Anojan Amirthalingam

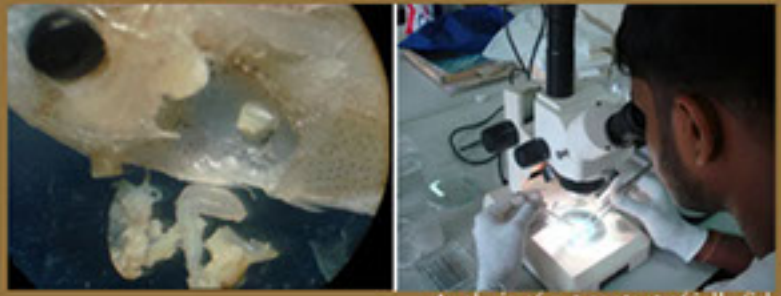
> "I am humble to state that I was the first in Sri Lanka to report the significant association of jellyfish species, *Phyllorhiza punctata*, with the Brownback trevally, *Carangoides praeustus*"

I am Amirthalingam Anojan from Mullativu. Since my childhood, I had a dream to be established as a successful entrepreneur. I wanted to succeed my ambition through my education. I had no hesitation to choose aquaculture and fisheries for specialisation to achieve my carrier goals. In addition to the numerous career opportunities in government and the private sector, it has a good potential for self-development.

It was an amazing experience to explore the world under the water and I was fascinated by studying the jellyfish-fish interaction using underwater video recording. It was something that I never thought of. I am humble to state that I was the first in Sri Lanka to report the significant association of jellyfish species *Phyllorhiza punctata* with the Brownback trevally *Carangoides praeustus* based on my study conducted at the Puttalam lagoon.

I did my industrial training at shrimp farms of King Aqua Services (Pvt) Ltd in Anaikkutti which is adjoining to the Puttalam Lagoon. It was a great opportunity to take experience on latest shrimp farming technology, work with different ethnic and cultural communities. Creative and critical thinking, problem-solving ability, punctuality, taking responsibility, ready to wet hands at any time and self-confidence are the main skills that I have improved during my industrial training period. I got the opportunity to continue my career as a technical officer in Puttalum district at the same company because of the knowledge, skills and experience that I have gathered during my stay in the Department of Aquaculture and Fisheries.

Screenshot of jellyfish taken underwater



Analysis of gut content of jelly fish

Aravinda Rajasinghe

"I like the friendly atmosphere at the department which I have experienced since the beginning of my university life"

I am Aravinda Rajasinghe from Matale. It was a great opportunity for me to be specialised in the Department of Aquaculture and Fisheries. I had heard about the job opportunities in the field of fisheries and aquaculture and various other disciplines of interest that the past students have engaged in.

My involvement in undergraduate research played an extremely significant role in my attitude and skill development. I cooperated with people from different ethnicities, cultures, educational levels and ages. My research gave me a broad perspective and taught me various ways of approaching problems and ways of dealing with people from different backgrounds that I did not consider before.

My undergraduate research project aimed to estimate the monetary value of the Negombo estuary. I learned the methods of environmental estimation such as contingent valuation which was new to me and I appreciate that learning opportunity provided through a co-supervisor at the Department of Agribusiness Management. I realised the real advantages of an estuary and how useful it for the people living nearby and their vision about the conservation of nature. Now I am more sensitive to social and environmental issues and I believe I have the responsibility to make an impact in the world.

My in-plant training at CIC Dairies (Pvt) Ltd, which was very different from my field of specialisation had a greater impact on my life. Skills such as teamwork and problem solving, knowledge and experience on professional ethics will be really helpful for me to be a good employee in future.

Map: Negombo estuary

Estuary

Gathering infomation

student profile -Aravinda done

Buddika Weerakoon

"I was fascinated to learn legislations; regulations and policy development, pertaining to marine environment and fisheries, which was my childhood dream"

I am Buddika Weerakoon from Kalutara. I was always interested in law from a young age and somehow I was ended up in specialising in the Department of Aquaculture and Fisheries which I would like to call as a hidden blessing.

