賴弘智教授
Dr. **Hong-Thih Lai**
Professor

實驗室研究方向：

1. **水環境檢測與永續經營**：本實驗室近年來調查養殖環境及濕地的水質及底質狀況，累積大數據資料庫，進一步應用於水環境的改善參考依據。
2. **水環境生態學**：包括河川、水庫、湖泊及濕地的水生生物相及生態環境調查研究。
3. **抗菌藥物環境檢測、殘留與處理**：研究動物用藥物排放至環境後的流布情形，並且發展可處理水環境藥物殘留的方法。
4. **水生生物環境毒性檢測**：以水生生物作為評估水環境污染的指標，執行包括農藥、毒化物及產業排放水的毒性檢測。
5. **培育試驗用水生生物**：培育青鱂魚、多齒新米蝦、水蚤、渦蟲…等試驗用的水生生物，供應給國內環保檢測、研究及教育單位。
6. **原生種水生生物復育**：復育瀕危的台灣原生物種，近年來成功人工繁殖大鱗梅氏鯰、菊池氏細鯽、台灣副細鯽等。

歡迎大學部與碩士班學生加入本研究室團隊，將可依自己興趣學得以下技能：

1. 基本的水質與底質分析技術
2. 協助考取相關分析處理證照
3. 水生生物基本繁養殖技術
4. 獨立思維與閱讀分析能力
5. 學得研究題目相關的實驗技能

賴弘智教授簡歷

主要學歷

學校名稱	國別	主修學門系所	學位	起訖年月
國立臺灣海洋大學	臺灣	水產養殖研究所	博士	1992.09~1999.02
國立臺灣海洋大學	臺灣	漁業研究所	碩士	1985.09~1987.07
國立臺灣海洋大學	臺灣	水產養殖系	學士	1981.09~1985.07

現職及專長相關之經歷

服務機關	服務部門/系所	職稱	起訖年月
國立嘉義大學	水生生物科學系	教授	2011.08 – 迄今
經 歷 ：			
亞洲水產學會		理事	2019-迄今
國立彰師大、國立中教大	環境教育中心	顧問	2019-迄今
國立嘉義大學	水生生物科學系	教授兼院國際學程執行長	2015.08 - 2017.07
國立嘉義大學	水生生物科學系	教授兼系主任	2015.08 - 2017.07
國立嘉義大學	水生生物科學系	副教授	1997.12 - 2011.07
國立國立嘉義技術學院	水產養殖科	講師	1991.08 - 1997.11
國立嘉義農專	水產養殖科	助教	1990.08 - 1991.7
亞洲水產學會		台灣分會副會長	2013-2019
台灣微生生態學會		理事	2014-迄今
台灣微生生態學會		秘書長	2010-2014
台灣水產學會		理事	2015-2017

