,000).
1989 - \$3,000 to initiate study of gillnet selectivity (with A. Acosta).
1990 - \$16,500 to study effects of net design & fishing method on selectivity (with A. Acosta, Co-PI).
1990 - \$4,000 for a workshop on conch fishery management (with B. Rodriguez).
1994 - \$95,756 (2 years) to study ontogenetic migration of grunts (with C. Recksiek, Co-PI)
1995 - \$60,070 (2 years) Marine Fishery Reserve Initiative (enhancement) (with J. Velez, L. Cotte)
1996 - \$90,266 (2 years) to study ontogenetic migration of grunts (with C. Recksiek, Co-PI)
1998 - \$115,686 (2 years) to study design criteria for marine reserves (with C. Recksiek, Co-PI)
1999 - \$21,750 to study movement of coral reef fishes (with C. Recksiek, H. Oxenford, Co-PIs)
1999 - \$9,000 to conduct habitat mapping in coral reef systems using sidescan sonar (with J. Rivera, Co-PI)
2000 - \$113,316 (2 years) to study design criteria for marine reserves (with C. Recksiek, Co-PI)
2003 - \$3,000 to document reef fish spawning aggregations. (co-PI with J.A. Aguilar-Perera, E. Ojeda).

Puerto Rico Sea Grant - Caribbean Fisheries Management Council - CODREMAR.

1985 - \$9,000 for support and data analysis of submersible project.

Maryland Sea Grant.

1985 - \$4,700 to study the relationship between stress and hermaphroditism in soft-shell clams.

Florida Sea Grant

2012-14 - \$75,000 to assess Lionfish control and impacts (w/ M. Craig, C. Harms)

NOAA Office of Undersea Research.

1985 - 21 days of submersible support for assessing the deepwater resources of Puerto Rico and the Virgin Islands (with W.R. Nelson, NMFS, co-PI).

NOAA International Office

2005 - \$39,000 Increasing training and technique exchange for siting MPAs in remote coral reef environments in the Caribbean. (Co-PI with M. Prada, J.A. Rivera).

Caribbean Fishery Management Council

1992 - \$5,000 to study the effects of mesh size on trap catch in reef fishes.

1993 - \$5,000 to study larval distribution and reproductive potential of queen conch.

1996 - \$25,000 to conduct a survey of recreational fishing for queen conch (M. Valdes-Pizzini, co-PI)

1999 - \$15,000 to assess the potential damage of fish traps on coral reefs.

2012-13 - \$178,266 to assess Nassau grouper spawning aggregation (CoPI with M. Scharer, R. Nemeth)

2013-14 - \$110,000 to assess Nassau grouper spawning aggregation (CoPI with M. Scharer, R. Nemeth)

The Nature Conservancy

2004 - \$8,180 Identification of marine conservation targets in Puerto Rico

National Fish and Wildlife Service

2006 - \$35,000 to set-up community based management in Pearl Lagoon, Nicaragua (with B. Turner, co-PI)

Lenfest Ocean Fund (Pew Charitable Trusts)

2005 - \$31,000 to sponsor symposium and publication: Re-inventing Fishers Management in the US Caribbean.

Puerto Rico Department of Natural and Environmental Resources

1995 - \$29,600 to conduct an underwater survey of the queen conch resource of Puerto Rico.

2001 - \$38,842 to conduct an underwater survey of the queen conch resource of Puerto Rico.

2013 - \$54,050 to conduct an underwater survey of the queen conch resource of Puerto Rico.

2013 - \$10,000 to assess conch morphometrics for size limit enforcement.

2013 - \$67,302 to assess dolphinfish movements and stock structure (with W. Merten, Co-PI)

University of Puerto Rico.

1982-1983 - \$1,000 for preliminary analysis of queen conch shell microstructure.

1984 - \$2,000 to study the energetic ecology of strombid conchs.

1985-1986 - \$1850 to initiate studies on conch stock structure.

1987 - \$1,000 to support analyses of population and fisheries dynamics.

1988 - \$4,000 to support field studies of conch stock structure.

1989 - \$1,350 for identification of strombid larvae.

1991 - \$500 for ageing of strombid larvae.

1993 - \$2,620 for testing the effect of genetic heterozygosity on reproductive output of queen conch.

