Robin Brown

From: zhanghui@qdio.ac.cn
Sent: Monday, March 30, 2020 11:48 PM
To: robin.brown
Subject: Hui Zhang as candidate of 2020 Zhu-Peterson Award nomination
Attachments: 20200331-Hui Zhang-CV.pdf

Dear Robin,

Have a good day!
I hope everything goes well to you.
This is Hui Zhang and I am the member of PICES WG43.
I would like to apply for Zhu-Peterson Early Career Scientist Award 2020.
I attached my CV and a brief introdcution as following:

I have been engaged in fisheries study and research in North Pacific for more than 15 years since I was a college student.
My interests include many aspects of fisheries such as fishery biology, otoliths, morphological classification, population genetics, field surveys, identification of ichthyoplankton, environmental DNA, climate change and so on. And I published about 60 original peer-reviewed paper on the above topics and would like to keep on doing these interesting works in the future.

Thank you very much and best wishes.

Yours' sincerely,
Hui Zhang
Mar. 31st, 2020

Hui ZHANG
Ph.D Professor of Huiquan Young Scholars
Institute of Oceanology, Chinese Academy of Sciences
Guest Associate Professor, The University of Tokyo
Tel: +86-532-82891860

From: Robin Brown
Date: 2020-03-11 10:03
To: 'Hui ZHANG'
Subject: RE: Advisory of 2020 Zhu-Peterson Award nomination
Dear Hui,

Curriculum Vitae

Full Name Hui Zhang

Date of Birth 1986.08

Title Doctor of Philosophy

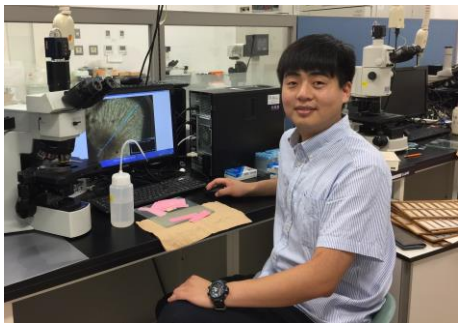
Professor

Tel/Cell +86-532-82891860

+86-13953245164

E-mail zhanghui@qdio.ac.cn

zhanghuifirst@gmail.com



Research Field

Marine Biology, Fisheries Resources, Fish biodiversity

Research Interests

Marine biology, Fisheries resources, Molecular ecology, Larval and juvenile ecology

ORCID iD

https://orcid.org/0000-0002-6597-8910

Resume of Work

2018.09- present	Professor	IOCAS
2017.04- present	Guest Associate Professor	UT
2015.12-2018.08	Associate Professor	IOCAS
2013.07-2015.12	Assistant Professor	IOCAS

***IOCAS----Institute of Oceanology, Chinese Academy of Sciences**

*** UT ----The University of Tokyo**

Education

- Researcher 2011.10-2012.09, University of Tokyo, Japan
- Ph.D. 2010.09-2013.06, Ocean University of China, China
- Visitor 2009.04-2009.08, Kunming Institute of Zoology CAS, China
- M.S. 2008.09-2010.06, Ocean University of China, China
- B.S. 2004.09-2008.06, Ocean University of China, China

Honors and Awards

- ✧ 2020, Member of Youth Innovation Promotion Association，Chinese Academy of Sciences
- ✧ 2019, Member of WG43, PICES
- ✧ 2018, Distinguished Young Scholars of Huiquan, IOCAS
- ✧ 2014, "Award of Excellent Poster Presentation for Young Scientists", The 3rd World Conference of Marine Biodiversity
- ✧ 2013, Awarded "Outstanding Graduate (For PhD)", Ocean University of China
- ✧ 2012, Awarded "National Scholarship (For PhD)", Ministry of Education of China

Peer-reviewed Papers-selected

1) Zhixin Zhang, Stefano Mammola, Weiwei Xian, **Hui Zhang***. Modelling the potential impacts of climate change on the distribution of ichthyoplankton in the Yangtze Estuary, China. Diversity and Distributions, 2020, 26:126-137. (***Corresponding author**)
2) Yibang Wang, Yuanchao Wang, Shude Liu, Cui Liang, **Hui Zhang***, Weiwei Xian*. Stock assessment using LBB method for eight fish species from the Bohai and Yellow Seas. Frontiers in Marine Science, 2020, 7:164. (***Corresponding author**)
3) **Hui Zhang***, Susumu Yoshizawa, Wataru Iwasaki, Weiwei Xian. Seasonal fish assemblage structure using environmental DNA in the Yangtze Estuary and its adjacent waters. Frontiers in Marine Science, 2019,6:515. (***Corresponding author**)
4) **Hui Zhang***, Weiwei Xian, Shude Liu. Seasonal variations of the ichthyoplankton assemblage in the Yangtze Estuary and its relationship with environmental factors. PeerJ, 2019, 7:e6482. (***Corresponding author**)
5) Lu Liu, Xiumei Zhang, Chunhou Li, **Hui Zhang**, Takashi Yanagimoto, Na Song, Tianxiang Gao. Population genetic structure of Marbled Rockfish, Sebastiscus marmoratus (Cuvier, 1829), in the northwestern Pacific Ocean. ZooKeys, 2019, 830:127-144.
6) **Hui Zhang** and Weiwei Xian. Complete mitochondrial genome of the larval

Syngnathus schlegeli (Gasterosteiformes, Syngnathidae) from Yangtze estuary and the phylogenetic relationship of genus *Syngnathus*. Mitochondrial DNA Part B, 2018, 3: 655-656.

7) **Hui Zhang** and Weiwei Xian. The complete mitochondrial genome of the larval Bombay duck *Harpodon nehereus* (Aulopiformes, Synodontidae) from Yangtze estuary and the phylogenetic relationship of Synodontidae species. Mitochondrial DNA Part B, 2018, 3:657-658.
8) **Hui Zhang**, Gilbert Audira, Yuan Li d,e, Weiwei Xiana, Muhammed Muhsin Varikkodan, Chung-Der Hsiao. Comparative study the expression of calcium cycling genes in Bombay duck (*Harpadon nehereus*) and beltfish (*Trichiurus lepturus*) with different swimming activities. Genomics Data, 2017, 12:58-61.
9) **Hui Zhang**, Weiwei Xian, Shude Liu. Autumn ichthyoplankton assemblage in the Yangtze Estuary shaped by environmental factors. PeerJ, 2016, 4:e1922.
10) **Hui Zhang** and Weiwei Xian. The complete mitochondrial genome of the larvae *Salanx ariakensis* (Osmeriformes, Salangidae) from Yangtze estuary. Mitochondrial DNA, 2016, 27(3): 1902-1903.
11) Tianxiang Gao, Zhiqiang Han, Xiumei Zhang, Jing Luo, Takashi Yanagimoto, **Hui Zhang***. Population genetic differentiation of the black rockfish *Sebastes schlegelii* revealed by microsatellites. Biochemical Systematics and Ecology, 2016, 68: 170-177. (***Corresponding author**)
12) **Hui Zhang**, Chung-Ming Chang, Kang-Ning Shen, Weiwei Xian, Chung-Der Hsiao. Identification of myogenic regulatory genes in the muscle transcriptome of beltfish (*Trichiurus lepturus*): A major commercial marine fish species with robust swimming ability. Genomics Data, 2016, 8: 81-84.
13) **Hui Zhang**, Takashi Yanagimoto, Xiumei Zhang, Na Song, Tianxiang Gao. Lack of population genetic differentiation of a marine ovoviviparous fish *Sebastes schlegelii* in Northwestern Pacific. Mitochondrial DNA, 2016, 27(3): 1748-1754.
14) **Hui Zhang**, Wen Wang, Weiwei Xian. The complete mitochondrial genome of *Anguilla japonica* (Anguilliformes, Anguillidae) collected from Yangtze estuary and the phylogenetic relationship in genus *Anguilla*. Mitochondrial DNA, 2016; 27(6): 4421-4422.
15) **Hui Zhang** and Weiwei Xian. The complete mitochondrial genome of the larvae Osbeck's grenadier anchovy *Coilia mystus* (Clupeiformes, Engraulidae) from

Yangtze estuary. Mitochondrial DNA, 2016, 27(2): 966-967.

