

**EVALUATION REPORT
ON THE
2011 MARINE SCIENCE CAMP**

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2011 Science Camp Evaluation

INTRODUCTION

In line with the Science and Technology (S&T) capability building efforts of the Department of Science and Technology (DOST), the Science Education Institute (SEI) is continuously implementing innovative programs to develop a pool of highly competitive S&T workforce that the country needs for global competitiveness. One of these programs is the Science, Mathematics, and Engineering (SME) Camp.

In 2009, SEI implemented the SME Camp to encourage talented and gifted students in science and mathematics to consider S&T careers in the future. The program is a huge success as it extensively trained students from the Philippine Science High School Campuses nationwide and selected science high schools in the National Capital Region (NCR). These groups of students served as a pool of highly qualified feeders to S&T courses that will later on add to the meager supply of S&T professionals in the country.

In 2010, a Science Camp was held focusing on Biology and Marine Science. As an offshoot of these successful undertakings and to continuously increase the supply of highly qualified feeders to S&T courses, SEI is implementing again this year the 2011 Science Camp focusing on Marine Science.

The Science Camp features highly interactive, laboratory-based activities tailored to students with interest in Marine Science. Participants to this Camp are students: entering their senior level in high school; that have exceptional academic achievement and genuine interest in science; and those that have ongoing research study or planning to conduct one. Students will be accompanied by their respective advisers and will be teamed with experts/scientists throughout the Camp. During the Camp, participants will do experiments/hands-on activities under the supervision of experts/scientists.

Objectives:

Over-all Objective: To increase the pool of S&T human resources by nurturing talented and gifted students in science through mentoring and incentive programs approach.

Specific Objectives:

- To encourage incoming fourth year students to study and explore science and stress the value and reward of pursuing advanced scientific/technical degrees and career while developing the skills necessary to achieve success in science; and
- To create pre-college research opportunities and produce more researches that can be published in science journals.

Description of the 2011 Marine Science Camp

The 2011 Marine Science Camp was held on 28 April to 2 May 2011 at the UP Marine Science Laboratory, Bolinao, Pangasinan with the theme: "From the shore to the sea: exploring further than you can see". The Camp was conducted with UP Marine Science Institute (UP MSI) as the cooperating institution headed by Dr. Aletta T. Yñiguez who served as camp director. She was accompanied by a group of 'mandaragats' or marine science researchers who acted as facilitators in the camp.

The first day of the Camp was classroom lectures on general introduction to Marine Science, Marine Geology, Marine Science in Bolinao, and Sea Safety and Survival Knots & Rope Management. On the second day, break-out group field activities were conducted, which include: Navigation, Waves & Tides, Marine Geology, Water Quality Sampling, Plankton Enumeration, and Snorkeling 101. Exposure trips (i.e., Seagrass Exposure, Coral Reef Exposure, Giant Clams, and Community Immersion) were done on the third day.

METHODOLOGY

Campers were asked to assess eighteen (18) statements concerning various areas using 5-point Likert Scale. Areas evaluated include: Topics, Field Activities, Speakers, Facilitators/Coordinators, Venue, and Management.

Table 1 displays the Likert Scale Scoring used in the assessment:

Table 1. Likert Scale and Scoring

Likert Scale	Score
Strongly Agree	5
Agree	4
Undecided	3
Disagree	2
Strongly Disagree	1

Categorical and open-ended questions were also asked like: whether or not the students were inclined to take science courses such as Biology, Marine Science, Marine Biology, and the like in college after the Science camp, and what is the most useful or interesting topic discussed in the camp. (*See the evaluation form attached.*)

PROFILE OF CAMPERS

Coming from 16 different High Schools in Region 1, there were 47 participants in the 2011 Marine Science Camp. Campers were composed of 16 (or 34%) teachers and 31 (or 66%) students. In terms of sex disaggregation, out of the sixteen (16) teachers who participated in the Science Camp, ten (10) were women and six (6) were men. On the other hand, among the students there were seventeen (17) girls and fourteen (14) boys. Moreover, there are about fifteen (15) experts and facilitators who made the camp possible. All in all, there are sixty-two (62) persons who took part of the 2011 Marine Science camp.

