FIFTH INTERNATIONAL CONFERENCE ON MARINE BIOINVASIONS

May 21-24, 2007
Convened at the Massachusetts Institute of Technology,
Cambridge, Massachusetts

AGENDA

Sponsored by the MIT Sea Grant College Program,
the International Council for the Exploration of the Sea (ICES),
the North Pacific Marine Science Organization (PICES),
the National Sea Grant
**SPONSORS:**

International Council for the Exploration of the Sea (ICES)
North Pacific Marine Science Organization (PICES)
National Sea Grant

**STUDENT TRAVEL FUNDING PROVIDED BY:**

Biosecurity New Zealand
Woods Hole Oceanographic Marine Policy Program

**CONFERENCE CHAIR, CONVENERS, STEERING COMMITTEE AND ADVISORS:**

**Chair:**

Judith Pederson, MIT Sea Grant College Program

**Co-Conveners:**

James Carlton, Director, Williams-Mystic Marine Program
Erkki Leppäkoski, Professor Emeritus, Abu University
Yasuwo Fukuyo, University of Tokyo

**Steering Committee:**

Jeffrey Crooks, Tijuana River National Estuarine Research Reserve
Lucius Eldredge, Bishop Museum
Stephan Gollasch, GoConsult
Chad Hewitt, National Centre for Marine & Coastal Conservation
Anna Occhipinti-Ambrogi, Pavia University
Gil Rilov, Oregon State University
Greg Ruiz, Smithsonian Environmental Research Center
Darlene Smith, Fisheries and Oceans Canada

**Advisors:**

Alex Bychkov, North Pacific Marine Science Organization (PICES)
Adi Kellerman, International Council for the Exploration of the Seas (ICES)
Dorn Carlson, NOAA National Sea Grant Office (NSGO)
**Biographies of Plenary Speakers:**

**Dr. James E. (Jeb) Byers** is an Associate Professor of Zoology at the University of New Hampshire where he has been since 2001. He graduated with Honors from Duke University in 1992 with a B.S. in Zoology. At the University of California, Santa Barbara (Ph.D. 1999), he researched species invasions on the US West coast. In particular he examined the interactions of a native and non-native marsh snail, demonstrating the influential role of exploitative competition in species invasions, and that competitive displacement of native species by an invader can be a slow-acting process despite a highly deterministic outcome. For his postdoctoral research at the Friday Harbor Marine Lab (University of Washington) he examined the proliferation of invasive species in marine reserves and the resultant consequences for native species.

He has a broad base of ecological research interests that involve the study of species interactions in nearshore, estuarine, and marsh environments. The majority of his research continues to focus on quantitative measurements, experimental manipulations, and modeling of invasions processes and consequences. He has sought to develop and implement quantitative tools that aid our understanding of how and when invading species will impact native systems, increasing our ability to predict outcomes of future invasions. Some of his additional scientific studies address environmental determinants of disease in aquatic organisms, the modification of ecological interactions by parasites, and the development of biological indicators for detection of environmental perturbations.

He just received the Outstanding Teaching Award from the College of Life Science & Agriculture at the University of New Hampshire.

**Dr. James T. Carlton** is Professor of Marine Sciences at Williams College (Williamstown, Massachusetts) and Director, Williams-Mystic, The Maritime Studies Program of Williams College and Mystic Seaport (Mystic, Connecticut). He was an undergraduate at the University of California, Berkeley, took his Ph.D. at UC Davis in Ecology, and was a postdoctoral scholar at the Woods Hole Oceanographic Institution (WHOI). His research is on global marine bioinvasions (their ecosystem impacts, dispersal vectors, and management strategies) and on marine extinctions in modern times. He is the founding Editor-in-Chief of the international journal "Biological Invasions". He is a 1996 Pew Fellow in the Environment and Conservation, a Fellow of the American Association for the Advancement of Science, and a Distinguished Research Fellow of the University of California. In 1999 he was the first scientist to receive the U.S. Government's "Recognition Award for Significant and Sustained Contributions to the Prevention and Control of Nonindigenous Species in America's Aquatic Ecosystems." He was Co-Chair of the Marine Biodiversity Committee of the National Academy of Sciences, which produced *Understanding Marine Biodiversity: A Research Agenda for the Nation* (1995). He has testified nine times on invasive species issues before the United States Congress (Senate and House subcommittees). Jim's current research on marine bioinvasions focuses on the waters of the northwest Atlantic Ocean (Gulf of Maine to Long Island Sound), the northeast Pacific (San Francisco Bay to British Columbia), and the Hawaiian Islands.

**Janice Lawrence** is an Associate Professor of Biology at the University of New Brunswick in Fredericton, New Brunswick, Canada. Janice earned a bachelor’s degree in Marine Biology from Dalhousie University in 1994. She received her Ph.D. in Oceanography, also from Dalhousie, in 1999. During her Ph.D. she examined the source of shellfish toxins in cultured mussels and developed an interest in the ecology and physiology of harmful algae. Intrigued by the developing field of marine virology, she received an National Sciences and Engineering Research Council (NSERC) postdoctoral fellowship to investigate the role of viruses in mediating the population dynamics of harmful algae with Dr. Curtis Suttle at the University of British Columbia. In 2003 Janice was awarded an NSERC University Faculty Award to establish her own laboratory at the University of New Brunswick. There she and her students study various aspects of algal-virus biology and are participating in the Canadian Aquatic Invasive Species Network.
**GENERAL INFORMATION**

**CONFERENCE REGISTRATION DESK**

Early registration is on Sunday, May 20, 2007 from 2:00 pm – 6:00 pm at 20 Chimneys in the Stratton Student Center, 84 Massachusetts Avenue, Cambridge. The regular Registration Desk opens Monday, May 21, 2007 at 7:30 am and closes at 4:30 pm daily. The Registration Desk is located at the MIT Kresge Auditorium Lobby, Bldg W16, 48 Massachusetts Avenue, Cambridge.

**CONFERENCE SESSION LOCATIONS**

The Conference sessions will be in two locations on Tuesday and Wednesday: **Kresge Auditorium** (Bldg. W16, 48 Massachusetts Avenue) and **20 Chimneys** (Bldg. W20, MIT Stratton Student Center, 84 Massachusetts Avenue). Please refer to Conference for location of each session.

**MESSAGE CENTER**

Your family and staff can reach you by calling the MIT Sea Grant College Program Office at 617-253-9313. Messages will be brought to the registration desk. **In case of emergency, a message will be taken and every effort will be made to locate you.**

**LOST AND FOUND**

Valuables found may be turned in and reclaimed at the registration desk.

**RECEPTION**

*Location:* The New England Aquarium, Central Wharf, Boston, MA, 617-973-5200  
*Date:* Tuesday, May 22, 2007  
*Time:* 6:00 pm – 8:30 pm

Conference registrants are welcome to attend the Reception at the New England Aquarium located at the lovely Central Wharf in Boston. A fabulous variety of marine life in realistic habitats is on display. Refreshments will be served.

