

APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH

1. General Information

1.1 Cruise name and/or number:	C268: HSWE - F2016-001
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1.2 Sponsoring institution(s):		
Name	Address	Name of Director
Sea Education Association	PO Box 6 Woods Hole, MA 02543	Peg Brandon

1.3 Scientist in charge of the project:	
Name:	Paul Joyce
Country:	US
Affiliation:	Sea Education Association
Address:	P.O. Box 6 Woods Hole, Massachusetts 02543 US
Telephone:	508-444-1907
Email:	pjoyce@sea.edu

1.4 Entity(ies) /Participant(s) from coastal State involved in the planning of the project:	
Name:	See Section 6.2.
Country:	
Affiliation:	
Address:	
Telephone:	
Fax:	
Email:	
Website (for CV and photo):	

2. Description of Project

2.1 Nature and objectives of the project:
SEA is an educational institution offering primarily college students the opportunity to study oceanography on a research vessel. There are a variety of programs offering several research themes on two different vessels. The primary purpose of our scientific research is to teach ocean stewardship to college undergraduate students through a cross-disciplinary approach, part of which includes a variety of oceanographic sampling techniques. Each student must design a research project ashore and carry out that research project during the cruise, therefore, several projects are being conducted at any one time. In addition, some data is collected for long-term research projects carried out by staff scientists at the Sea Education Association. These projects span the four disciplines of oceanography (biological, chemical, geological, and physical) and examples of the types of specific projects include studies of the abundance and distribution of plankton, floating plastic, the biology of thermal fronts, the geology of carbonate banks and islands, physical and chemical oceanography of the regions, and the comparative ecology of shallow productive banks among others.

2.2 Relevant previous or future research projects:
SEA has been operating educational research for over 35 years. Through this work, we have worked with the State Department and numerous Coastal States to secure permission to conduct oceanographic research in territorial waters prior to the start of our cruises.

2.3 Previous publications relating to the project:
The fact that we sail areas of the ocean not frequently covered by other research vessels has allowed us to contribute to the research of a number of outside investigators as vessels of opportunity, resulting in the publication of at least 40 articles on topics in physics, chemistry, geology, biology, meteorology, and pollution. In addition, SEA oceanographers occasionally publish results of data collected with student help. Some representative articles (including those by SEA oceanographers Paul Joyce, Amy Bower, Erik Zettler, Kara L. Law, and Skye Mor@t-Ferguson) are cited below. Joyce, P. 1998. Floating tar in the western North Atlantic and Caribbean Sea, 1982-1996. <i>Baseline</i> 36:167-171. Lynch-Stieglitz, J., W.B. Curry, and N. Slowey. 1999. Weaker Gulf Stream in the Florida Straits during the last glacial maximum. <i>Nature</i> 402:644-648. Podar, M., S.H.D Haddock, M. Sogin, and G.R. Harbison. 2001. A molecular phylogenetic framework for the phylum Ctenophora using 18S rRNA genes. <i>Molecular Phylogenetics and Evolution</i> 21:218-230. Bower, A., E.R. Zettler, and G. Gawarkiewicz. 2004. Science under Sail. <i>Oceanography</i> 17:42-51. Kukulka, T., G. Proskurowski, S. Mor@t-Ferguson, D. Meyer, K.L. Law. The effect of wind mixing on the vertical distribution of buoyant plastic debris: Observations and Modeling. <i>Geophysical Research Letters</i> , 39, L07601. Mor@t-Ferguson, S., et al., 2010. The size, mass, and composition of plastic debris in the western North Atlantic. <i>Marine Pollution Bulletin</i> 60, 1873-1878. Law, K.L. and N. Maximenko, 2011. Understanding Sources, Sinks, and Transport of Marine Debris. <i>Meetings Report, Eos</i> , 92 (28) p235. Engels, M., L. Correia, S. Pivinski, L. Cheng, and E. Zettler. 2014. Seasonal and decadal changes in distribution patterns of Halobates (Hemiptera: Gerridae) populations in the eastern tropical Pacific. <i>Marine Biology</i> . Jambeck, J. R., R. Geyer, C. Wilcox, T. R. Siegler, M. Perryman, A. Andradý, R. Narayan and K. L. Law, 2015. Plastic waste inputs from land into the ocean. <i>Science</i> 347, 768-771.

