The Singapore Institute of Biology
BULLETIN

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Highlights: The 29th International Biology Olympiad

A Tribute to Prof Benito C Tan

for his many great contributions to biological sciences and SIBiol

SJBO 2018

taking it to the next level --- secondary school students from various schools putting their abilities to the test

The IBO Journey

the experience of a lifetime --- our students bringing glory to Singapore on the international stage

Public Forum

"Coral Reef Conservation in Singapore" by Prof Chou Loke Ming & Miss Sam Shu Qin

Message from the PRESIDENT

Dear Friends,

On behalf of the 44th SIBiol Council (Year 2017/2018), I would like to welcome new members and thank existing members for your continued support. Over the years, the objectives of SIBiol has remained largely unchanged: To promote the advancement of Biology and its applications, encourage the improvement of education in Biology, and facilitate exchange of information to those interested in biological studies. For us in the SIBiol Council, volunteering our time has not always been easy, but we find our efforts to give back to the community and engaging students a rewarding experience overall.

This year, SIBiol has had another productive year full of accomplishments we are proud to share with you. Since entering International Biology Olympiad (IBO) in 2001, Team Singapore has consistently done very well. This year was no different: Team Singapore, led by Dr. Beverly Goh (NIE), Dr. Ng Ngan Kee (NUS), Dr. Chen Zhong (NIE), Mr Marcus Chan (MOE) and Ms Lim Yan Ling (SBO/IBO alumni), ranked 3rd out of 68 countries, obtaining 3 Golds and 1 Silver in the 29th IBO held in Tehran, Iran (15–22 July 2018).

SIBiol and Science Centre Singapore (SCS) co-organises the Singapore Junior Biology Olympiad (SJBO) for students from Secondary 2 to 4 (or their international equivalent) and welcomed all schools to take part. The 3rd SJBO this year saw the highest level of participation yet: a total of 1428 students from 63 schools. SIBiol is extremely grateful to the SJBO organizing committee: A/P Lim Tit Meng, Dr Jani Tanzil, Dr Chen Zhong, Dr Savita Sharma, Ms Swapna Teckwani, Ms Yan Ling, Dr Theresa Su, Ms Regina Yeo and Mr Nicholas Yap for their devotion and zeal without which the SJBO 2018 would not have been possible.

Patrons

Mr Richard Edward Hale, F.C.I.B.
Dr Tan Keong Choon, Ph.D. (London),
M.I.E.M, F.I.E.S. F.G.S

Message from the PRESIDENT

As 2018 is the International Year of the Reef (IYOR), SIBiol focused many of our activities around this marine theme. We conducted a free public workshop "Knowing your seafood!" organised by Dr Toh Tai Chong with School of the Arts (SOTA, Singapore). This year's Research Trust Fund grant call was themed "Our Oceans", and was awarded to Dr Ow Yan Xiang for her project "Evaluating biological attributes of tropical seagrasses that contribute to sediment stabilisation". We would like to thank Prof Prakash Kumar, Prof Wong Sek Man, Dr Beverly Goh and Dr Jani Tanzil for their efforts in vetting the applications for the Research Trust Fund Grant. In conjuction with IYOR2018, the joint SIBiol-SCS Public Forum, organised by Dr Adrian Elangovan, was also themed "Coral Reef Conservation in Singapore". We were extremely honoured to have two very distinguished speakers: Prof Chou Loke Ming (TMSI, NUS) and Ms Sam Shu Qin (Our Singapore Reefs).

I would like to thank all Council members, especially our Treasurers Mr Nicholas Yap and Dr Theresa Su, Secretary Dr Paul Chen, webmasters Mr Timothy Tan and Ms Leong Wai, SIBIol interns Ms Lim Yan Ling and Ms Aditi Saayujya for their hard work in managing SIBiol matters.

