

**PICES-2020 Spring School**  
**Coastal Ocean Observatory Science**  
**March 4-8, 2020, Kagoshima, Japan**

**Schedule**

March 4<sup>th</sup> (Wednesday): Fisheries Library

15:00-15:30 Workshop registration (Seminar room at Fisheries Library)

- All participants come to the registration desk and receive all documents (name tag, time schedule and textbook).

15:30-16:00 Opening session (Seminar room at Fisheries Library)

- Welcome address and description on background and objectives (Yoshie)
- Orientation for schedules and facilities including experimental room and accommodation, and neighboring sites (e.g. supermarket) (Kobari)

16:00-16:30 Registration to International Residence Hall

16:30-18:30 Opening reception (International Residence Hall)

- Opening address (Yoshie)
- Ice breaker with snacks and beverages (participants pay for their own food and beverage)

Self-introduction (all staff and participants)

Name, Institute/University, Academic interests, other

March 5<sup>th</sup> (Thursday): Fisheries campus and T/S *Nansei Maru*

**Groups A, B, C** (Onboard supporting staff: Kobari, Moritoshi and Iwazono)

07:30 Meeting at the front of the 5<sup>th</sup> building in the Fisheries campus

07:30-08:30 Transport and loading gears to the *Nansei Maru*

- Move to the *Nansei Maru* by lend-a-car.

09:00-09:30 Orientation and emergency drill

09:30-11:00 Oceanographic observations (daytime)

1. Conductivity-Temperature-Depth profiler (CTD): temperature, salinity, dissolved oxygen and pH
2. Rinko biogeochemical sensors: CTD, dissolved oxygen and chlorophyll fluorescence
3. Carousel Multibottle Sampler (CMS): 12 layers
4. Sample collections and processing: nutrients and chlorophyll

11:00-12:00 Lunch (prepared by the vessel steward; meal cost per person ¥500, cash only)

12:00-15:30 Biological samplings (daytime)

1. Scientific echo-sounder: check deep scattering layers
2. Closing plankton net: zooplankton
3. Larva Catch net: micronekton
4. Sample processing: identification, sorting and counting, length measurements

16:30-17:00 Arrive at Kagoshima

17:00-17:30 Back to the International Residence Hall by lend-a-car.

17:30 Break

**Groups D, E, F** (Laboratory supporting staff: Yoshie, Hasegawa, Tachibana, Kume, Kazuno, Manako and Jinno)

09:00-12:00 Seminar (1-1 laboratory in 5<sup>th</sup> building)

1. Significance of oceanographic monitoring, and visualization and application of their data (Hasegawa)
2. What is “Deep Scattering Layer (DSL)?” and its importance on coastal monitoring (Yoshie)
3. Significance of zooplankton time-series and their applications (Tachibana)

12:00-13:30 Lunch break

13:30-17:00 Laboratory work (1-1 laboratory in 5<sup>th</sup> building)

- Data processing of CTD data (Yoshie and Kazuno)
- Measurements of chlorophyll and zooplankton biomass (Tachibana and Manako)
- Identification of fish species and measurements of their weight and length (Kume and Jinno)

The data and samples (Echo sounder, CTD, VMPS and LC net) observed during nighttime in November 2019 or February 2020 will be provided for comparison between the samples observed at the nighttime and daytime

17:30 Break

March 6<sup>th</sup> (Friday): Fisheries campus and T/S *Nansei Maru*

**Groups A, B, C** (Laboratory supporting staff: Yoshie, Hasegawa, Tachibana, Kume, Kazuno, Manako and Jinno)

09:00-12:00 Seminar (1-1 laboratory in 5<sup>th</sup> building)

1. Significance of oceanographic monitoring, and visualization and application of their data (Hasegawa)
2. What is “Deep Scattering Layer (DSL)?” and its importance on coastal monitoring (Yoshie)
3. Significance of zooplankton time-series and their applications (Tachibana)

12:00-13:30 Lunch break

13:30-17:00 Laboratory work (1-1 laboratory in 5<sup>th</sup> building)

- Data processing of CTD data (Yoshie and Kazuno)
- Measurements of chlorophyll and zooplankton biomass (Tachibana and Manako)
- Identification of fish species and measurements of their weight and length (Kume and Jinno)

17:30 Break

**Groups D, E, F** (Onboard supporting staff: Kobari, Moritoshi and Iwazono)

07:30 Meeting at the front of the 5<sup>th</sup> building in the Fisheries campus

07:30-08:30 Transport and loading gears to *Nansei Maru*

- Move to *Nansei Maru* by lend-a-car.