Table 2 displays the list of the names of 16 High Schools that participated in the 2011 Science Camp with their corresponding number of students and teachers:

Table 2. List of Participating Schools

Name of School	No. of Students	No. of Teachers	Total
1. Ilocos Norte Agricultural College	2	1	3
2. Ilocos Norte National High School	2	1	3
3. Ilocos Sur National High School	2	1	3
4. Juan G. Macaraeg National High School	2	1	3
5. La Union National High School	2	1	3
6. Marcelo H. del Pilar National High School	2	1	3
7. Pangasinan National High School	2	1	3
8. PSHS-Cagayan Valley Campus	2	1	3
9. PSHS-CAR Campus	2	1	3
10. PSHS-Central Luzon Campus	2	1	3
11. PSHS-Ilocos Region Campus	2	1	3
12. Regional Science High School for Region 1	1	1	2
13. Sarrat National High School	2	1	3
14. Sinait National High School	2	1	3
15. Talavera National High School	2	1	3
16. Tarlac National High School	2	1	3
TOTAL	31	16	47

HIGHLIGHTS OF EVALUATION

Table 3 displays the average scale scores for each statement as assessed by the campers. The data show that statements about the field activities and facilitators/coordinators are among the top 10 high-scored areas. On the other hand, statements, which are mostly about topics and speakers, are among the bottom 5 low-scored areas.

With an average score of 4.93, the statement that was asked to teacher-campers, particularly the relevancy of topic to their teaching is the highest, which is followed then by the statement about the appropriateness of venue for the activities conducted, also scoring an average of 4.92. Third in rank is the statement: "I learned a lot from the field activities", that scored an average of 4.87. In fact, the appropriateness of the venue and learning a lot from the field activities got a perfect score of 5 from the teachers. Other high rating statements, all scoring an average scale of 4.85, are: "I enjoyed and had a good time in doing the field activities"; "The facilitators are friendly and accommodating"; "The facilitators/coordinators are sensitive and attentive to the needs of the participants"; and "The security and welfare of the participants were considered in the conduct of the activities in the camp".

As to the relatively low ranking statements, the lowest is about the relevancy of topics to the student-campers' decision in what to take in college, with an average score of 4.19. Other low-rated statements are: "The topics are well-chosen and clearly discussed by the organizers/speakers"; "The topics are interesting"; "The needs of the participants during the Camp were met"; and "The media/visual aids/tools used by the speakers helped me better understand the topics being discussed".

Students and teachers seemed to differ in scoring some areas of the camp, particularly in the conduciveness of venue for learning and effectiveness of coordinators in conducting the field activities. These two aspects received a perfect rating of 5 from the teachers while 4.71 only from the students. Other statements that perfectly rated by teachers but not by students are: "The security and welfare of the participants were considered in the conduct of the activities in the camp," and "The field activities are well-organized."

In general, most of the highly-rated statements are field and applied factors of the camp while statements about classroom-based or theoretical factors are the low-rated statements. This only shows that hands-on activities for students as well as teachers meant significantly for them.

Table 3. Average Scale Scores for Each Statement as assessed by Campers

Area	Statement	Students		Teachers		All	
		Score	Rank	Score	Rank	Score	Rank
Topics	The topics are relevant to my teaching. (for teachers)	NA		4.93	2	4.93	1
Venue	The venue is appropriate for the activities conducted.	4.90	1	5.00	1	4.92	2
Field activities	I learned a lot from the field activities.	4.81	2	5.00	1	4.87	3
Field activities	I enjoyed and had a good time in doing the field activities.	4.81	2	4.93	2	4.85	4
Facilitators/ Coordinators	The facilitators are friendly and accommodating.	4.81	2	4.93	2	4.85	4
Facilitators/ Coordinators	The facilitators/coordinators are sensitive and attentive to the needs of the participants.	4.81	2	4.93	2	4.85	4
Management	The security and welfare of the participants were considered in the conduct of the activities in the Camp.	4.77	3	5.00	1	4.85	4
Field activities	The field activities are well-organized.	4.74	4	5.00	1	4.83	5
Venue	The facilities in the venue are adequate for the requirements of the Science Camp.	4.77	3	4.93	2	4.82	6
Facilitators/ Coordinators	The coordinators are effective in the conduct of the field activities.	4.71	5	5.00	1	4.80	7
Management	The Science Camp was well-planned and organized.	4.74	4	4.93	2	4.80	7
Venue	The venue is conducive for learning.	4.71	5	5.00	1	4.80	7
Speakers	The speakers have mastery of the subject matter.	4.74	4	4.87	3	4.78	8
Speakers	The media/visual aids/tools used by the speakers helped me better understand the topics being discussed.	4.71	5	4.80	4	4.74	9
Management	The needs of the participants during the Camp were met.	4.71	5	4.67	5	4.70	10
Topics	The topics are interesting.	4.61	6	4.80	4	4.67	11
Topics	The topics are well-chosen and clearly discussed by the organizers/speakers.	4.42	7	4.53	6	4.46	12
Topics	The topics are relevant to my decision in what to take in college. (for students)	4.19	8	NA		4.19	13

Besides rating Likert statements, campers were also asked general questions about the camp. Since one of the objectives of this camp is to entice students to take up Science courses in college, one of the general questions is: *After this Science Camp, are you inclined to take up Science courses such as Biology, Marine Science, Marine Biology, and the like in college?* To this question, almost all of students (30) said 'yes' and only one (1) said 'no'.

