

**NATSUSHIMA Cruise Report**

**NT10-19, Leg.1**

**Estimation of hydrothermal activity using growth line  
on bivalve shells**

**Investigation of parasitic eukaryotes associated with  
chemosynthetic animals**

**Off Hatsushima Island site, Sagami Bay**

**Oct. 21, 2010 – Oct. 24, 2010**

**Japan Agency for Marine-Earth Science and Technology  
(JAMSTEC)**

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## I. Cruise Information

Cruise ID: NT10-19, Leg. 1

Name of Vessel: R/V Natsushima / Hyper-Dolphin

Title of the Cruise: Estimation of hydrothermal activity using growth line on bivalve shells

Investigation of parasitic eukaryotes associated with chemosynthetic animals

Chief Scientist: Hiromi WATANABE (Japan Agency for Marine-Earth Science and Technology)

Cruise Period: 2010.10.21 – 2010.10.24

Port of Call: JAMSTEC

Research Area: Off Hatsushima Island site, Sagami Bay

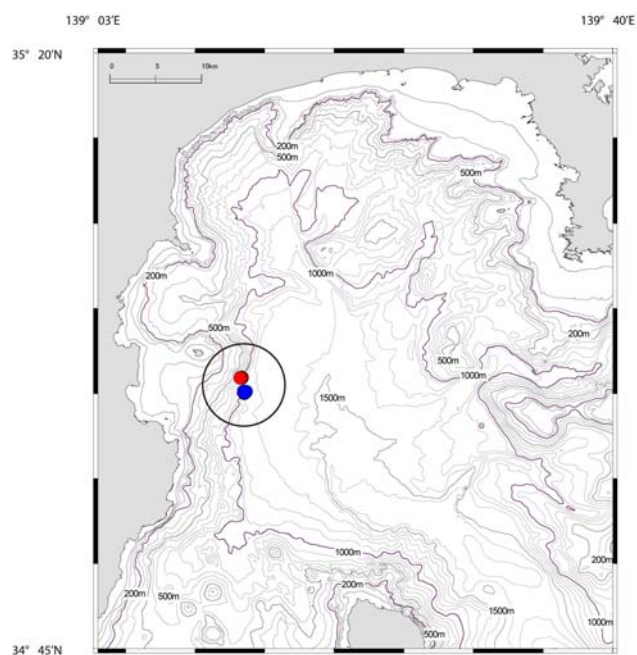


Figure. Localities of the investigation sites of this cruise. Red: Shallow site, blue: deep site.

## II. Participants

### Captain and crew of the R/V NATSUSHIMA:

Captain	Hitoshi TANAKA
Chief Officer	Hiroyuki KATO
2nd Officer	Isao MAEDA
3rd Officer	Saito TAKATA
Chief Engineer	Kiyonori KAJINISHI
1st Engineer	Kimio MATSUKAWA
2nd Engineer	Yoshinobu HIRATSUKA
3rd Engineer	Koichi HASHIMOTO
Chief Radio Officer	Tokinori NASU
2nd Radio Officer	Yosuke KOMAKI
3rd Radio Officer	Michiyasu KATAGIRI
Boat Swain	Yoshikane ODA
Able Seaman	Kazumi OGASAWARA
Able Seaman	Takao KUBOTA
Able Seaman	Tsuyoshi CHIMOTO
Able Seaman	Nobuyuki ICHIKAWA
Sailor	Hiroataka SHIGETA
Sailor	Hideo ITO
No1. Oiler	Seiichi MATSUDA
Oiler	Tsuneo HARIMOTO
Oiler	Hiroyuki OISHI
Oiler	Taijin IWAO
Oiler	Eiji ARATAKE
Chief Steward	Tomihisa MORITA
Steward	Shinsuke TANAKA
Steward	Kiyotaka KOSUJI
Steward	Toru WADA
Steward	Ryu KUBOTA

### Hyper Dolphin Operation team:

Chief ROV Operator	Yoshinari ONO
ROV Operator	Atsumori MIURA
ROV Operator	Kiyoshi TAKISHITA
ROV Operator	Homare WAKAMATSU
ROV Operator	Tomoe KONDO
ROV Operator	Shigru KIKUYA
ROV Operator	Ryo SAIGO

### Science Party:

Hiromi WATANABE (JAMSTEC)  
Katsunori FUJIKURA (JAMSTEC)  
Kiyotaka TAKISHITA (JAMSTEC)  
Yuriko NAGANO (JAMSTEC)  
Yoichi YUSA (Nara Women's University)  
Robert G Jenkins (Yokohama National University)  
Andrzej KAIM (Bayerische Staatssammlung für Paläontologie und Geologie)  
Martin KOKISKO ( Tsukuba University)  
Akinori YABUKI (Tsukuba University)  
Eriko SEO (Tokyo University of Marine Science and Technology)  
Yoshimi TAKAHASHI (Tokyo University of Marine Science and Technology)  
Fumiya NOGUCHI (Kitasato University)  
Daisuke SEKINE (Kitasato University)  
Shin-ichi HOSOYA (Nippon Marine Enterprise)

### III. Observation and Research

#### 1. Scientific Purposes and Results

##### 1-1. Estimation of hydrothermal activity using growth line on bivalve shells

Hiromi WATANABE, Katsunori FUJIKURA, Eriko SEO, Yoshimi TAKAHASHI,  
Robert G JENKINS, Andrzej KAIM, Yoichi YUSA, Daisuke SEKINE

**1) Background:** Deep-sea chemosynthetic animal community is one of the flourish communities in the world while they are inhabited in the ephemeral environment such as hydrothermal vent field and methane seep. The growth rate of the chemosynthetic animal communities must be one of the important to estimate how the flourish community has been established in deep-sea. The growth line, which can be found in the hard parts of the animals such as shells and bones, is usually marked constantly like clock, and widely used for the studies to estimate growth rates. In the present research, we try to estimate growth rate of the dominant animals (e.g. *Calyptogena* clams and *Bathymodiolus* mussels) in the hydrothermal vent and methane seep communities in deep-sea around Japan.

**2) Methods:** In this cruise, we deployed totally three staining box on the two *Calyptogena* and a single *Bathymodiolus* assemblages in the methane seeps in Off Hatsushima Island site, Sagami Bay, Japan. These clams and mussels were stained with calcein and strontium chloride *in situ* by ROV *Hyper-Dolphin*. The staining boxes were opened after approximately 17 hours after deployment as clasps were eroded, and incubate under *in situ* conditions for three months.