I did my research on "Parasitic digenean cercariae of fish and their indefinite gastropod hosts in two fish farms of Sri Lanka with reference to *Centrocestus formosanus*".

My undergraduate research experience was certainly the most enjoyable and rewarding aspect of my university life. Applied learning and skill development were two aspects of undergraduate research which I appreciate the most and have had the greatest impacts. It provided me with the opportunity to better understand and apply the scientific method, experimental design, and biological concepts introduced in a classroom setting. I learned very new things such as the importance of ethics in research and different technical skills.

My in-plant training at Marine Environment Protection Authority (MEPA) gave me an opportunity to put into practice what I have learned at university. Working with professionals in the marine science and maritime sectors provided me with a lifelong experience and built relationships. I learnt organisational characteristics, culture and work ethics of government organisations and especially the issues associated with implementing the regulations and policies at the grassroot level, which will be useful for my future workplace.

An infected gill

Recorded parasitic digenean flukes of fish

student profile -Buddika done

Danushka Priyadarshana

"I am proud to be a part of fish family at the Department of Aquaculture & Fisheries"

I am Danushka Priyadarshana from Gampaha. I still remember the homely feeling I felt on the very first day at the Department of Aquaculture and Fisheries as a specialising student. I was very lucky to be in such calm and protected hands. My department gave me a reason to proudly say that I have made the most precious decision by selecting aquaculture and fisheries for my undergraduate specialisation.

I conducted my undergraduate research on "Identification of sailfin catfish species in Daduru Oya and Victoria reservoirs in Sri Lanka" using Truss network. Results revealed that hybrid characters are present within two pure groups of sailfin catfish populations in two reservoirs. My research findings will be useful in taking measures to conserve the indigenous fish species which are threatened by this exotic sailfin catfish. I gained a deeper understanding of the topic of my research and practical applications of the Truss network which was new to me.

My in-plant training experience at the Global Seafood (Pvt) Ltd was more than just training: it was real fine tuning for me before releasing to the competitive job envionment. I started the career from the beginning of my industrial training and I am still continuing there as a quality control executive. I was very passionate to apply theories I learnt from the university. Working in the industrial set-up was totally different from the learning environment at the university, but it led to improve my soft skills. I have the confidence that I can sustain and adapt to the industry and achieve far more owing to the background created by my teachers at the Department of Aquaculture and Fisheries.

Studied fish: *Pterygoplichthys* spp

Color patterns: Close to spots

Intermediate

Close to vermiculations

student profile -Dhanuska

Gangani Anushika

> My decision to be specialised in the Department of Aquaculture & Fisheries was one of the best decisions that I have made in my life

I am Gangani Anushika from Galle. When selecting a department for my specialisation, the decision was greatly influenced by the interdisciplinary course modules and research conducting in the department, because I was quite passionate to apply such approach to my 4th-year research project.

I am proud to state that I had an immense development in my analytical and critical appraisal skills; and especially communication skills during my specialisation period. For my final year research project, I developed two new products, a herbal porridge and a value-added "Kola-kenda" beverage from the very nutritious seaweed, *Kappaphycus alvarezii*. These products were rich in natural Calcium and other important nutrients, so they have a potential as natural Calcium supplements for humans.

These two products, which developed through my undergraduate research, were rewarded under the best 1000 national-level inventions in 2017 and I got an opportunity to present my new products at the "Sahasak Nimewum" innovations exhibition under the University category. Also, they were presented at the Colombo Seafood Festival-2017.

Further, the in-plant training I got at the Quality Assurance Department of the Ceylon Fresh Seafood (Pvt) Ltd, was a good opportunity for me to expose to the industrial set-up and to learn specific techniques which will help me to go further with my employment in any industry.

