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B.A., Colgate University, 1968 (Economics)
M.S., University of Massachusetts, 1975 (Marine Science/Physics)
Sc.M., Massachusetts Institute of Technology, 1979 (Physical Oceanography)

Graduate Research Assistant, 1975–1979; Visiting Investigator, 1979–1981; Research Associate, 1981–1991; Research Specialist, 1991–2000; Senior Research Specialist, 2000–2012, Oceanographer Emeritus, 2012– ,Woods Hole Oceanographic Institution.

Research Interests: Coastal circulation, shelf and estuarine dynamics, suspended sediment dynamics, analysis of data from physical observations over the continental shelf.

Author or co–author of 50 refereed scientific publications.

October, 2019

Refereed Publications

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Beardsley, R. C., R. Limeburner, K. Kim, and J. Candela, 1992. Lagrangian flow observations in the East China, Yellow, and Japan Seas. *La mer*, **30**(3), 297–314.

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Meetings Attended/Papers Presented:

1. In July 2003 I was interviewed by documentary producer David Clark for a new HDTV television program on the Discovery Channel about the sinking of the steamship *Portland* off Cape Cod in 1898. I developed a computer model to predict the drift of floating debris from the *Portland* during a strong northeast storm and successfully predicted the present location of the ship 30 miles north of Cape Cod in the Stellwagen Bank National Marine Sanctuary. The HDTV interview aired on television during April and May of 2004.

2. Buoy Lunch Talk – May 17, 2004. I gave a Buoy Lunch Talk where I presented the Discovery Channel documentary on the *Portland.* I also gave a talk on new wireless Bluetooth GPS/Pocket PC instrumentation.

3. In August, 2004 I began a new search with documentary producer David Clark for the *USS Alligator*, the **first US Navy submarine**, that sank off Cape Hatteras in 1863 during the US Civil War. NOAA and the US Navy are supporting a side-scan sonar search for the *Alligator* during August 2004 and the Discovery Science Channel is supporting the production of a documentary on this search. I used a computer model of the events surrounding the *Alligators*' sinking to predict the present location of the submarine. See the illustration below of the *USS Aligator*.

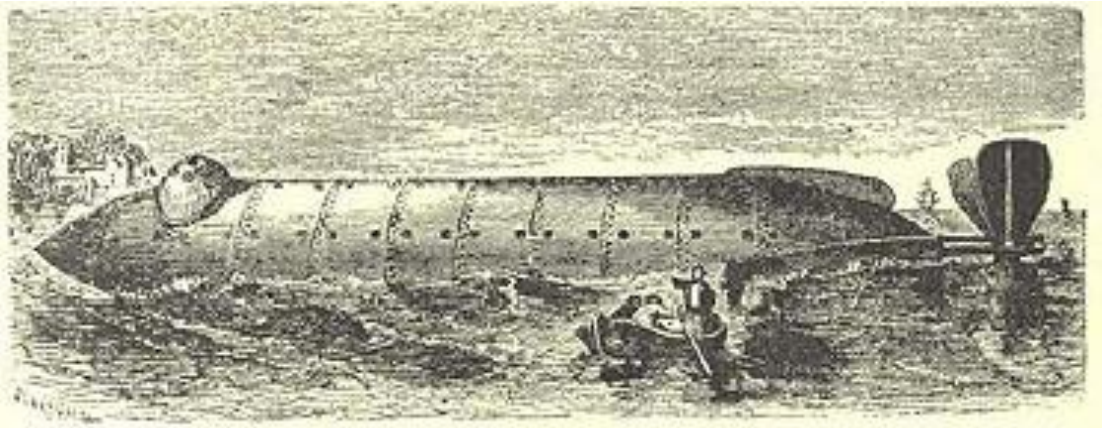

Fig. 47. — Bateau-cigare de M. Villeroi (1862).

Illustration of the cigar boat USS Alligator, the first US Navy submarine lost in 1863.