**POSTER SESSION**

*Location:* Kresge Auditorium Lobby, Bldg W16, 48 Massachusetts Avenue, Cambridge  
*Date:* Wednesday, May 23, 2007  
*Time:* 5:30 pm – 7:30 pm

Posters will be on display throughout the conference. Posters may be hung on Monday morning, May 21, 2007 starting at 9:00 am. There are a total of 42 posters that are grouped into the following categories: Mapping and Data Management, Patterns, Shipping and Hull Fouling, Monitoring, Ecology, Outreach, Management and Assessment and Other. Light refreshments will be served at the Poster Session -- all conference registrants are welcome. Posters should be removed on Thursday, May 24, 2007.
RESTAURANTS AND SERVICES INFORMATION

MIT Student Center (Bldg. W20) – adjacent to Kresge Auditorium has five food/beverage venues: Alpine Bagel Café & Cambridge Grill/Dunkin Donuts (1st Floor); Anna's Taquería (1st Floor); LaVerde's Market (1st Floor); Lobdell Food Court (2nd Floor); and The Coffee House (3rd Floor) that is open 24 hours. Other services available are The MIT Coop (campus store), ATMs, a post office, hair salon, game room and a dry cleaners. More information about the MIT Campus can be found at http://web.mit.edu.

Legal Sea Foods – 3 Cambridge Center, Kendall Square, Cambridge. Situated in Cambridge within walking distance from MIT, Central Square, and Beacon Hill, it's also just a short ride from points in downtown. Kendall Square offers a wide range of dining options: easy grab-and-go choices, made-to-order take-out meals, relaxed patio dining, and customized private dining for groups up to 120 guests, moderately expensive.

There are many, many excellent restaurants all around Cambridge and Boston. The two closest locations are Kendall and Central Square. If you'd like any kind of food imaginable, go to Central Square, which has an urban feel. Harvard Square is also a subway train ride away on the Red Line and has many great restaurants in all price ranges. And then there is artsy/funky Porter Square with many good restaurants, featuring one of our favorites, Smokey Bones, for great ribs and barbeque.

For more information see the City of Cambridge website at: http://www.cambridgema.gov/index.cfm.

A list of restaurants will be available at the Registration Desk.

STORAGE OF ITEMS

Temporary storage of ALL items (briefcases, slides, coats, purses, luggage, laptop computers, etc.) should be kept with the Bell Captain of the hotel where you are staying if possible. But, if you really need to store something at the Conference site, we will have a room available in Kresge Auditorium to store some items overnight. Please see the staff at the Registration Desk for more information.

PROCEEDINGS/PUBLICATIONS

Selected papers will be published in the ICES Journal Special Issue: Fifth International Conference on Marine Bioinvasions. Final versions of the papers are due on or before the first day of the conference, May 21, 2007.

CONFERENCE COORDINATOR

Lynne Lenker, Room NE20-360, MIT Sea Grant College Program, Cambridge, MA 02139, Phone: 617-252-1617, Fax: 617-252-1615.
CONFERENCE AGENDA

SUNDAY, MAY 20, 2007

2:00 pm – 6:00 pm  Registration (20 Chimneys)

MONDAY, MAY 21, 2007

7:30 am – 8:30 am  Registration and Continental Breakfast

8:30 am – 9:00 am  Welcome and Introduction
Chrys Chryssostomidis, Director MIT Sea Grant College Program
James Carlton, Co-Convener
Darlene Smith, PICES
Judith Pederson, Conference Chair

PLENARY SESSION SPONSORED BY ICES (Kresge Auditorium)
Introducer: Judith Pederson, MIT Sea Grant College Program

8:45 am – 9:30 am  GOING AGAINST THE FLOW:  RETENTION, RANGE
LIMITS AND INVASIONS IN ADVECTIVE ENVIRONMENTS
J.E. Byers, University of New Hampshire

SESSION 1  Patterns in Time and Space (Kresge Auditorium)
Chair: Judith Pederson, MIT Sea Grant College Program

9:30 am - 9:50 am  ALIEN SPECIES IN THE MEDITERRANEAN SEA – PATTERNS OF
INVASION IN TIME AND SPACE
B.S. Galil, National Institute of Oceanography, Israel

9:50 am – 10:10 am  PATTERNS AND IMPACTS OF MARINE BIOINVASIONS IN SOUTH
AFRICA
C. Griffiths and T. Robinson, University of Cape Town

10:10 – 10:30 am  PATTERNS OF INVASIONS IN TIME AND SPACE
F. Andaloro, A. Annunziatellis, F.M. Passarelli, S. Agnesi, E. Azzurro,
and L. Castriota, ICRAI, Italy

10:30 – 11:00 am  BREAK

SESSION 2  Patterns and Predictions (Kresge Auditorium)
Chair: Anna Occhipinti-Ambrògi, Pavia University

11:00 am – 11:20 am  PREDICTIONS IN AN INVADED WORLD - PART I: USING NICHE
MODELS TO PREDICT DISTRIBUTIONS OF MARINE/ESTUARINE
SPECIES AT THE HABITAT SCALE
H. Lee II, U.S. Environmental Protection Agency and D.A. Reusser,
U.S. Geological Survey
11:20 am – 11:40 am  PREDICTIONS IN AN INVADED WORLD - PART II: USING NICHE MODELS TO PREDICT DISTRIBUTIONS OF MARINE/ESTUARINE SPECIES AT THE ESTUARY SCALE  

11:40 am – 12:00 N  AQUATIC INVASIVE SPECIES IN THE STRAIT OF GEORGIA, BRITISH COLUMBIA, CANADA  
T.W. Therriault, Department of Fisheries and Oceans, Canada

12:00 N - 12:30 pm  THE MEDITERRANEAN SEA IS A BIOINVASION HOTSPOT: TEMPORAL, SPATIAL AND ECOLOGICAL PATTERNS  
G. Rilov, Oregon State University

12:20 pm – 12:40 pm  GREAT BALLS OF BRYOS: NOVEL SUBSTRATE ON THE MUD FLATS IN SAN FRANCISCO BAY  
C.J. Zabin, Smithsonian Environmental Research Center, R. Obernolte, University of California, Davis, and J. Gentry, Marine Science Institute

12:40 pm – 1:50 pm  LUNCH

SESSION 3  Ecological Impacts I (Kresge Auditorium)  
Chair: Chela Zabin, Smithsonian Environmental Research Center

1:50 pm – 2:10 pm  INVASIVE SPECIES DISRUPT THE LONG-TERM DEVELOPMENT OF A SUBTIDAL FOULING COMMUNITY IN THE SOUTHWESTERN GULF OF MAINE  
J.A. Dijkstra and L. Harris, University of New Hampshire

2:10 pm – 2:30 pm  MULTIPLE ASSESSMENTS OF INTRODUCED SEAWEEDS IN THE NORTHWEST ATLANTIC  
A.C. Mathieson, University of New Hampshire; J. Pederson, MIT Sea Grant College Program; C.D. Neefus, University of New Hampshire; C.J. Dawes, University of South Florida

2:30 pm – 2:50 pm  ARE NATIVE EELGRASS (ZOSTERA MARINA) MEADOWS AND INVASIVE PACIFIC OYSTER (CRASSOSTREA GIGAS) REEFS IN WILLAPA BAY, WASHINGTON ALTERNATIVE STABLE STATES?  
Eric Buhle, University of Washington