16) **Hui Zhang** and Weiwei Xian. The complete mitochondrial genome of the larvae Japanese grenadier anchovy *Coilia nasus* (Clupeiformes, Engraulidae) from Yangtze estuary. Mitochondrial DNA, 2016, 27(2): 852-853.

17) **Hui Zhang**, Weiwei Xian, Shude Liu. Ichthyoplankton assemblage structure of springs in the Yangtze Estuary revealed by biological and environmental visions. PeerJ, 2015, 3:e1186.

18) **Hui Zhang**, Xiumei Zhang, Zhiqiang Han, Tianxiang Gao. AFLP markers suggest low population genetic differentiation of the black rockfish *Sebastes schlegelii*. Biochemical Systematics and Ecology，2015, 59: 325-330.

19) **Hui Zhang** and Weiwei Xian. The complete mitochondrial genome of the larvae Japanese anchovy *Engraulis japonicus* (Clupeiformes, Engraulidae). Mitochondrial DNA, 2015, 26(6): 935-936

20) Dianrong Sun, **Hui Zhang**, Takashi Yanagimoto, Lina Yin, Tianxiang Gao. The complete mitochondrial genome of the marbled rockfish *Sebastiscus marmoratus* (Scorpaeniformes, Scorpaenidae) from Japan. Mitochondrial DNA, 2015, 26(5): 771-772（**Co-first author**）

21) Lin Li, **Hui Zhang**, Dianrong Sun, Tianxiang Gao. Structure of mitochondrial DNA control region of *Pholis fangi* and its phylogenetic implication. Journal of Ocean University of China, 2014, 13(3), 491-496.

22) **Hui Zhang**, Yan Zhang, Xiumei Zhang, Na Song, Tianxiang Gao. Special structure of mitochondrial DNA control region and phylogenetic relationship among individuals of the black rockfish, *Sebastes schlegelii*. Mitochondrial DNA, 2013,24:151-157

23) **Hui Zhang**, Yan Zhang, Zhaohui Zhang, Tianxiang Gao. DNA barcodes of eight species in genus *Sebastes*. Biochemical Systematics and Ecology, 2013,48:45-50

24) **Hui Zhang**, Pengfei Li, Tianxiang Gao, Zhimeng Zhuang, Xianshi Jin. Structure of mitochondrial DNA control region of *Fenneropenaeus chinensis* and genetic phylogenetic relationship among different populations. Mitochondrial DNA, 2012, 23:216-222

25) **Hui Zhang**, Han Yu, Tianxiang Gao, Yan Zhang, Zhiqiang Han, Yongshuang Xiao. Analysis of genetic diversity and population structure of *Pleuronectes yokohamae* indicated by AFLP markers. Biochemical Systematics and Ecology,

2012, 44:102-108

26) Lina Yin, **Hui Zhang**, Takashi Yanagimoto, Tianxiang Gao. Isolation and characterization of nine polymorphic microsatellite markers of the marbled rockfish *Sebastiscus marmoratus* (Scorpaeniformes, Scorpaenidae). Russian Journal of Genetics, 2012, 48(12): 1264-1266.

27) **Hui Zhang**, Yan Zhang, Tianxiang Gao, Pengfei Li, Hanxiang Xu. Genetic identification of two species of *Pleuronichthys* through DNA barcoding. Chinese Journal of Oceanology and Limnology. 2011, 29(5):967-972.

28) Yan Zhang, **Hui Zhang,** Tianxiang Gao, Zhenqing Miao. Structure of mitochondrial DNA control region and molecular phylogenetic relationship among three flounders of genus *Pleuronectes*. Biochemical Systematics and Ecology, 2011, 39:627-634. （**Co-first author**）

29) Weiwei Xian, Hui Zhang. Shude Liu. Research advance in estuarine ichthyoplankton ecology. Studia Marine Sinica, 2016,51:167-180. （In Chinese with English abstract）

30) **Hui Zhang**, Weiwei Xian. The importance of DNA barcoding on the ichthyoplankton ecological study in the Yangtze estuary. Marine Sciences, 2015,39: 135-137.（In Chinese with English abstract）

31) Ting Pan, Yan Zhang, **Hui Zhang**, Tianxiang Gao, Yongshuang Xiao, Yunrong Jiang. Progresss in Fishery Sciences. Microsatellite Loci Isolated by Roche 454 GS FLX in *Pleuronectes yokohamae*. Progress in Fishery Sciences, 2015, 36: 26-32.（In Chinese with English abstract）

32) Kui Ding, **Hui Zhang**, Xiumei Zhang, Na Song, Tianxiang Gao. Comparative analysis of genetic variation in cultured and wild populations of black rockfish (*Sebastes schlegelii*) based on mitochondrial DNA control region. Journal of Fisheries of China, 2014(6): 769-777.（In Chinese with English abstract）

33) Long Li, Shengyong Xu, **Hui Zhang**, Takashi Yanagimoto, Tianxiang Gao. Otolith morphological study of *Sebastiscus marmoratus* among populations in China and Japan. Journal of Jimei University (Natural Science), 2014,19: 247-252.（In Chinese with English abstract）

34) Shengyong Xu, **Hui Zhang**, Takashi Yanagimoto, Tianxiang Gao. Morphological study of *Sebastiscus marmoratus* among populations in China and Japan. Acta

Hydrobiologica Sinica, 2013, 37(5): 960-966.（In Chinese with English abstract）

35) Hongyan Zhang, Tianxiang Gao, Jian Li, Xiaozhe Pan, **Hui Zhang**, Yan Zhang. Preliminary biological study on morphology of Sillago sinica populations. Journal of Shanghai Ocean University, 2013, 22(1): 17-22.（In Chinese with English abstract）

36) Shengyong Xu, **Hui Zhang**, Xiaozhe Pan, Yanping Wang, Sijia Xu, Zimin Huang, Tianxiang Gao. Morphological comparison of the otolith of *Sebastes Schlegelii* population. Periodical of Ocean University of China, 2012, 42(11): 54-61.（In Chinese with English abstract）

37) **Hui Zhang**, Weixiang Dai, Yan Zhang, Tianxiang Gao, Hideo Yoshida. Comparative study on morphological and biological characters of two sand lances. Journal of Fishery Sciences of China, 2011,18(1): 83-88.（In Chinese with English abstract）

38) **Hui Zhang**, Tianxiang Gao, Hanxiang Xu, Pengfei Li. A new record of *Pleuronichthys* in China: *Pleuronichthys japonicus*. Periodical of Ocean University of China, 2011, 41(1/2):51-54.（In Chinese with English abstract）

39) **Hui Zhang**, Tianxiang Gao, Zhimeng Zhuang, Xianshi Jin. Comparative Analysis of the Mitochondrial Control Region between the Wild and Cultured Population of the Shrimp (*Fenneropenaeus chinensis*). Journal of Fisheries of China, 2010, 34(8):1149-1155.（In Chinese with English abstract）

FIRST INSTITUTE OF OCEANOGRAPHY,
MINISTRY OF NATURAL RESOURCES
6 Xianxialing Road, Qingdao 266061, China
Tel: +86-532-88963909, Fax: +86-532-88963909

March 25, 2020

Dear Dr. Robin Brown,

Subject: Nomination of the 2020 Zhu-Peterson Award

I am writing to you for nomination of the 2020 Zhu-Peterson Award. On behalf of the First Institute of Oceanography (FIO), Ministry of Natural Resources of China, I have the honor to recommend Dr. SONG Wei and Dr. XU Qinzeng, both of whom are young scientists for marine ecology in FIO, as candidates for the Award.