專長

專長名稱
水質學

溪流環境生態學
湖沼學
抗菌藥物環境檢測、殘留與處理
水生生物環境毒性試驗
水生生物復育

Research articles：

1. Amjad, K., Dahms, H.-U., Ho, C.-H., Wu, Y.-C., Lin, F.-Y., **Lai, H.T.***, (2022). Probiotic additions affect the biofloc nursery culture of white shrimp (*Litopenaeus vannamei*). **Aquaculture**, 560: 738475. (**SCI,** impact factor 5.135, 5/54 in Fisheries, 8/113 in Marine & Freshwater Biology)
2. Wang, T.W., Chang, P.H., Huang, Y.S., Lin, T.S., Yang S.D., Yeh, S.L., Tung, C.H. , Kuo S.R., **Lai, H.T.** *, Chen, C.C., 2021. Effects of floating photovoltaic systems on water quality of aquaculture ponds. Aquaculture research, 53:1304-1315. (**SCI,** impact factor 2.082, 24/55 in Fisheries).
3. Audira, G., Siregar, P., Chen, K.H.-C., Roldan, M.J.M., Huang, J.-C., **Lai, H.T.***, Hsiao, C.-D., 2021. Interspecies Behavioral Variability of Medaka Fish Assessed by Comparative Phenomics. **International Journal of Molecular Sciences** 22, 5686. (**SCI,** impact factor 5.924, 67/2952 in Biochemistry & Molecular biology)
4. Siregar, P., Suryanto, M.E., Chen, K.H.-C., Huang, J.-C., Chen, H.-M., Kurnia, K.A., Santoso, F., Hussain, A., Ngoc Hieu, B.T., Saputra, F., Audira, G., Roldan, M.J.M., Fernandez, R.A., Macabeo, A.P.G., **Lai, H.T.***, Hsiao, C.-D., 2021. Exploiting the Freshwater Shrimp Neocaridina denticulata as Aquatic Invertebrate Model to Evaluate Nontargeted Pesticide Induced Toxicity by Investigating Physiologic and Biochemical Parameters. **Antioxidants** 10, 391. (**SCI,** impact factor 6.313, 6/62 in Chemistry, Medicinal)
5. Santoso FK, V.V.; Castillo, A.L.; Saputra, F.; Chen, H.-M.; **Lai, H.T.***; Hsiao, C.-D. (2020) Cardiovascular Performance Measurement in Water Fleas by Utilizing High-Speed Videography and ImageJ Software and Its Application for Pesticide Toxicity Assessment. **Animals** 10:1587. (**SCI**, impact factor 2.323, 285/811 in Plant& animal science"**)**
6. Hussain AA, G.; Malhotra, N.; Uapipatanakul, B.; Chen, J.-R.; **Lai, Y.-H.***; Huang, J.-C.; Chen, K. .-C.; Lai, H.-T.; Hsiao, C.-D. (2020) Multiple Screening of Pesticides Toxicity in Zebrafish and Daphnia Based on Locomotor Activity Alterations. **Biomolecules** 10, 1224. (**SCI**, impact factor 4.082, 229/422 in "Biology & Biochemistry"**)**
7. Château, P.A., Wunderlich, R.F., Wang, T.W., **Lai, H.T.**, Chen, C.C., Chang, F.J., 2019. Mathematical modeling suggests high potential for the deployment of

floating photovoltaic on fish ponds. **Science of the Total Environment** 687, 654-666. (**SCI,** impact factor 6.551, 2/380 in "Enviromental &ecology")

8. KH Lei and **HT Lai*** , 2019. Effects of sunlight, microbial activity, and temperature on the declines of antibiotic lincomycin in freshwater and saline aquaculture pond waters and sediments Environmental. **Science and Pollution Research.** 26(33):33988-33994**.** https://doi.org/10.1007/s11356-018-3006-y. (**SCI,** impact factor 2.800, 82/241 in "Enviromental sciences")
9. YW Chiu, FLYeh, BS Shieh, CM Chen, **HT Lai**, SY Wang, DJ Huang, 2017. Development and assays estradiol equivalent concentration from prawn (p-EEQ) in river prawn, *Macrobrachium nipponense*, in Taiwan. **Ecotoxicology and Environmental Safety** 137: 12-17. (**SCI,** impact factor 3.743, 47/229 in "Enviromental sciences, 18/92 in "Toxicology")
10. CY Wang, CY Chang, HU. Dahms, and **HT Lai***, 2017. Effects of stocking density of tilapia on the performance of a membrane filtration–recirculating aquaponic system. **Desalination and Water Treatment**, 96: 22-32. (**SCI**, impact factor 1.631, 66/135 in "Engineering, Chemical, 43/88 in "Water resource")
11. CY Wang, CY Chang, YH Chien, and **HT Lai***, 2016. The performance of coupling membrane filtration in recirculating aquaponic system for tilapia culture. **International Biodeterioration & Biodegradation**, 107, 21-30. (**SCI**, impact factor 2.235, 83/216 in "Environmental Sciences", 80/165 in "Biotechnology & Applied Microbiology")
12. YC Fan, SY Sheu, **HT Lai**, MH Chang,, PH Chen, YC. Lei, TF Kuo, CY Wang, 2015. Residue Depletion Study of Danofloxacin in Cultured Tilapia (*Oreochromis mossambicus*). **Journal of AOAC International**, 98, 575-579. (**SCI**, impact factor 1.385, 59/123 in "Food Science & Technology", 48/76 in "Chemistry, Analytical")
13. CC Yang, CL Huang, TC Cheng, **HT Lai***, 2015. Inhibitory Effect of Salinity on the Photocatalytic Degradation of Three Sulfonamide Antibiotics. **International Biodeterioration & Biodegradation**, 102, 116-125. (**SCI**, impact factor 2.235, 83/216 in "Environmental Sciences", 80/165 in "Biotechnology & Applied Microbiology")
14. DJ Huang, JH Hou, **HT Lai***, 2015. Toxicities of sulfadimethoxine to five aquatic organisms. **Research Journal of Pharmaceutical, Biological and Chemical Sciences, 6, 336-345.** (ISSN: 0975-8585).
15. DJ Huang, JH Hou, TF Kuo, **HT Lai***, 2014. Toxicity of the veterinary sulfonamide antibiotic sulfamonomethoxine to five aquatic organisms. **Environmental Toxicology and Pharmacology**, 38, 874-880. (**SCI**, impact factor 1.862, 97/216 in "Environmental Sciences", 158/256 in "Pharmacology&Pharmacy", 62/87 in "Toxicology")
16. CN Chen, SL Huang, CY Chang, **HT Lai***, 2014. Reuse of briny wastewaters from the pickling process of mustard leaves in marine fish culture. **Desalination and Water Treatment**, 52, 1062-1069. (**SCI**, impact factor 0.852, 83/133 in "Engineering, Chemical, 58/80 in "Water resource")
17. WH Yu, TS Chin, **HT Lai***, 2013. Detection of nitrofurans and their metabolites in pond water and sediments by liquid chromatography (LC)-photodiode array detection and LC-Ion spray tandem mass spectrometry. **International Biodeterioration & Biodegradation**, 85, 517-526. (**SCI**, impact factor 2.059,