2:50 pm – 3:10 pm  THE PACIFIC OYSTER CRASSOSTREA GIGAS: AN INTRODUCED SPECIES FOR AQUACULTURE IN EUROPEAN WATERS IN THE 1970s BECAME AN INVASIVE SPECIES IN THE LATE 1990s  
L. Miossec and P. Goulletquer, IFREMER

3:10 pm – 3:30 pm  SEASONAL COEXISTENCE OF THREE INVASIVE COLONIAL ASCIDIANS (BOTRYLLOIDES VIOLACEUS, BOTRYLLUS SCHLOSSERI AND DIDEUM SP.) IN THE GULF OF MAINE  
L.G. Harris and J. Dijkstra, University of New Hampshire

3:30 pm  BREAK
SESSION 4  Ecological Impacts II *(Kresge Auditorium)*
*Chair: Gil Rilov, Oregon State University*

4:00 pm – 4:20 pm  DOCUMENTING THE GLOBAL THREAT OF INVASIVE SPECIES TO MARINE BIODIVERSITY

4:20 pm – 4:40 pm  TESTING INVASIBILITY THEORY IN MARINE INVERTEBRATE COMMUNITIES BY MANIPULATING THE PROPAGULE SUPPLY OF NONINDIGENOUS SPECIES
*E.L. Johnston*, R.F. Piola, B.J. Cumbo, and G.F. Clark, University of New South Wales

4:40 pm – 5:00 pm  A NEW INVASION OF AN OLD INVADER: THE SNAIL *BATILLARIA ATTRAMENTARIA* IN SAN FRANCISCO BAY, CALIFORNIA, USA
*H.W. Weiskel* and E.D. Grosholz, University of California, Davis; J.E. Byers, University of New Hampshire; T.C. Huspeni, University of Wisconsin; C.J. Zabin and B.A. Mohammad, Smithsonian Environmental Research Center

5:00 pm – 5:20 pm  A RAPID RESPONSE FRAMEWORK FOR ERADICATING MARINE INVADERS
*A.L. Chang*, University of California, Davis and G.M. Ruiz, Smithsonian Environmental Research Center

TUESDAY, MAY 22, 2007

7:30 am – 8:30 am  Registration and Continental Breakfast

8:30 am – 9:00 am  Welcome and Introduction

PLENARY SESSION Sponsored by PICES *(Kresge Auditorium)*
*Introducer: Hugh MacIsaac, University of Windsor*

8:45 am – 9:30 am  FURTIVE FOES: THE ROLE OF VIRUSES ON PLANKTON DYNAMICS
*J. Lawrence*, University of New Brunswick

SESSION 5  Seeking Origins *(Kresge Auditorium)*
*Chair: James Carlton, Williams College*

9:30 am - 9:50 am  IDENTIFYING THE ORIGIN OF THE CRYPTOGENIC ASCIDIAN *MOLGULA MANHATTENSIS* (DE KAY, 1843)
*D. Haydar*, University of Groningen

9:50 am – 10:10 am  RESOLVING THE 100-YEAR DEBATE OVER THE INTRODUCTION OF THE SNAIL *LITTORINA LITTLE* TO NORTH AMERICA
*A.M. Blakeslee*, and J.E. Byers, University of New Hampshire

10:10 – 10:30 am  DO HISTORY AND GENETICS AGREE? THE INVASION OF BIVALVE *GEMMA GEMMA*
*P. Hoos* and J. Geller, Moss Landing Marine Laboratories and R. Vrijenhoek, Monterey Bay Aquarium Research Institute
10:30 – 11:00 am  
**BREAK**

**SESSION 6  Ecological Impacts III (Kresge Auditorium)**  
*Chair: Robert Whitlatch, University of Connecticut*

11:00 am – 11:20 am  
**POPULATIONS OF THE INTRODUCED ALGA **Undaria pinnatifida** **SUFFERING DIFFERENT ANTHROPOGENIC PRESSURES DISPLAY DISSIMILAR GENETIC PROPERTIES**  
M. Voisin and F. Viard, Station Biologique de Roscoff

11:20 am – 11:40 am  
**ADAPTATION CAPACITIES OF AN INVASIVE SPECIES, THE PACIFIC OYSTER **Crassostrea gigas**, ALONG THE FRENCH MANCHE-ATLANTIC OCEAN COASTS**  

11:40 am – 12:00 N  
**“INCONSPICUOUS” IMPACTS OF **Spartina alterniflora** **IN TEMPERATE EASTERN PACIFIC ESTUARIES**  
B.E. Feist and C.J. Harvey, Northwest Fisheries Science Center and J.L. Ruesink and A.C. Trimble, University of Washington

12:00 N – 12:20 pm  
**DEVELOPMENT OF MOLECULAR PROBES FOR BETTER MANAGEMENT OF INVASIVE TUNICATE SPECIES**  
S.E. Stewart-Clark, A. Siah, S. Greenwood, J. Davidson, F.C.J. Berthe, Atlantic Veterinary College

12:20 pm – 12:40 pm  
**USING GENETIC TOOLS TO ASSESS THE INTRODUCTION AND REGIONAL EXPANSION OF EUROPEAN GREEN CRABS (**Carcinus maenas**)**  

12:40 pm – 1:50 pm  
**LUNCH**

**SESSION 7  Ascidians (Kresge Auditorium)**  
*Chair: Deniz Haydar, University of Groningen*

1:50 pm – 2:10 pm  
**Molgula ficus**, An Ascidian Nonindigenous To The East Pacific  
G. Lambert, University of Washington

2:10 pm – 2:30 pm  
**Factors Influencing Distribution of Didemnum sp. in Narragansett Bay**  
L.A. Auker, University of New Hampshire and C.A. Oviatt, University of Rhode Island

2:30 pm – 2:50pm  
**The Management of an Invasive Sea Squirt, Didemnum vexillum, in New Zealand**  
C.M. Denny, Cawthron Institute, and A. Pannell, Marlborough Mussel Company Ltd. and A.D.M. Coutts, Cawthron Institute
FACTORS INFLUENCING INVADER SUCCESS IN COASTAL ECOSYSTEMS: A 20 YEAR RETROSPECTIVE LOOK AT STUDIES OF SOUTHERN NEW ENGLAND NON-NATIVE ASCIDIANS
R.B. Whitlatch, University of Connecticut and R.W. Osman, Smithsonian Environmental Research Center

NATIVE GASTROPODS AND INTRODUCED CRABS: SHELL MORPHOLOGY AND RESISTANCE TO PREDATION IN THE NEW ENGLAND ROCKY INTERTIDAL ZONE
S.J. Teck, University of California, Santa Barbara

SESSION 8  Phenotypic Responses (Kresge Auditorium)
Chair: Edwin Grosholz, University of California, Davis

PHENOTYPIC PLASTICITY IN CLAW MORPHOLOGY OF THE INTRODUCED CRAB CARCINUS MAENAS IN RESPONSE TO NATURAL VARIATION IN PREY ARMOR AND WATER TEMPERATURE
A.K. Baldridge and L.D. Smith, Smith College