RESEARCH SEMINARS (Abstracts or proceedings unpublished):

Appeldoorn, R.S., R.S. Brown, C.W. Brown. The dynamics of neoplasia and its effects on the growth and mortality of *Mya arenaria* as determined in a three-month transplant experiment. Soc. Invert. Pathol. August 1978. Athens, Ga.

Brown, R.S., R.S. Appeldoorn, C.W. Brown, S.B. Saila. A bioassay system to determine the course of neoplasia in the soft-shell clam, *Mya arenaria*. American Society for Testing and Materials. October 1979. Chicago, Ill.

Appeldoorn, R.S. Preliminary investigations of the patterns and periodicity of internal shell bands in the ocean quahog, *Arctica islandica*. New England Estuarine Research Society. May 1980. Mystic, Conn.

Chang, P.W., J.J. Oprandy, R.S. Brown G.J. Dawson, R.S. Appeldoorn, V.J. Yates. Viral etiology of a transmissible hematopoietic type of molluscan neoplasm. American Society for Microbiology. May 1980. Miami, Fla.

Appeldoorn, R.S. Changes in the rate of natural mortality over the life history of the queen conch, *Strombus gigas*. Natl. Shellfish. Assoc. June 1985. Norfolk, Va.

- Ray, M., R.S. Appeldoorn. An effective method of dye release for small scale current tracking studies. Assoc. Mar. Lab. Caribb. May 1989. La Parguera, PR.
- Appeldoorn, R.S. Population dynamics, reproductive ecology, and fishery potential of the queen conch, *Strombus gigas*. Amer. Fish. Soc. September 1990. Pittsburgh, Pa.
- Appeldoorn, R.S., C.W. Recksiek. Reproducible estimates of effective area fished by Antillean fish traps in coral reef environments. Amer. Fish. Soc. September 1990. Pittsburgh, Pa.
- Appeldoorn, R.S. J. Posada, F.A. Grana. Distribution of *Strombus* larvae (Mollusca: Mesogastropoda) in the Eastern Caribbean. 1993 Larval Ecology Meetings. August, 1993. Port Jefferson, N.Y.
- Appeldoorn, R.S. Physical oceanographic needs of fisheries management in the Intra-Americas Sea. Chapman Conference on the circulation of the Intra-America Sea. January 1995. La Parguera, PR
- Appeldoorn, R.S., D.A. Hensley, D.Y. Shapiro, S. Kioroglou. Comparative egg dispersal from inshore and shelf-edge sites in a Caribbean coral reef fish, *Thalassoma bifasciatum*. 9th International Coral Reef Symposium. November 2000. Bali, Indonesia
- Appeldoorn, R.S., M. Nemeth, J. Vasslides, M. Scharer. The effect of fish traps on benthic habitats off La Parguera, Puerto Rico. 9th International Coral Reef Symposium. November 2000. Bali, Indonesia
- Pagan, F.E., J.E. Capella, R.S. Appeldoorn. Modeling egg and early larval dispersal in the nearshore waters of southwestern Puerto Rico. 54 Annual Gulf and Caribbean Fisheries Institute, Turks and Caicos, November 2001.
- Appeldoorn, R.S., R. Clark, R. Hill, C. Recksiek, B. Roque. Fish movements and habitat connectivity within coral reef ecosystems: variations in process and function at two spatio-temporal scales. 10th International Coral Reef Symposium, Okinawa, Japan. July 2004.
- Appeldoorn, R.S., B.L.K. Bouwmeester, C.W. Reckseik. Mechanisms of habitat connectivity: factors affecting fish ontogenetic migration from backreef nursery areas. Amer. Soc. Limnol. Oceanogr. Victoria, BC. June 2006.
- Marshak, A., R. Appeldoorn. Seasonal closures of spawning aggregation sites does not guarantee spawning stock recovery: an assessment of red hind MPAs in Puerto Rico. May 19-24, 2009. International Marine Conservation Congress, Washington, DC
- Appeldoorn, R.S. Incorporating ecological function into marine reserve network design in coral reef ecosystems. May 19-24, 2009. International Marine Conservation Congress, Washington, DC
- Scharer, M.T., R. Appeldoorn. EBM towards coral reef conservation by incorporating spawning aggregations of threatened groupers in an MPA. May 19-24, 2009. International Marine Conservation Congress, Washington, DC.