Seaweed: *Kappaphycus alvarezii*

Preparation of porridge

Newly-developed herbal porridge

student profile -Gangani done

Ishara Harshanee

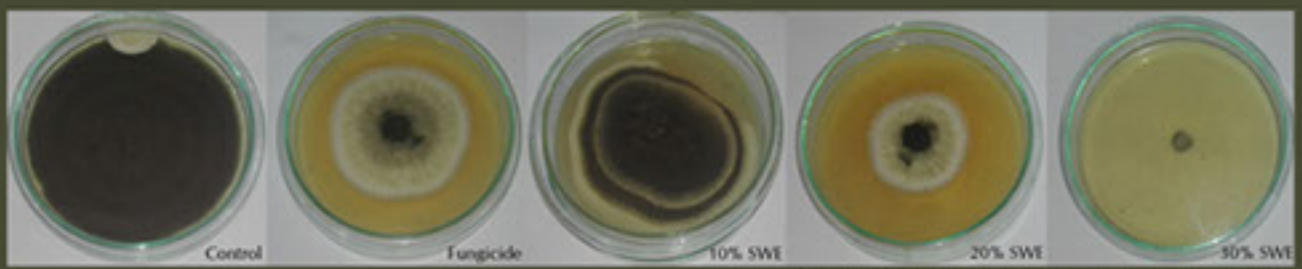
> "Looking back on my years here, I am profoundly struck by all the ways that the department has shaped me into the person that I am today"

I am Ishara Harshanee from Galle. I had a strong desire to do a research novel fields and since the beginning of my University career I believed that the Department of Aquaculture and Fisheries will guide me for different research opportunities.

My undergraduate research helped me to be a contributor to the scientific community and brought more meaning to my undergraduate life other than filling only with theoretical knowledge. I was able to apply the techniques and principles that were taught and I was given the opportunity to use my skills in an attempt to discover something new. What I like the most about participating in research is creating new knowledge, taking responsibilities and making decisions.

In my research, I was trying to determine the antimicrobial property of a seaweed: *Kappaphycus alvarezii*. I found this seaweed species has high antimicrobial property against both bacteria and fungi. And also, it showed an efficient antimicrobial property than a commercially available fungicide. This eco-friendly antimicrobial product has a potential to be used in food industry. The opportunity I got to participate and exhibit my new antimicrobial product at "Sahasak Nimewum" National exhibition offered a sense of accomplishment, pride, and confidence in me.

My in-plant training at the Ceylon Fresh Seafood (Pvt) Ltd taught me how important the hard work, patience and teamwork in industrial set-ups.
My department gave me a reason to strive for continuing education and contributing to the development of aquaculture and fisheries sector by applying any additional experience and knowledge.



Testing the anti-fungal effect on *Aspergillus niger*

student profile -Harshani done

Eranga Jayarathna

"I am truly thankful for giving me a reason to proudly say that now I am competent and have the potential to work in any food industry"

I am Eranga Jayarathna from Rathnapura. I enjoy exploring new stuff and specialising in the Department of Aquaculture and Fisheries served as a way for me to test my interest in science.

No other experience or coursework other than the research during my undergraduate days had a greater impact on my life. I particularly enjoyed the close interaction which I experienced from my friends particularly in my department and the faculty throughout my research. Sharing of different aspects of knowledge on food product development and experience on different techniques we used were invaluable. During my research, I developed the innovative power and skills of teamwork and patience which will definitely need for the rest of my life.

For my undergraduate research, I developed a cookie incorporating the flesh of an underutilised fish, the Sailfin catfish. It is one of the exotic fish species, but now it has been distributed to natural water bodies in Sri Lanka except Northern Province. After going through different tests and trials with few failures, I finally developed a 17% fish flesh incorporated cookie with lower sugar content and higher protein percentage than normal cookies.

Nothing stands out more than the valuable opportunities and experiences I received through my research. It was tremendously beneficial to receive the in-plant training at Ceylon Biscuits Limited, Munchee and I successfully completed my training although it is different from the aquaculture and fisheries aspects.

Prepared fish samples for cookie making

Microbial quality testing

Newly-developed cookies

Keerthana Ranjith

"Department of Aquaculture & Fisheries has motivated me to do my best academically and to help prove to myself that I earned an education"

I am Keerthana Ranjith from Mannar. Students in the Department of Aquaculture and Fisheries participate in real research projects. I love working with the community and I wanted to do something to develop the livelihood of rural people using my knowledge. Department of Aquaculture and Fisheries is the best place to do that.

