

## Dr. Britt Raubenheimer

<http://science.whoi.edu/users/elgar/main.html>

### (a) Professional Preparation:

Undergraduate: Middlebury College	Middlebury, VT	Physics, B.A. 1987
Graduate: Scripps Inst. Oceanography	La Jolla, CA	Oceanography, Ph.D. 1996
Postdoctoral: Scripps Inst. Oceanography	La Jolla, CA	Oceanography, 1996-1999

### (b) Appointments:

Scientist (Assistant, Associate, Senior), Woods Hole Oceanographic Institution, 1999-present

### (c) Products:

#### *Five Products Related to Proposed Research and Five Other Products:*

(\* represents a student or postdoc)

1. Raubenheimer, B., and R.T. Guza, Observations and predictions of run-up, **J. Geophys. Res.**, **101**, 25,575-25,588, 1996.
2. Raubenheimer, B., Observations and predictions of fluid velocities in the surf and swash zones, **J. Geophys. Res.**, **107**, 3190, doi:10.1029/2001JC001264, 2002.
3. Raubenheimer, B., Steve Elgar, R.T. Guza, Observations of swashzone velocities: a note on friction coefficients, **J. Geophys. Res.**, **109**, doi:10.1029/2003JC001877, 2004.
4. \*Apotsos, A., B. Raubenheimer, S. Elgar, R.T. Guza, Wave-driven setup and alongshore flows observed onshore of a submarine canyon, **J. Geophys. Res.**, **113**, C07025, doi:10.1029/2007JC004514, 2008.
5. \*Hansen, J., B. Raubenheimer, J. List, S. Elgar, Modeled alongshore circulation and force balances onshore of a submarine canyon, **J. Geophys. Res.**, **120**, doi:10.1002/2014JCO10555, 2015.
6. Brodie, K.L., B. Raubenheimer, S. Elgar, \*R.K. Slocum, J.E. McNinch, Lidar and pressure measurements of inner-surf zone waves and setup, **J. Atmos. Ocean Tech.**, **32(10)**, 1945-1959, 2015 (**Winner 2016 CHL Outstanding Journal Submission**).
7. \*Moulton, M., S. Elgar, B. Raubenheimer, J.C. Warner, N. Kumar, Rip currents and alongshore flows in channels dredged in the surf zone, **J. Geophys. Res.**, 10.1002/2016JC012222, 2017.
8. \*Wargula, A., B. Raubenheimer, S. Elgar, Curvature- and wind-driven cross-channel flows at an unstratified tidal bend, **J. Geophys. Res.**, 10.1002/2017JC013722, 2018.
9. \*Wargula, A., B. Raubenheimer, S. Elgar, J.-L. Chen, F. Shi, P. Traykovski, Flow asymmetry owing to inertia and waves on an unstratified, shallow ebb shoal, **J. Geophys. Res.**, **123** (9), 6779-6799, 2018.
10. Elgar, S., B. Raubenheimer, D. Clark, M. Moulton, Extremely low frequency (0.1 to 1.0 mHz) surfzone currents, **Geophys. Res. Lett.**, 10.1029/2018GL081106, 2019.

#### **(d) Synergistic Activities:**

(i) I developed 6-month fellowship and 2-week internship programs during which I taught and provided hands-on experience with field array design, deployment, and maintenance principles, instrument selection criteria, data quality control techniques, and common data issues to 26 undergraduates and recent graduates.

(ii) Data from more than 30 field and modeling studies that I have led or participated in has been distributed publicly (<https://pv-lab.org>), and has formed the basis of undergraduate senior projects, graduate student dissertations, and postdoctoral research studies.

(iii) I am leading nearshore-community science efforts through participation on the Nearshore Future Meeting steering committee, the ASBPA Technical Advisory Committee (2017-present), the DUNEX steering committee, the USCRP Academic Advisory Team (2019 – present), and the NSF CoPe Synthesis Committee.

(iv) I am organizing inter-disciplinary storm research by groups of academics, federal agencies, and stakeholders by leading a listserv ([rapid@whoi.edu](mailto:rapid@whoi.edu)), an NSF CONVERGENCE: RAISE effort, and the Nearshore Extreme Events Reconnaissance (NEER) Association (which coordinates with other NSF-funded groups via the CONVERGE Leadership Corps).

(v) I assist with OceanInsight visits for visually impaired and blind students to provide a role model as a visually impaired scientist.