**3) Expecting Results and Future Studies:** The boxes and incubated clams and mussels will be recovered in KY11-01 cruise in January 2011.

##### 1-2. Investigation of parasitic eukaryotes associated with chemosynthetic animals

Kiyotaka TAKISHIATA, Yuriko NAGANO, Martin KOKISKO, Akinori YABUKI,  
Fumiya NOGUCHI

**1) Background:** In this study we will identify the existence of parasitic microbial eukaryotes in animals representative to chemosynthetic ecosystem, which occur off Hatsushima, Sagami Bay, analyze their diversity, and estimate their ecological roles.

**2) Methods:** In #HDD-1206 *Calyptogena*, *Bathymodiolus* and *Provanna* were sampled with rake or slurp gun at the depth of 1170m. The sediment around a *Calyptogena* colony and black-colored and normal sediments were obtained with a sterile mud sampler at the same site. In #HDD-1207 *Calyptogena* and *Bathymodiolus* were sampled with rake or slurp gun at the depth of 850m. The sediments around *Calyptogena* and *Bathymodiolus* colonies and black colored sediment were obtained with the sterile mud sampler at the same site.

Tissues of gill and pallium of *Calyptogena* and *Bathymodiolus* were excised to detect parasitic microbial eukaryotes at the molecular level. The tissue samples for in situ hybridization, DNA extraction, and RNA extraction were preserved in 10% formalin at 4°C, at -80°C, and in liquid nitrogen, respectively. The gill tissue homogenates and intestine's contents of *Calyptogena* and *Bathymodiolus* were inoculated into media for cultivating protists and fungi.

*Provanna* samples were preserved in 5% formalin and 100% ethanol.

The sediment samples were preserved at -80°C and in liquid nitrogen for DNA and RNA extractions, respectively. The aliquots of sediment samples were also inoculated into the media for cultivating protists and fungi.

**3) Expecting Results and Future Studies:** DNA and RNA samples will be extracted from tissues of *Calyptogena* and *Bathymodiolus*. Using them as templates, the parasitic microbial eukaryotes (especially, alveolates and fungi) will be detected with PCR method. Based on sequence information obtained a DNA probe specific to the parasitic microbial eukaryotes will be designed and in situ hybridization will be performed to localize them.

The *Provanna* samples preserved in 5% formalin will be observed with a microscopy to find the parasitic microbial eukaryotes. After the eukaryotic parasites are found, they will be identified at the molecular level with PCR using DNA isolated from their samples preserved in 100% ethanol.

The cultures of gill tissue homogenates and intestine's contents of *Calyptogena* and *Bathymodiolus* will be incubated at 4-15°C aerobically and

anaerobically. After novel protists or fungi are discovered, they will be cloned. Then, they will be analyzed morphologically and phylogenetically to describe them.



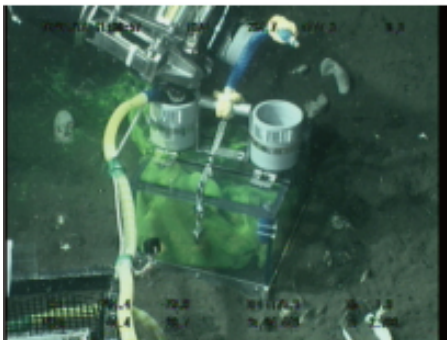
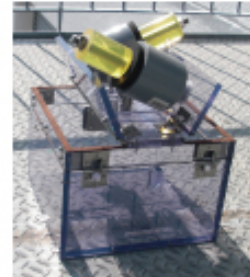
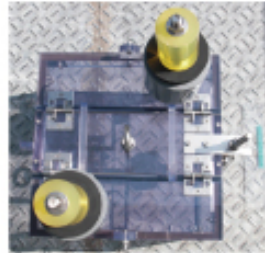
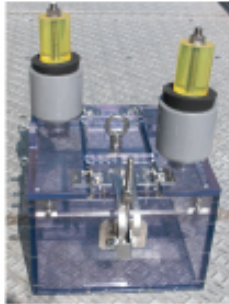
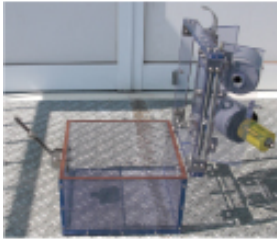
## 2. List of Observation Instruments

Staining Box:

### Staining Box

Size: 28 x 28 x 20(+20: rubber stopper) cm

Weight: 3kg (air)



There are two holes on the top of this box. Dye for staining bivalves will be supplied from one of these holes in situ with a SBE-5T pump equipped on ROV. 17 hours after deployment on the seafloor, the box will be opened as tightener will be corroded. The shells inside of the box will be incubated *in situ* for several months after staining.

Sterilized core

MBARI core

Slurp gun (Suction sampler)

Scoop sampler:

DO sensor:

### 3. Cruise Log

2010/10/21

Weather: rain/ Wind direction: NNE/ Wind force: 4/ Wave: 2m/ Swell: 2m/

Visibility: 3nautical miles (12:00 JST)

08:00	Onboard
09:00	Departure from YOKOSUKA (JAMSTEC)
10:15-10:30	Scientific Meeting
13:00-14:00	Briefing about ship's life and safety
14:00-14:50	Scientific Meeting
16:40-17:00	Pray for safety of cruise to KONPIRASAN

2010/10/22

Weather: Overcast/ Wind direction: NNE/ Wind force: 6/ Wave: 4m/ Swell: 3 m/

Visibility: 7nautical miles (12:00 JST)

05:45	Arrival at survey area
06:23	XBT
08:34	Launch HPD (HPD#1206dive)
09:18	HPD lands (1,171m)
16:34	HPD leaves the bottom (1,177m)
17:22	HPD on deck

2010/10/23

Weather: fine but cloudy/ Wind direction: NE/ Wind force: 4/ Wave: 3m/ Swell: 3

m/ Visibility: 6nautical miles (12:00 JST)

08:39	Launch HPD (HPD#1207dive)
09:21	HPD lands (952m)
16:07	HPD leaves the bottom (808m)
16:42	HPD on deck