I did my final year research project on "An empirical analysis on the sustainability of livelihood of fishing communities adjacent to the Giant Tank in Mannar district". During my research period, I got an opportunity to deal with people from seven fishery communities around the Giant Tank in Mannar district and inter-relate their livelihood activities. I exposed to real-world problems and I gained so many life experiences while working with them. I am proud that I could translate the knowledge that I acquired from coursework to find solutions and upgrade the livelihood of people. It may help the fishery community to achieve the sustainable livelihood.

I learnt generic skills of working with the non-scientific community and knowledge transfer to a non-scientific audience. I believe it is our responsibility to contribute to the development of different sectors of the country as educated people.

From the inplant training at John Seafoods (Pvt) Ltd during my industrial training, I learned about the skill sets required and demands of the industry. It was an immense opportunity to get an in-depth understanding of the real working environment and prepare for a professional career.

The Giant Tank

Interviewing dependants of the Giant Tank

student profile -Keerthana done

Luxshayini Nadesan

"I enjoyed my research a lot and I realised that the sky is not the limit if we are guided and moulded at the Department of Aquaculture & Fisheries"

I am Luxshayini Nadesan from Baticcaloa. I decided to specialise in aquaculture and fisheries because of the broader spectrum of knowledge and field exposure that I could gain.

At the Department of Aquaculture and Fisheries, the core course units were explained well and I learnt skills to apply the knowledge in different ways. My research helped me to develop time management skills, scientific writing and communication skills and had driven my interest in the pursuit of knowledge, which I hope will stick with me for the rest of my life. In my research project, I got the opportunity to work in the Industrial Technology Institute (ITI) for my laboratory analysis which I consider as an immense opportunity to get the knowledge on analytical techniques and work with the experts in the chemistry field.

I did my research on "Analysis of Polycyclic Aromatic Hydrocarbons (PAHs) of firewood smoke used by indigenous communities". I found some Polycyclic Aromatic Hydrocarbons in firewood smoke which are used by the indigenous community. It was a great feeling to be awarded as the best presenter of the department at UReS 2017 and I'm glad that the dedication can make a difference.

My in-plant training at Sri Lanka Standards Institution provided me with a different set of skills and knowledge. It boosted my capacities of working independently and also in a group. I believe the experience I gained during my specialisation period will guide me to find my future direction in postgraduate education and career.

Smoking unit

Indigenous plant prepared for smoking

Smoked product

student profile -Laxyani done

Lintha Anantharasah

"What I appreciate the most is discovery of my passion for research"

I am Lintha Anantharasah from Mullativu. It was an amazing opportunity for me to specialise in Aquaculture and Fisheries because the department coursework, practical and field exposure helped me gained a more in-depth understanding of the theoretical knowledge and their applications.

During my research, I got exposed to many different backgrounds of interest such as nutrient extraction, food microbiology and sensory evaluation. I learnt scientific writing and communication skills and how to publish research work. For my undergraduate research, I extracted sodium and phytochemical-rich extract from *Halosarcia indica* and incorporated the extracts to develop a low salt dry fish product. I successfully developed the product with significantly lower amounts of sodium and microbial counts and higher consumer preference. I suggest this dry fish production as a cottage industry in coastal areas of Sri Lanka.

I got selected to present my work to a broader audience at two forums: "Shakasak Nimewum" National level innovation and invention exhibition and Green inventor exhibition conducted by Sampath Bank. I presented my findings at ICAUST and SLAAS scientific conferences.

During my in-plant training at NARA, I was able to engage in a short-term research project to develop a fish paste which was successful and that training opportunity provided a greater understanding on practical applications to me.

I was honoured when I was asked to join the Industrial Technology Institute (ITI) to work in a research team as a volunteer soon after finishing my in-plant training.