3. Geographical Areas

3.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude, including coordinates of cruise track/ way points):
Please Note: Entry and dates from research areas can vary significantly since we are a sailing research vessel and thus our schedule is weather dependent. If requested, we can provide a progress report and a more detailed schedule for the vessel as the cruise progresses through the waters of individual coastal states. The cruise track will sail southeast from Cork, Ireland to Brest, France. After a brief port stop, the ship will sail south across the Bay of Biscay to Lisbon, Portugal before ending the cruise in Cadiz, Spain. Due to our educational mission, we seldom have exact locations where we need to sample. Generally samples are taken daily along the cruise track however, here are some tentatively proposed sampling locations: 1) 51.12N x 7.88W 2) 50.33N x 7.13W 3) 49.25N x 6.55W 4) 48.54N x 5.75W 5) 45.95N x 6.66W 6) 44.97N x 8.07 W 7) 43.12N x 10.39W 8) 41.13N x 10.23W 9) 36.85N x 9.75W
3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical areas of the intended work and, as far as practicable, the location and depth of sampling stations, the tracks of survey lines, and the locations of installations and equipment. Chart provided - see Section 10.1.

4. Methods and Means to be Used

4.1 Particulars of vessel:		
Name:	CORWITH CRAMER	
Type/Class:	Ship	
Nationality (Flag state):	United States	
Identification Number (IMO/Lloyds No.):		
Owner:	Sea Education Association	
Operator:	Sea Education Association	
Overall length (meters):	41.00	
Maximum draught (meters):	4.00	
Displacement/Gross tonnage:	280.00	
Propulsion:	Sail; auxiliary 500 horsepower (370 kW) Cummins diesel	
Cruising:		
Maximum speed:		
Call sign:	WTF 3319	
INMARSAT number and method and capability of communication (including emergency frequencies):	VHF 16	
Name of master:	Elliot Rappaport	
Number of crew:	6	
Number of scientists on board:	4	
4.2 Other craft in the project, including its use:		
One 15 foot (5 m) hard bottom inflatable boat with 25 HP outboard engine		
4.3 Particulars of methods and scientific instruments:		
Types of samples and measurements	Methods to be used	Instruments to be used
1. Surface water (temperature, salinity, fluorescence, transmittance nutrients, pH) 2. Water column (temperature, salinity, fluorescence, transmittance nutrients, pH) 3. Plankton and Nekton 4. Marine Debris 5. Benthic organisms and Sediments 6. Currents & Hydrography 7. Enumeration of marine debris and fauna	1. In vivo (surface water) optical and wet-chemistry analysis (titration and reduction) 2. in situ (water column) optical and wet-chemistry analysis (titration and reduction) 3. Plankton net tows (plankton and nekton), sieving and bio-volume, microscope counts, epifluorescence, molecular techniques 4. Surface net tows (marine debris), sieving and bio-volume, microscope counts 5. Sediment grabs (benthic organisms & sediments), sieving, microscope observation 6. Doppler and echosounder analysis 7. Observations, drone use (as permitted)	1. Continuous seawater flow-through system 2. Sampling carousel (CTD, PAR sensor, CDOM sensor, Oxygen sensor, chl-a fluorometer, 12x 2.5L Niskin water sampling bottles), UV-VIS spectrophotometer, in situ fluorometer, titration 3. Plankton nets (333um) 4. Surface net (333um) 5. Shipek grab (occasional), fisher scoop (occasional), gravity corer (infrequent) 6. Acoustic Doppler Current Profiler & CHIRP sub-bottom profiler 7. Personnel observations, Phantom 3 (or similar) with digital recording device
4.4 Indicate nature and quantity of substances to be released into the marine environment:		
No		
4.5 Indicate whether drilling will be carried out. If yes, please specify:		

No

4.6 Indicate whether explosives will be used. If yes, please specify type and trade name, chemical content, depth of trade class and stowage, size, depth of detonation, frequency of detonation, and position in latitude and longitude:
No

4.7 Indicate whether protected species be studied. If yes, please specify:
No

5. Installations and Equipment

Details of installations and equipment (including dates of laying, servicing, method and anticipated timeframe for recovery, locations and depth, and measurements):
No

6. Dates

6.1 Expected dates of first entry into and final departure from the research area by the research vessel and/or other platforms:
Project Start Date: Jul 06, 2016
Project End Date: Aug 07, 2016

6.2 Coastal State-specific details:		
Coastal Area	Estimated Entry Date	Estimated Departure Date
Ireland	Jul 06, 2016	Jul 13, 2016