## NSF BIOGRAPHICAL SKETCH

NAME: Elgar, Steve

POSITION TITLE & INSTITUTION: Senior Scientist, Woods Hole Oceanographic Institution

### (a) PROFESSIONAL PREPARATION

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE (if applicable)	YEAR YYYY
University of Idaho	Moscow, ID	Mathematics & Civil Engineering	BS	1980
Scripps Institution of Oceanography	San Diego, CA	Oceanography	MS	1981
Scripps Institution of Oceanography	San Diego, CA	Oceanography	PHD	1985

### (b) APPOINTMENTS

1999 - present Senior Scientist, Woods Hole Oceanographic Institution, Woods Hole, MA

1986 - 1999 Asst., Assoc., Full Professor, Washington State University, Pullman, WA

### (c) PRODUCTS

#### Products Most Closely Related to the Proposed Project

1. Elgar S, Thomson\* J, Moulton\* M. Resonances in an evolving hole in the swash zone [Featured as an ASCE "Research Highlight"]. J. Water., Port, Coast., and Ocean Eng. 2012; 138:299. DOI: 10.1061/(ASCE)WW.1943-5460.0000136
2. \*Clark D, Elgar S, Raubenheimer B. Vorticity generation by short-crested wave breaking. Geophys. Res. Letters. 2012; 39:L24604. DOI: 10.1029/2012GL054034
3. Brodie K, Raubenheimer B, Elgar S, McNinch J. Lidar and pressure measurements of inner-surf zone waves and setup (Coastal Hydraulics Lab Outstanding Publication, 2015). J. Atmos. and Oceanic Tech. 2015; 32:1945-1959. DOI: 10.1175/JTECH-D-14-00222.1
4. Moulton\* M, Elgar S, Raubenheimer B, Warner J, Kumar N. Rip currents and alongshore flows in channels dredged in the surf zone. J. Geophys. Res. 2017; 122. DOI: 10.1002/2016JC012222
5. \*Hansen J, Raubenheimer B, Elgar S, List J, Lippmann T. Physical linkages between offshore bathymetry and surf zone morphologic change. J. Geophys. Res. 2017; 122. DOI: 10.1002/2016JC012319

#### Other Significant Products, Whether or Not Related to the Proposed Project

1. \*Orescanin M, Elgar S, Raubenheimer B. (COVER), Effects of a shallow flood shoal and friction on hydrodynamics of a multiple-inlet system. J. Geophys. Res. 2017; 122. DOI: 10.1002/2016JCO12502
2. \*Hopkins J, Elgar S, Raubenheimer B. Storm impact on morphological evolution of a sandy inlet. J. Geophys. Res. 2018; 123:5751-5762. DOI: 10.1029/2017JC013708
3. Elgar S, Raubenheimer B, Clark D, Moulton M. Extremely low frequency (0.1 to 1.0 mHz) surfzone

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[\* student or postdoc]

currents. Geophys. Res. Letters. 2019; 46. DOI: 10.1029/2018GL081106

4. \*Reffitt M, Orescanin M, Massey C, Raubenheimer B, Elgar S. Modeling Storm Surge in a Small Tidal Two-inlet System. J. Water., Port, Coast., and Ocean Engr. Forthcoming;
5. Elgar S, Raubenheimer B. Field evidence for inverse energy cascades in the surf zone. J. Phys. Oceanog. Forthcoming; DOI: 10.1175/JPO-D-19-0327.1

**(d) SYNERGISTIC ACTIVITIES**

1. Editorial service to professional organizations (e.g., AGU EOS), journals (IEEE Signal Processing), and agencies (review of NRL Geophysics).
2. Participation in, and leadership of multi-PI, multi-agency field-oriented research programs, many focused on surf and swash processes (e.g., Duck projects).
3. Graduate student activities in the last few years include mentoring four female PhD students (now at the University of Washington APL (assistant scientist), the Naval Postgraduate School (assistant professor), Northeastern University (assistant professor), and one just starting her graduate career).
4. Postdoctoral researcher advisor, with recent former postdocs now at U. Delaware (Tom Hsu), U. Washington APL (Jim Thomson), WHOI and industry (David Clark), Naval Research Lab (Erika Johnston), and Northeastern University (Julia Hopkins).
5. Service on advisory committees of the National Academy of Sciences, includes reviewing proposals and providing information on intelligence (e.g., Intelligence Science and Technology Experts Group), security, education, and basic research science of importance to national security.

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[\* student or postdoc]