Halosarcia indica

Dry fish production

Newly-developed low-salted dry fish

student profile -Lintha done

Mythily Panchalingam

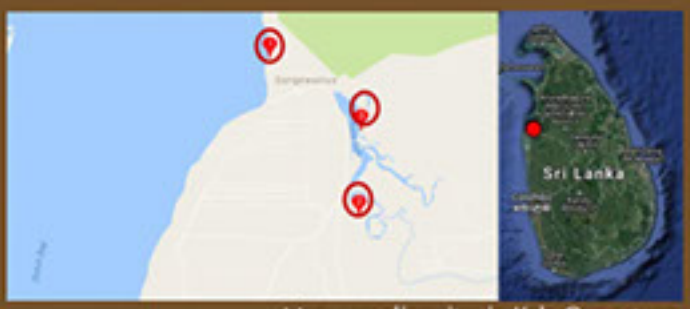
"Department of Aquaculture & Fisheries provides countless opportunities for student success and involvement both in and out of the classroom"

I am Mythily Panchalingam from Jaffna. I love exploring something that fascinates me, especially the nature. I decided to be specialised in the Department of Aquaculture and Fisheries owing to the understanding that it is the best fit I could ever dream of.

I learned in the laboratory and in the field, it was all hands-on, and for me personally, that's the best way I learned. It helped me to make sense of everything I had learned in the classroom and gave me a deeper understanding. Research was the most rewarding experience I had during my specialisation period. It developed my independent critical thinking abilities and also the teamwork skills. It was an amazing opportunity to work and stay in a mangrove forest and get the knowledge from experts in the field. I learned how we can become active participants in the scientific process and community.

My research topic was "Evaluating the heterogeneity in soil characteristics of different mangrove stands in Kala Oya estuary, Sri Lanka". I admire the funding opportunity from UNDP to complete my project successfully. My field experience showed me the real situation about mangroves and realised our responsibility towards protecting them as educated citizens. Now I feel more responsible for environmental issues.

My in-plant training at John Seafoods (Pvt) Ltd provided me with a different experience in the fisheries field. I could gain abreast of new knowledge and technology in seafood processing. I gained the skills required for doing a task in a most optimal and efficient manner. They are most beneficial to me as I started working in seafood processing industry as soon as I finished my in-plant training.



Map: sampling sites in Kala Oya estuary

Mangrove stand

student profile -Mythily done

Rajitha Madusanka

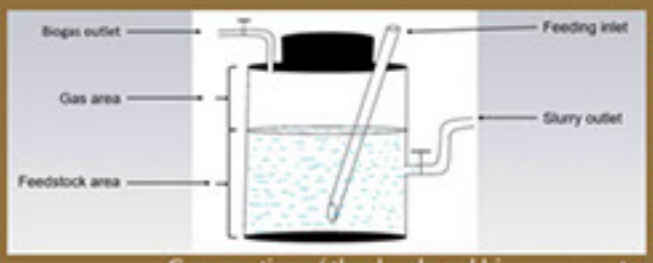
> "Hard training and the sound foundation to be critical and analytical were really helped me to solidify my career path and achieve my career goals"

I am Rajitha Madusanka from Anuradhapura. It was an amazing opportunity to be a part of the aquaculture and fisheries family. The staff always gave us the chance to find our passion and engage in extracurricular activities like engage in AqRES activities and sports.

In my research, I tried to develop a system to generate household level biogas by utilising fish and kitchen waste and to determine its effectiveness. What I enjoyed the most about doing my research was the pathway which I went through till I reach the success. This was my first experience of what an innovation is. It was extremely thrilling to see the results I anticipated and relate them to actual issues that are impacting the environment.

At the beginning, I did not have much enthusiasm to do research and adequate understanding for the real need of a research. But with the research experience, I have developed my attitudes as a responsible citizen and now I know that I have the strength and courage to contribute to the well-being of my country.

I had never imagined starting my first job just after finishing my in-plant training. Even though my industrial placement at TEA 20 (Pvt) Ltd was different from aquaculture and fisheries sector, but the hard training and the sound foundation to be critical and analytical were really helped me to solidify my career path and achieve my career goals. Generic skills such as dedication and punctuality and soft skills gained during industrial training have helped me to continue my career successfully in a leading food processing company, Renuka Group (Pvt) Ltd.