Best Regards,
Dr Jani Tanzil
President, 44th Council

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A Tribute to

Prof Benito C Tan

Benito C Tan (1946 – 2016) Honorary Fellow, Singapore Institute of Biology

The late Prof Benito Tan was an active member of The Singapore Institute of Biology. He served in several consecutive councils of SIBiol, from the late 1990s to 2012. His greatest contribution to SIBiol was the creation of the Annual National Biology Convention, which he conceptualized in 2000, and subsequently chaired and organized until 2011. His belief that SIBiol, a society of practicing Biology professionals and educators needed a professional forum to showcase Biology research and teaching in Singapore led to his brainchild of the ANBC, which he modelled after a similar annual convention of the Philippine Association of Systematic Biology. In total, he organized 9 well–attended ANBCs, that featured talks by local biologists who were postgraduate students and academics from the various universities and institutes of higher learning in Singapore.

As a biologist, Benito was a well-loved Plant Biology Professor at the National University of Singapore, teaching courses on bryophytes (his most favoured group of plants), plant taxonomy and systematics, and ecology. Students remember him as a kindly and soft spoken Professor, who inspired them in studying Botany, and who also loved music. Many of his higher degree students continued to build their careers in Plant Biology, and also serve in professional plant science bodies. Over the course of his career, Prof Ben published over 350 papers, particularly on bryophyte taxonomy, naming over 80 new taxa and well over 150 changes in nomenclature. He also served in the editorial boards, and as manuscript reviewer of numerous distinguished refereed journals.

It is for his dedication and contribution to Biology in Singapore, and service to SIBiol, that he is appointed Honorary Fellow of SIBiol in 2018.

THE IBO JOURNEY

The team with their Iranian guide

Singapore placed 3rd at the 29th International Biology Olympiad

By Isaac Chan Xu Rui, Justin Ng Wei Jun, Ong Jia Xin and Shermane Lim Yun Wei

At the 29th International Biology Olympaid held in Tehran, Iran, from 15 to 22 July 2018, our students have once again made Singapore proud by clinching three Gold medals and one Silver medal. They were put through diverse biological tasks such as dissection of Persian leeches and investigating characteristics of plant samples, alongside gruelling theory papers throughout the week. With their efforts, Singapore emerged as 3rd out of the 68 participating countries and territorities, featuring 261 participants in all. The team consisted of: Shermane Lim Yun Wei from NUS High School (Gold medal), Justin Ng Wei Jun from Hwa Chong Institution (Gold medal), Isaac Chan Xu Rui from Hwa Chong Institution (Gold medal) and Ong Jia Xin from NUS High School (Silver medal). Congratulations to the team!

This year, the jury team consist of Mr Marcus Chan (MOE officer), Dr Chen Zhong, Dr Ng Ngan Kee, Dr Beverly Goh and Ms Lim Yan Ling (Chief Alumni Instructor). They watched over the students from the beginning till the end of their IBO journey, offering guidance whenever needed. Even in Iran, they had worked tirelessly throughout the week to revise the papers before they are given to the students and also ensured that the answers submitted by the students are dutifully awarded after the exams.

The jury team

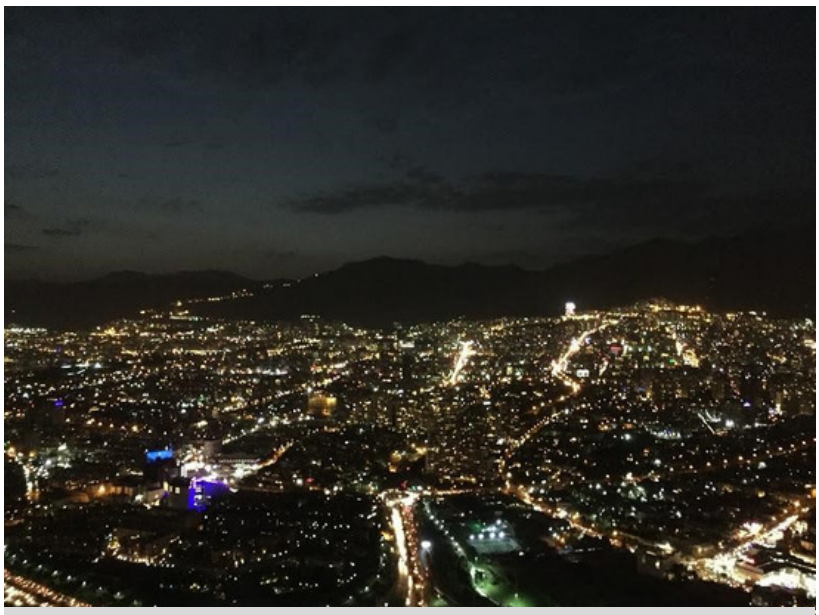
Thoughts from the team

from Shermane.