82/160 in "Biotechnology & Applied Microbiology, 87/210 in "Environmental Sciences")（NSC101-2313-B-415-004-MY3)

18. SS Weng, SM Liu, Lai, **HT Lai***, 2013. Application parameters of laccase–mediator systems for treatment of sulfonamide antibiotics. **Bioresources Technology**, 141, 152-159. (**SCI**, impact factor 4.365, 1/11 in "Agricultural Engineering, 22/152 in "Biotechnology & Applied Microbiology") (NSC101-2313-B-415-004-MY3)
19. SS Weng and **HT Lai***, 2012. The implication of mediators for enhancement of laccase oxidation of sulfonamide antibiotics. **Bioresources Technology,** 113, 259-264. (**SCI**, impact factor 4.365, 1/11 in "Agricultural Engineering, 22/152 in "Biotechnology & Applied Microbiology") (NSC98-2313-B-415-002-MY3)
20. **HT Lai**, JS Lin, YH Chien*, 2011. Effects of light regime and oxygen profile on transformation of oxolinic acid in pond sediment. **Bioresources Technology**, 102, 5425-5430. (**SCI**, impact factor 4.365, 1/11 in "Agricultural Engineering, 22/152 in "Biotechnology & Applied Microbiology")
21. **HT Lai***, TS Wang, and CC Chou, 2011. Implication of light sources and microbial activities on degradation of sulfonamides in water and sediment from a marine shrimp pond. **Bioresources Technology,** 102, 5017-5023. (**SCI**, impact factor 4.365, 1/11 in "Agricultural Engineering, 22/152 in "Biotechnology & Applied Microbiology") (NSC98-2313-B-415-002-MY3)
22. **HT Lai**, HY Lin, WC Hsiung, JY Shy, 2010. Induced spawning and larval development of *Aphyocypris kikuchii* (Oshima, 1919). **Taiwan Journal of Biodiversity** 12(3): 251-259. (in Chinese)
23. JS Lin, HY Pan, SM Liu and **HT Lai***, 2010. Effects of light and microbial activity on the degradation of two fluoroquinolone antibiotics in pond water and sediment. **Journal of Environmental Science and Health, Part B** 45: 456-465**.** (**SCI**, impact factor 1.119, 127/163 in "Environmental sciences") (NSC98-2313-B-415-002-MY3)

Oral or poster presentation

1. 謝宜珊、李妲蒨、董哲煌、陳淑美、施志昀、**賴弘智**，2020。鰲鼓濕地森林園區長期水質監測與特性分析，台灣濕地生態系研討會，台北，台灣。(2020/09/12)
2. **Hong-Thih Lai**, 2019. Effects of liming on degradation of amoxicillin and ampicillin in aquaculture sediments. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2019), 3-7, Nov. 2019, Kaohsiung, Taiwan.
3. **Hong-Thih Lai**, 2019. Effects of oxidant on the transformation of amoxicillin and ampicillin in aquaculture sediments. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2019), 3-7, Nov. 2019, Kaohsiung, Taiwan.
4. Wen-Hui Yu, Tzong-Shean Chin, Ching-Ju Lin, and **Hong-Thih Lai**, 2019. Effects of light on degradation of nitrofurans and their metabolites in aquaculture pond water and sediments. 12th Asian Fisheries and Aquaculture Forum (AFAF), 8-12, Apr. 2019, Iloilo, Philippines.
5. 林聖諺、賴弘智，2019。Effects of Light and Liming on Degradation of