Attached please find the documents with detailed information of Dr. SONG and Dr. XU. Thanks for your consideration.

Best wishes,

Sincerely yours,

QIAO Fangli
Deputy Director-General,
First Institute of Oceanography,
Ministry of Natural Resources of China

CURRICULUM VITAE

Qinzeng Xu

Date of Birth: September, 03, 1982

Nationality: People's Republic of China

Gender: Male

Address: Marine Ecology Research Centre, First Institute of Oceanography, Ministry of Natural Resources. No.6 Xian Xia Ling Road, Laoshan District, Qingdao 266061, Shandong Province, P. R. China

Mobile: 86-15905420486

E-mail: xuqinzeng@fio.org.cn, xqz08@163.com

WORK EXPERIENCE

- 2017.01-now：

  Marine Ecology Research Centre, First Institute of Oceanography, Ministry of Natural Resources.

  Associate professor

- 2015.07- 2016.12:

  Marine Ecology Research Centre, First Institute of Oceanography, State Oceanic Administration.

  Assistant researcher

- 2013.08- 2015.07

  Institute of Oceanology, Chinese Academy of Sciences.

  Postdoctor

EDUCATION

- 2010.09- 2013.06:

  Doctor of Philosophy in Marine Ecology.

  University of Chinese Academy of Sciences (Institute of Oceanology, Chinese Academy of Sciences).

  Thesis: Ecological effects and the ecosystem services of artificial oyster shell reef.

  Supervisor: Professor Hongsheng Yang

- 2006.09- 2009.06

  Master of Science in Marine Biology

  The First Institute of Oceanography, State Oceanic Administration.

  Thesis: The Macrobenthos in Two Representative Coastal Waters of the South Yellow Sea

  Supervisor: Professor Ruixiang Li

- 2002.09- 2006.06

  Bachelor of Agriculture in Aquaculture, Department of Oceanology, Yantai University.

RESEARCH INTERESTS

- Population characteristics and connectivity of brittle stars
- Benthic biodiversity and food web in marine nature and artificial environment
- The effects of ocean acidification, warming, and deoxygenation on benthic fauna

COOPERATION ACTIVITIES IN PICES AREAS

➢ Joint Project

Title: Comparative analysis of the *Ophiura sarsii* Lütken, 1855 (Echinodermata: Ophiuroidea) populations in the seas of the Arctic and the Pacific Oceans: morphology, genetics and linear growth.

Cooperators: Sophia A. Nazarova. Zoological Institute, Russian Academy of Sciences.

Goal: This project focuses on comparative analyses of *Ophiura sarsii* from the Barents Sea and Yellow Seas with the specific reference to the Far East Region, where occurrence of additional (sub)species is proposed. Also, we will analyze the molecular relationships between the brittle star populations living in the Yellow and Barents Seas respectively.

The team from China has conducted a short-term research from October, 2019 to November, 2019 in St. Petersburg, Russia to collect the molecular sample of *O. sarsii*. The joint team are studying about genetic diversity and evolutionary history of *O. sarsii* lived in the Yellow Sea, Japan Sea (East Sea), Bering Sea and Barents Sea. The effects of global warming on this typical cold water species are also being revealed.

➢ Oral Presentations at international symposia

1) Effects of global changes on brittle star community in the Yellow Sea. 7th KSO-CSO Joint Symposium. June, 2019. Jeju. Korea.

2) Winner or loser: sea cucumber's future in an acidification ocean. The symposium of Ocean acidification of Southern Asian Countries. December, 2018. Qingdao, China.

3) Toward Restoration of the Seagrass Beds in the Northern Coast of China. Sino-American 2016 International Conference. June, 2016. Guangzhou, China.

PUBLICATIONS

1. Li Yixuan, Dong Yue, **Xu Qinzeng***, Fan Shiliang, Lin Heshan, Wang Minghui, Zhang Xuelei*. 2020. Genetic differentiation and evolutionary history of the circumpolar species *Ophiura sarsii* and subspecies *Ophiura sarsii vadicola* (Ophiurida: Ophiuridae). Continental Shelf Research. DOI: 10.1016/j.csr.2020.104085.

2.Li Yixuan, Wang Xuetao, Dong Yue, Fan Shiliang, **Xu Qinzeng***. 2020. The complete mitochondrial genome of *Ophiura kinbergi* (Ophiuroidea, Ophiurina): genome structure and phylogenetics. Mitochondrial DNA Part B. 5:2 (2020): 1309-1310.

3. **Xu Qinzeng***, Li Yixuan, Dong Yue. 2019. Characterization of the complete mitochondrial genome of *Amphioplus laevis* (Ophiuroidea, Amphiuridae) with phylogenetic analysis. Mitochondrial DNA Part B. 4:2, 3062-3063.

4. **Xu Qinzeng,** Liu Bingjian, Zhou Yi*. 2018. Does the eelgrass meadow influence the macrobenthic community structure. Marine Biodivesity 48(3): 1337-1344.

5. **Xu Qinzeng**, Libin Zhang, Tao Zhang, Xuelei Zhang, Hongsheng Yang*. 2017. Functional groups and food web of an artificial reef used for sea cucumber aquaculture in northern China. Journal of Sea Research. 119: 1-7.

6**. Xu Qinzeng**, Zhang Libin, Zhang Xuelei, Zhou Yi, Yang Hongsheng*. 2016. Release size and stocking density for grow-out of *Apostichopus japonicus* in the sea with raft-cultured macroalgae. Aquaculture International, 24(4): 1141-1152.

7. **Xu Qinzeng**, Xu Qiang, Zhang Xuelei, Peng Quancai, Yang Hongsheng*. 2015. Fatty acid component in sea cucumber *Apostichopus japonicus* from different tissues and habitats. Journal of the Marine Biological Association of the United Kingdom. 96(1): 197-204.

8. **Xu Qinzeng**, Gao Fei, Xu Qiang, Yang Hongsheng. 2014. Analysis of fatty acid composition of the sea cucumber *Apostichopus japonicus* using a multivariate statistics approach. Chinese Journal of Oceanology and Limnology. 32 (6): 1314-1319.

9**. Xu Qinzeng**, Zhang Libin, Zhang Tao, Zhou Yi, Xia Sudong, Liu Hui, Yang Hongsheng. 2014. Effects of an artificial oyster shell reef on microbenthic communities in Rongcheng Bay, East China. Chinese Journal of Oceanology and Limnology. 32(1): 99-110.

10. Wang Xiao, **Xu Qinzeng**, Jiang Meijie, Liu Ping, Wang Zongling. 2019. Zooplankton Distribution and Influencing Factors in the South Yellow Sea in Spring. Marine Pollution Bulletin 146: 145-154.

11. Wang Xiao, **Xu Qinzeng**, Xiao Jie, Miao Xiaoxiang, Liu Ping, Wang. Zongxing. 2019. First Record of the Complete Mitochondrial Genome of *Cypridina Dentata* (Myodocopida: Cypridinidae). Mitochondrial DNA Part B, 4(1), 1607-1608.

12. Sun Lina, Sun Jingchun, **Xu Qinzeng**, Hongsheng Yang. 2017. Metabolic responses to intestine regeneration in sea cucumbers *Apostichopus japonicus*. Biochemistry and Physiology Part D Genomics and Proteomics. 22, 32-38.