THE ALLOMETRY OF INVASIVE CRAB-NATIVE PREY SIZE INTERACTIONS AT DIFFERENT TEMPERATURES: A PREDICTOR OF INVASION SUCCESS?
L.D. Smith and E.A. Callaghan, Smith College

AN EXPERIMENTAL TEST OF EUROPEAN GREEN CRAB (CARCINUS MAENAS) FORAGING EFFECTS ON WINTERING SHOREBIRDS
V. Estelle, Colorado State University and E.D. Grosholz, University of California, Davis

SESSION 9  Biofouling (20 Chimneys)
Chair: Anders Jelmert, Institute of Marine Research, Norway

BIOSECURITY RISKS POSED BY VESSEL HULL FOULING AND INCURSION RESPONSE TOOLS FOR THEIR MANAGEMENT
G.A. Hopkins, A.D.M. Coutts, and B.M. Forrest, Cawthron Institute

VESSEL BIOFOULING AS A VECTOR FOR INVASIVE MARINE SPECIES: BIOSECURITY NEW ZEALAND’S RESEARCH PROGRAMME
D.A. Kluza, Biosecurity New Zealand and A. Bell, Biosecurity New Zealand
10:10 – 10:30 am  ASSESSING COMMERCIAL VESSEL BIOFOULING ON THE U.S. WEST COAST: DENSITY, MAGNITUDE AND FREQUENCY OF PROPAGULE DELIVERY
I.C. Davidson, Portland State University; G.M. Ruiz, Smithsonian Environmental Research Center; and M. Sytsma, Portland State University

10:30 – 11:00 am  BREAK

SESSION 10  Shipping Impacts I (20 Chimneys)
Chair: David Smith, Smith College

11:00 am – 11:20 am  CAN OPEN-OCEAN BALLAST EXCHANGE PREVENT INVASIONS BETWEEN FRESHWATER PORTS?
D.K. Gray, University of Windsor, T.H. Johengen, University of Michigan; D.F. Reid, National Oceanic and Atmospheric Administration; H.J. MacIsaac, University of Windsor

11:20 am – 11:40 am  REAL-TIME RISK ASSESSMENT MODEL FOR BALLAST WATER EXCHANGE IN ATLANTIC CANADA
D. Brickman, B. An, and C. Nickerson, Department of Fisheries and Oceans, Canada

11:40 am – 12:00 N  PRELIMINARY INVESTIGATIONS ON THE MOLLUSCAN BIODIVERSITY SAMPLED DURING THE BIOLOGICAL PORT SURVEY OF MOMBASA, KENYA
N.N. Wambiji, E. Mrabu, D. Odongo, V. Wanjeri, and I. Mwebi, Kenya Marine & Fisheries Research Institute

12:00 N – 12:20 pm  ASSESSING EFFECTS OF CLIMATE CHANGE ON THE RISK OF SHIPPING-MEDIATED INVASIONS IN THE SOUTHERN GULF OF ST. LAWRENCE
A. Locke, J.M. Hanson, W. Perrie, and J. Chassé, Fisheries and Oceans Canada and M. Balaban, Transport Canada

12:20 pm – 1:50 pm  NAVIGATING FROM PAPER TO IMPLEMENTATION: CALIFORNIA’S PERFORMANCE STANDARDS FOR BALLAST WATER TREATMENT
L.T. Takata, M. Falkner, and S. Gilmore, California State Lands Commission

12:40 pm – 1:50 pm  LUNCH

SESSION 11  Managing Shipping and Ballast Water (20 Chimneys)
Chair: Kevin Cute, Rhode Island Coastal Resources Management Council

1:50 pm – 2:10 pm  DESIGNATING AREAS FOR BALLAST WATER EXCHANGE
E.K. Lawrence, E. Knight, S. Barry, and R. Summerson, Australian Bureau of Rural Sciences

2:10 pm – 2:30 pm  THE ROLE OF COMMERCIAL SHIPPING IN AQUATIC SPECIES INTRODUCTIONS: ANALYSIS OF VESSEL TRAFFIC AND BALLAST WATER DISCHARGE PATTERNS IN CALIFORNIA
N.A. Dobroski, L.T. Takata, M. Falkner, and S. Gilmore, California State Lands Commission

13
2:30 pm – 2:50 pm  THE EFFICACY OF BALLAST WATER EXCHANGE FOR PREVENTING THE SPREAD OF NONINDIGENOUS SPECIES AMONG THE FRESHWATER AND ESTUARINE PORTS OF THE UNITED STATES AND EUROPE

S. Santagata, Smithsonian Environmental Research Center; Z.R. Gasiunaite, Coastal Research and Planning Institute; H. Manto, Klaipeda University, Lithuania; E. Verling, Smithsonian Environmental Research Center; J.R. Cordell, University of Washington; K. Eason and J.S. Cohen, Smithsonian Environmental Research Center; K. Bacela, University of Lodz, Poland; G. Quilez-Badia, Smithsonian Environmental Research Center; T.H. Johengen, University of Michigan; D.F. Reid, National Oceanic and Atmospheric Administration; and G.M. Ruiz, Smithsonian Environmental Research Center

2:50 pm – 3:10 pm  MODELING BIOLOGICAL UNCERTAINTY RELATED TO THE CONTROL OF SPECIES INTRODUCTIONS VIA BALLAST WATER

J.F.R. Tavares, J.J. Corbett, and J. Firestone, University of Delaware and J.J. Winebrake, Rochester Institute of Technology

3:10 pm – 3:30 pm  POINTING FINGERS: HOW WAS THE AMUR GOBY (RHINO GOBIUS BRUNNEUS) INTRODUCED TO NORTH AMERICA?

P. Heimowitz, U.S. Fish and Wildlife Service, Pacific Region; B. Shields, Oregon State University; S. Chan, Oregon Sea Grant College Program; and A. Goto, Hokkaido University, Japan

3:30 pm  BREAK

SESSION 12  Shipping Impacts II (20 Chimneys)

Chair: Stephan Gollasch, GoConsult

4:00 pm – 4:20 pm  INVADING ECOSYSTEM ENGINEER DRAMATICALLY ALTERS BENTHIC COMMUNITIES IN AND OUT OF MARINE RESERVES

D.K. Padilla and S. Gray, Stony Brook University

4:20 pm – 4:40 pm  TOWARDS AN ICES CODE OF BEST PRACTICE FOR THE MANAGEMENT OF SHIPS HULL FOULING

A. Jelmert, Institute of Marine Research, Norway and S. Gollasch, GoConsult

4:40 pm – 5:00 pm  PRACTICAL ASPECTS OF BALLAST WATER MANAGEMENT

M. Voigt, Hamann AG

5:00 pm – 5:20 pm  OUTREACH TO REDUCE THE LIKELIHOOD OF FUTURE INTRODUCTIONS OF THE GREEN ALGA CAULERPA TAXIFOLIA VIA AQUARIUM RELEASES

L.J. Walters, University of Central Florida and S. Zaleski, University of Southern California