2010/10/24 (JST)

10:00	Arrival at YOKOSUKA(JAMSTEC), NT10-19_Leg1 finish and disembarkation
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## 4. Dive Report

### NT10-19 Leg.1 HD#1206 Dive Report

Date: 2010/10/21

Observer: Hiromi WATANABE (JAMSTEC)

Pilot: Ryo SAIGO, Shigeru KIKUYA

Objective: Estimation of growth rate of bivalves in methane seep area and  
Investigation of parasitic eukaryotes

Diving site: Off Hatsushima Island site, Sagami Bay

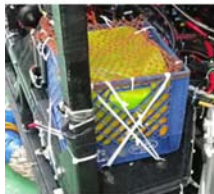
Landing Point: 35°00.122'N, 139°13.491'E, 1171m deep

Leaving Point: 35°00.084'N, 139°13.505'E, 1177 m deep

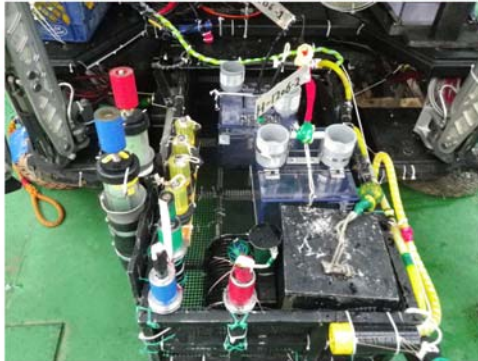
#### Dive Summary:

ROV *Hyper-Dolphin* landed on muddy seafloor around landing target (1171m depth). The ROV headed to *Bathymodiolus* colonies near long-term observatory by JAMSTEC. On its way, we found large orange- and white-colored bacterial mat. The ROV landed beside a mussel colony on (probably) carbonate concretion to sample white bacterial mat with sterilized corer (red) and MBARI-type corer (blue). We observed three mussel colonies along the ridge of the orange bacterial mat, and some of the mussels were used for *in situ* growth-rate experiment. A bacterial colonization device (GALI-7, but misspelled as GARI-7) was deployed on the orange bacterial mat. In the mussel colony site, finally we collected more than 20 individuals of mussels and *Provanna* snails by slurp gun. The ROV headed to *Calyptogena* colonies at the southern site. During the way, sterilized core (green) was used to collect normal deep-sea sediment where we could observe many small holes (probably polychaetes). At the southern area, we collected sediment beside small *Calyptogena* colony with sterilized core (blue) and MBARI-type core (red), and more than 20 individuals of *Calyptogena* as well. For *in situ* growth-rate experiment, we looked for a deployed staining box (HD#1074-MB-1), and replaced it to another one for double staining. Then, the ROV left the bottom (1177m depth).

**Payload (HD#1206):**



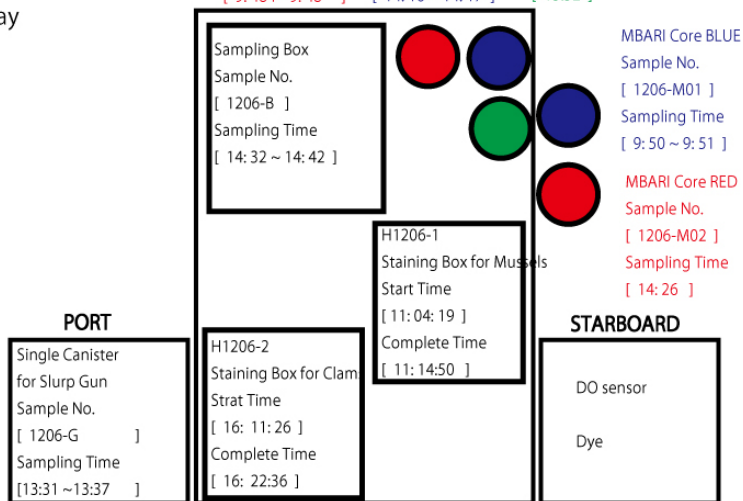
Dye



Canister

HD#1206 Dive  
 2010.10.22  
 Off Hatsushima Deeper site  
 Sagami Bay

Sterilized Core RED	Sterilized Core BLUE	Sterilized CoreGREEN
Sample No. [ 1206-S01 ]	Sample No. [ 1206-S03 ]	Sample No. [ 1206-S02 ]
Sampling Time [ 9:48~9:48 ]	Sampling Time [ 14:16 ~ 14:17 ]	Sampling Time [ 13:52 ]



Dive Result (HD#1206):

## ハイパードルフィン 潜航記録

平成 22 年 NT10-19 行動

記載者 西郷 亮

潜航年月日 2010/10/22

位置 作図中心位置

潜航回数 1回

緯度 35° 00.200 ' N

通算潜航回数 1206回

経度 139° 13.450 ' E

WGS-84

潜航海域 相模湾 初島沖

潜航目的 調査潜航  
「貝殻から熱水活動噴出を推定する」

調査主任 渡部 裕美

Pilot 西郷 亮

ビークル指揮 大野 芳生

Co. Pilot 菊谷 茂

作業経過時刻	
吊揚	08:18
着水	08:22
潜航開始	08:34
着底	09:18
離底	16:34
浮上	17:06
揚収完了	17:22

累計時間		
潜航時間	8:32	
通算潜航	5695:53	
ケーブル	ケーブルNo.	4
	使用時間	9:04
	通算時間	769:2

### 気象・海象

天候 ○	風向 NNE	風力 5	風浪 3	うねり 3	視程 7
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最大潜航深度 1178 m