INVITED SEMINARS:

1985. Review of shared demersal resources of Puerto Rico and the Lesser Antilles region. FAO Expert Consultation on Shared Stocks in the Lesser Antilles. Mayaguez, PR.
1991. Application of molluscan life-history studies. Inaugural Keynote Address. First Latin-American Malacological Congress. Caracas, Ven.
1992. The fisheries for queen conch, mangrove oyster and other shelled molluscs of Puerto Rico. Symposium on the Shellfisheries of North America and Europe. Orlando, FL.
1992. Egg dispersal in a Caribbean coral reef fish, *Thalassoma bifasciatum*. II. Dispersal off the reef platform. Symposium on recruitment in coral reef fishes. Perth, Australia.
1994. Spawning patterns in a coral reef fish. The fate of eggs and hypotheses on different spatial and temporal scales. Department of Biology, Universidad Central, Caracas, Ven. and Department of Biology, University of Puerto Rico - Rio Piedras.
1995. Current research in Puerto Rico on Marine Fisheries Reserves. Marine Reserve Workshop, Center for Marine Conservation & Caribbean Marine Research Center. Lee Stocking Island, Bahamas.
1995. Ecological and oceanographic factors affecting the local and geographic distribution of the queen conch, *Strombus gigas*. Intergov. Oceanogr. Comm. UNESCO, Sub-Comm. Caribb. Adj. Reg. Workshop of Fishery Oceanography of Highly Migratory and Straddling Species, Miami, FL.
1995. Processes affecting ontogenetic migration in reef fishes: the role of habitat distribution. Workshop on Marine Fisheries Reserves as Management Tools. La Parguera, PR.
1995. New realities and paradigms in tropical fisheries management. 23rd Pacem in Maribus Conference. Puntarenas, Costa Rica
1996. Marine protected areas and reef fish movements: the role of habitat in controlling ontogenetic migration. 8th Int. Coral Reef Symp. Panama City, Panama.
1996. Status of queen conch fishery in the Caribbean Sea. International Queen Conch Conference. San Juan, PR.
1997. Data collection options for monitoring of management measures, or, how to decide if your conch population is healthy. International Queen Conch Working Group. San Jose, Costa Rica.
1999. Biology of the queen conch and its impact on stock assessment. International Queen Conch Stock Assessment Workshop. Belize City, Belize.
2000. Ontogenetic changes in habitat use in the white grunt: sudden shifts over gradual development. Department of Biology, University of Puerto Rico - Rio Piedras.
2001. Ontogenetic changes in habitat use in the white grunt: sudden shifts over gradual development. Department of Fishery, Animal and Veterinary Science. University of Rhode Island.
2003. Juvenile – Adult Habitat Shifts in Caribbean Coral Reef Ecosystems. Estuarine Research Federation. Seattle, WA. Sept. 15-18, 2003.
2004. Coral Reef Ecosystems Studies – Puerto Rico. NOAA-EPA Caribbean – Atlantic regional workshop on coral reefs and land-based pollution. San Juan, PR. May, 2004
2004. MPAs at Local Scales: Purpose, Process and Effectiveness. White Water to Blue Water (US State Dept.). Miami FL, March 2004
2008. Management beyond quotas: lessons from around the Caribbean. Regional workshop for the Improvement of the Queen Conch Collaborative Management and Enforcement in the Southwest Caribbean. San Andres, Col., July 2008.

2008. Applying an Ecosystem-based Management to Queen Conch (*Strombus gigas*) Fisheries in the Caribbean. Marine Ecosystem-Based Management in the Caribbean. Barbados, Dec. 2008.
2013. Thriving Mesophotic Coral Ecosystems in the U.S. Caribbean: Form, function, and management implications. Invited seminar, NOAA Headquarters, Silver Spring, Md. Feb. 25, 2013
2014. Thriving Mesophotic Coral Ecosystems in the U.S. Caribbean: Form, function, and management implications. Invited seminar. UPRM SACNAS Annual Meeting, April 2014.
2014. Mesophotic coral ecosystems along the insular slope (50-100m) off La Parguera, Puerto Rico: Distribution, characterization, connectivity and management implications. Second International Workshop on Mesophotic Coral Ecosystems. Eilat, Israel, Nov. 2014.
2014. Mesophotic coral ecosystems are susceptible to anthropogenic stress. Second International Workshop on Mesophotic Coral Ecosystems. Eilat, Israel, Nov. 2014. Second International Workshop on Mesophotic Coral Ecosystems. Eilat, Israel, Nov. 2014.

