

Application for Consent to Conduct Marine Scientific Research
in Japan

Date: Feb 2, 2009

1. General Information

1.1 Project name and/or #:	Quantifying, Predicting, and Exploiting Uncertainty (QPE) Experiment
1.2 Undertaking institution:	Scripps Institution of Oceanography
Name:	Rose Dufour/Elizabeth Brenner
Address:	Scripps Institution of Oceanography University of California 9602 La Jolla Shores Drive La Jolla, CA 92037 858-534-2841 shipsked@ucsd.edu
Name of Director:	Dr. Tony Haymet
1.3 Government Agency Responsible for Supervising the Project:	
Name	
Address	U.S. Office of Naval Research 875 North Randolph Street, Suit 1425 Arlington, VA 22203-1995
1.4 Scientist in charge of the project:	
Name:	Dr. Ren-Chieh Lien Dr. Thomas B. Sanford Dr. Luca Centurioni
Address:	Applied Physics Laboratory University of Washington 1013 NE 40th St Seattle, WA 98105-6698 USA Scripps Institution of Oceanography 9500; Gilman Drive 0244 La Jolla CA 92093-0244 USA
Telephone:	206 685-1079 Lien 206 543-1365 Sanford 858 534-6182 Centurioni
Telex:	+1-206-543-6785 (Lien)
E-mail Address:	lien@apl.washington.edu sanford@apl.washington.edu lcenurioni@ucsd.edu

1.5 Scientist(s) from Japan involved in the planning of the project:	
None	
Name(s):	
Address:	

2. Description of Project (Attach additional pages as necessary)

2.1 Nature and objectives of the project:
The primary task of this project is to understand the dynamics of Kuroshio interaction with continental shelf and slope.

2.2 Relevant previous or future research cruises:
A pilot study was conducted in August 22-Sept 11, 2008 led by Glen Gawarkiewicz on Taiwanese RVs.

2.3 Previously published research data relating to the project:
None

3. Methods and Means to be Used

3.1 Particulars of vessel:	
Name:	R/V <i>Melville</i>
Nationality (Flag state):	USA
Owner:	US Navy
Operator:	Scripps Institution of Oceanography
Overall length (meters):	85 m
Maximum draught (meters):	5 m
Displacement/Gross tonnage:	2,516
Propulsion:	Two 1385 hp Z-Drive
Cruising & Maximum speed:	11.7 knots, 14 knots
Call sign:	WECB
Method and capability of communication (including emergency frequencies):	HF/SSB Radio, F77 voice 011 872 763452498 Email: master@rv-melville.ucsd.edu
Name of master:	Captain Christopher Curl
Number of crew:	21
Number of scientists on board:	38

3.2 Aircraft or other craft to be used in the project:
No aircraft.

3.3 Particulars of methods and scientific instruments		
Types of samples and data	Methods to be used	Instruments to be used

R/V Melville		
T, S, and velocity profiles	Vertical profiles of floats	EM-APEX floats (Sanford)
T and velocity profiles	Restrained ADCP moorings with T-chain	ADCPs and T-chains (Centurioni)
T, S, and velocity profiles	Subsurface moorings with ADCP and TC chain	75 kHz ADCPs and Seabird CTD sensors (Lien)
T and S profiles	Ship-based CTD casts	Shipboard Seabird lowered CTD
Water velocity profiles	Ship-based surveys	Shipboard ADCP, GPS, GPS attitude
Meteorological variables (e.g. wind speed, heat flux, air temperature, etc)	Ship-based surveys	Shipboard meteorological sensors
Underway (UW) multibeam	Swath mapping	Kongsberg em120 150 degree swath width, 121 bathymetry beams, plus backscatter imagery
UW Mags	Magnetometer deployment	Marine Magnetics total field gradiometer
UW Gravity	Gravimeter	Bell Gravimeter

*Indicate type and specification of instruments (e.g. length and number of cables towed)