Amoxicillin and Ampicillin in Aquaculture Sediments. 台灣水產學會，台北，台灣。(2019/01/12)

6. Chih-Han Tseng, Hans-Uwe Dahms and **Hong-Thih Lai**, 2018. The study of water and sediment aging provesses in white shrimp (*Litopenaeus vannamei*) culture. AQUA2018, 25-29 Aug. 2018, Mntpellier, France.
7. Wen-Hui Yu, Tzong-Shean Chin, Ching-Ju Lin, and **Hong-Thih Lai**, 2018. Effects of microbial activities and temperature on degradation of nitrofurans and their metabolites in aquaculture pond water and sediments. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2018), 4-8 Nov. 2018, Bangkok, Thailand.
8. Wen-Hui Yu, Tzong-Shean Chin, Ching-Ju Lin, and **Hong-Thih Lai**, 2018. Effects of light on degradation of nitrofurans and their metabolites in aquaculture pond water and sediments. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2018), 4-8 Nov. 2018, Bangkok, Thailand.
9. Chih-Han Tseng, **Hong-Thih Lai**, 2018. Study on water and sediment aging process in White shrimp (*Litopenaeus vannamei*) culture. Asian-Pacific Aquaculture (APA 2018), 23-26 Apr. 2018, Taipei, Taiwan. (Oral presentation)
10. Huang-Min Tseng, **Hong-Thih Lai**, 2018. Evaluate the use of biofloc technology in aquaponics system. Asian-Pacific Aquaculture (APA 2018), 23-26 Apr. 2018, Taipei, Taiwan. (Poster presentation)
11. 曾致涵、**賴弘智**，2018。白蝦養殖過程中水質及底質變化探討。台灣水產學會，高雄，台灣。(2018/01/19) (Oral presentation)
12. **Hong-Thih Lai**, Yun-Hsuan Yi, 2017. Degradation of six antibiotics in electrolyzed saline water. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2017), 11-15 Nov. 2017, Kunming, China. (Oral presentation)
13. Ka-Hou Lei, **Hong-Thih Lai***, 2017. Effects of illumination, microbial activities, and temperature on transformation of lincomycin in aquaculture pond water and sediment. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2017), 11-15 Nov. 2017, Kunming, China. (Oral presentation)
14. **Hong-Thih Lai**, Yun-Hsuan Yi, 2017. Degradation of six antibiotics in electrolyzed saline water. (2nd International Conference on Emerging Contaminants), 4-7 Oct, 2017, Kaohsiung, Taiwan. (Poster presentation)
15. 易昀宣、**賴弘智**，2017。電解鹽水降解六種抗生素的探討。台灣水產學會，基隆，台灣。(2016/01/17) (Poster presentation，水生生物生態、環境領域佳作)
16. Tsung-Han Yu, Da-Ji Huang, **Hong-Thih Lai**, 2016. Toxicity of electrolyzed saline water and its potential applications. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2016), 6-10 Nov. 2015, Kaohsiung, Taiwan. (Poster presentation)
17. Dai-Chin Lee, Huan-Yu Lin and **Hong-Thih Lai,** 2016. The Effect of Environmental Factors on Transformations of Amoxicillin and Ampicillin in Aquaculture Pond Waters and Sediments. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2016), 6-10 Nov. 2016, Kaohsiung, Taiwan. (Oral presentation)
18. Tsung-Han Yu, Da-Ji Huang, **Hong-Thih Lai**, 2016. Toxicity of electrolyzed

saline water and its potential applications. 11th Asian Fisheries and Aquaculture Forum (AFAF), 3-7 Aug. 2016, Bangkok, Thailand. (Poster presentation)