PUBLICATIONS:

Dissertation:

Appeldoorn, R.S. 1980. The growth and life-history strategy of the soft-shell clam, *Mya arenaria* L. Ph.D. Dissertation. University of Rhode Island, Kingston, R.I.

Papers and Reports:

- Appeldoorn, R.S. 1981. Response of soft-shell clam (*Mya arenaria*) growth to onset and abatement of pollution. J. Shellfish Res. 1: 41-49.
- Appeldoorn, R.S. 1983. Variation in the growth rate of *Mya arenaria* and its relationship to the environment as analyzed through principal components analysis and the ω parameter of the von Bertalanffy equation. U.S. Fish. Bull. 81: 75-84.
- Appeldoorn, R.S., D.L. Ballantine. 1983. Field release of cultured queen conchs in Puerto Rico: implications for stock restoration. Proc. Gulf Carib. Fish. Inst. 35: 89-98.
- Ballantine, D.L., R.S. Appeldoorn. 1983. Queen conch culture and future prospects in Puerto Rico. Proc. Gulf Carib. Fish. Inst. 35: 57-63.
- Appeldoorn, R.S. 1984. Sex ratio in the soft-shell clam, *Mya arenaria*. Nautilus 98: 61-63.
- Appeldoorn, R.S. 1984. The effect of size on mortality of small juvenile conchs (*Strombus gigas* Linné and *S. costatus* Gmelin). J. Shellfish Res. 4: 37-43.
- Appeldoorn, R.S., C.W. Brown, R.S. Brown, P.W. Chang, K.R. Cooper, E. Lorda, S.B. Saila, H. Walker, R.E. Wolke. 1984. Field and laboratory studies to define the occurrence of neoplasia in the soft-shell clam, *Mya arenaria*. American Petroleum Institute Publication No. 4345. 201 p. + 6 appendices.
- Appeldoorn, R.S., I.M. Sanders. 1984. Quantification of the density-growth relationship in hatchery-reared juvenile conchs (*Strombus gigas* Linné and *S. costatus* Gmelin). J. Shellfish Res. 4: 63-66.
- Appeldoorn, R.S. 1985. Growth, mortality, and dispersion in juvenile laboratory-reared conchs, *Strombus gigas* and *S. costatus*, released at an offshore site. Bull. Mar. Sci. 37: 785-793.
- Appeldoorn, R.S., K.C. Lindeman. 1985. Multispecies assessment in coral reef fisheries using higher taxonomic categories as unit stocks, with an analysis of an artisanal haemulid fishery. Proc. Fifth Internatl. Coral Reefs Symp. 5: 507-514.
- Appeldoorn, R.S. 1987. Modification of a seasonally oscillating growth function for use with mark-recapture data. J. Cons. Int. Explor. Mer. 43: 194-198.
- Appeldoorn, R.S. 1987. Assessment of mortality in an offshore population of queen conch, *Strombus gigas* L., in southwest Puerto Rico. U.S. Fish. Bull. 85: 797-804.
- Appeldoorn, R.S., G.D. Dennis, O. Monterrosa L. 1987. Review of shared demersal resources of Puerto Rico and the Lesser Antilles region. FAO Fish. Rept. 383: 36-106.
- Appeldoorn, R.S. 1987. Practical considerations in the assessment of queen conch fisheries and population dynamics. Proc. Gulf Carib. Fish. Inst. 38: 314-331.
- Appeldoorn, R.S. 1988. Ontogenetic changes in natural mortality rate of queen conch, *Strombus gigas* (Mollusca: Mesogastropoda). Bull. Mar. Sci. 42: 159-165.
- Shapiro, D.Y., D.A. Hensley, R.S. Appeldoorn. 1988. Pelagic spawning and egg transport in coral-reef fishes: a skeptical overview. Env. Biol. Fish. 22: 3-14.