This time last year, I never imagined that I would ever represent Singapore in an international competition. It was something that seemed too far out of my reach, to imagine myself donning the red Singapore blazer and representing Singapore on the global stage. But nobody can predict what life has in store for us, and so one year later, I found myself packing my luggage for a week-long trip to Tehran, Iran (with my trusty Campbell textbook, of course).

Unlike many of my peers, this journey did not start until 2017, which was the year we participated in the Singapore Biology Olympiad (the first step in the selection process for IBO). Before 2017, I was more into Mathematics and Computer Science and I thought that it would be impossible for me to get into the IBO team with my limited knowledge and experience. However, through this, I have learnt that the different disciplines in science are not truly disjoint; my experience in the other subjects did play a significant role during both the selection process and the actual IBO competition.

Milad Tower, the 6th tallest tower in the world



Beautiful nightscape of Tehran from the top of the Milad Tower

This entire IBO journey was definitely not easy. During the two months of preparation in between the selection camp and IBO, I had to give up doing many things I enjoyed. Watching the days go by and counting down to 15 July (the day we left for Iran), I felt increasingly discouraged. There was just too much to study and too little time. For me, this period was the most difficult part of the entire journey, not the selection camp nor the actual competition. There were so many

Thoughts from the team

A must-take biting-medal photo with the team

times I thought about how I was not good enough to represent my country and felt like giving up. Fortunately, my family and friends were always around to support and talk to me.

Though the outcome was better than I ever dreamed it would be, the journey is the one I will never forget. The blood (from slicing my finger open with a glass slide during selection camp), sweat (from all those training sessions at MacRitchie) and tears (from all the emotional overload) shed was worth the experience in the end.

Also, I must add that Iran is a beautiful country with very friendly people. Everywhere we went, the Iranians were hospitable and tried their best to make us comfortable. Being a country with such a rich history, the architecture in Iran is just breathtaking and I would highly encourage others to take a trip there.

Throughout this journey, I have had many people to be grateful for, and I would like to thank them for supporting me.

To my family, friends, teachers and mentors: Thanks for being there whenever I needed someone to rant to or a shoulder to cry on. You may not know it, but I hung onto your words of encouragement and belief in me from the start till the end and I would never have gotten through the whole journey without you all.

To the seniors and professors: Thanks for doing your best to prepare us for this competition. All of us have grown so much as biologists through your teaching and guidance. To Yan Ling, thanks for being with us through thick and thin, for sharing your personal experience with us and for always trying to make us feel better about ourselves. To the jury (Dr Goh, Dr Ng, Dr Chen, Mr Chan and Yan Ling), thanks for coming with us to Iran and doing your best to fight for us.

To Sarina, our tour guide: Thanks for making this trip less stressful and more enjoyable. Thanks also for taking such good care of us there, from offering us food and drinks before the competition, to cheering us up when we were demoralised after the papers, to being so happy for us when the results were announced.

Thoughts from the team

To my teammates: We went through so much together in the past few months, and I will never forget the many memories we made together. Though we were all feeling terribly stressed during the competition, I am sure we still had fun hogging the foosball table and the PlayStation until 2am immediately after we were done with the examinations. All the best in your futures!

Justin enjoying the "mind-blowing drink that will allow you understand the meaning of life"

from Justin.

This was an insane experience. Not just IBO, but my entire Olympiad journey. Thinking back, I would never have imagined myself achieving what I have today 2 years ago when I first participated in SJBO. Back then, I only went for SJBO because the school provided some sessions of training and I found them to be very enjoyable, and so I stuck around and eventually went for the competition. Being the first year for SJBO, I didn't know what to expect, and when it came down to the test, it was highly challenging. At the end of it, I wasn't feeling too optimistic and so I made a meme with my friends, and I said this characteristic line which my friends would bring up all the time: "Looking forward to IBO." Back then, I really meant this as a joke because I never expected in my wildest dreams that I would represent our country for Biology Olympiad. To my surprise, I did exceptionally well for SJBO, much better than I would have expected. However, I did not feel as proud as I would have expected. Deep down, I always felt it was a fluke; that it was just a stroke of luck and fabulous RNG that got me the medal, and so I never really felt quite accomplished because I know that I screwed up the paper, and the only reason I got my medal was because others screwed up even worse, to put it crudely.