19. 賴慧綺、余宗翰、易昀宣、黃大駿、賴弘智，2016。嘉義縣鰲鼓濕地森林園區南堤人工濕地水質長期監測。兩岸濕地聯合研討會，嘉義，台灣。(2016/05/13-14) (Poster presentation)
20. 易昀宣、賴弘智、蔡智賢、施志昀、陳淑美、董哲煌，2016。鰲鼓濕地森林園區水質及水生生物調查。兩岸濕地聯合研討會，嘉義，台灣。(2016/05/13-14) (Poster presentation)
21. 余宗翰、**賴弘智**，2015。探討電解鹽水系統最佳電解條件及其潛在應用性。台灣水產學會，屏東，台灣。(2016/01/18) (Poster presentation)
22. Dai-Chin Lee, Huan-Yu Lin and **Hong-Thih Lai,** 2015. The Effect of Environmental Factors on Transformations of Amoxicillin and Ampicillin in Aquaculture Pond Waters and Sediments. 2nd International Conference on Emerging Contaminants, 4-7 Oct, 2015, Kaohsiung, Taiwan. (Poster presentation, Best poster award- The third place)
23. Tsung-Han Yu and **Hong-Thih Lai**, 2015. Study on optimal conditions of electrolyzed saline water system and its potential apply to biosecurity treatment. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2015), 28. Sept.-2 Oct, 2015, Sydney, Australia. (Oral presentation)
24. Chen-Yu Wang, Chia-Yuan Chang and **Hong-Thih Lai**, 2015. Effect of fish stocking density in aquaponic-MBR system. Conference on 'Challenges in Environmental Science & Engineering'(CESE 2015), 28. Sept.-2 Oct, 2015, Sydney, Australia. (Poster presentation)
25. Tsung-Han Yu and **Hong-Thih Lai**, 2015. Study on optimal conditions of electrolyzed saline water system and its potential apply to biosecurity treatment. Conference on 'World Aquaculture 2015', 26-30 May, 2015, Jeju, South Korea. (Poster presentation)
26. 葉明峰、張世倉、陳淑美、林奐妤、**賴弘智**、王振宇，2015。清水溪指標物種生活史研究-馬口魚。動物行為暨生態學研討會，嘉義，台灣。(2015/01/26-27) (Poster presentation)
27. 葉明峰、張世倉、陳淑美、林奐妤、翁仕賢、**賴弘智**、王振宇，2015。清水溪指標物種生活史研究-粗首鱲。動物行為暨生態學研討會，嘉義，台灣。(2015/01/26-27) (Poster presentation)
28. 賴慧綺、黃正良、**賴弘智**、黃大駿，2015。奈米銀的水中急毒性影響。動物行為暨生態學研討會，嘉義，台灣。(2015/01/26-27) (Poster presentation)