13. Sun Lina, Xu Dongxue, **Xu Qinzeng**, Hongsheng Yang. 2017. iTRAQ Reveals Proteomic Changes during intestine regeneration in the sea cucumber *Apostichopus japonicus*. Comparative Biochemistry and Physiology Part D Genomics and Proteomics. 22 (2017): 39-49.

Robin Brown

From: doudinglu@sio.org.cn
Sent: Friday, March 20, 2020 5:41 AM
To: robin.brown
Cc: intern
Subject: Re: Zhu-Peterson Early Career Scientist Award
Attachments: Pengbin WANG-CV 2020-03-17.pdf

Dear Robin,
It is my great honor to recommend Dr. Wang Pengbin to you as a candidate for the Zhu-Peterson Early Career Scientist Award. Pengbin obtained his Ph.D from Hanyang University, South Korea in 2016. He is now Associate Professor at the Second Institute of Oceanography, Ministry of Natural Resources of China. His research interest range from taxonomy, molecular systematics, evolution of microalgae to algal physiology, HAB dynamics, marine micro ecology and application of microalgae as a kind of marine resource. He is very active not only in his scientific fields but also in the relevant international academic activities. He is now Co-Chair of Section on Ecology of Harmful Algal Blooms in the North Pacific (S-HAB, PICES), Scientific Steering Committee Member of UNESCO IOC WESTPAC Harmful Algal Blooms Program (WESTPAC-HAB), Scientific Steering Committee Member of EASTHAB. He has published 15 papers with 14 SCI papers and acquired 2 national/international patents. He is principal investigator of two on-going National Nature Science Foundation of China (NSFC) and involved in a number of other national and international projects. He is the editor of a SCI Journal "Ocean Science Journal" and reviewer of various professional journals such as Harmful algae, Marine and Freshwater Research, European Journal of Phycology and Journal of Oceanography. Besides that, He was a visiting researcher at the City University of Hong Kong from October 2017 to February 2018. He was a lecturer and teacher of the "Training Workshop on Introductory Scientific Diving for Marine Benthic Dinoflagellates Sampling and Processing" held by Sub-Commission for the Western Pacific (WESTPAC) of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) in September 2018. He was the convener of the APEC-HAB meeting "Symposium on Causative Species of Harmful Algal Blooms and Mechanism of Their Migration Dynamics in Asia-Pacific Region" held in Hangzhou at October 2018.
Pengbin is always full of enthusiasm and energy for his scientific research and related international academic activities, and I think he should be a very good candidate for the Zhu-Peterson Early Career Scientist Award. (For detailed information, please see Dr. Pengbin Wang's CV in the attached file).

Thank you and best regards,

Douding

Prof. Douding Lu

Second Institute of Oceanography, MNR

36 Baochubei Rd.Hangzhou, Zhejiang,China, PR 310012

Tel: (86-571) 8196-3209
Fax: (86-571) 88071539
Email:doudinglu@sio.org.cn

From: Pices Intern
Date: 2020-03-11 04:14
To: Pices Intern
Subject: URGENT - PICES Awards (March 31) and IMBeR ClimEco7 (March 15) Deadlines

Dear members of PICES expert groups:

1. **PICES Award**s- Please note that nominations close on March 31 for the Wooster Award, the POMA Award and the NEW Zhu-Peterson Early Career Scientist Award. For further information and details:

a. Wooster Award https://meetings.pices.int/awards/Wooster-Award
b. POMA Award https://meetings.pices.int/awards/POMA_award
c. Zhu-Peterson Award https://meetings.pices.int/awards/Zhu-Peterson-Award

2. **IMBeR ClimEco7 Summer School** - Vancouver Canada 17-21 August 2020 - Applications by March 15!

a. This Summer School was originally planned for Capo Verde, off the northwest coast of Africa
b. Due to logistical complications, this was relocated to Vancouver Canada. This makes it much more accessible/ cost-effective for PICES members.
c. Details at - http://www.imber.info/en/events/climeco-imber-summer-schools/imber-climeco7-summer-school

Please distribute this message to interested parties in your network.

All the best,

Saeseul

Saeseul Kim
Intern
North Pacific Marine Science Organization (PICES)
PO BOX 6000
9860 W. Saanich Road
Sidney, BC V8L 4B2 Canada
Phone: 250-880-4415
Fax: 250-363-6827
E-Mail: Intern@pices.int
Website: http://www.pices.int

CURRICULUM VITAE

Pengbin WANG

March 2020

Name: Pengbin WANG (王鹏斌, 왕펑빈)
Nationality: China
Date of birth: Aug.25, 1985
Languages: Chinese, English, Korean
Institution:
Key Laboratory of Marine Ecosystem and Biogeochemistry,
The Second Institute of Oceanography,
Ministry of Natural Resources of the People's Republic of China.

Email: algae@sio.org.cn **Telephone:** +86)182-6886-1647 **Fax:** +86)571-8889-1690
Address: The Second Institute of Oceanography, Ministry of Natural Resources of the People's Republic of China, No. 36 Baochubei Road, Hangzhou, Zhe Jiang Province, China. **Zip Code:** 310012

EDUCATION

2011 - 2016	**Hanyang University (Korea), Ph.D.** **Major: Life Science** Advisor: Myung-Soo Han, Ph.D.
2009 - 2011	**Hanyang University (Korea), M.S.** **Major: Life Science** Advisor: Myung-Soo Han, Ph.D.
2004 - 2008	**Shandong Agricultural University (China), B.S.** **Major: Bioengineering**

WORK EXPERIENCE

2020.02 - Now	**Ocean Science Journal (SCI)** **Editor**
2019.12 - Now	**EAST-HAB** **Scientific Steering Committee Member**
2019.10 - Now	**PICES-Section on Ecology of Harmful Algal Blooms (S-HAB)** **Co-Chair**
2019.02 - Now	**UNESCO IOC WESTPAC Harmful Algal Blooms Program** **Steering Committee Member**
2019.03 - Now	**PICES-Section on Ecology of Harmful Algal Blooms (S-HAB)**

	Member
2018.12 - Now	**The Second Institute of Oceanography, Ministry of Natural Resources** **Associate Professor**
2017.10 -2018.01	State Key Laboratory in Marine Pollution, City University of Hong Kong Visiting Researcher
2016.08 -2018.11	The Second Institute of Oceanography, Ministry of Natural Resources Assistant Professor
2014.09 -2016.08	Department of Life Science, Hanyang University (Korea) Assistant Researcher

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

15 Published (7 First author) and 1 Under Publishing

SCI: 14 Total Impact Factors (Based on 2019): 45.747

1. **Pengbin Wang**, Bum Soo Park, Jin Ho Kim, Joo-Hwan Kim, Hae-Ok Lee, Myung-Soo Han*. Phylogenetic position of eight *Amphora sensu lato* (Bacillariophyceae) species and comparative analysis of morphological characteristics. **Algae**, **2014**, 29 (2): 57-73. **IF: 2.156 Cited by 14**

2. Bum Soo Park, **Pengbin Wang**, Jin Ho Kim, Joo-Hwan Kim, Christopher J. Gobler, Myung-Soo Han*. Resolving the intra-specific succession within *Cochlodinium polykrikoides* populations in southern Korean coastal waters via use of quantitative PCR assays. **Harmful Algae**, **2014**, 37: 133-141. **IF: 5.012 Cited by 27**

3. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han*. Intraspecific diversity and distribution of the cosmopolitan species *Pseudo-nitzschia pungens* (Bacillariophyceae): morphology, genetics and ecophysiology of the three clades. **Journal of Phycology**, **2015**, 51: 159-172. **IF: 2.831 Cited by 19**