Cultural night at Shahid Beheshti University (SBU) after practical exams

Thoughts from the team

The next year, I decided to sign up for the SBO training programme in Hwa Chong and prepare for the competition. Midway through the training, I was overwhelmed with my other commitments, especially being the vice-president for my CCA, and I honestly considered giving up on SBO because I did not have much time to study and I did not want to participate in it knowing that I would not have done my best. I didn't want to let my teachers down. I didn't want to let myself down. However, I was extremely fortunate to receive encouragement from my friends that were in the training programme as well. Their words gave me the courage to continue striving for my dream and not be deterred by the fear of failure. So I persevered on. And that was probably one of the best decisions I have ever made in my life. Had I given up back then, I would not have made it thus far and experienced such an unreal journey.

Intense foosball game to relieve stress from practical exams. Girls versus Boys: Who will will?

Skipping ahead, I made the IBO training team. To be perfectly honest, because of my other commitments, a part of me wanted to give up my place in IBO to another person who could commit more because this time, the country's pride rests upon my shoulders and I did not have the confidence that I would definitely do my country proud.

Excursion to the National Museum of Iran

Eventually, selection camp happened. At the start of the camp, I decided that I would try my best to learn as much as I could so that even if I don't make the team, I would leave the camp a better version of myself. After the first test, I was devastated. Completely and utterly destroyed. My brain and my heart weren't ready for the intensity that was the genetics paper. A shattered man, I crawled through the next few papers,

Thoughts from the team

V for Victory! We could finally relax after the awards ceremony.

building in disappointment after each ordeal. I am sure the seniors could tell that as the camp went on, I was losing motivation to go on. Midway through the camp, I felt I had done so badly in all the papers that there was no hope I was going to make it to the team. So I decided that I would use the opportunity to learn as best I can. And I did. The seniors and professors taught me so much and they were the greatest sources of inspiration for me. Toward the end of the camp came interview night. I won't share specifics, but the chat that night with the seniors lit a flame in me that I should never give up on my dream and that I should always do my best no matter what. And so for the last day, I gave it my all and I tried my best for all the tasks I was assigned. I didn't really do it so that I could make the team because I honestly, wasn't expecting much at that point in time. I just wanted to make sure that even if I go down, I go down swinging. In an unexpected turn of events, I made the team and so the seniors', professors' and Singapore's hopes were pinned on me and not to mention the 3 other talented kids who would soon become some of my closest companions.

The boys showing off their close friendship

Studying for IBO was intense, but Biology day and night was such a dream come true.

Skipping through all the studying, it was soon the fateful day. On the day that I left for Iran, on the way to the airport, I wrote a message. It was a message that I wanted myself to read after IBO, some sort of message to my future self. It was not a particularly long or sophisticated one, but it truly captured my

Thoughts from the team

Thanks to all the seniors for their guidance and support, especially Yan Ling, our head trainer!

emotions at that time. I wrote a line which summed it up pretty nicely:

"I don't know how I will do to be honest." -Justin Ng, 14/7/2018

Looking at the seniors who came before me, I paled in comparison. They were honestly legends in my eyes, achieving unreal feats of brilliance in the realm of Biology. And yet there I was, a mere mortal treading the path forged by the fiery genius that is the seniors. "I don't know how I will do to be honest". This statement held true, up until the day of the practical exam.

I don't know what it is with Biology Olympiad practicals but they always leave me in a state of devastation and shock. My first two practicals were the plant and animal one and coincidentally, they were the two which I screwed up the most. During the breaks in between the practicals, I was in such a state of helplessness that I couldn't speak to anyone during that time. However, I remembered what my seniors always say: "Even if you think you messed up, just move on because if the paper was hard to you, it likely means others messed up as well." I moved on and focused on the molecular biology and ecology paper next and I felt like I did fine, thankfully.