着底深度 1171 m

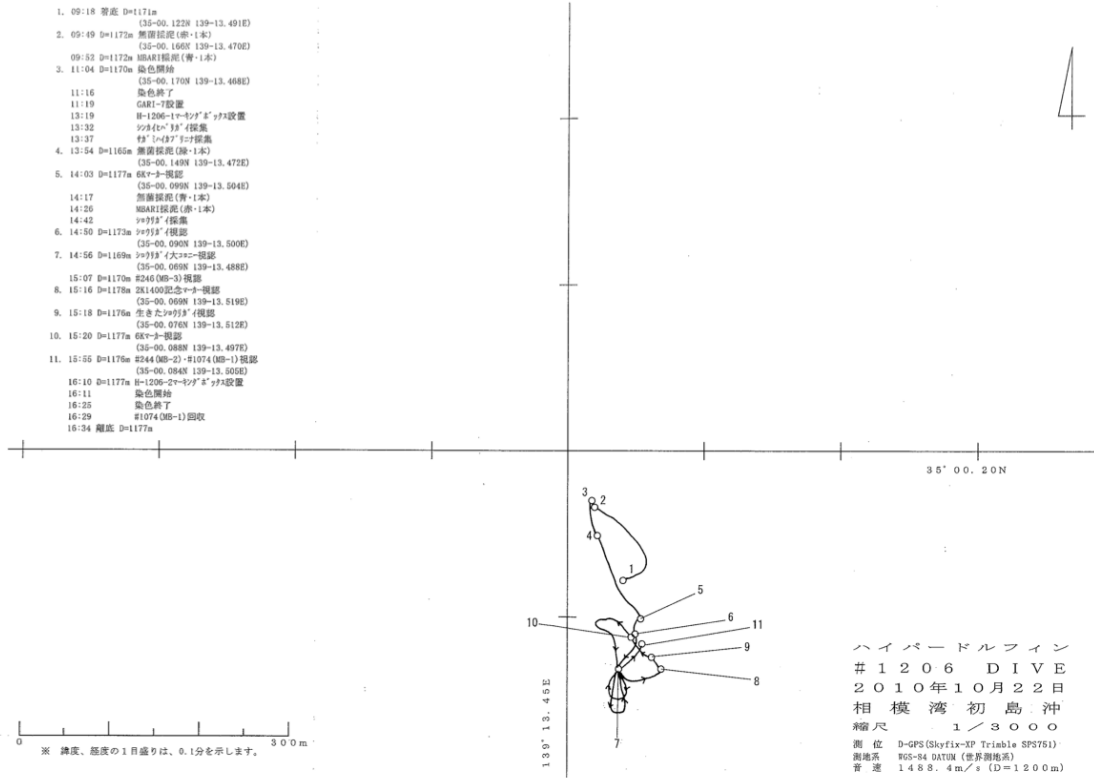
着底底質 泥

離底深度 1177 m

離底底質 泥

記事 海底を観察しながら航走し、染色ボックスの設置・回収、生物採集及び採泥を行った。

# Dive Track (HD#1206):



## NT10-19 Leg.1 HD#1207 Dive Report

Date: 2010/10/23

Observer: Hiromi WATANABE (JAMSTEC)

Pilot: Homare WAKAMATSU, Shigeru KIKUYA

Objective: Estimation of growth rate of bivalves in methane seep area and  
Investigation of parasitic eukaryotes

Diving site: Off Hatsushima Island site, Sagami Bay

Landing Point: 35°00.915'N, 139°13.390'E, 951m deep (9:51)

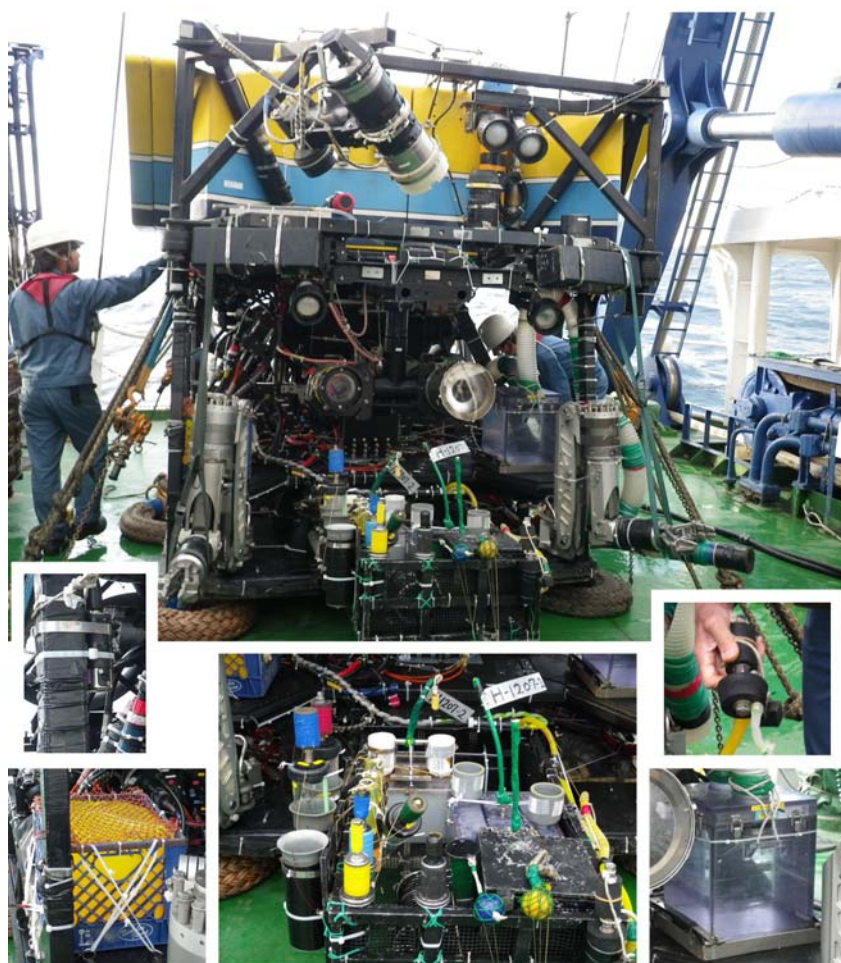
Leaving Point: 35°00.938'N, 139°13.234'E, 808m deep (16:07)

### Dive Summary:

ROV *Hyper-Dolphin* landed on muddy seafloor around landing target (951m depth). The ROV headed to *Bathymodiolus* colonies and volcanic(?) rocks were lined NW-SE direction. We observed a tubeworm community with some bivalves and gastropods. In the *Bathymodiolus* colony, we also observed *Calyptogena* as well. The sterilized coring (black) and in situ growth-rate experiment were tried in a *Bathymodiolus* colony but both of them were failed. The ROV headed to *Calyptogena* colony in the western side. It was a large *Calyptogena* colony, and we could find some black-colored areas and small siphons (probably small *Calyptogena* individuals) along the edge of the colony. Firstly, sterilized coring (black) was sampled in the *Calyptogena* colony, and the *Calyptogena* distributed around the coring position were collected to the sampling box. MBARI-type core (blue) was also sampled. We found two *Calyptogena* covered with fungi at the edge and they were collected to the staining box for *Bathymodiolus* (as it was broken and could not be used for *in situ* rearing experiment in this dive). MBARI-type coring (red) was carried out at the black-colored area. The ROV re-accessed to this *Calyptogena* colony to land a good position, and the staining box for *Calyptogena* was deployed near *Shinkai* marker and in situ growth-rate estimation experiment was started with staining with dye. The ROV headed to another *Calyptogena* colony in the more western side. On its way, we sampled sterilized core (blue) at white-colored bacterial mat. At last, the ROV recovered the staining box deployed during 2009 in the *Calyptogena* colony, and left the bottom (808m depth).