4. Joo-Hwan Kim, Bum Soo Park, **Pengbin Wang**, Jin Ho Kim, Seok Hyun Youn, Myung-Soo Han*. Cyst morphology and germination in *Heterosigma akashiwo* (Raphidophyceae). **Phycologia**, **2015**, 54 (5): 435-439. **IF: 1.976 Cited by 8**

5. Myung-Soo Han*, **Pengbin Wang(Co-First)**, Jin Ho Kim, Soo-Yeon Cho, Bum Soo Park, Joo-Hwan Kim, Toshiya Katano, Baik-Ho Kim. Morphological and molecular phylogenetic position of *Prorocentrum micans* sensu stricto and description of *Prorocentrum koreanum* sp. nov. from southern coastal waters in Korea and Japan. **Protist**, **2016**, 167: 32-50. **IF: 2.626 Cited by 14**

6. Joo-Hwan Kim, Jin Ho Kim, **Pengbin Wang(Co-First)**, Bum Soo Park, Myung-Soo Han. An improved quantitative real-time PCR assay for the enumeration of *Heterosigma akashiwo* (Raphidophyceae) cysts using a DNA debris removal method and a cyst-based standard curve. **Plos One**, **2016**, 11: e0145712. **IF: 2.776 Cited by 9**

7. Jin Ho Kim, Joo-Hwan Kim, Bum Soo Park, **Pengbin Wang**, Shailesh Kumar Patidar, Myung-Soo Han*. Development of a qPCR assay for tracking the ecological niches of genetic sub-populations

within *Pseudo-nitzschia pungens* (Bacillariophyceae). **Harmful Algae**, **2017**, 63: 68-78. **IF: 5.012 Cited by 2**

8. Jungsoo Park, Bum Soo Park, **Pengbin Wang**, Shailesh K. Patidar, Jin Ho Kim, Sae-Hee Kim, Myung-Soo Han*, Phycospheric native bacteria *Pelagibaca bermudensis* and *Stappia* sp. ameliorate biomass productivity of *Tetraselmis striata* (KCTC1432BP) in co-cultivation system through mutualistic interaction. **Frontiers in Plant Science**, **2017**, 8(289): 1-12. **IF: 4.106 Cited by 5**

9. **Pengbin Wang**, Jae-Hyoung Joo, Bum Soo Park, Joo-Hwan Kim, Jin Ho Kim, Myung-Soo Han*. Relationship between dissolved organic carbon and bacterial community in the coastal waters of Incheon, Korea. **Oceanological and Hydrobiological Studies**, **2017**, 46(1): 50-61. **IF: 0.674 Cited by 2**

10. Jae-Hyoung Joo, **Pengbin Wang(Co-First)**, Bum Soo Park, Hye-Jeong Choi, Heon Woo Lee, Sae-Hee Kim, Myung-Soo Han*. Improvement of harmful cyanobacterial-killing biologically derived substances (BDSs) using an ecologically safe and cost-effective naphthoquinone derivative. **Ecotoxicology and Environmental safety**, **2017**, 141, 188-198. **IF: 4.527 Cited by 4**

11. Jae-Hyoung Joo, Zhen Kuang, **Pengbin Wang**, Bum Soo Park, Myung-Soo Han*. Ecological assessment within a mesocosm of a novel algaecidal naphthoquinone derivative for the mitigation of winter blooms caused by *Stephanodiscus*. **Environmental pollution**, **2017**, 229(Supplement C). **IF: 5.714 Cited by 3**

12. Jin Ho Kim, **Pengbin Wang(Co-First)**, Bum Soo Park, Joo-Hwan Kim, Shailesh Kumar Patidar, Myung-Soo Han*, Revealing the distinct habitat ranges and hybrid zone of genetic sub-populations within *Pseudo-nitzschia pungens* (Bacillariophyceae) in the West Pacific area. **Harmful Algae**, **2018**, 73: 72-83. **IF: 5.012 Cited by 4**

13. Yan Shi, **Pengbin Wang(Co-First)**, Ha-Kyung Kim, Hyuk Lee, Myung-Soo Han, Baik-Ho Kim. 2018. *Lemnicola hungarica* (Bacillariophyceae) and the new monoraphid diatom *Lemnicola uniseriata* sp. nov. (Bacillariophyceae) from South Korea. Diatom Research, 33(1), 1-19. **IF: 1.169**

14. Hye Jeong Choi, Jae-Hyoung Joo, Joo-Hwan Kim, **Pengbin Wang**, Jang-Seu Ki, Myung-Soo Han. 2018. Morphological characterization and molecular phylogenetic analysis of *Dolichospermum hangangense* (Nostocales, Cyanobacteria) sp. nov. from Han River, Korea. Algae 33(2), 143-156. **IF: 2.156 Cited by 2**

Chinese Core Journals：1

1. **Pengbin Wang**, Xinfeng Dai*, Douding Lu. Co-cultured bacterial community of *Karenia Mikimotoi* (KM02). **Chinese Journal of Oceanology and Limnology**, **2019**, 50(3), 644-651.

INTERNATIONAL REPORT

1. APEC Secretariate. **APEC Marine Sustainable Development Report 2: Supporting Implementation of Sustainable Development Goal 14 and Related Goals in APEC**. Singapore, APEC Secretariate, 2019.

PATENT (TOTAL: 2)

1. "*Pelagibaca bermudensis* and *Stappia* sp. promoting growth of *Tetraselmis* sp. and their usage", 2018.09.07, **South Korea, Authorization Number: 10-1898773.**

2. "一种扫描电子显微镜样品的保护盒", 2017.11.24, **China（中国）, Authorization Number: 201720197704.1.**

PROJECT AND RESEARCH EXPERIENCE

1. Jan. 2020 – Dec. 2022: Fundamental study on establishment of Korea-China monitoring system of invasive Harmful Algal Blooming species (HABs) in Northeast Asia Marginal Seas, (NSFC, China). [**Principal Investigator**]
2. Aug. 2018 – May 2019: Symposium on caused species of harmful algal blooms and mechanism of their migration dynamics in Asia-Pacific Region, (APEC Self-Fund, APEC), [**Principal Investigator**]
3. Jan. 2019 – Dec. 2023: Harmful Algal Blooms (HABs) and their impact on marine resources, (China-Thailand Marine Cooperation). [**Principal Investigator**]
4. Jan. 2018 – Dec. 2020: Composition, phylogeny and geographical distribution pattern of pelagic and benthic *Prorocentrum* in typical coastal habitats of East China Sea, (NSFC, China). [**Principal Investigator**]
5. Jan. 2018 – Dec. 2020: Composition, phylogeny, geographical distribution pattern and toxicity of *Prorocentrum* in typical coastal habitats of Chinese coast, (SIO, SOA, China). [**Principal Investigator**]
6. Jan. 2018 – Dec. 2019: Mechanism, monitoring and prediction techniques of harmful algal blooms in typical coastal waters, (State Key Laboratory of Satellite Ocean Environment Dynamics, SOA, China), [Main participant]
7. Jan. 2018 – Dec. 2018: International symposium on caused species of harmful algal blooms and mechanism of their migration dynamics in Asia-Pacific Region, (China-APEC Cooperation Fund, China), [**Principal Investigator**]
8. Jan. 2017 – Dec. 2020, Composition, geographical distribution pattern of species in genus *Gambierdiscus* in typical habitats of the East-South China Seas. [Main participant]
9. Jan. 2017 – Dec. 2018: Development of Augmented Reality Based Hamaul Algal Atlas and Application Software Design, (Key Laboratory of Integrated Marine Monitoring and Applied Technologies for Harmful Algal Blooms, SOA, China). [**Principal Investigator**]
10. Jan. 2017 – Dec. 2017: Benthic sample collection and biotoxicity identification of dinoflagellates, (State Administration of Foreign Experts Affairs, China). (NSFC, China). [**Principal Investigator**] Sep. 2013 – Aug. 2015: Eco-Bio Fusion Research, (Korea and National Research Foundation of Korea). [Researcher] (In Korea)
11. Aug. 2013 – Feb. 2016: Marine Ecology Assessment, (Ministry of Oceans and Fisheries, Korea). [Researcher] (In Korea)
12. July 2013 – June. 2015: Algicidal materials developed for the diatom bloom control, (Ministry of environment, Korea). [Researcher] (In Korea)
13. Sep. 2012 – July 2013: Development marine bioenergy production technology, (Ministry of Oceans and Fisheries, Korea). [Researcher] (In Korea)
14. Otc.2011 - Aug.2012: Marine Ecology Assessment and the Research on Law of Sea, (Ministry of Land, Transport and Maritime Affairs, Korea). [Researcher] (In Korea)

