# CRUISE OF T/S OSHORO-MARU IN 2013

Toru Hirawake Faculty of Fisheries Sciences Hokkaido University



# T/S OSHORO-MARU

× 1380 tons

× 25 years old.

× IC (not ice breaker)



- Arctic cruise in 2013 is the final long cruise
- Training ship of our faculty for graduate and undergraduate students





## OBJECTIVES

- This cruise will be carried out as a part of the GRENE project and collaborate with R/V Mirai Cruise.
- To investigate impact of climate change on fishery resource.
  - Experimental studies on responses of phytoplankton activity to temperature, difference of grazing pressure between the Pacific and Arctic.
  - Experimental study on responses of demarsal fishes to temperature.
  - Relationship among oceanographic condition, benthos and fish distributions.
  - Distribution of seabird and marine mammals.

#### CRUISE IN 2013



## SAMPLING STATIONS





#### SAMPLING

Sample	Methods	Instruments to be used		
Water temp. and salinity	Cast down	CTD, XCTD, XBT		
Current sp'd and dir.	Underway, Drift	ADCP, SVP drifter		
Optics and phytoplankton	Cast down	Radiometer, Scattrometer, fluorometer, water sampler		
Water quality	Cast down, Tow	Niskin bottle, Towing water sampler		
Organic carbon	Underway	Gas sampler/extractor		
	Cast down	Fluorometer		
Plankton	Vertical tow	NORPAC net		
		Closing net, Ring net		
		VMPS (Open/Close) net		
		Bucket net		
Fish larva, neuston, benthos,	Tow from side	Larva net		
and fish	Tow from side	Neuston net		
	Tow from stern	Frame trawl (midwater trawl)		
	Tow from stern	Bottom trawl (Otter trawl)		
	Tow from stern	Dredge or Beam trawl (Bottom)		
	Underway	Fish finder (sonar)		
Distribution of marine	Watch	Binoulars		
mammals and sea birds				
Underwater sounds	Tow from stern	Towing hydrophone		
Track of marine mammals	Adhere to skin	Boat, Satellite comunicator		

#### Linking Physics to Biology: the Distributed Biological Observatory (DBO)



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AC

- DBO sites (red boxes) are regional "hotspot" transect lines and stations located along a latitudinal gradient
- DBO sites are considered to exhibit high productivity, biodiversity, and overall rates of change
- DBO sites will serve as a change detection array for the identification and consistent monitoring of biophysical responses
- Sites occuppied by national and international entities with shared data plan





## SCHEDULE OF IN/OUT OF PORT

Date	Port	In/Out of Port	USA EEZ	Leg #
June 14, 2013	Hakodate, Japan	Out		1
June 18			Entry	1
June 27	Dutch Harbor, AK, USA	In		1
July 1	Dutch Harbor, AK, USA	Out		2
July 23	Dutch Harbor, AK, USA	In		2
July 26	Dutch Harbor, AK, USA	Out		3
July 31			Departure	3
August 6	Hakodate, Japan	In		3