6:00 pm – 8:30 pm  RECEPTION AT THE NEW ENGLAND AQUARIUM

14
WEDNESDAY, MAY 23, 2007 (Kresge Auditorium)

7:30 am – 8:30 am  Registration and Continental Breakfast
8:30 am – 9:00 am  Welcome and Introduction

PLENARY SESSION SPONSORED BY THE NATIONAL SEA GRANT OFFICE
  Introducer: Greg Ruiz, Smithsonian Environmental Research Center

8:45 am – 9:30 am  MARINE BIOINVASIONS: THE ASSESSMENT OF IMPACTS AND DIVERSITY
  J.T. Carlton, Williams College

SESSION 13  Ecological Impacts III (Kresge Auditorium)
  Chair: Greg Ruiz, Smithsonian Environmental Research Center

9:30 am - 9:50 am  WILL THE EUROPEAN GREEN CRAB PERSIST IN THE PACIFIC NORTHWEST?
  S. Yamada, Oregon State University and G. Gillespie, Department of Fisheries and Oceans, Canada

9:50 am – 10:10 am  PARASITE RELEASE AND BIOTIC RESISTANCE IN INTRODUCED POPULATIONS OF THE SAIL-FIN MOLLY, POECILIA LATIPINNA
  M.E. Torchin, Smithsonian Tropical Research Institute

10:10 – 10:30 am  THE INFLUENCE OF SPATIAL SCALE ON THE RELATIONSHIP BETWEEN NATIVE DIVERSITY AND INVASION
  C.L. Hewitt and M.L. Campbell, Australian Maritime College and C. Primo, Universidad de Vigo and Australian Maritime College

10:30 – 11:00 am  BREAK

SESSION 14  Ecological and Economic Impacts (Kresge Auditorium)
  Chair: Bella Galil, National Institute of Oceanography, Israel

11:00 am – 11:20 am  STUDY IN GEOGRAPHIC DISTRIBUTION OF MICROALGAE ALEXANDRIUM TAMARENSE AND ALEXANDRIUM MINUTUM BASED ON INTERNAL TRANSCRIBED SPACER SEQUENCES ANALYSIS
  L. Zheng, State Oceanic Administration, China, X. Han, Y. Zhang, and J. Zou, Chinese Academy of Sciences and X. Wang, State Oceanic Administration, China

11:20 am – 11:40 am  NEW PHYTOPLANKTON SPECIES IN THE BAY OF FUNDY SINCE 1995
  J. Martin and M.M. LeGresley, Department of Fisheries and Oceans, Canada
11:40 am – 12:00 N  TRANSFER OF HARMFUL ALGAL BLOOM SPECIES IN JAPANESE AND KOREAN COASTAL WATERS THROUGH NATURAL AND HUMAN ASSOCIATED DISPERALS REVEALED BY MICROSATELLITES
   S. Nagai, G. Nishitani, and S. Yamaguchi, Fisheries Research Agency of Japan; C. Lian, Asian Natural Environmental Science Center; N. Yasuda, Tokyo Institute of Technology; and Y. Matsuyama and S. Itakura, Fisheries Research Agency of Japan

12:00 N – 12:20 pm  MODELING THE ECONOMIC IMPACTS OF THE EUROPEAN GREEN CRAB ON THE U.S. WEST COAST
   S. Lovell, U.S. Environmental Protection Agency; E. Besedin, Abt Associates Inc.; and E. Grosholz, University of California at Davis

12:20 pm – 12:40 pm  MONETARY ASSESSMENT OF ECONOMIC IMPACTS DUE TO SPECIES INVASIONS IN MARINE ECOSYSTEMS: NON-MARKET VALUATION APPLICATIONS IN DECISION MAKING CONTEXT
   P.A. Nunes, University of Venice

12:40 pm – 1:50 pm  LUNCH

SESSION 15  Impacts and Strategies (Kresge Auditorium)
   Chair: Lu Eldredge, Bishop Museum, Hawaii

1:50 pm – 2:10 pm  WHO ARE THE MOST IMPACTING INTRODUCED AQUATIC SPECIES IN EUROPE?
   S. Gollasch, GoConsult, Germany; B. Galil, National Institute of Oceanography, Israel; D. Minchin, Marine Organism Investigations, Ireland; V. Panov, Russian Academy of Sciences, Russia; S. Olenin, Klaipeda University, Lithuania; M. David, University of Ljubljana, Slovenia

2:10 pm – 2:30 pm  INVASIVE POLYCHAETES (ANNELIDA, SPIONIDAE) IN THE ATLANTIC AND PACIFIC OCEANS
   V.I. Radashevsky, Russian Academy of Sciences, Russia

2:30 pm – 2:50pm  THE STRATEGIES OF AQUATIC INVASIVE ALIEN SPECIES IN CHINA
   Y. Wang, Shandong University, China

2:50 pm – 3:10 pm  PREDICTING THE FUTURE SPREAD OF AN INVASIVE TUNICATE ALONG BRITISH COLUMBIA'S COASTLINE
   L.-M. Herborg and T.W. Therriault, Pacific Biological Station, Department of Fisheries and Oceans, Canada

3:10 pm – 3:30 pm  MINIMIZING THE EXPOSURE OF THE NORTHWESTERN HAWAIIAN ISLANDS MARINE NATIONAL MONUMENT TO MARINE ALIEN SPECIES
   S. Godwin, Hawaii Institute of Marine Biology & Northwestern Hawaiian Islands Marine National Monument; Ku'ulei Rodgers and Paul Jokiel, Hawaii Institute of Marine Biology

3:30 pm  BREAK
SESSION 16  Management Options *(Kresge Auditorium)*

*Chair: Marnie Campbell, Australian Maritime College*

4:00 pm – 4:20 pm  THE ERADICATION OF SNOWFLAKE CORAL ON THE ISLAND OF KAUAI: 18 MONTHS LATER

A.D. Montgomery, Hawaii Division of Aquatic Resources

4:20 pm – 4:40 pm  *STYELA CLAVA* INCURSION RESPONSE: AN OVERVIEW OF THE NEW ZEALAND GOVERNMENT’S RESPONSE TO A MARINE INVADER

B.R. Gould, P. Bolger, D. Kluza, A. McFadden, and L. Patston, Biosecurity New Zealand, Ministry of Agriculture and Forestry

4:40 pm – 5:00 pm  RESEARCH ACTIVITY ON INVASIVE SPECIES IN MARINE ENVIRONMENTS OF KOREA

E.L. Kim, D. Lim, and Y. Lee, National Fisheries Research and Development Institute, Korea

5:00 pm – 5:20 pm  INTERSPECIFIC COMPETITION BETWEEN FOUR INVASIVE SPECIES IN BRUDENELL RIVER, PRINCE EDWARD ISLAND, CANADA

A.P. Ramsay and J. Davidson, University of Prince Edward Island, and D. Bourque, Department of Fisheries and Oceans, Canada

5:30 pm – 7:30 pm  POSTER SESSION AT MIT KRESGE AUDITORIUM (LOBBY)

SESSION 17  Barcodes: Status and Use *(20 Chimneys)*

*Chair: Vasily Radashevsky, Russian Academy of Sciences*

9:30 am - 9:50 am  THE BARCODE OF LIFE DATA SYSTEM: A TOOL FOR WIDESPREAD AND EFFECTIVE INVASIVE SPECIES MONITORING ON CORAL REEFS