15. June 2010 - May 2014: Development of eco-friendly microbial material for Ecological engineering on algae bloom treatment, (Ministry of environment, Korea). [Researcher] (In Korea)
16. Nov. 2009 – Otc.2011: Development marine bioenergy production technology, (Ministry of Land, Transport and Maritime Affairs, Korea). [Researcher] (In Korea)
17. July 2009 - June 2011: Research on the mechanisms of movement, spread and ecosystem disturbance of harmful algae using molecular probes, (Korea and National Research Foundation of Korea (NRF): NRF-2008-314-C00319). [Researcher] (In Korea)
18. June 2009 - Sep. 2009: Development of eco-friendly microbial material for Ecological engineering on algae bloom treatment, (HALLA Energy & Environment). [Researcher] (In Korea)
19. May 2009 - Aug. 2011: Anti-algae and anti-bacteria tests on different samples, (KOLON LIFE SCIENCE CO. LTD). [Researcher] (In Korea)
20. April 2009 - Dec. 2009. Development of multi-dimensional technology for water environment improvement in the large lake, (Ministry of environment, Korea). [Researcher] (In Korea)
21. March 2009 - May 2009: Development of eco-friendly microbial material for Ecological engineering on algae bloom treatment, (HALLA Energy& Environment). [Researcher] (In Korea)

HELD MEETINGS AND WORKSHOPS

2018.10.08 **APEC-HAB Meeting** (**Project Proponent & Co-Chair**)
"Symposium on Causative Species of Harmful Algal Blooms and Mechanism of Their Migration Dynamics in Asia-Pacific Region"

2018.05.08 **HAB- Hypoxia Meeting** (**Member of Local Organization committee**)
"Symposium on Harmful Algal Blooms and Hypoxia in a Changing Ocean"

SCIENTIFIC MEMBERSHIPS

PICES S-HAB (**Co-Chair, Steering Committee Member**)
UNESCO IOC WESTPAC (**Steering Committee Member**)
East HAB (**Scientific Steering Committee Member**)
The International Society for the Study of Harmful Algae
Biotechnology World Congress
The Korean Society of Phycology
The Korean Society of Environmental Biology
The Korean Society of Oceanography
The Korean Society for Marine Biotechnology

HONORS AND AWARDS

2016 **Best Paper Award**
Awarded by the Korean Society of Environment Biology for the paper entitled:
"Morphology and molecular phylogenetic position of benthic diatoms in the Korean freshwaters."

2015 **Best Paper Award**
Awarded by the Korean Federation of Science and Technology Societies (KOFST) for the paper entitled: "Phylogenetic position of eight *Amphora sensu lato* (Bacillariophyceae) species and comparative analysis of morphological characteristics."

2014 **Best Paper Award**
Awarded by the Korean Society of Environment Biology for the paper entitled: "Affections on microbial loop by DOM excretion from marine microalgae cultivation, studied by microcosm experiments."

2013 **Scholarship for attending "The 15th ICHA"**
Awarded by the 15th International Conference on Harmful Algae (ICHA).
Brain Korea 21 Plus (BK21 Plus) Scholarship
Awarded by the National Research Foundation of Korea (2013-2015).

2012 **Best Paper Award**
Awarded by the Korean Society of Environment Biology for the paper entitled: "Description based on morphological and molecular characteristics of *Amphora* species (Bacillariophyceae) in Korean coastal waters."

CONFERENCE PRESENTATIONS (TOTAL: 67 TIMES)

International conference

TALKS

1. **Pengbin Wang** (2019.06.18). Taxonomy, composition, distribution pattern and toxicity of *Prorocentrum* (Dinophyceae) in the coastal water of China. Talk presented at YSLME Marine Harmful Organisms Workshop, Jeju, South Korea.

2. **Pengbin Wang** (2019.05.26). Taxonomy, composition, distribution pattern and toxicity of *Prorocentrum* (Dinophyceae) in the coastal water of China. Talk presented at 2019 International Symposium on Ecological Protection and Restoration for Watershed- Coastal- Marine Environment, Pingtan, Fujian, China.

3. **Pengbin Wang** (2019.04.25). Taxonomy, composition, distribution pattern and toxicity of *Prorocentrum* (Dinophyceae) in the coastal water of China. Talk presented at International Harmful Organism Symposium, BPEX, Busan, South Korea.

4. **Pengbin Wang** (2019.04.23). Progress in harmful algal research of China-Coordinated land and marine. Talk presented at Seminar of Nakdonggang National Institute of Biological Resources, Nakdonggang National Institute of Biological Resources, Sangju-si, Gyeongsangbuk-do, South Korea.

5. **Pengbin Wang** (2019.02.25). Taxonomy, composition, distribution pattern and toxicity of *Prorocentrum* (Dinophyceae) in the coastal water of China. Talk presented at WESTPAC-HAB Workshop 2019, Chulalongkorn University, Bangkok, Thailand.

6. **Pengbin Wang**, Douding Lu, Leo Lai Chan, Xinfeng Dai, Jiajun Wu. (2018.11.01) Harmful algal blooms (HABs) may trigger and accelerate hypoxia zone formation at the Pearl River Estuary. Talk presented at PICES-MEQ Session, Yokohama Japan

7. **Pengbin Wang**, Douding Lu, Leo Lai Chan, Xinfeng Dai, Jiajun Wu. (2018.10.09). Harmful algal bloom and hypoxia zone formation at Pearl River Estuary, China. Talk presented at Symposium on Causative Species of Harmful Algal Blooms and Mechanism of Their Migration Dynamics in Asia-Pacific Region, Hangzhou, China.

8. **Pengbin Wang**, Douding Lu, Leo Lai Chan, Xinfeng Dai, Jiajun Wu. (2018.05.26). Harmful Algal Blooms (HABs) and Hypoxia Zone in Pearl River Estuary of Summer 2017. Talk presented at Symposium on Harmful Algal Blooms and Hypoxia in a Changing Ocean, Hangzhou, China.

9. **Pengbin Wang**, Douding Lu*, Leo Lai Chan*, Xinfeng Dai, Jiajun Wu. (2016.04.10). Harmful Algal Blooms (HABs) and Their Impact-Case Study on Hypoxia Zone in Pearl River Estuary. Talk presented at 2018 The 10th Thailand-China Joint Workshop on Ocean Science and Technology Collaboration, Xiamen, China.

10. **Pengbin Wang**, Jiraporn Charoenvattanaporn, Douding Lu, Suree Satapoomin, Leo Lai Chan. (2018.04.09). Harmful Algal Blooms (HABs) and Their Impact on Marine Resources. Talk presented at 2018 The 8th Steering Committee Meeting of Thailand-China Joint Laboratory for Climate and Marine Ecosystem, Xiamen, China.