Another objective of this camp is to incite the minds of the campers, both students and teachers, to think of a research idea or topic that they want to pursue or conduct in the future. Almost seven out ten campers got a research idea or topic in mind after listening to the lectures and doing the field activities (22 out of 31 students and 10 out of 16 teachers). Table 4 displays list of their research ideas or topics:

Table 4. List of Research Topics/Ideas

RESEARH TOPIC/IDEA
A research topic about giant clams and/or sea cucumbers
About marine ecosystem
Alternative algae killer to control the population of algae in seawater
Alternative feeds for cultured organisms like sea urchin
Behavior of clams
Behavior of fishes
Brown algae as a muffin...
Coral reef
Coral reef preservation
Environmental Monitoring (Bioindicators)
Genetic manipulation of t. gigas to make its shell colorful; idenfication & extraction of the substance of clams that can cure cancer
I want to have a research involving corals. I want to restore the corals so that there will be more fishes
I want to research more about seaweeds esp. sargazum and its benefits to humanity.
If those poisonous sea urchins could kill maybe they could also cure something or be useful in the field of medicine
Marine ecosystem
Navigation and about tides and waves
Other uses of shell (dead mollusk)
Providing extension education for students living in the island; seaweeds propagation
Research about zargasum
Researches concerning on seagrasses and seaweeds in different weather conditions
Restoration/conservation of marine ecosystem
Seaweeds/seagrasses biotechnology
Seaweeds/seagrasses for use in medicine
The effects of illegal activities on marine ecosystem in Ilocos Sur
The Marine Geology!
Water quality sampling/giant clam culturing
Waves and tides

Among the general questions was asking the campers to rate their over-all experience at the Science Camp. More than half said that the camp was well above expectations; three out of ten rated as above expectations; and only a quarter said that it just met their expectations.

Another general question, which is open-ended, was about topic/s that the campers found most useful or interesting. Table 5 is a list of topics that they found most useful or interesting. Fourteen (14) campers (11 students and 3 teachers) said that Marine Geology is the most useful or interesting topic. Other useful and interesting topics according to 8 to 11 campers are: Phytoplankton Microscopy, Basic Snorkeling, Coral Reefs, Navigation, and Waves and Tides. For a significant number of students and teachers, Marine Geology is the most useful or interesting topic while Basic Snorkeling and Phytoplankton Microscopy, for quite a number of teachers.

Table 5. List of Topics that the Campers found Most Useful or Interesting

Topic	Students	Teachers	All
Phytoplankton Microscopy	6	5	11
Water Sampling/Quality	3	2	5
Basic Snorkeling	6	5	11
Marine Geology	11	3	14
GPS Practical Operation	3	3	6
Coral Reefs	8	3	11
Sea Safety and Survival	2		2
Giant Clams	6	1	7
Sea Grasses/Sea Weeds	3		3
Navigation	5	3	8
Astronomy	1	1	2
Waves and Tides	5	3	8
Oceans and Us		1	1
Sea Cucumbers	1		1

Moreover, campers were also asked about the activity/ies they found most enjoyable. Table 6 shows a list of activities that they found most enjoyable. A significant number of campers (27), both for students (17) and teachers (10), said that coral reef exposure was the most enjoyable activity. Other activities which a considerable number of campers listed as most enjoyable are: Snorkeling (25), Giant Clam Exposure (22), Sea Grasses/Sea Weeds (15), and Community Immersion (14).

Table 6. List of Activities that the Campers found Most Enjoyable

Topic	Students	Teachers	All
Phytoplankton Microscopy	2	1	3
Water Sampling	1		1
Snorkeling	19	6	25
Marine Geology	2	1	3
GPS Practical Operation	2	1	3
Coral Reef Exposure	17	10	27
Giant Clam Exposure	13	9	22
Sea Grasses/Sea Weeds Exposure	9	6	15
Navigation	6	1	7
Waves & Tides	1		1
Community Immersion	7	7	14
Star Gazing	6		6
Film Showing	2		2
Fellowship	1		1

Lastly, the campers were asked to write their comments and suggestions. Table 7 displays a list of their other comments and suggestions:

Table 7. List of Other Comments and Suggestions of Campers

OTHER COMMENTS AND SUGGESTIONS
This camp activity enhanced my knowledge about marine science and it was very useful because I can use this knowledge anywhere specifically at school even we're not from a Science High School. It's really nice and enjoyable.
Congratulations for the job well done!
The camp is great.
GREAT!!!
This camp exceeded my expectations. I've never been to a science camp before but I'm very glad for this to be my first. The facilitators from UP-MSI are very attentive and knowledgeable in their fields. Even though I'm still not inclined to Marine Science, I believe that many campers will soon become...
Offer also this privilege to regular class student. They might as well be interested to the course. Thank you for the realization that we need to help each other to restore the environment. More power. Continue the good work. God bless us all!!!
More visual aids or even close encounters about the lectured topics. More lively. Better sound system. More interesting topics. Expand more the topics or elaborating those para naman hindi makatulog ang iba, dahil napapansin ko parang medyo hindi interesado ang iba.
Keep up the good work! More power!
Masaya po sya. Parang may nalaman kaming mga bagay na magiging parte na buhay namin. Marami din akong nakilala. Salamat po!
It was a very fun educational experience. I hope in the near future, the UP MSI will continue to grow and provide more information about marine science. This camp is very inspiring. It encourages students to take up science courses and fields.
Overall, it was a fun and educational experience. The food was great but we haven't tasked much of seafoods. I also hope to ride on speedboats rather than the bigboat because it was stuck at the middle of the ocean 5 times.
Good job. Thank you and God bless.
Good job. More power. Continue this one of a kind type of activities and continue spreading excellence.
You should continue conducting this camp because I know that this will help the students and teachers to be more aware of their environment. Ilove this camp! I met many friends!! Thank you very much BML! GOD BLESS!
More training for us to update ourselves for us teachers who are teaching biology
Nice! Overall wonderful!
I think it's better to have longer activities because it's kinda "bitin".
Maybe just no movies after a very tiring day. We get sleepy and sometimes it's very hard to keep awake. Ipagpatuloy nyo po ang pagconduct ng ganitong seminars/camps para lalong mahasa ang mga kabataan at para na rin maappreciate nila ang kagandahang angkin ng dagat. Maraming salamat po.
I really love this camp! You'll not only learn but enjoy too. Topics were interesting. Boredom never striked me. This camp was not only conducted for learning marine sciences but also learn how to have good social skills dealing with different people. I just found a home away from home.
Keep up the good works!!!
Good work! God bless! I will miss the camp!
We look forward for more activities like this. Thank you very much and more power.
A job well done! Continue what you have to do and make students and teachers including the staff enjoy and learn more. Congratulations!
Keep it up! Spread Science!
The food was great! The dedication to work of our facilitators, trainors, and guide are really remarkable. Thank you.
foods (Kailangan ata ng more seaweeds)

OTHER COMMENTS AND SUGGESTIONS (Cont.)

The camp is awesome. I had fun and I learned a lot. Especially, I am not a biology major but with the activities and lectures, I can say the knowledge imparted are truly beneficial in my career as a science teacher. This is the best camp ever. The only word can explain.. "incomparable"

DOST-SEI - Thank a lot and mabuhay!

2011 Marine Science Camp: It's a Priceles Experience!!! Hoping that the next venue for the 2012 Science Camp will be in Palawan.

Thank you for meeting our expectations. This camp was increased my inclination to take up Biology in college. God bless po sa staff ng DOST and UP-MSI. Hope we stay in contact because I'm interested and fascinated in marine creatures.

Kudos to DOST and UPMSI. Felicitations to this noble endeavor.

Short lectures so that the participants will not be bored and sleepy.

This camp activity sharpens my knowledge about marine science & also astronomy. I am suggesting a quiz show for this camp & other more activities for the camp to be more fun & interesting.

I suggest to invite more schools so it would be happier or more participants/students from the different schools (I mean not only 2 students). Keep it up! More power!

CONCLUSIONS AND RECOMMENDATIONS

- In general, statements regarding field or applied factors got higher ratings than those statements about classroom-based or theoretical factors. This only indicates that hands-on activities for students as well as teachers meant significantly for them. More time should be allotted to hands-on activities than to lectures. Aside from topics for lectures should be carefully chosen, more interactive lectures involving the students to engage in the discussion are also recommended for speakers.
- *'Relevancy of topics to the student-campers' decision in what to take in college'* is the lowest ranking statement indicating that students already have preconceived interests and attitude toward science that cannot be easily altered by one-time activity as there are also other factors that affect them such as courses taken by their siblings, parents' profession, prior exposure to science, and the like. Thus, it would be wise to recommend that this camp should also accommodate lower year levels not only fourth year high school students. The earlier they are exposed to this kind of activity, the more likely they will be influence to take Science courses in college.
- Topics that are found most useful or interesting by campers are marine geology, basic snorkeling, coral reefs, and phytoplankton microscopy. Activities that are found to be most enjoyable are snorkeling, giant clam exposure, sea grasses/sea weeds, and community immersion. Most useful or interesting topics and most enjoyable activities should be noted and still be considered in the future camps.
- Most of the open-ended comments are positive and congratulatory remarks expressing their enjoyment, learning, and gratitude. Some suggestions raised are shortening the lectures, no more activity after a tiring field exposure, more sea foods, more interactive lectures, and lengthening the camp duration.