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4. EGU General Assembly 2013:EGU2013-9875. New observations of eddies and boundary currents in the Red Sea. Coauthor with Amy S. Bower. Accepted in OS2.5

5. EGU General Assembly 2013:EGU2013-4001. Sea Level Variability in the Central Region of the Red Sea by Yasser O. Abualnaja and Richard Limeburner. Accepted in OS2.5.

Participation in Cruises:

Cruise Participation, 1974 to Present:

83 Total – 27 as Chief Scientist

Professional Activities:

- Developed a circulation model on Cape Cod Bay and successfully predicted the present location of the SS Portland that sank in 1898 on Stellwagen Bank.

- An article was published in Yankee Magazine, *How They Found the Portland*, December 1989, pages 68-75 and 122-125 describes how R. Limeburner used computer analysis to locate the Portland wreck on the sea floor after 93 years.

- Taught a course on coastal physical oceanography at the Universidade Federal Do Estado do Rio de Janeiro, Brazil. August 19 - September 2, 1995.

- Visiting Investigator – October-November, 1998. National Institute of Water and Atmospheric Research, Wellington, New Zealand.

- A 54 minute documentary was produced by the Science Channel called "The Wreck of the Portland," featuring WHOI researcher Richard Limeburner. The documentary was filmed in high definition and describes the history of the steamship Portland, including a realistic animation of its sinking, the search for and discovery of it, and NOAA's confirmation of it in 2002 and 2003. Limeburner was instrumental in pinpointing the final resting place of the Portland. WHOI Advanced Visualization Lab provided the high definition camera and technical support.

- Successfully predicted location of Air France AF447 4000m below the sea surface in 2009 using the FVCOM model. The voice recorder and the cockpit data recorder were then successfully recovered by US Navy salvage and turned over to French Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation (BEA). This traffic accident was attributed to poor situational awareness of the 2 Air France pilots. 227 passengers died when the Airbus A330 stalled at 40,000 feet.

- Expert Witness in Federal Court, Providence, RI August 2019 involving an offshore recreational boat accident and death in 2016 near Block Canyon on the New England continental shelf. Written Report - Reverse Drift Analysis of the Path of the *Chicken Pox*'s Life Raft During September 18-25, 2016

- Board of Directors, Scientific Advisor,
  World's Fresh Waters PTE. Ltd.
  Waters of Patagonia. S.A.
  El Trovador 4285 piso 8, Norte
  Las Condes, Santiago de Chile
  Mob. +1646 853 7370

Summary of Past Searches for Vessels and Aircraft lost at sea using reverse drift analysis:

1. 1986 – Successfully predicted the location of a Bell helicopter lost in Rhode Island Sound. http://www.nytimes.com/1986/06/15/nyregion/clues-to-lost-copter-sought.html

2. 1989 – Successfully predicted the location of the Steamship *Portland* that sank in 1898. Minutes 20-25. https://www.youtube.com/watch?v=YGxcaruGAho

3. 2005 – Unsuccessfully predicted the location of the 1st US Navy Submarine *Alligator* lost in 1865. https://sanctuaries.noaa.gov/alligator/

4. 2011 – Successfully predicted the track of a 25' Zodiac adrift with 102 refugees in the Mediterranean off the Libyan coast of North Africa. https://deathbyrescue.org/

5. 2012 – Successfully predicted the location of Air France 447 on the N. Atlantic sea floor at a depth of 4000m. https://archimer.ifremer.fr/doc/00027/13777/

6. 2016 – Successfully predicted the track of a drifting sailboat from Vineyard Haven, MA to Muskeget Island, MA. http://www.mvtimes.com/2016/11/02/boat-missing-vineyard-haven-harbor-found-muskeget-island/

Graduate Advisor: Robert C. Beardsley (WHOI) and John Hart (MIT)

Synergistic Activities: Limeburner's research has focused on understanding physical processes in the coastal environment. This research effort is dependent on the use of new and improved instrumentation and has often led to improvements in the instrumentation themselves. Examples are recent instrument modifications of the WHOI ASIMET meteorological recorders and new software to process GPS positions in the ARGOS system.