11. **Pengbin Wang**, Xinfeng Dai, Douding Lu. (2016.11.22). Taxonomic studies of marine microalgae *Amphora* (Bacillariophyceae), *Halamphora* (Bacillariophyceae) and *Prorocentrum* (Dinophyceae). Talk presented at 2016 the 5th Xiangjiang Marine Symposium, Hong Kong, China.

12. Jin Ho Kim, **Pengbin Wang**, Bum Soo Park, Joo-Hwan Kim… and Myung-Soo Han. (2016.07.27). Intraspecific succession within *Pseudo-nitzschia pungens* populations in southern Korean coasts via use of quantitative PCR assay. Talk presented at 2016 51st Annual Meeting of the Phycological Society of America, John Carroll University, Cleveland Heights, Ohio, USA.

13. **Pengbin Wang**, Joo-Hwan Kim, Bum Soo Park, Kyung-Hoon Shin, Myung-Soo Han (2015.04.16). Ecological Assessment in Sustainable Marine Aquacultire System for Micro-algal Biomass Production. Talk presented at 2015 KSBB Spring Meeting and International Symposium, Yeosu EXPO, Yeosu, Korea.

14. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang** and Myung-Soo Han. (2014.05.18). Intraspecific diversity and distribution of the cosmopolitan species *Pseudo-nitizschia pungens* (Bacillariophyceae): morphology, genetics and ecophysiology. Talk presented at Aquatic Science at a time of Rapid Change, Oregon convention center, Portland, USA.

15. Jin Ho Kim, Joo-Hwan Kim, **Penbin Wang**, Bum Soo Park and Myung-Soo Han. (2014.04.16). Migration and temporal fluctuation of South-East Asia ribotype of *Pseudo-nitzschia pungens* (Bacillariophyceae) using qrt-PCR assay in Korean southern coasts. Talk presented at Wando International Marine Algal Symposium 2014, Wando Culture and Art Hall, Wando, Korea.

16. **Pengbin Wang**, Bum Soo Park, Jin-Ho Kim, Joo-Hwan Kim and Myung-Soo Han. (2014.02.11). Phylogenetic Position of *Amphora* sensu lato (Bacillariophyceae) and Comparative Analysis of Morphological Characteristics. Talk presented at 3rd Biotechnology World Congress, Dubai Women University, Dubai, UAE.

17. Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, **Pengbin Wang** and Myung-Soo Han. (2013.11.26). Improvement of previous qPCR methods for the quantification of *Heterosigma akashiwo* cysts. Talk presented at International Seminar on metapopulation studies on microalgae in coastal waters of East China Sea and Yellow Sea, Saga University, Saga, Japan.

18. Bum Soo Park, Jin Ho Kim, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han. (2013.10.10). The sub-population dynamics and origin of *Cochlodinium polykrikoides* ribotypes in southern Korean coastal waters. Talk presented at 8th EASTHAB Symposium, Hanyang University, Seoul, Korea.

19. Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, **Pengbin Wang** and Myung-Soo Han. (2013.10.10). Improvement of previous qPCR methods for the quantification of *Heterosigma akashiwo* cysts. Talk presented at 8th EASTHAB Symposium, Hanyang University, Seoul, Korea.

20. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang** and Myung-Soo Han. (2013.10.10). Intraspecific diversity and distribution of *Pseudo-nitzschia pungens* (Bacillariophyceae) the cosmopolitan species. Talk presented at 8th EASTHAB Symposium, Hanyang University, Seoul, Korea.

21. Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, **Pengbin Wang**, Jae-Hyung Joo and Myung-Soo Han. (2013.10.10). Improvement of previous qPCR methods for the quantification of *Heterosigma akashiwo* cysts. Talk presented at PICES-2013, Nanaimo, BC, Canada.

POSTERS

1. **Pengbin Wang**, Douding Lu, Leo Lai Chan, Xinfeng Dai, Jiajun Wu. (2019.01.06-10). Correlation between phytoplankton bloom and hypoxia zone formation at the Pearl River Estuary. Poster presented at The Fourth Xiamen Symposium on Marine Environmental Sciences, Xiamen, China.

2. **Pengbin Wang**, Jiraporn Charoenvattanaporn, Douding Lu, Suree Satapoomin, Leo Lai Chan, Xinfeng Dai. (2018.04.10-11). Harmful Algal Blooms (HABs) and Their Impact on Marine Resources. Poster presented at The 10th Thailand-China Joint Workshop on Ocean Science and Technology Collaboration, Xiamen, China.

3. **Pengbin Wang**, Jin Ho Kim, Soo-Yeon Cho, Bum Soo Park, Joo-Hwan Kim, Toshiya Katano, Baik-Ho Kim, Myung-Soo Han. (2017.04.17-20). Morphological and molecular phylogenetic

position of *Prorocentrum micans* sensu stricto and description of *Prorocentrum koreanum* sp. nov. Poster presented at 10th WESTPAC, Qingdao, China.

4. **Pengbin Wang**, Jin Ho Kim, Soo-Yeon Cho, Bum Soo Park, Joo-Hwan Kim, Toshiya Katano, Baik-Ho Kim, Myung-Soo Han. (2015.12.13). Morphological and molecular phylogenetic position of Prorocentrum micans sensu stricto and description of *Prorocentrum koreanum* sp. nov. from southern coastal waters in Korea and Japan. Poster presented at The 9th EASTHAB Scientific Symposium, Guangzhou, China.

5. Joo-Hwan Kim, Bum Soo Park, **Pengbin Wang**, Jin Ho Kim, Myung-Soo Han. (2015.09.03). Cyst morphology and germination in *Heterosigma akashiwo* (Raphidophyceae). Poster presented at The Joint meeting of the Japanese Association of Benthology & The Plankton Society of Japan in 2015, Hokkaido University, Sapporo, Japan.

6. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han. (2014.10.27). Intraspecific diversity and distribution 0f the cosmopolitan species *Pseudo-nitzschia pungens* (Bacillariophyceae). Poster presented at The 16th ICHA, Wellington, New Zealand.

7. Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, **Pengbin Wang**, Hye-Jeong Choi，Rui Wang, Myung-Soo Han. (2014.10.27). Improvement of previous qPCR methods for the quantification of *Heterosigma akashiwo* cysts. Poster presented at The 16th ICHA, Wellington, New Zealand.

8. Bum Soo Park, Sunju kim, Zhun Li, Jin Ho Kim, Joo-Hwan Kim, **Pengbin Wang**, Chong-Sung Park, Myung-Soo Han. (2014.10.27). A serial control of two different *Amoebophrya* parasites on *Cochlodinium polykrikoides* blooms in the southern Korean coastal waters. Poster presented at The 16th ICHA, Wellington, New Zealand.

9. **Pengbin Wang**, Bum Soo Park, Jin-Ho Kim, Joo-Hwan Kim and Myung-Soo Han. (2014.10.16). Preliminary study on ecological disturbance effect due to *Tetraselmis* sp. mass culture within semi-transparent bag at microcosm experiment. Poster presented at The 10th KSMB Annual Meeting & Symposium, Convention Center, Jungseok Memorial Library, Inha University, Incheon, Korea.

10. **Pengbin Wang**, Bum Soo Park, Jin-Ho Kim, Joo-Hwan Kim and Myung-Soo Han. (2014.06.15). Change of microbes community in microcosm due to *Tetraselmis* sp. mass culture using semi-transparent bag. Poster presented at 4th International Conference on Algal Biomass, Biofuels & Bioproducts, Santa Fe Convention Center, New Maxico, USA.