3.4 Indicate whether harmful substances will be used:
None

3.5 Indicate whether drilling will be carried out:
None

3.6 Indicate whether explosives will be used (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):
None

3.7 Indicate whether the project involves catching, taking, or exploration of marine animal and plants:
None

N.B. When the research project involves catching, taking or exploration of marine animals and/or plants in the exclusive economic zone of Japan, a separate approval from the Ministry of Agriculture, Forestry, and Fisheries of Japan under the Law on the

Exercise of Sovereign Rights Concerning Fisheries in the Exclusive Economic Zone shall also be necessary. Applicants may submit the application form provided in Annex II through diplomatic channels. Catching and taking of marine animals and/or plants in the territorial Sea of Japan is generally prohibited by the Law for Regulation for Fishing Operation of Foreign Nationals and shall not be approved.

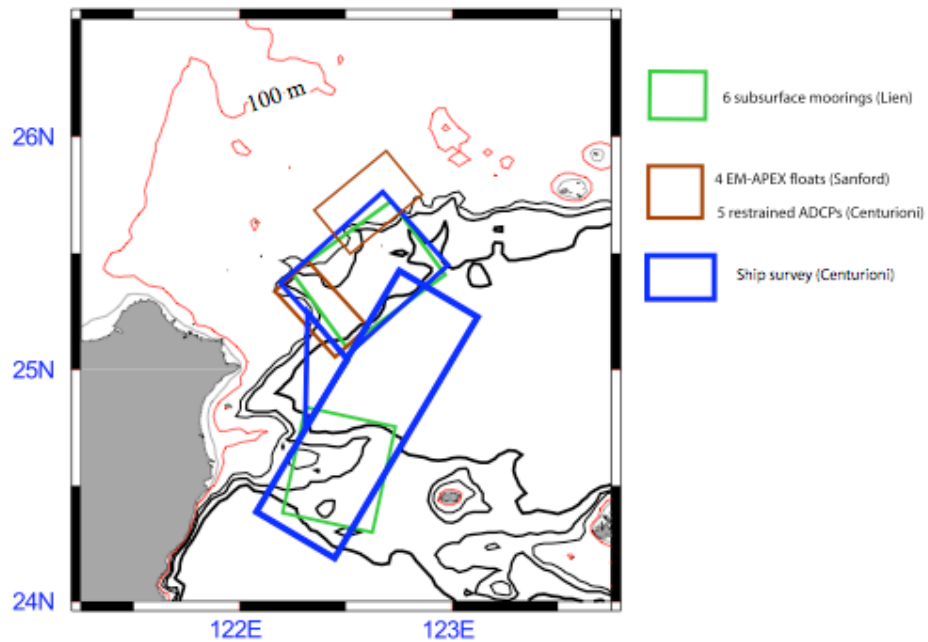
4. Installations and Equipment

<p>Details of installations and equipment (dates of laying, servicing, recovery; exact locations and depth):</p> <p><u>Six subsurface moorings within the green boxes in the chart under 5.2:</u> deployed on 3-9 August 2009 and recovered on 12-16 September 2009, exact locations will be determined before the cruise. Work will be contained within 122° 28' E 25N, 122° 50 E 25° 28' N, 122° 45' E 25° 45' N, 122° 10 E 25° 15'N, and 122° 40' E 24° 45'N, 122° 10' E 24° 45'N, 122° 15 'E 24° 25' N, 122° 35' E 24° 20' N</p> <p><u>CTD casts-</u> in blue box during cruise from 13- 21 August. Work will be contained within 122° E 24° 20' N, 122° 28' E 24° 15' N, 123° 10' E 25° 15' N, 122° 30' E 25° 28' N, and 122° 28' E 25N, 122° 50 E 25° 28' N, 122° 45' E 25° 45' N, 122° 10 E 25° 15N</p> <p><u>Four EM-APEX floats deployed within the brown boxes in the chart under 5.2:</u> Floats will be deployed and recovered during the cruise on 23 August – 7 September 2009. Work will be contained within 122° 32'E 25° 30'N, 122° 20'E 25° 40'N, 122° 40'E 25° 55'N, 122° 50'E 25° 45'N and, 122° 20' E 25° N, 122° 07 E 25° 15N, 122° 30E 25° 10N, 122° 15 E 25° 28' N.</p> <p><u>Five restrained ADCPs within northern brown box in the chart under 5.2:</u> Restrained ADCPs will be deployed in the cruise 13-21 August 2009 and recovered in the cruise 12-16 September 2009. Work will be contained within: 122° 32'E 25° 30'N, 122° 20'E 25° 40'N, 122° 40'E 25° 55'N, 122° 50'E 25° 45'N</p>