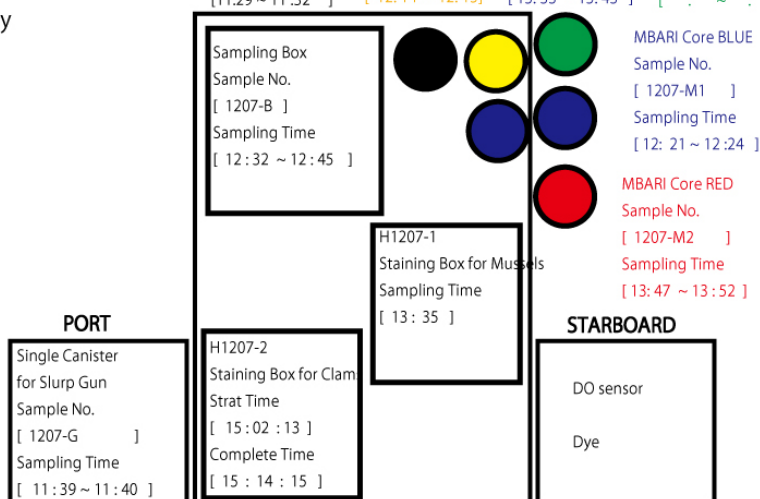


# Payload (HD#1207):



HD#1207 Dive  
 2010.10.23  
 Off Hatsushima Shallowe site  
 Sagami Bay

Sterilized Core BLACK	Sterilized Core Yellow	Sterilized Core Blue	MBARI Core GREEN
Sample No. [ 1207-S1 ]	Sample No. [ 1207-S2 ]	Sample No. [ 1207-S3 ]	Sample No. [ 1207-M ]
Sampling Time [ 11:29 ~ 11:32 ]	Sampling Time [ 12:14 ~ 12:15 ]	Sampling Time [ 15:33 ~ 15:43 ]	Sampling Time [ : ~ : ]