R.E. Brainard, NOAA Pacific Islands Fisheries Science Center; N. Knowlton, Scripps Institution of Oceanography; J. Caley, Australia Institute of Marine Science; G. Paulay, University of Florida; E. Keenan, NOAA Pacific Islands Fisheries Science Center

9:50 am – 10:10 am  DNA BARCODING: AN EMERGING STANDARD FOR SPECIES IDENTIFICATION BY NON-TAXONOMISTS

D.E. Schindel and K. Ferrell, Smithsonian Institution

10:10 – 10:30 am  USE OF DNA BARCODES FOR DETECTION OF GELATINOUS INVADERS

B.D. Ortman and A. Bucklin, University of Connecticut

10:30 – 11:00 am  BREAK
SESSION 18  Molecular Tools for Detection *(20 Chimneys)*
*Chair: Nancy Balcom, University of Connecticut*

11:00 am – 11:20 am  **MOLECULAR TOOLS FOR INVASIVE SPECIES DETECTION WHEN SPECIES-LEVEL TAXONOMIC KNOWLEDGE IS SPARSE**  
*K.E. Hoagland*, IM Systems Group & National Oceanic and Atmospheric Administration

11:20 am – 11:40 am  **DETECTION OF NONINDIGENOUS MARINE INVERTEBRATES IN A MEDITERRANEAN INDUSTRIAL PORT USING DNA ASSISTED IDENTIFICATION TECHNIQUES**  
*C. Vogler* and G. Wörheide, Universität Göttingen

11:40 am – 12:00 N  **FROM PRINCIPLE TO PRACTICE: IMPLEMENTING EARLY DETECTION AND RAPID RESPONSE EFFORTS IN MASSACHUSETTS WITH LIMITED RESOURCES**  
*C.A. Hernick*, Massachusetts Office of Coastal Zone Management

12:00 N – 12:20 pm  **INTO THE PAN, NOT INTO THE WILD: ADDRESSING LIVE SEAFOOD RELEASES**  
J. Mathieu, University of California at Berkeley and *J. Pederson*, MIT Sea Grant College Program

12:20 pm – 12:40 pm  **MUDDYING THE WATERS: FACTORS COMPLICATING OUTREACH AND COMMUNICATION ABOUT INVASIVE SPECIES**  
*W.Y. Wong*, Brown University

12:40 pm – 1:50 pm  **LUNCH**

SESSION 19  Risk Assessments and Impacts *(20 Chimneys)*
*Chair: Henry Lee, II, U.S. EPA*

1:50 pm – 2:10 pm  **PRIORITIES FOR MARINE BIOSECURITY RESEARCH**  
*N.S. Parker*, Biosecurity New Zealand

2:10 pm – 2:30 pm  **ASSESSMENT OF BIOLOGICAL POLLUTION IN AQUATIC ECOSYSTEMS: RATIONALE AND QUANTITATIVE APPROACH**  
*S. Olenin* and D. Daunys, Klaipeda University, Lithuania, and D. Minchin, Marine Organism Investigations, Ireland

2:30 pm – 2:50 pm  **A BIOPOLLUTION INDEX FOR ASSESSING THE INVASIVENESS OF ALIEN SPECIES**  
*D. Daunys* and S. Olenin, Klaipeda University, Lithuania; D. Minchin, Marine Organism Investigations, Ireland

2:50 pm – 3:10 pm  **INCREASING VALUE OF AQUATIC INVASIVE SPECIES: THE RISKS AND BENEFITS OF INCENTIVE-BASED CONTROL PROGRAMS**  
*C.S. Culver*, University of California Sea Grant Extension Program, and J.E. Dugan, University of California at Santa Barbara
3:10 pm – 3:30 pm  INVASION AND TERRESTRIALIZATION OF INTERTIDAL SALT MARSH BY AN EXOTIC TREE, TAMARISK  
J.A. Crooks, Tijuana River National Estuarine Research Reserve; D. Talley, San Francisco Bay National Estuarine Research Reserve; C. Whitcraft and L. Services; J. Gaskin, USDA-ARS-NPARL

3:30 pm  BREAK

SESSION 20  Gathering and Sharing Information (20 Chimneys)  
Chair: Jeff Crooks, Tijuana River National Estuarine Research Reserve

4:00 pm – 4:20 pm  ADAPTING AQUATIC (FRESHWATER) WEED RESEARCH AND MANAGEMENT METHODOLOGIES FOR CONTROL OF INVASIVE SEAWEEDS  
L.W.J. Anderson, U.S. Department of Agriculture - Agricultural Research Service

4:20 pm – 4:40 pm  INTRASPECIFIC HYBRIDIZATION OF NATIVE AND INTRODUCED SUBSPECIES OF PHRAGMITES AUSTRALIS IN NORTH AMERICA  
L.A. Meyerson and D.V. Viola, University of Rhode Island

4:40 pm – 5:00 pm  ARE CITIZEN SCIENTISTS THE SOLUTION TO EARLY DETECTION?  
D.G. Delaney and B. Leung, McGill University, Montreal

5:00 pm – 5:20 pm  PUBLIC MONITORING AND GOVERNMENTAL MANAGEMENT OF MARINE BIOINVASIONS IN THE NETHERLANDS  
A. Gittenberger, National Museum of Natural History, Naturalis

5:30 pm – 7:30 pm  POSTER SESSION AT MIT KRESGE AUDITORIUM (LOBBY)

THURSDAY, MAY 24, 2007

7:30 am – 8:30 am  Registration and Continental Breakfast

8:30 am – 9:00 am  Welcome and Introduction

SESSION 21  Aquaculture Introductions and Impacts (Kresge Auditorium)  
Chair: Darlene Smith, Department of Fisheries and Oceans, Canada

9:00 am – 9:20 am  MODELING INVASIONS BY INVERTEBRATE SPECIES WITH PELAGIC LARVAE IN ESTUARINE AND COASTAL SYSTEMS: AN ARGUMENT FOR SHORT GENERATIONAL DISPERSAL DISTANCE  
R. Mann and J.M. Harding, Virginia Institute of Marine Science

9:20 am – 9:30 am  ECOLOGICAL IMPACTS OF A NEW SUBSTRATUM, INVASIVE-OYSTER-REEFS (CRASSOSTREA GIGAS, THUNBERG), ON INTERTIDAL COMMUNITIES, BRITTANY (FRANCE)  
M. Lejart and C. Hily, Université de Bretagne Occidentale
NEGATIVE IMPACTS OF THE INVASIVE SEA URCHIN (CENTOSTEPHANUS RODGERSII) ON COMMERCIALLY FISHED ABALONE (HALIOTIS RUBRA)
E.M.A. Strain, C.R. Johnson, and R.J. Thomson, University of Tasmania

INTRODUCTION OF THE WHITE SHRIMP LITOPENAEUS VANNAMEI FOR AQUACULTURE PURPOSES: IS IT GOOD OR BAD FOR THAILAND?
S. Chavanich and V. Viyakarn, Chulalongkorn University, Thailand and W. Senanan and S. Panutrakul, Burapha University, Thailand