For the theory paper, it was never really my strong suit. I knew that I had to keep my focus if I wanted to finish the paper. I cannot get distracted for even a second. 3 hours of complete focus, twice. Even I'm amazed that I pulled through it.

At the end of it all, I wasn't feeling too good about my chances. I legitimately expected a bronze or even an honourable mention. Hence, for the last few days, I tried not to think about it too much and just decided to bask in the loveliness of Iran. Speaking of which, Iran is an amazing place! It was so much more than what I expected. I have never been to a Middle Eastern country before (as with most people), and so this trip was an eye-opener. The scenery, the cuisine, the people, and the culture -- there really isn't another place like Iran. Advice for anyone reading this: Go to Iran at least once in your life, you won't regret it. And remember to try their yoghurt drink. It tastes like a regular yoghurt drink but without the sugar and flavouring we are used to. The result: a mind-blowing drink that will allow you to understand the meaning of life.

Thoughts from the team

In the last few days we played foosball a lot because I think it is very popular in Iran. Unexpectedly, the IBO 2018 team became godly at foosball. I honestly didn't think that we would get this good but somehow we did...

At the end of it all, this journey ended well. I achieved a result better than I would have ever expected and I have done my country proud. But this would not have been possible without everyone who has helped me and given me the strength to push on even in times of distress, especially my friends who came to send me off that day :). I really appreciate all that the professors have done to help us prepare for IBO. I would also like to thank all the seniors who came down to train us and inspire us to strive to be the best. You were my role models throughout this journey. Without your inspiration, I would not have been able to come this far. I would also like to specially thank Yan Ling, our glorious leader, for taking us under her wing and caring for us. I hope we've done you proud! Last but not least, I would like to thank my teammates Isaac, Jia Xin and Shermane for being the nicest people. You were such great company throughout all this and I am really lucky to have you as my IBO teammates!

This entire experience was truly a rollercoaster of emotions for myself but I would not have traded it for anything else in the world!

from Isaac.

To participate in the IBO was truly an honor. The preparation was arduous and the journey challenging, but the result was extremely satisfying. In retrospect, to be able to represent Singapore in a competition about biology was an extremely enjoyable experience. The types of questions asked and concepts tested felt like a breath of fresh air compared to schoolwork. Apart from the competition itself, the trip to Iran was also an extremely pleasant experience as I got to immerse myself in a foreign culture that is vastly different from Singapore's.

All in all, this is an achievement not simply for myself, but also all the friends, IBO seniors, teachers and parents that have supported me along the way. The competition has broadened my perspectives, and helped me grow as a biologist.

Isaac is happy to eat ice-cream

Thoughts from the team

Singapore meets Philippines! Our foosball opponents who never give up trying to win us

from Jia Xin.

The months leading up to IBO and the competition itself was truly a one-of-a-kind experience that I am very grateful for. We spent months preparing for the competition, attending lectures by various professors, reading textbooks and meeting with seniors to go through questions together to try to learn as much as possible while juggling other commitments we had. It was not easy to grasp all the concepts but I did learn so much more than I learnt in school.

As much as it was fun challenging ourselves, it gets difficult as well. It was a first for me (likewise for my teammates), to be taking on the responsibility to do well for Singapore and while it excites me, sometimes the pressure gets overwhelming I would think of giving up or about how if someone else was in my position, they probably would be doing better. When I feel demoralised and discouraged, the seniors constantly tried to make me feel better with words of encouragement and by sharing their personal experiences. And when I get tired from studying, I had friends to cheer me on and motivate me. While the competition itself was an enriching experience, I personally feel that the greatest takeaways were the people who helped me through the tough times and learning to have faith and confidence in myself. To all these people who supported me, I can never thank you enough.