## Dive Result (HD#1207):

# ハイパードルフィン 潜航記録

平成 22 年 NT10-19 行動

記載者 菊谷 茂

潜航年月日 2010/10/23

位置 作園中心位置

潜航回数 2回

緯度 35° 00.900 ' N

通算潜航回数 1207回

経度 139° 13.400 ' E

WGS-84

潜航海域 相模湾 初島沖

潜航目的 調査潜航 「化学合成生態系の多細胞動物における寄生性真核微生物の探索」

調査主任 渡部 裕美

Pilot 菊谷 茂

ビークル指揮 大野 芳生

Co. Pilot 若松 誉

作業経過時刻	
吊揚	08:09
着水	08:13
潜航開始	08:39
着底	09:21
離底	16:07
浮上	16:29
揚収完了	16:42

累計時間		
潜航時間	7:50	
通算潜航	5703:43	
ケーブル	ケーブルNo.	4
	使用時間	8:33
	通算時間	777:35

### 気象・海象

天候	風向	風力	風浪	うねり	視程
bc	NE	5	4	3	7

最大潜航深度 952 m

着底深度 952 m

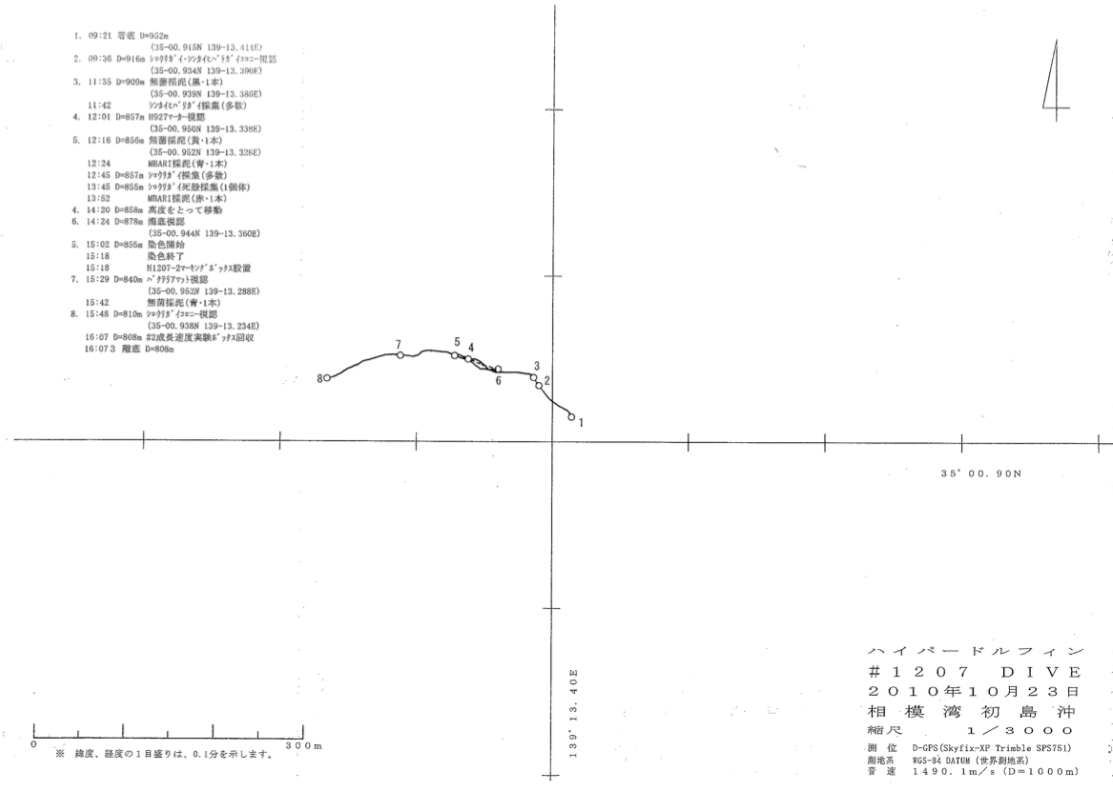
着底底質 泥

離底深度 808 m

離底底質 泥

記事 海底を観察しながら航走し、染色ボックスの設置・回収、生物採集及び採泥を行った。

# Dive Track (HD#1207):



On board ID	Dive No. (Station No./Traverse Line Number)	Sample Name (English) / Scientific Name	Japanese Name	Parts	Identified by	Number of Individuals (Amount)	Sampling Method	Fixation	Sample Repository Contact Person	WaterBody (Arise)	Locality	Latitude			Longitude		
												Deg.	Min.	N/S	Deg.	Min.	E/W
H1206-B01-01	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	10% Folmann	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B01-02	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B01-03	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	liquid nitrogen	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B01-04	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	culture media	Akinori Yabuki/Martin Kolisko/Yuriko Nagano (sample not available)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B01-05	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	mantle	Katsunori Fujikura		Manipulator (Sample box)	-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B01-08	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	blood	Katsunori Fujikura		Manipulator (Sample box)	culture media	Akinori Yabuki/Martin Kolisko (sample not available)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B01-10	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	other parts	Katsunori Fujikura		Manipulator (Sample box)	70% EtOH	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B02-01	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	10% Folmann	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B02-02	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B02-03	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	liquid nitrogen	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B02-04	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	culture media	Akinori Yabuki/Martin Kolisko (sample not available)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B02-05	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	mantle	Katsunori Fujikura		Manipulator (Sample box)	-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B02-08	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	blood	Katsunori Fujikura		Manipulator (Sample box)	culture media	Akinori Yabuki/Martin Kolisko (sample not available)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B02-10	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	other parts	Katsunori Fujikura		Manipulator (Sample box)	70% EtOH	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B03-01	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	10% Folmann	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B03-02	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B03-03	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	liquid nitrogen	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B03-04	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	culture media	Akinori Yabuki/Martin Kolisko (sample not available)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B03-05	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	mantle	Katsunori Fujikura		Manipulator (Sample box)	-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B03-08	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	blood	Katsunori Fujikura		Manipulator (Sample box)	culture media	Akinori Yabuki/Martin Kolisko (sample not available)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B03-10	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	other parts	Katsunori Fujikura		Manipulator (Sample box)	70% EtOH	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B04-01	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	10% Folmann	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B04-02	HD#1206	Calyptogena soyoae/Calyptogena okutanii	シロウリガイ/シマイシロウリガイ	gill	Katsunori Fujikura		Manipulator (Sample box)	-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E

## 5. Sample List





























H1207-G18-02	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G18-03	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			liquid nitrogen	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G18-06	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gonad	Katsunori Fujikura			10% Folmann	Kazue Oishi (Sekine)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G18-09	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gonad	Katsunori Fujikura			-80°C	Kazue Oishi (Sekine)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G18-10	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	other parts	Katsunori Fujikura			70%EtOH	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G19-01	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			10% Folmann	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G19-02	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G19-03	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			liquid nitrogen	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G19-06	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gonad	Katsunori Fujikura			10% Folmann	Kazue Oishi (Sekine)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G19-09	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gonad	Katsunori Fujikura			-80°C	Kazue Oishi (Sekine)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G19-10	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	other parts	Katsunori Fujikura			70%EtOH	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G20-01	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			10% Folmann	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G20-02	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			-80°C	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G20-03	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gill	Katsunori Fujikura			liquid nitrogen	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G20-06	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gonad	Katsunori Fujikura			10% Folmann	Kazue Oishi (Sekine)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G20-09	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	gonad	Katsunori Fujikura			-80°C	Kazue Oishi (Sekine)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G20-10	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ	other parts	Katsunori Fujikura			70%EtOH	Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G21	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ		Katsunori Fujikura			70%EtOH	Kazue Oishi (Sekine)/Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G22	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ		Katsunori Fujikura			70%EtOH	Kazue Oishi (Sekine)/Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G23	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ		Katsunori Fujikura			70%EtOH	Kazue Oishi (Sekine)/Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G24	HD#1207	Bathymodiolus japonicus	シンカイヒバリガイ		Katsunori Fujikura			70%EtOH	Kazue Oishi (Sekine)/Kiyotaka Takishita (Noguchi)	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1206-B100	HD#1207	Thyasiridae sp.	ハナシガイ科		Katsunori Fujikura	3	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B101	HD#1207	<i>Provanna glabra</i>	サガミハイカブリニナ		Katsunori Fujikura	10	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B102	HD#1207	<i>Provanna</i> sp.	サガミハイカブリニナ属		Katsunori Fujikura	2	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B103	HD#1207	<i>Margarites shinkai</i>	シンカイシダタミ		Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B104	HD#1207	unidentified invertebrate	未同定無脊椎動物		Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B105	HD#1207	<i>Nuculoida</i> Bivalve	クルマシガイ目		Katsunori Fujikura	2	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B106	HD#1207	<i>Amphipoda</i> sp.	ヨコエビ目		Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B107	HD#1207	unidentified small bivalves	未同定二枚貝(小型)		Katsunori Fujikura	10	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B108	HD#1207	unidentified small gastropoda	未同定腹足類(小型)		Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B109	HD#1207	<i>Maldanidae</i> sp.	タケフシゴカイ科		Katsunori Fujikura	2	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B110	HD#1207	<i>Polychaeta</i> spp.	多毛類複数種		Katsunori Fujikura	many	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B111	HD#1207	<i>Calyptogena okutani</i> & <i>soyoae</i>	シロウリガイ・シマイシロウリガイ		Katsunori Fujikura	8	Manipulator (Sample box)	Frozen -80	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B112	HD#1207	<i>Calyptogena okutani</i> & <i>soyoae</i>	中サイズのシロウリガイ・シマイシロウリガイ		Katsunori Fujikura	15	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B113	HD#1207	<i>Calyptogena okutani</i> & <i>soyoae</i>	中サイズのシロウリガイ・シマイシロウリガイ		Katsunori Fujikura	15	Manipulator (Sample box)	10% Formalin	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E