Explanation of multiple entries: N/A
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Research will be performed: within 12 nm

Extent to which Ireland will be enabled to participate or to be represented in the research project: ***Please Note: Entry and exit dates from research areas can vary since we are a sailing research vessel and thus our schedule is weather dependent. If requested, we can provide a progress report and a more detailed schedule for the vessel as the cruise progresses through the waters of individual coastal states.*** SEA routinely cooperates with coastal states by offering one berth to a visiting scientist. Because of our educational mission, we prefer that the participant be a researcher or educator who can benefit from the experience and contribute their expertise to the students. SEA will pay all reasonable round-trip airfare expenses to the point of departure, with a return to home. SEA will also provide room and board to the participant during his/her time aboard, however we cannot provide a per diem or any other remuneration to the individual. Our schedules and cruise tracks are not flexible enough to allow for the vessel to make special port calls in order to pick up or drop off the observer. Please note that because our ships are generally full we request that the participant be identified at least one month before the trip commences (by 6 June 2016), so that we can make travel and onboard arrangements.

Name, affiliation and contact information for all participants from Ireland:		
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Coastal Area	Estimated Entry Date	Estimated Departure Date
France	Jul 06, 2016	Jul 26, 2016

Explanation of multiple entries: N/A
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Research will be performed: within 12 nm

Extent to which France will be enabled to participate or to be represented in the research project: ***Please Note: Entry and exit dates from research areas can vary since we are a sailing research vessel and thus our schedule is weather dependent. If requested, we can provide a progress report and a more detailed schedule for the vessel as the cruise progresses through the waters of individual coastal states.*** SEA routinely cooperates with coastal states by offering one berth to a visiting scientist. Because of our educational mission, we prefer that the participant be a researcher or educator who can benefit from the experience and contribute their expertise to the students. SEA will pay all reasonable round-trip airfare expenses to the point of departure, with a return to home. SEA will also provide room and board to the participant during his/her time aboard, however we cannot provide a per diem or any other remuneration to the individual. Our schedules and cruise tracks are not flexible enough to allow for the vessel to make special port calls in order to pick up or drop off the observer. Please note that because our ships are generally full we request that the participant be identified at least one month before the trip commences (by 6 June 2016), so that we can make travel and onboard arrangements.
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Name, affiliation and contact information for all participants from France:		
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Coastal Area	Estimated Entry Date	Estimated Departure Date
Spain	Jul 16, 2016	Aug 07, 2016

Explanation of multiple entries: The ship will be departing Brest around 17-July 2016 and transiting through Spanish waters on her way to Lisbon, Portugal (scheduled arrival around 27-July 2016). After departure from Lisbon, Portugal, SSV Corwith Cramer will re-enter Spanish waters on her way to Cadiz, Spain.
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Research will be performed: within 12 nm

Extent to which Spain will be enabled to participate or to be represented in the research project:

<p>***Please Note: Since we are a sailing research vessel, our schedule is highly dependent on weather. Thus entry and exit dates from territorial waters can vary substantially and we have tried to account for this in the estimated entry and departure dates. If requested, we can provide a progress report and a more detailed schedule for the vessel as the cruise progresses through the waters of individual coastal states.*** SEA routinely cooperates with coastal states by offering one berth to a visiting scientist. Because of our educational mission, we prefer that the participant be a researcher or educator who can benefit from the experience and contribute their expertise to the students. SEA will pay all reasonable round-trip airfare expenses to the point of departure, with a return to home. SEA will also provide room and board to the participant during his/her time aboard, however we cannot provide a per diem or any other remuneration to the individual. Our schedules and cruise tracks are not flexible enough to allow for the vessel to make special port calls in order to pick up or drop off the observer. Please note that because our ships are generally full we request that the participant be identified at least one month before the trip commences (by 6-June 2016), so that we can make travel and onboard arrangements.</p>		
Name, affiliation and contact information for all participants from Spain:		
Coastal Area	Estimated Entry Date	Estimated Departure Date
Portugal	Jul 20, 2016	Aug 05, 2016
Explanation of multiple entries: N/A		
Research will be performed: within 12 nm		
Extent to which Portugal will be enabled to participate or to be represented in the research project:		
<p>***Please Note: Since we are a sailing research vessel, our schedule is highly dependent on weather. Thus entry and exit dates from territorial waters can vary substantially and we have tried to account for this in the estimated entry and departure dates. If requested, we can provide a progress report and a more detailed schedule for the vessel as the cruise progresses through the waters of individual coastal states.*** SEA routinely cooperates with coastal states by offering one berth to a visiting scientist. Because of our educational mission, we prefer that the participant be a researcher or educator who can benefit from the experience and contribute their expertise to the students. SEA will pay all reasonable round-trip airfare expenses to the point of departure, with a return to home. SEA will also provide room and board to the participant during his/her time aboard, however we cannot provide a per diem or any other remuneration to the individual. Our schedules and cruise tracks are not flexible enough to allow for the vessel to make special port calls in order to pick up or drop off the observer. Please note that because our ships are generally full we request that the participant be identified at least one month before the trip commences (by 6-June 2016), so that we can make travel and onboard arrangements.</p>		
Name, affiliation and contact information for all participants from Portugal:		
Coastal Area	Estimated Entry Date	Estimated Departure Date
United Kingdom	Jul 06, 2016	Jul 14, 2016
Explanation of multiple entries: N/A		
Research will be performed: within 12 nm		
Extent to which United Kingdom will be enabled to participate or to be represented in the research project:		
<p>***Please Note: Since we are a sailing research vessel, our schedule is highly dependent on weather. Thus entry and exit dates from territorial waters can vary substantially and we have tried to account for this in the estimated entry and departure dates. If requested, we can provide a progress report and a more detailed schedule for the vessel as the cruise progresses through the waters of individual coastal states.*** SEA routinely cooperates with coastal states by offering one berth to a visiting scientist. Because of our educational mission, we prefer that the participant be a researcher or educator who can benefit from the experience and contribute their expertise to the students. SEA will pay all reasonable round-trip airfare expenses to the point of departure, with a return to home. SEA will also provide room and board to the participant during his/her time aboard, however we cannot provide a per diem or any other remuneration to the individual. Our schedules and cruise tracks are not flexible enough to allow for the vessel to make special port calls in order to pick up or drop off the observer. Please note that because our ships are generally full we request that the participant be identified at least one month before the trip commences (by 6-June 2016), so that we can make travel and onboard arrangements.</p>		
Name, affiliation and contact information for all participants from United Kingdom:		

7. Port Calls

Port	Arrival Date	End Date	Special Logistical Requirements	Shipping Agent
Cork	7/6/2016	7/8/2016	none; SEA vessels are self-sufficient	none; SEA vessels generally do not use an agent
Lisboa	7/27/2016	7/30/2016	none; SEA vessels are self-sufficient	none; SEA vessels generally do not use an agent
Brest	7/12/2016	7/17/2016	none; SEA vessels are self-sufficient	none; SEA vessels generally do not use an agent
Cadiz	8/3/2016	8/7/2016	none; SEA vessels are self-sufficient	none; SEA vessels generally do not use an agent

8. Participation of the representative of the coastal State

8.1 Modalities of the participation of the representative of the coastal State in the research project: See Section 6.2.

8.2 Proposed dates and ports for embarkation/disembarkation: See Section 6.2.
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9. Access to Data, Samples and Research Results

9.1 Expected dates of submission to coastal State of preliminary report, which should include the expected dates of submission of the data and research results: No more than 60 days from the end date of the research as provided in Section 6.1.
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9.2 Anticipated dates of submission to the coastal State of the final report: No more than 2 years from the end date of the research as provided in Section 6.1.

9.3 Proposed means for access by coastal State to data (including format) and samples: Data will be provided through official channels at no cost to the coastal State(s). Samples will be provided upon request.
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9.4 Proposed means to provide coastal State with assessment of data, samples and research results: Assessment of data, samples and research results will be provided at no cost to the coastal State(s).

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples and research results: Assistance in further assessment or interpretation will be provided upon request.
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9.6 Proposed means of making results internationally available: Some results are published in international scientific journals. Unpublished data can be made available by arrangement with the SEA Science Coordinators by contacting: jclermont@sea.edu, website: www.sea.edu
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10. List of Supporting Documentation

10.1 List of attachments, such as additional forms required by the coastal State, etc.:			
Attachment Type	Description	Attachment	Submission Date
Supplemental Material	Chief Scientist CV	6058662500_Paul Joyce Resume.doc	Jan 05, 2016
Proposed Cruise Track	C268 Proposed cruise track	7518037500_C268 Cruise Prospectus.pdf	Jan 05, 2016
Supplemental Material	UN Form A French Translation	8730225000_F2016-001_C268 - UN FORM A - Francais.pdf	Jan 05, 2016