Cross section of the developed biogas generator


Newly constructed plug flow type biogas generator

student profile -Rajitha done

Thilini Roshanthika

"I am grateful for the Department of Aquaculture & Fisheries for my improvement, real-life experience & knowledge I gained during my specialisation period"

I am Thilini Roshanthika from Kurunegala. I selected the Department of Aquaculture and Fisheries for my specialisation because of the exposure to various aspects of fields and research background.

Doing research allowed me to learn life skills such as resilience, patience and planning ahead. It really improved my laboratory analytical skills, writing skills, presentation skills and interpersonal skills. I had to deal with people from various backgrounds and different social and ethnic groups for data collection. It was very new and interesting to me. The practical knowledge and exposure given in my previous studies was a great advantage to conduct my research successfully. Most importantly I got an interest in doing further research.

My research was to determine sex and body segment-vise lipid; protein and proximate compositions of commercially important four crab species collected from Jaffna and Negombo lagoons. In my research, I found important nutritional facts and information on four species of crabs.

My in-plant training at the National Aquatic Resources Research and Development Agency (NARA) was an excellent way to promote and encourage the development of professional relationships.

Soon after I finished my in-plant training I got an employment opportunity to work as the officer in-charge of a mangrove museum operated by Seacology - Sri Lanka mangrove conservation programme. I love my aquaculture family. The things I did and learned with all my friends were memorable.

Analysis in the laboratory

Microbiological study

Crab used for analysis

Sachini Perera

"Department of Aquaculture & Fisheries was a perfect fit because it has a great reputation in the industry"

I am Sachini Perera from Kotte. I wanted to explore the scientific knowledge from various disciplines and go further in education. My selection of Aquaculture and Fisheries for specialisation was based on the feeling that the Department of Aquaculture and Fisheries is the most appropriate place for me.

The work I did and the experience I learnt in the field was different than in a regular classroom. My research project was to identify the marketing channels at selected reservoirs in Sri Lanka. During my research, I got an amazing chance to see the country. I enjoyed my research; it had been travelling to different reservoirs in the country, talking with people of different cultures and with different opinions. This research linked inland aquaculture with marketing, so I could apply the theories of marketing as well. I think the experience I got to translate knowledge in different ways is very important as a budding researcher.

Findings of my research will help to identify suitable recommendations for improving the management and sustainability of marketing channels of inland fisheries.

My involvement in research and knowledge I gained from the coursework and field visits greatly benefitted even during my in-plant training at Sunrise Aquaponics Eco Business, Pannala. During my time there, I was fortunate enough to be a part of many different programmes and activities that really helped me to develop as a person and a young professional. I am proud that I started my first career at the same place just after finishing my in-plant training.

Reservoirs and landing sites of the study

Shafna Azhar

"Department of Aquaculture & Fisheries has taught me to think outside of the box and challenged me academically"

I am Shafna Azhar from Kandy. I love learning and doing research. Department of Aquaculture and Fisheries set me up for amazing opportunities I never thought would be possible.

I have definitely enjoyed the core units, practical and field visits. I was fortunate to experience the practical way of applying my studies and interests in real-life situations during my research project. My research was focused on consumer willingness to pay for eco-labelled and quality certified canned fish products. It also provided me with the opportunity to meet people of different age and social groups while I was doing my survey in supermarkets. I also got an up close and personal experience about the general public, their awareness and willingness to contribute towards economic and environmental concerns.

The confidence and negotiation skills I gained by doing research helped me to successfully finish my training at National Science Foundation (NSF). I was familiarised with the research funding schemes at NSF and research proposal writing. It improved my scientific writing and communication skills. During my training, I was able to work with many professionals like researchers and academics from various disciplines and the opportunity I got to talk with them and exchange ideas was a great reward in my life.

The experience I got at NSF further sharpened my desire to go for higher education and now I have an understanding of the research priorities in the country.

Conducting survey in supermarkets

Data collected sites in Kandy

Tharika Dilini

> Department of Aquaculture and Fisheries enhanced my critical thinking and guided me to be an effective undergraduate

I am Tharika Dilini from Kalutara. I was in two minds in selecting a specialisation, and that was one of the hardest decisions that I had to take, because I knew choosing the right specialisation can have a huge impact on my career. Finally, I decided to be specialised in Aquaculture and Fisheries because its diverse subject areas are most in-demand in the current global marketplace.