RISK ASSESSMENT OF AN INVADER: RAPANA VENOSA IN THE NORTHERN ADRIATIC SEA
D. Savini and A. Occhipinti-Ambrogi, University of Pavia, Italy

BREAK

SESSION 22  Impacts and Management Options (Kresge Auditorium)
Chair: Roger Mann, Virginia Institute of Marine Science

MARINE BIOINVASIONS IN TROPICAL AND SUBTROPICAL ECOSYSTEMS OF THE SOUTHWEST ATLANTIC: CURRENT STATUS AND MANAGEMENT PERSPECTIVES
R.M. Lopes and E.C. de Oliveira, University of Sao Paulo; A. Junqueira, Federal University of Rio de Janeiro; M.C. Villac, University of Taubate; M. Tavares, University of Sao Paulo; F.C. Fernandes, Institute for Marine Studies; I.N.G. Rivera, Y. Schaeffer-Novelli, and P. Cunningham, University of Sao Paulo

COASTAL SALT MARSH CHANGE INVESTIGATION IN WANGGANG AREA, JIANGSU PROVINCE, CHINA USING LANDSAT TM IMAGERIES
J. Li and S. Gao, Nanjing University

POLUTION DECREASES NATIVE DIVERSITY AND INCREASES INVADER DOMINANCE
R.F. Piola and E.L. Johnston, University of New South Wales, Australia

APPEARANCE OF THE INVASIVE CAULERPA RACEMOSA VAR. CYLINDRACEA (SONDER) VERLAQUE, HUISMAN, BOUDOURESQUE (BRYOPSIDALES, CHLOROPHYTA) ALONG THE SANTA LIBERATA COAST (SOUTH TUSCANY, ITALY)
F. Birardi and M. Lenzi, Orbetello Pesca Laguna s.r.l.; E. Franchi, University of Siena; P. Gennaro, Central Institute for Marine Research; R. Roffilli, University of Siena; D. Solari, Orbetello Pesca Laguna s.r.l.; and S. Focardi, University of Siena

CONCLUDING REMARKS
POSTER PRESENTATIONS

The Poster Session is on Wednesday, May 23rd from 5:30 to 7:30 pm in MIT Kresge Auditorium. Light refreshments will be served. Poster Presentations will be on display throughout the conference. Posters may be hung on starting Monday, May 21st at 9:00 am and removed on Thursday, May 24th.

Mapping and Data Management

MAPPING INVASIONS IN REAL TIME
C. Adams and J. Pederson, MIT Sea Grant College Program

NON-NATIVE AQUATIC ORGANISMS IN THE COASTAL WATERS OF CALIFORNIA
S. Foss, P.R. Ode, M. Sowby, and M. Ashe, California Department of Fish and Game

Patterns

WISH YOU WEREN’T HERE: GEOGRAPHIC PATTERNS OF INVASION IN PACIFIC COAST ESTUARIES OF THE UNITED STATES
H. Lee II, U.S. Environmental Protection Agency and D.A. Reusser, U.S. Geological Survey

NONINDIGENOUS INTRERTIDAL SPECIES IN BRITISH COLUMBIA, CANADA
G.E. Gillespie, Department of Fisheries and Oceans, Canada

HARBOUR SURVEY FOR INVASIVE SPECIES IN NEWFOUNDLAND, CANADA
A.G. Callahan, Memorial University; T. Baines, Fisheries and Oceans Canada; P. Sargent, R. Boland, and R. O'Donnell, Memorial University; S. Kenny, Fisheries and Oceans Canada; C. Vickers, Memorial University; C.H. McKenzie, Fisheries and Oceans Canada; and D. Deibel, Memorial University

INVASIVE SPECIES ON KOREAN COASTAL WATERS
D.-K. Ahn, D. Lim, and Y. Lee, National Fisheries Research and Development Institute, Korea

NEW RECORD OF PENILLA AVIROSTRIS DANA, 1849 (CLADOCERA) IN THE GULF OF ST. LAWRENCE
R. Bernier and A. Locke, Department of Fisheries and Oceans, Canada

ASCIDIANS OF THE SOUTHERN GULF OF CHIRIQUÍ, PACIFIC-PANAMA: A NATIVE FAUNA AT RISK TO BIOINVASION
M.R. Carman, S. Molyneaux, R. Ji, and S. Sievert, Woods Hole Oceanographic Institution

Shipping and Hull Fouling

RECREATIONAL VESSEL HULL FOULING AS A TRANSPORT VECTOR FOR AQUATIC INVASIVES
N. Balcom and R. Whitlatch, University of Connecticut and R. Osman, Smithsonian Environmental Research Center

INTERVIEWS FROM PRINCE EDWARD ISLAND, CANADA, ON BOATER HABITS AND THE POTENTIAL SPREAD OF INVASIVE SPECIES
A. Locke, Fisheries and Oceans Canada; E.A. Darbyson, Dalhousie University; J.M. Hanson, Fisheries and Oceans Canada; and M. Willison, Dalhousie University
INFLUENCES OF ANTIFOULING TREATMENTS ON MARINE INVASION PATHWAYS
K.A. Dafforn, T. Glasby, and E. Johnston, University of New South Wales

HIGH-DENSITY VECTOR EVENTS AND BIOINVASION RISK REDUCTION: ASSESSING THE INFLUENCE OF TRANSIT AND IN-WATER CLEANING ON THE BIOFOULING OF OBSOLETE VESSELS
I.C. Davidson, Portland State University; G. Ruiz, Smithsonian Environmental Research Center; and M. Sytsma, Portland State University

POTENTIAL TRANSFER OF VIBRIO CHOLERAE BY SHIPS AMONG PORTS IN THE MEDITERRANEAN SEA: THE PORTAL PROJECT
L.A. Drake, U.S. Coast Guard Academy and B. Galil, National Institute of Oceanography, Israel

CONTROL OF POTENTIALLY INVASIVE SPECIES PRESENT IN BALLAST WATER THROUGH SHIPBOARD CHLORINE DIOXIDE TREATMENT
A.M. Cox, R.G. Campbell, D.C. Smith, and L. Maranda, University of Rhode Island and M.D. Hasson, Ecoclor, Inc.