The tired Singaporeans trying to catch up on sleep on the bus

The IBO event itself was more fun

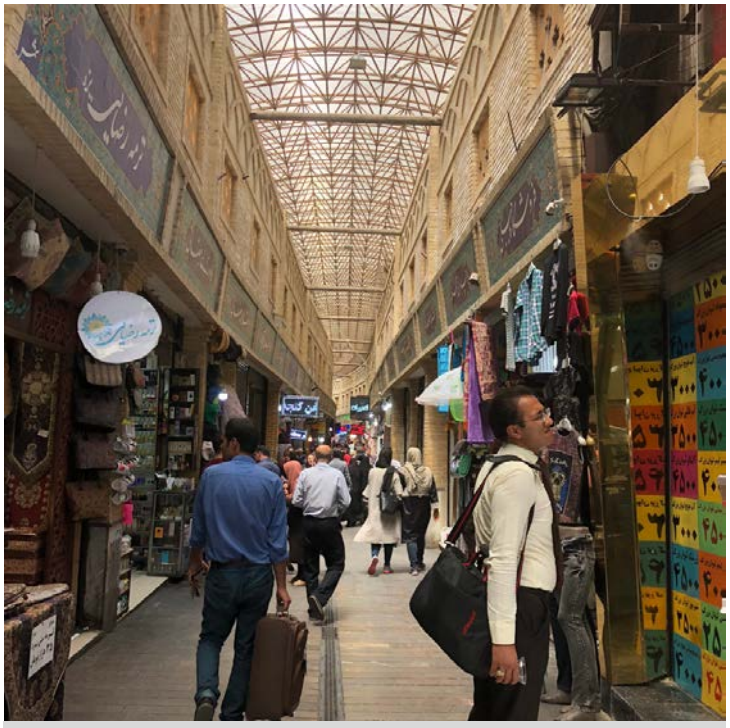
Thoughts from the team

than we had expected. Firstly, while the tests were challenging and time-tight, there were many eye-opening tasks especially for the practical rounds, testing our ability to think on our feet and to work under stressful situations. Secondly, we had many opportunities to immerse in the culture at Tehran, Iran. We visited the bazaar, mosque, museums, palaces and malls there. In addition, we ate mainly their cuisine every day, which were very flavourful.

Our Iranian guides really love wefies

Every country also has a tour guide attached to them. Our tour guide was very friendly and tried her best to make our stay there enjoyable. She was not only very knowledgeable as she was able to answer our questions about their culture, she is also very caring as she would always offer us with water and food, and was sincerely happy for us as we got our medals.

All women have to wrap themselves up in another piece of cloth in this sacred place



After visiting the mosque, we toured the bazaar where we filled our bags with Iranian snacks

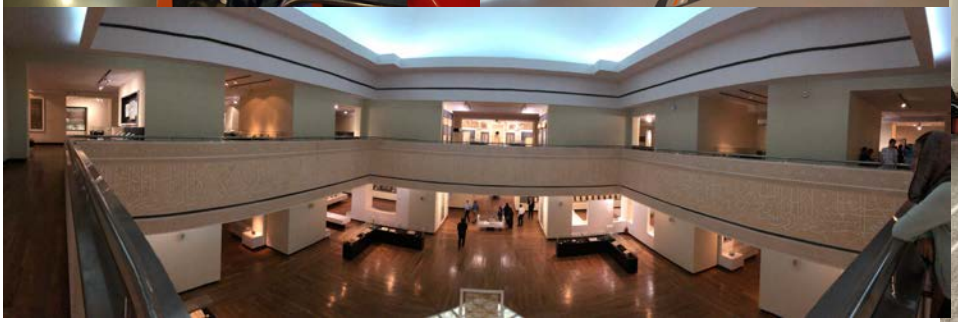
Thoughts from the team

Having a blast at the arcade

We also met many participants from other countries who were also very fun-loving, whom we played foosball with and ate meals with. To meet other like-minded people during the trip was what made the trip enjoyable despite the pressure of having doing well at the competition.

At the end of the day, while it was an arduous journey, to be given the chance to be part of this experience is something I am extremely grateful for.

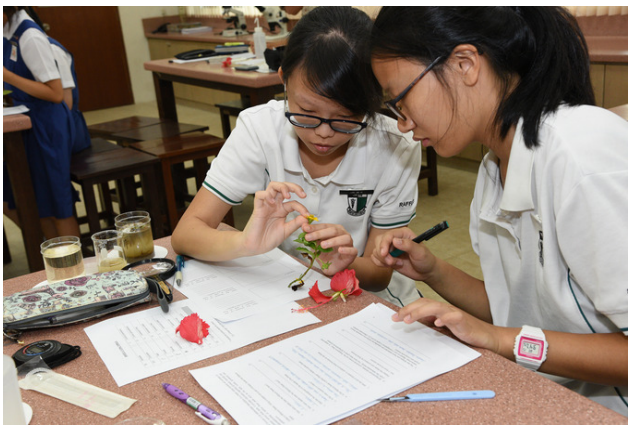
more photos...