The novel knowledge and life experience I got during my specialisation period are incomparable. It gave me the opportunity to put the knowledge that I had gained in the classroom to practice. It also improved my scientific writing skills, communication skills and negotiation skills with different social groups.

My research was to evaluate the illegal border crossing and catch statistics after implementation of Vessel Monitoring Systems (VMS) in multiday-boats operated at Kalutara, Sri Lanka. Tracking fishing vessels using the Global Positioning Technique (GPS) and to predict the illegal fishing and innocent border crossing by predicting vessel speed using GPS positioning was an exciting experience. During my research period, I got the opportunity to work with Ministry of Fisheries as well as with the Beruwala Fishery harbour.

It was a rewarding opportunity for me to do my in-plant training at National Aquatic Resources Research and Development Agency (NARA). With the deeper understanding about real research needs and potentials we, aquaculture and fisheries specialised students, have a great role for the development of the sector. I am willing to dedicate my time; energy; gained knowledge and skills to develop the fisheries and aquaculture sector.

Stimulated illegal fishing grounds based on vessel speeds using VMS

Fish landing site in Kalutara

Vithushana Yogarajah

"I chose the department because the course modules appealed to me, and because of the plenty of good stories I had heard about the department"

I am Vithushana Yogarajah from Vavuniya. I became interested in specialising in the Department of Aquaculture and Fisheries during my first two-years in the faculty and wanted to study it further. I gained so much from the Department, so to pick what I like the most is challenging. For an example, five years ago I was just another girl who succeeded A/L exam from Vavuniya but today I have been selected to present my undergraduate research findings in a conference at the University of Washington, USA is a testimony of what I have gained from the Department so I like everything which moulded me to be who I am today.

My undergraduate research study was on the northern Sri Lankan fishers' struggle due to trans-boundary incursions in the Palk Bay by Indian trawlers, which now has turned to be a diplomatic issue. I visited around 10 coastal villages in the north to gather research data, even the isolated Delft Island. It was a challenging, fascinating and enjoyable experience. I wish my study suggestions and recommendations will be considered when solving this sensitive issue. I was honoured when I heard my undergraduate research paper had been selected to be presented at an International Conference at University of Washington, USA.

The in-plant training at the Sri Lanka Standards Institute (SLSI) is one of the most enjoyable experiences of this programme. I got the opportunity to meet with employers who come in to spend time with us and sometimes gave us guest lectures. This really opened us up to the sheer breadth of the industry and helped us network. This also taught us what kind of skills employers look for when they recruit graduates. Even during my industrial training, I was able to conduct another research on "Consumer attitudes and perceptions toward fish consumption" to fulfil my never-ending passion for research.

Interviewing fishers

Awareness on trans-boundary incursions

Arrested Indian vessels

Vithuraha Jegatheeswaran

"I did not feel like a student all the time, I felt like a growing researcher"

I am Vithuraha Jegatheeswaran from Trincomalee. I decided to specialise in aquaculture and fisheries because I wanted to explore new knowledge and make a difference. During my specialisation period, I realised that studies go far beyond the coursework thanks to the thriving undergraduate research programme.

My involvement in undergraduate research played an extremely significant role in my university experience. I learnt research methodology from the beginning and I could explore new knowledge which was not taught in coursework. It taught me not only the research process but also what hard work and dedication really are.

I did my research on toxin extraction from toxic freshwater catfishes. One thing I enjoyed the most is travelling to several reservoirs in Vavuniya and Mannar districts to select fish species for toxin extraction. *Heteropneustus fossilis* and *Mystus keletius* were selected for the study. I learned new techniques of toxic extraction and methods of testing the toxic effect.

In-plant training at Aqua 'N Green Ltd was an opportunity for me to get the exposure on how to face the industry once I foot out from the university. I learned how to prioritise my time and to be punctual.

The skills I developed during my specialisation period such as patience, planning and finding solutions to practical problems will be very much useful in my future life.

Selected fish for toxin extraction: *Mystus keletius*

Testing the toxic effect