BALLAST WATER TREATMENT OF PHYTOPLANKTON: HOW DO WE MEASURE IF A TREATMENT TECHNOLOGY MET THE MARK?
D.J. Lawrence and R.P. Herwig, University of Washington

PREVENTING BIOINVASIONS FROM BALLAST WATER: MARCH OF THE TREATMENT TECHNOLOGIES
D.J. Lawrence, R.P. Herwig, D.A. Lawrence and J.R. Cordell, University of Washington

COORDINATING BALLAST WATER REPORTING BETWEEN FEDERAL AND STATE PROGRAMS: A PILOT PROJECT ON THE LOWER COLUMBIA RIVER
C. Simkanin and M. Sytsma, Portland State University; G.M. Ruiz and A.W. Miller, Smithsonian Environmental Research

**Ecology**

MULTIPLE EPIBIONT UTILIZATION OF THE INTRODUCED PERIWINKLE LITTORINA LITTOREA IN THE GULF OF MAINE
L.C. Page and J.E. Byers, University of New Hampshire

POTENTIAL ECOSYSTEM CHANGES CAUSED BY AN INTRODUCED RED ALGA, GRATELOUPIA TURUTURU YAMADA, IN LONG ISLAND SOUND
R. Gladych and N.P. Blaschik, University of Connecticut; G.P. Kraemer, State University of New York; R. Whitlatch and C. Yarish, University of Connecticut

INVASIVE TUNICATE SPECIES IN THE BAY OF FUNDY, EASTERN CANADA
J. Martin, M.M. Le Gresley, and P. McCurdy, Fisheries and Oceans Canada; B. Thorpe, Department Fisheries; and B.D. Chang, S.M.C. Robinson, and F.H. Page, Fisheries and Oceans Canada

ESTABLISHMENT OF THE COLONIAL ASCIDIAN DIDEMNUM SP. ON GRAVEL HABITATS OF NORTHERN GEORGES BANK – EFFECTS ON BENTHIC FAUNA AND A PROBABLE SOURCE FOR FURTHER INFESTATION OF THE BANK
P.C. Valentine, U.S. Geological Survey; J.S. Collie, University of Rhode Island; R. Reid, NOAA Fisheries
RECENT INVASIONS BY ASIAN COPEPODS IN THE COLUMBIA-SNAKE RIVER SYSTEM, WASHINGTON, USA
J. Cordell, University of Washington; S.M. Bollens, Washington State University; R. Draheim and M. Sytsma, Portland State University

ESTABLISHED POPULATION OF THE NORTH AMERICAN HARRIS MUD CRAB, RHITHROPANOPEUS HARRISII, IN THE PANAMA CANAL
D.G. Roche, McGill University and M.E. Torchin, Smithsonian Tropical Research Center

A RARE EXAMPLE OF HABITAT EXPANSION BY AN INTRODUCED MARINE PREDATOR
N.A. Dobroski, University of Rhode Island; J.T. Carlton, Williams College; R.L. Fineman, Mount Holyoke College; and H.C. Olins, Wesleyan University

THE IMPACTS OF THE INVASIVE CRAB HEMIGRAPSUS SANGUINEUS ON A CRUSTACEAN-FEEDING GUILD OF FISHES IN LONG ISLAND SOUND
K.B. Heinonen and P.J. Auster, University of Connecticut

NINE YEARS OF HEMIGRAPSUS SANGUINEUS IN RYE, NEW YORK: POPULATION DYNAMICS AND INFLUENCE OF HABITAT
G.P. Kraemer, Purchase College (SUNY)

PHYSICAL FACTORS MEDIATE EFFECTS OF GRAZING BY A NONINDIGENOUS SNAIL SPECIES ON SALTMARSH CORDGRASS, SPARTINA ALTERNIFLORA IN NORTHEASTERN US SALT MARSHES
M.C. Tyrrell and M. Dionne, Wells National Estuarine Research Reserve

EFFECT OF HABITAT ALTERATION AND INVASION BY EXOTIC SPECIES ON MANGROVE ECOSYSTEMS IN FLORIDA
M. Donnelly and L. Walters, University of Central Florida

REATTACHMENT AND GROWTH STYLES OF NATIVE AND INVASIVE COLONIAL ASCIDIANS
M.R. Carman, Woods Hole Oceanographic Institution and H.M. Allen, Falmouth Academy

Outreach

YOU CAN LEAD HORSES TO BALLAST WATER INFORMATION, BUT YOU CAN'T MAKE THEM REMEMBER IT: EVALUATING THE WCBOP'S AQUATIC INVASIVE SPECIES BALLAST WATER OUTREACH
A. Dahlstrom, University of California

AQUATIC INVADERS: A NATIONAL PARTNERSHIP TO UTILIZE FREE CHOICE LEARNING TO REDUCE INTRODUCTION AND SPREAD OF AQUATIC INVASIVE SPECIES
A.J. Power, University of Georgia; P. Sloan, North Carolina Aquarium at Fort Fisher; and K.M. Patterson, North Carolina Sea Grant

Management and Risk Assessment

IDENTIFYING SIMILARITIES: AN APPLICATION FOR THE BALLAST WATER RISK ASSESSMENT
A.L. Neto and L.F.L. Legey, Federal University of Rio de Janeiro
ORGANISM IMPACT ASSESSMENTS: RISK ANALYSIS FOR POST-INCURSION MANAGEMENT
M. Campbell, Australian Maritime College

POTENTIAL RISKS OF THE INTRODUCTION OF NONINDIGEOUS PENEAS VANNAMEI FOR AQUACULTURE PRACTICES IN ERITREA
I.T. Weldemichael, Wageningen University

A RISK ASSESSMENT OF THE CLUBBED TUNICATE STYELA CLAVA (ASCIDIACEA) IN NEW ZEALAND
D.A. Kluza, Biosecurity New Zealand, and I. Ridgway, University of Wales

C. Hily, CNRS, IUEM, University of Western Brittany

ECONOMIC ANALYSIS OF MARINE INVASIVE SPECIES MANAGEMENT AND POLICY
L.M. Fernandez, University of California, Riverside

THE NEW EUROPEAN ON-LINE JOURNAL “AQUATIC INVASIONS”: AN IMPORTANT PART OF THE EUROPEAN EARLY WARNING SYSTEM ON AQUATIC INVASIVE SPECIES
S. Gollasch, GoConsult, Germany; V. Panov, Russian Academy of Sciences, Russia

THE INTERNET AS A DISPERSAL MECHANISM FOR LIVE MARINE SPECIES
L.D. Smith and K.M. Hornby, Smith College

Other

ALTERNATIVES TO MITOCHONDRIAL MARKERS FOR PHYLOGENETICS AND POPULATION GENETICS IN DIDEMNUM SP.
L.M. Stefaniak, H. Zhang, and R.B. Whitlatch, University of Connecticut; and G. Lambert, University of Washington

GENETIC EVIDENCE FOR MULTIPLE CRYPTIC INTRODUCTIONS OF THE INVASIVE COLONIAL HYDROID CORDYLOPHORA SPP.
J.A. Darling, U.S. Environmental Protection Agency and N.C. Folino-Rorem, Wheaton College

GENETIC VARIATION OF A RECENT INVASION: DIVERSITY WITHIN AND AMONG POPULATIONS OF THE CHARRU MUSSEL
E.A. Hoffman, L.J. Walters, and N.K. Gillis, University of Central Florida

TECHNIQUES TO TREAT SEED MUSSELS (PERNA CANALICULUS) ON FARMS INFECTED WITH THE INVASIVE SEA SQUIRT (DIDEMNUM VEXILLUM) IN THE MARLBOROUGH SOUNDS, NEW ZEALAND
C.M. Denny, Cawthron Institute

CRITICAL ANALYSIS OF THE IMPACTS OF INVASION TO THE NATURAL PROCESSES IN HIGHLY VULNERABLE COASTAL AREAS OF BANGLADESH
M.M. Islam, University of Toronto