H1206-B114	HD#1207	<i>Calyplogena okutani &amp; soyaoe</i>	小さいのシロウリガイ・シマイシロウリガイ	Katsunori Fujikura	2	Manipulator (Sample box)	Frozen -80	Hiromi Watanabe (Toshimitsu Nakamura)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B115	HD#1207	<i>Calyplogena okutani &amp; soyaoe</i>	小さいのシロウリガイ・シマイシロウリガイ	Katsunori Fujikura	2	Manipulator (Sample box)	Paraformaldehyde	Hiromi Watanabe (Toshimitsu Nakamura)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B116	HD#1207	<i>Calyplogena okutani &amp; soyaoe</i>	シロウリガイ・シマイシロウリガイ	Katsunori Fujikura	6	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe (Eriko Seo)	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B117	HD#1207	<i>Calyplogena (Archivesical) fortunata</i> dead shell	サイワイシロウリガイ(死殻)	Katsunori Fujikura	半殻	Manipulator (Sample box)	Dry	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-B118	HD#1207	<i>Calyplogena okutani &amp; soyaoe</i>	シロウリガイ・シマイシロウリガイ	Katsunori Fujikura	3	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.099	N	139	13.504	E
H1206-G100	HD#1207	<i>Provanna glabra</i>	サガミハイカブリニナ	Katsunori Fujikura	many	Slurp gun	5% Formalin	Kiyotaka Takishita	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G101	HD#1207	<i>Provanna glabra</i>	サガミハイカブリニナ	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Kiyotaka Takishita	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G102	HD#1207	<i>Bathymodiolus japonicus</i>	シンカイヒバリガイ	Katsunori Fujikura	1	Slurp gun	10% Formalin	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G103	HD#1207	<i>Phymorhynchus buccinoides</i>	ツブナリシヤジク	Katsunori Fujikura	1	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G104	HD#1207	Buccinidae sp.	エゾバイ科	Katsunori Fujikura	1	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G105	HD#1207	<i>Bathymodiolus platifrons</i>	ヘイトウシンカイヒバリガイ	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G106	HD#1207	<i>Bathymacaea nipponica</i>	ワタソコシロアミガサガイモドキ	Katsunori Fujikura	1	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G107	HD#1207	<i>Margarites shinkai</i>	シンカイシタダミ	Katsunori Fujikura	1	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G108	HD#1207	Plathelminthes	ヒラムシ	Katsunori Fujikura	1	Slurp gun	10% Formalin	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G109	HD#1207	<i>Provanna glabra</i>	サガミハイカブリニナ	Katsunori Fujikura	many	Slurp gun	Frozen -80	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G110	HD#1207	<i>Provanna glabra</i>	サガミハイカブリニナ	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G111	HD#1207	<i>Provanna glabra</i>	サガミハイカブリニナ	Katsunori Fujikura	many	Slurp gun	10% Formalin	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G112	HD#1207	Amphipoda sp.	ヨコエビ目	Katsunori Fujikura	4	Slurp gun	10% Formalin	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G113	HD#1207	Porifera sp.	海綿動物	Katsunori Fujikura	many	Slurp gun	10% Formalin	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G114	HD#1207	Porifera sp.	海綿動物	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G115	HD#1207	<i>Bathymacaea nipponica</i>	ワタソコシロアミガサガイモドキ	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G116	HD#1207	Polynoidae sp.	ウロコムシ科	Katsunori Fujikura	2	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G117	HD#1207	<i>Bathymodiolus platifrons</i> + <i>Phymorhynchus buccinoides</i> eggs	ヘイトウシンカイヒバリガイとツブナリシヤジク卵塊	Katsunori Fujikura	1	Slurp gun	Live	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G118	HD#1207	<i>Bathymodiolus platifrons</i> + unknown eggs	ヘイトウシンカイヒバリガイと不明卵塊	Katsunori Fujikura	1	Slurp gun	Live	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1206-G119	HD#1207	<i>Bathymodiolus platifrons</i>	ヘイトウシンカイヒバリガイ	Katsunori Fujikura	7	Slurp gun	10% Formalin	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.17	N	139	13.468	E
H1207-B100	HD#1207	Gastropoda (small)	腹足類(小型)	Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B101	HD#1207	<i>Bathymacaea nipponica</i>	ワタソコシロアミガサガイモドキ	Katsunori Fujikura	many	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B102	HD#1207	Amphipoda spp.	ヨコエビ目	Katsunori Fujikura	many	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B103	HD#1207	Ophiuroidea spp.	クモヒトデ類	Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B104	HD#1207	<i>Margarites shinkai</i>	シンカイシタダミ	Katsunori Fujikura	6	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B105	HD#1207	<i>Calyplogena</i> sp.	シロウリガイ類	Katsunori Fujikura	1	Manipulator (Sample box)	10% Formalin	Hiromi Watanabe (Toshimitsu Nakamura)	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B106	HD#1207	unknown invertebrate (Gastropoda?)	不明無脊椎動物(腹足類?)	Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B107	HD#1207	Plathelminthes?	扁形動物?	Katsunori Fujikura	5	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B108	HD#1207	Polychaeta spp.	多毛類複数種	Katsunori Fujikura	many	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B109	HD#1207	Pycnogonida sp.	ウミダモ類	Katsunori Fujikura	1	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B110	HD#1207		ウズマキゴカイ科	Katsunori Fujikura	many	Manipulator (Sample box)	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-B111	HD#1207	<i>Calyplogena okutani</i>	シマイシロウリガイ	Katsunori Fujikura	3	Manipulator (Sample box)	Live	Hiromi Watanabe (Takao Yoshida)	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E