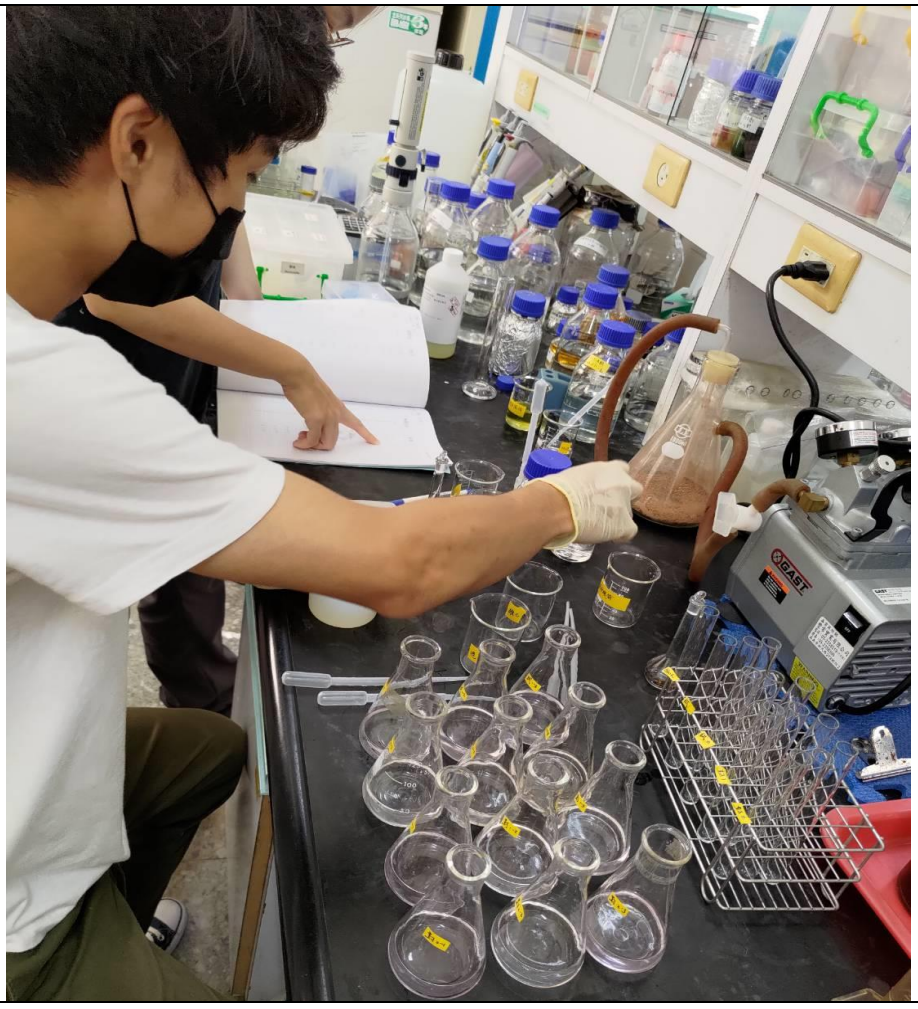
曾執行或參與之研究計劃：

序號	計劃名稱	委託(補助)單位	執行年度
1	外傘頂洲沙灘流失整體防護工程對環境水質的影響及評估工程牡蠣產業的影響	漁業署	2022
2	化學物質調查與採樣檢測計劃	環化有限公司	2022
3	利用本土性不同階層水生指標生物評估高用量農藥對水域生物生態毒性之探討-青鱂魚	農業藥物毒物試驗所	2021-2022
4	110 年度智慧養殖產業調查及輔導計畫－彰化、雲林及嘉義地區現勘及輔導	中華民國養殖漁業發展協會	2021
5	雲世代農業數位轉型業界參與計畫	飛天魚人設計行銷有限公司	2021-2022
6	化學物質後市場調查輔導與採樣檢測需求支援計畫	環化有限公司	2021
7	110 至 111 年度鰲鼓濕地森林園區水環境改善研究現地試驗及水環境、生物監測調查	嘉義林區管理處	2021-2022
8	利用本土性不同階層水生指標生物評估高用量農藥對水域生物生態毒性之探討-青鱂魚	農業藥物毒物試驗所	2021
9	以臺灣環境底泥指標生物(搖蚊)試驗體系建立與評估常用農藥之環境衝擊-本土性水生生物(青鱂魚)計畫	農業藥物毒物試驗所	2020
10	109 年度鰲鼓濕地森林園區水環境改善研究現地試驗及水環境、生物監測調查	嘉義林區管理處	2020
11	109 年麥寮鄉等五鄉鎮漁業輔導計畫	國立高雄科技大學	2020
12	YS 益生菌對半淡鹹水、淡水及海水養殖池水質與底質改善影響評估	永鴻國際生技股份有限公司	2019-2020
13	化學物質環境生態風險試驗及評估	瑞昶科技股份有限公司	2019
14	鰲鼓濕地森林園區水環境改善研究現地試驗及水環境、生物監測調查	嘉義林區管理處	2019
15	2019 年麥寮鄉等五鄉鎮漁業輔導計畫	國立高雄科技大學	2019
16	養殖底質老化及改善方式對三種水產用抗生素 (amoxicllin, ampicillin 及 lincomycin) 的環境殘留與降解影響	科技部	2018
17	拜耳美速添及其學名藥於白蝦生物急毒性試驗	台灣拜耳股份有限公司	2018
18	107 年雲林麥寮沿海環境水體生物毒性檢測	新紀工程顧問有限公司	2018-2019
19	烏魚完全飼料之開發應用	宏勝發實業有限公司	2018
20	UBE Material Industries CLEAR WATER 之水產養殖池底質改善效果檢測計畫	台灣宇部股份有限公司	2018
21	鰲鼓濕地森林園區水環境改善研究及水環境與水生生物調查	嘉義林區管理處	2018
22	2018 年麥寮鄉等五鄉鎮漁業輔導計畫	國立高雄科技大學	2018
23	建置「淡水生物資源中心」計畫(2/2)	科技部	2018
24	三種水產用抗生素 (amoxicllin, ampicillin 及 lincomycin) 的環境殘留降解風險評估與底泥微生物相之關係	科技部	2017

野外採樣(水質檢測)

野外採樣(水生生物調查)

操作液相層析儀



水質分析試驗

實驗室聚餐