5. Geographical Areas

<p>5.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude):</p> <p>The project is to be conducted in Philippine Sea and East China Sea. The general areas of operations are shown in the following chart in 5.2.</p>

5.2 Attach chart(s) at an appropriate scale showing the geographical areas of the intended work and, as far as practicable, the positions of intended stations, the tracks of survey lines, and the locations of installations and equipment.



The exact locations of 6 subsurface moorings, 5 restrained ADCPs, and ship

8.1 Extent to which Japanese scientists or officials will be enabled to participate or to be represented in the research project:

Participation by Japanese colleagues encouraged.

8.2 Proposed dates and ports for embarkation / disembarkation:

Keelung, Taiwan

1-3 August 2009 (Lien embarkation)

9-13 August 2009 (Lien disembarkation; Centurioni embarkation)

21-23 August 2009 (Centurioni disembarkation; Sanford embarkation)

7-8 September 2009 (Sanford disembarkation; Lee embarkation)

11-12 September 2009 (Lee disembarkation; Lien embarkation)

16-19 September 2009 (Lien disembarkation)

9. Access to data, samples and research results

9.1 Expected dates of submission to the Ministry of Foreign Affairs of Japan of preliminary reports and data which should include the expected dates of submission of the final results:

Preliminary reports shall be delivered no more than 30 days from the end date of the cruise.

9.2 Proposed means for access by Japanese scientists or officials to samples:

CD or DVD provided, with further access to the data via internet download or CD/DVD on request.

9.3 Proposed means to provide Japan with assessment of data, samples and research results or provide assistance in their assessment or interpretation:

Participation in international data analysis workshops and science symposia during the analysis phase of the project.

9.4 Proposed means of making results internationally available:

Publication in scientific journals and reports.

(Form revised August 27, 2003)

Annex II

This form does not apply to the research in question: All entries are not applicable.

To: The Minister of Agriculture, Forestry, and Fisheries of Japan

APPLICATION FOR CATCHING, TAKING, AND/OR EXPLORATION OF MARINE
ANIMALS AND/OR PLANTS FOR MARINE SCIENTIFIC RESEARCH IN THE
EXCLUSIVE ECONOMIC ZONE OF JAPAN

Date: _____

I hereby submit an application form for the approval of catching, taking, and/or exploration of marine animals and/or plants.

1. Applicant

- (1) Name
- (2) Nationality
- (3) Address and Telephone (telex, telefax)

2. Vessel(s) to be used in the research activities

- (1) Name of the Vessel(s)
- (2) Name and address of the owner
- (3) Name and address of the captain
- (4) Identification number indicated on the hull
- (5) Overall length, width, and maximum draught
- (6) Net tonnage or gross tonnage
- (7) Power of the main engine, its maximum speed
- (8) Call sign, method and capability of communication (including telex),
frequencies in case of emergency

3. Description of the activities (catching, taking, and/or exploration of marine animals and/or plants)

4. Objectives of catching, taking, and/or exploration

5. Method and instruments to be used for catching, taking, and/or exploration

6. Species and amounts of marine animals and/or plants to be caught or taken

7. Geographical area(s) in which catching, taking, and/or exploration is to be conducted (with reference in latitude and longitude)

8. Duration of catching, taking, and/or exploration, dates of entry and departure to and from the EEZ of Japan

I hereby declare that the above—mentioned information is true and complete.

Signature of the Applicant