- Appeldoorn, R.S. 1988. Age determination, growth, mortality, and age of first reproduction in adult queen conch, *Strombus gigas*, off Puerto Rico. *Fish. Res.* 6: 363-378.
- Appeldoorn, R.S. 1988. Fishing pressure and reproductive potential in strombid conchs: Is there a critical stock density for reproduction? *Mem. Soc. Cien. Nat. La Salle.* 48 (Suppl. 3): 275-288.
- Appeldoorn, R.S., D.A. Hensley, D.Y. Shapiro. 1988. The use of various tracers in assessing the fate of pelagic eggs spawned by coral reef fishes. *Proc. 6th Internatl. Coral Reef Symp.* 2: 619-624.
- Appeldoorn, R.S. 1989. Phenotypic life-history strategies as an alternative to *r-K*-type selection, p. 149-158. *In: J.C. Aldrich (ed.). Phenotypic Responses and Individuality in Aquatic Ectotherms.* JAPAGA, Ashford, Ireland.
- Appeldoorn, R.S. 1989. Book Review: Handbook of Culture of Abalone; K. Hahn. *Trans. Am Fish. Soc.* 118: 722-723.
- Appeldoorn, R.S. 1990. Growth of juvenile queen conch, *Strombus gigas* L., off La Parguera, Puerto Rico. *J. Shellfish Res.* 9: 59-62.
- Appeldoorn, R.S. 1991. History and recent status of the Puerto Rican conch fishery. *Proc. Gulf Carib. Fish. Inst.* 40: 267-282.
- Recksiek, C.W., R.S. Appeldoorn, R.G. Turingan. 1991. Studies of fish traps as stock assessment devices on a shallow reef in south-western Puerto Rico. *Fish. Res.* 10: 177-197.
- Acosta, A., R.S. Appeldoorn. 1992. Estimation of growth, mortality and yield per recruit for *Lutjanus synagris* (Linnaeus) in Puerto Rico. *Bull. Mar. Sci.* 50: 282-291.
- Appeldoorn, R.S. 1992. Preliminary calculations of sustainable yield for queen conch (*Strombus gigas*) in Puerto Rico and the U.S. Virgin Islands. *Proc. Gulf Carib. Fish Inst.* 41(A): 95-105.
- Appeldoorn, R., J. Beets, J. Bohnsack, S. Bolden, D. Matos, S. Meyers, A. Rosario, Y. Sadovy and W. Tobias. 1992. Shallow water reef fish stock assessment for the U.S. Caribbean. NOAA Tech. Mem. NMFS/SEFSC/304. 70 p.
- Kimmel, J.J., R.S. Appeldoorn. 1992. A critical review of fisheries and fisheries management policy in Puerto Rico. *Proc. Gulf Carib. Fish. Inst.* 41(B): 349-360.
- Appeldoorn, R.S. 1992. Development of a combined model of growth in weight for juvenile and adult queen conch, *Strombus gigas*, and its application to the population off La Parguera, Puerto Rico. *Proc. Gulf Carib. Fish. Inst.* 42(A): 13-21.
- Appeldoorn, R.S. 1993. Interspecific relationships between growth parameters, with application to haemulid fishes. *Proc. 7th Int. Coral Reef Symp.* 2: 899-904.
- Appeldoorn, R.S., S. Meyers. 1993. Puerto Rico and Hispaniola. *In: Marine fishery resources of the Antilles.* FAO Fish. Tech. Pap. 326: 99-158.
- Hensley, D.A., R.S. Appeldoorn, D.Y. Shapiro, M. Ray, R.G. Turingan. 1994. Egg dispersal in a Caribbean coral reef fish, *Thalassoma bifasciatum*. I. Dispersal over the reef platform. *Bull. Mar. Sci.* 54: 256-270.
- Appeldoorn, R.S., D.A. Hensley, D.Y. Shapiro, S. Kioroglou, B.G. Sanderson. 1994. Egg dispersal in a Caribbean coral reef fish, *Thalassoma bifasciatum*. II. Dispersal off the reef platform. *Bull. Mar. Sci.* 54: 271-280.
- Appeldoorn, R.S., B. Rodríguez (editors). 1994. Queen conch biology, fisheries, and mariculture. Fundación Científica Los Roques, Caracas. 356 p.
- Appeldoorn, R.S. 1994. Spatial variability in the morphology of queen conch and its implications for management regulations. Pp. 145-157. *In: R.S. Appeldoorn, B. Rodríguez Q. (eds.). Queen conch biology, fisheries, and mariculture.* Fundación Científica Los Roques, Caracas.
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