SJBO 2018

The 3rd Singapore Junior Biology Olympiad

SIBiol and Science Centre Singapore co-organised the inaugural 3rd Singapore Junior Biology Olympiad (SJBO) for students from Secondary 2 to 4 (or their international equivalent) and welcomed all schools to take part. A total of 1428 students from 63 schools participated in the theory round which took place online on Friday 25 th May 2018; an increase from 1354 students from 57 schools the previous year. 72 students received gold medals, 143 received silver medals, 215 received bronze medals, 141 received honourable mention and 857 received certificate of participation.



Following the theory round, the top 7 schools (as determined by a weighted average of the scores of the four best students from each school) were selected to participate in the practical round: Anglo-Chinese School (Independent), Catholic High School, CHIJ St. Nicholas Girls' School, Hwa Chong Institution, NUS High School of Mathematics and Science, Raffles Girls' School and Raffles Institution. Schools selected were allowed to train and select 5 students (including 1 reserve) to participate in the practical round, held in the Science Centre Singapore on the 15th of August 2018. The students participated in teams of 4 in the SJBO practical round. They were made to complete various tasks ranging from collecting and classifying aquatic micro-organisms to identifying and observing plants in their native habitat. The overall winner was Hwa Chong Institution, with Raffles Girls' School coming in second and Raffles Institution coming in third.

SIBiol would like to thank the organizing committee A/P Lim Tit Meng, Dr Jani Tanzil, Dr Chen Zhong, Dr Savita Sharma, Ms Swapna Teckwani, Ms Yan Ling, Theresa Su, Regina Yeo, Nicholas Yap for their devotion and zeal without which the SJBO 2018 would not have been possible.

PUBLIC FORUM

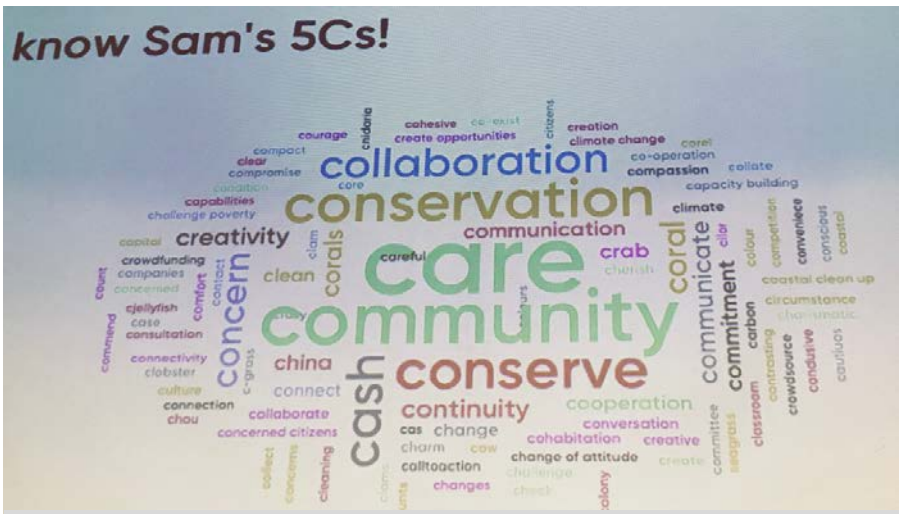
Coral Reef Conservation in Singapore

One of the attendees who identified herself as one of Prof Chou's students in the past.

The annual Public Forum, jointly organised by the Singapore Institute of Biology and Science Centre Singapore, was held on 25 Aug 2018 at the Maxwell Auditorium of Science Centre Singapore. The theme for this year's forum was "Coral Reef Conservation in Singapore", in conjunction with the International Year of the Reef, as well as the submission of the Singapore Blue Plan 2018 to the Singapore government.