H1207-B112	HD#1207	<i>Calypptogena okutanii</i>	シマイシロウリガイ	Katsunori Fujikura	2	Manipulator (Sample box)	Frozen-80	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.952	N	139	13.328	E
H1207-G100	HD#1207	<i>Provanna glabra</i>	サガミハイカブリニナ	Katsunori Fujikura	2	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G101	HD#1207	Polychaeta spp.	多毛類複数種	Katsunori Fujikura	3	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G102	HD#1207	unknown egg mass/polychaeta	卵塊/ウズマキゴカイ科	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G103	HD#1207	<i>Margarites shinkai</i>	シンカイシタダミ	Katsunori Fujikura	6	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G104	HD#1207	Pycnogonida sp.	ウミダモ類	Katsunori Fujikura	3	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G105	HD#1207	Amphipoda spp.	ヨコエビ目	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G106	HD#1207	<i>Bathycmaea nipponica</i>	ワダソシロアミガサガイモドキ	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G107	HD#1207	Ophiuroidea spp.	クモヒトデ類	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G108	HD#1207	<i>Bathymodiolus platifrons</i>	ヘイトウシンカイヒバリガイ	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G109	HD#1207	Polychaeta spp.	多毛類複数種	Katsunori Fujikura	many	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G110	HD#1207	Plathelminthes?	扁形動物?	Katsunori Fujikura	5	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E
H1207-G111	HD#1207	Plathelminthes	扁形動物	Katsunori Fujikura	1	Slurp gun	99.5% Ethanol	Hiromi Watanabe	Sagami Bay	Off Hatsushima Island	35	00.939	N	139	13.386	E

## **IV. Notice on Using**

This cruise report is a preliminary documentation as of the end of the cruise. This report may not be corrected even if changes on contents (i.e. taxonomic classifications) may be found after its publication. This report may also be changed without notice. Data on this cruise report may be raw or unprocessed. If you are going to use or refer to the data written on this report, please ask the Chief Scientist for latest information. Users of data or results on this cruise report are requested to submit their results to the Data Integration and Analysis Group (DIAG) of JAMSTEC.

## V. Appendix

## クルーズサマリー

### 航海情報

航海番号:NT10-19 Leg.1

船舶名:なつしま/ハイパードルフィン

航海名称:「貝殻から熱水噴出活動を推定する」「化学合成生態系における多細胞動物の寄生性真核微生物の探索」

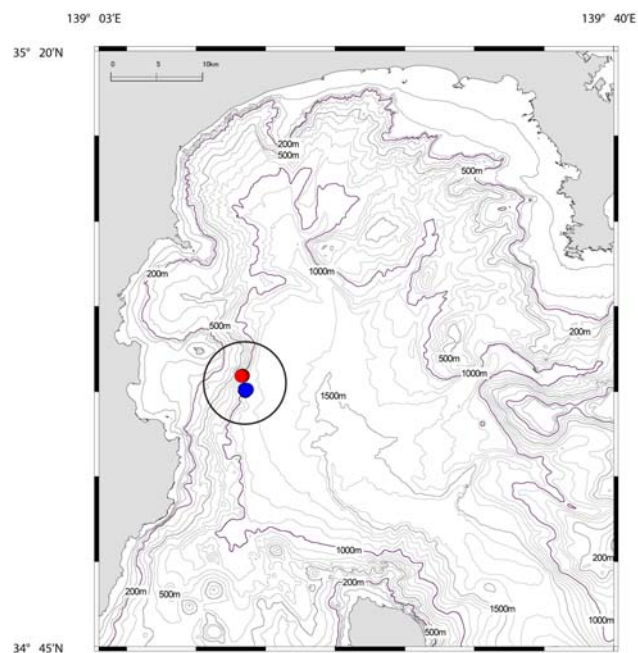
主席研究者:渡部裕美(海洋研究開発機構)

航海期間:2010.10.21 – 2010.10.24

出港地:機構岸壁. 帰港地:機構岸壁

調査海域名:相模湾初島沖

調査マップ



### 調査概要

相模湾初島沖メタン湧水域に生息する化学合成二枚貝類を調査対象としたハイパードルフィンの潜航調査を2回実施した。潜航調査では、貝殻の成長線解析からメタン湧水活動を推測するための現場飼育実験と、化学合成生態系に分布する寄生性真核微生物を探索するための二枚貝類および堆積物の採集を行った。現場飼育実験は、2011年1月に終了する予定である。

## Cruise Summary

### **Cruise Information**

Cruise ID : NT10-19 Leg.1

Name of Vessel: R/V Natsushima & ROV Hyper-Dolphin

Title of the Cruise: “Estimation of hydrothermal activities using growth line on bivalve shells”, “Investigation of parasitic eukaryotes associated with chemosynthetic animals”

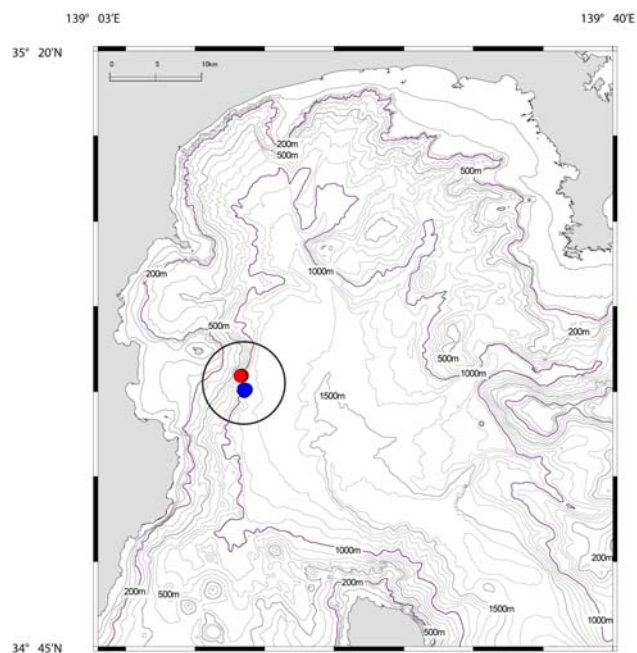
Chief Scientist: Hiromi WATANABE (JAMSTEC)

Cruise Period : 2010.10.21 – 2010.10.24

Port of Call : JAMSTEC

Research Area : Off Hatsushima Island site, Sagami Bay

Research Map



### **Overview of the Observation**

Two dives of ROV Hyper-Dolphin were carried out during this cruise to investigate chemosynthetic bivalves in the methane seeps. To estimate methane seep activity, we are carrying out in situ rearing experiment, which will be completed in January 2011. On the other hand, to investigate eukaryotic parasites, we collected some bivalves and sediments in the methane seep site.