09:00-09:30 Orientation and emergency drill

09:30-11:00 Oceanographic observations (daytime)

1. Conductivity-Temperature-Depth profiler (CTD): temperature, salinity, dissolved oxygen and pH

2. Rinko biogeochemical sensors: CTD, dissolved oxygen and chlorophyll fluorescence
  3. Carousel Multibottle Sampler (CMS): 12 layers
  4. Sample collections and processing: nutrients and chlorophyll
- 11:00-12:00 Lunch (prepared by the vessel steward; meal cost per person ¥500, cash only)
- 12:00-15:30 Biological samplings (daytime)
1. Scientific echo-sounder: check deep scattering layers
  2. Closing plankton net: zooplankton
  3. Larva Catch net: micronekton
  4. Sample processing: identification, sorting and counting, length measurements
- 16:30-17:00 Arrive at Kagoshima
- 17:00-17:30 Back to the International Residence Hall by lend-a-car.
- 17:30 Break

March 7<sup>th</sup> (Saturday): Fisheries campus

09:00-12:00 Laboratory work (1-1 laboratory in 5<sup>th</sup> building)

- Data processing and analyses
- Preparations of materials for oral presentation

Student subjects:

- Evaluate who makes DSL based on the provided data and their visualizations.
- Describe the reasons why DSL is formed.

12:00-13:30 Lunch

13:30-18:00 Inspection tour

- View of the study site from volcanic Mt. Sakurajima
- Sakurajima visitor center (geology and ocean environments)
- Kagoshima aquarium (local marine biology and ecosystems)

18:30 Back to the International Residence Hall and break

March 8<sup>th</sup> (Sunday): Fisheries campus

08:30-10:00 Presentation of Groups A, B and C (Seminar room at fisheries library)

- Oral presentation (15 minutes)
- Questions, comments and discussions (10 minutes)

10:00-10:20 Coffee break

10:20-12:00 Presentation of Group D, E and F (Seminar room at fisheries library)

- Oral presentation (15 minutes)
- Questions, comments and discussions (10 minutes)

12:00-13:00 Lunch

13:00-13:30 Closing session (Common space in the International Residence Hall)

- Closing address and providing certificate (Yoshie)
- Some notes regarding accommodation (Kobari)
- Questionnaire
- Take group-photo

## Notes

### Checklist for participants

- Laptop PC (with pre-installed MS Excel and Power Point)
- Medical insurance
- Rain boots and work clothes for onboard training (if necessary)
- Medicine for motion sickness (if necessary)
- Bath amenity and towel (not available in the International Resident Hall)

### Other issues

- PICES will pay for 4 nights of housing for accepted participants.
- LOC will not provide housing and meal costs (meals on vessel and ashore are responsibility of the student). Supermarkets, shops and restaurants are available around the Fishery campus and International Residence Hall. Student restaurant is also available from 11:30 to 13:30 during Monday to Friday.
- Please let the chair (N. Yoshie) know if you have any food allergies or religious avoidance to food and others by the end of January 2020. Unfortunately, the LOC cannot take care anything for meals on-board.
- All participants should obtain their own medical insurance. The LOC does not cover medical costs for participants in case of an accident.
- If you have been accepted but cannot attend this workshop, please send email the chair ([yoshie.naoki.mm@ehime-u.ac.jp](mailto:yoshie.naoki.mm@ehime-u.ac.jp)) at your earliest convenience (by 15 February 2020).
- The chair will send email all participants by the end of February 2020 if this workshop is cancelled due to severe storms, earthquake and volcano eruption. Such situations are not likely to happen, though.
- Public internet access in the campus is available.

## Contact

If you have any problems, please contact Naoki Yoshie ([yoshie.naoki.mm@ehime-u.ac.jp](mailto:yoshie.naoki.mm@ehime-u.ac.jp))