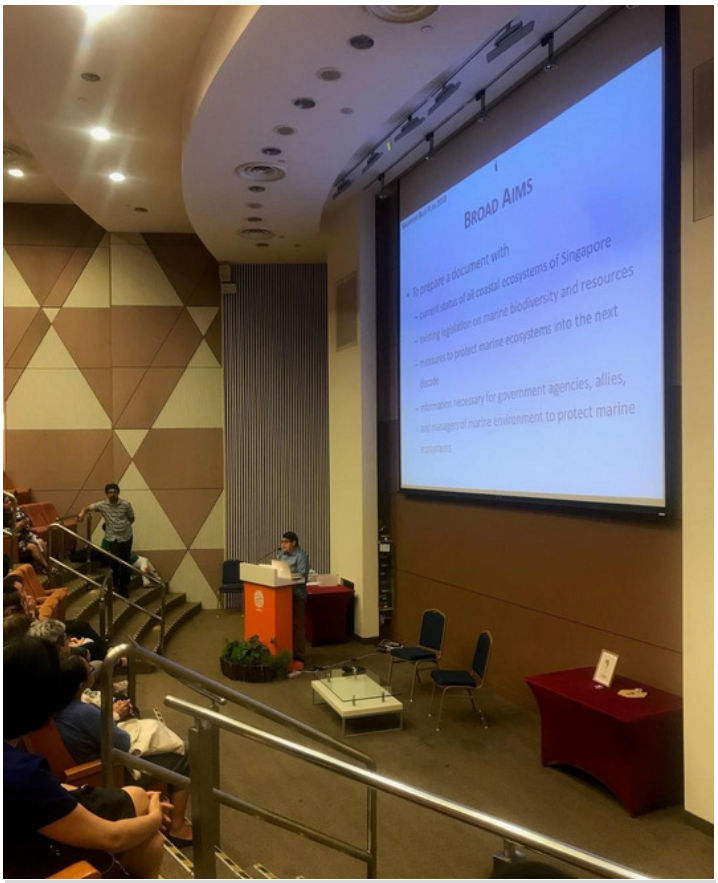
The invited speakers, Professor Chou Loke Ming and Miss Sam Shu Qin, are deeply involved in reef ecology and conservation work both in Singapore and the region. Prof Chou, a pioneer marine biologist in Singapore, shared his insights on the evolution of local marine conservation. He likened it to the rock and roll album by Bill Haley & His Comets entitled *Shake, Rattle and Roll*, where the pioneers stepped up and agitated the conservation scene, and it is now up to the younger generation to gain momentum and roll on. A full circle was depicted when one in the audience stood up during the Question and Answer session to identify herself as Prof Chou's ex-student, and she brought her daughter to the event as well.

Miss Sam Shu Qin, co-founder of the non-profit initiative, Our Singapore Reefs, infected us with her passion for the environment. She shared some of the current events led by Our Singapore Reefs, and further engaged the crowd with an interactive platform where she sought our opinion on the five 'Cs' of our seas. The result was a pictorial representation of what the marine environment means to all the attendees of the public forum and it was definitely a sight to behold.



Miss Sam Shu Qin sharing with us her five 'Cs' of the seas.

PUBLIC FORUM



Dr Jaafar sharing about the broad aims of the Singapore Blue Plan 2018.

Lastly, Dr Zeehan Jaafar, lead editor of the Singapore Blue Plan 2018, spoke to us about the third iteration of the Blue Plan, a collaborative document put together by scientist and stakeholders that puts forth recommendations to the government with regards to our blue spaces. Dr Jaafar also thanked the Singapore Institute of Biology for our contribution to the Blue Plan as the publisher and invited all SIBiol members to the launch of the Singapore Blue Plan 2018 that is to be held on 13 Oct 2018.

At the end of the public forum, a few attendees were even keen to be members of the Singapore Institute of Biology. The event was followed by a reception where attendees took the chance to mingle with the speakers and asked more questions. The Singapore Institute of Biology is grateful to Science Centre Singapore and all the attendees for making this annual event a success.

SIBiol Bulletin 2018 prepared by Lim

Yun Wei Shermane & Ong Jia Xin

-End-