11. **Pengbin Wang**, Joo-Hwan Kim, Bum Soo Park, Jin-Ho Kim, Joo-Hwan Kim and Myung-Soo Han. (2013.06.17). Growth rates and total lipid contents of marine benthic microalgae in coastal waters of South Korea. Poster presented at 3rd International Conference on Algal Biomass, Biofuels & Bioproducts, Sheraton Centre Toronto Hotel, Toronto, Canada.

12. **Pengbin Wang**, Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, Myung-Soo Han. (2012.10.29). Redescription based on morphological and molecular characters of eight *Amphora* species. Poster presented at The 15th ICHA, CECO, Changwon, Korea.

Domestic conference in China/Korea

TALKS

1. **Pengbin Wang**, Douding Lu, Leo Chan, Xinfeng Dai, Jiajun Wu. (2018.05.16). 有害藻华在珠江口低氧区形成过程中的角色. 第十二届海峡两岸科学研讨会, 口头报告, 中国台北.
2. **Pengbin Wang**, Xinfeng Dai, Douding Lu. (2018.8.16). Two new *Prorocentrum* (Dinophyceae) species in the coastal water of West Pacific area. 第六届全国“藻类多样性和藻类分类”学术研讨会, 口头报告, 中国哈尔滨.
3. **Pengbin Wang**, Douding Lu, Xinfeng Dai, Leo Lai Chan, Jiajun Wu. (2018.8.16). Two new *Prorocentrum* (Dinophyceae) species in the coastal water of East Asia. 第三届中国大地测量和地球物理学学术大会, 口头报告, 中国兰州.
4. **Pengbin Wang**, Xinfeng Dai, Douding Lu. (2018.8.16). Two new *Prorocentrum* (Dinophyceae) species in the coastal water of East Asia. 第十三届全国生物多样性科学与保护研讨会, 口头报告, 中国呼和浩特.
5. **Pengbin Wang**, Jin Ho Kim, Soo-Yeon Cho, Bum Soo Park, Joo-Hwan Kim, Toshiya Katano, Baik-Ho Kim, Myung-Soo Han. (2016.9.27). Morphological and molecular phylogenetic position of Prorocentrum micans sensu stricto and description of Prorocentrum koreanum sp. nov. from southern coastal waters in Korea and Japan. 第五届“全国藻类分类及多样性”学术研讨会，口头报告, 中国天津.
6. **Pengbin Wang**, Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, Myung-Soo Han (2015.11.12). Microbial community changes due to extra-cellular substance releasing from *Tetraselmis* sp. mass cultivation. Talk presented at 2015 KSMB Annual Meeting and Symposium, Pukyong National University, Busan, Korea.

7. Zhen Kuang, **Pengbin Wang**, Jae-Hyoung Joo, Myung-Soo Han. (2015.10.23). Dynamics of microbial communities in mesocosm due to treatment by algicidal substance NQ 4-6. Talk presented at Korean Society of Phycology, Wonkwang University, Iksan, Korea.

8. Zhen Kuang, **Pengbin Wang**, Jae-Hyoung Joo, Myung-Soo Han. (2015.08.26). Dynamics of microbial communities in mesocosm due to treatment by algicidal substance NQ 4-6. Talk presented at Korean Society of Environment Biology, Korea University, Seoul, Korea.

9. Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang**, Heon Woo Lee, Christopher J.Gobler, Seung Ho Baek, Myung-Soo Han. (2015.08.26). Dynamics of bacterial community structure during blooms of *Cochlodinium polykrikoides* (Dinophyceae) in Korean coastal waters. Talk presented at Korean Society of Environment Biology, Korea University, Seoul, Korea.

10. **Pengbin Wang**, Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, Myung-Soo Han. (2015.02.27). Preliminary study on disturbance effect of microbial ecosystem due to *Tetraselmis* sp. mass culture using semi-transparent bag. Talk presented at Korean Society of Environment Biology, Hanyang University, Seoul, Korea.

11. Bum Soo Park, Sunju Kim, Joo-Hwan Kim, Jinho Kim, **Pengbin Wang**, Myung-Soo Han. (2014.08.20). A serial control of two Amoebophrya parasites on *Cochodinium polykrikoides* blooms in southern Korean coastal waters. Talk presented at Korean Society of Environment Biology, Kyungpook University, Daegu, Korea.

12. Bum Soo Park, Sunju Kim, Joo-Hwan Kim, Jinho Kim, **Pengbin Wang**, Myung-Soo Han. (2014.02.20). A quantitative assessment of the role of two endoparasite Amoebophrya species in the termination of *Cochlodinium polykrikoides* bloom in southern Korean coastal waters using semi-quantitative Real-Time PCR assay. Talk presented at Korean Society of Environment Biology, Catholic University of Korea, Bucheon, Korea.

13. Jin Ho Kim, Joo-Hwan Kim, **Pengbin Wang**, Bum Soo Park, Myung-Soo Han. (2014.02.20). Seasonal fluctuation and migration of clade III population of *Pseudo-nitzschia pungens* (Bacillariophyceae) in Korean Coastal Waters. Talk presented at Korean Society of Environment Biology, Catholic University of Korea, Bucheon, Korea.

14. Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, **Pengbin Wang**, Myung-Soo Han. (2014.02.20). *Heterosigma akashiwo* (Raphidophyceae)의 배양 중에 나타나는 다양한 세포 형태 및 생활단계의 보고. Talk presented at Korean Society of Environment Biology, Catholic University of Korea, Bucheon, Korea.

15. **Pengbin Wang**, Bum Soo Park, Jin Ho Kim, Joo-Hwan Kim and Myung-Soo Han. (2013.09.27). Phylogenetic position of eight *Amphora sensu lato* (Bacillariophyceae) species and comparative analysis on morphological characteristics. Talk presented at Korean Society of Phycology, KAIST, Daejeon, Korea.

16. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han. (2013.09.27). Intraspecific diversity and distribution of *Pseudo-nitzschia pungens* (Bacillariophyceae) cosmopolitan species: perspective in eco-physiological characteristics. Talk presented at Korean Society of Phycology, KAIST, Daejeon, Korea.

17. 김주환, 박범수, 김진호, **왕평빈**, 한명수. (2013.09.27). *Heterosigma akashiwo* 휴면포자의 정량을 위한 qPCR 기법의 개량. Talk presented at Korean Society of Phycology, KAIST, Daejeon, Korea.

18. **Pengbin Wang**, Bum Soo Park, Jin Ho Kim, Joo-Hwan Kim and Myung-Soo Han. (2013.08.30). Morphology and Phylogeny of eight species of *Amphora sensu lato* (Bacillariophyceae) found in Korean coastal waters. Talk presented at Korean Society of Environment Biology, Chonnam National University, Gwangju, Korea.

19. Bum Soo Park, **Pengbin Wang**, Jin Ho Kim, Joo-Hwan Kim, Christopher J.Gobler, Myung-Soo Han. (2013.08.30). The development of real-time PCR assay for the detection and quantification of three ribotypes within *Cochlodinium polykrikoides* and its field application in southern Korean

coastal waters. Talk presented at Korean Society of Environment Biology, Chonnam National University, Gwangju, Korea.

20. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han. (2013.08.30). Intraspecific diversity and distribution of *Pseudo-nitzschia pungens* cosmopolitan species (Bacillariophyceae). Talk presented at Korean Society of Environment Biology, Chonnam National University, Gwangju, Korea.

21. 김주환, 박범수, 김진호, **왕평빈**, 한명수. (2013.08.30). *Heterosigma akashiwo* 휴면포자의 정량적 real-time PCR 기법 개량. Talk presented at Korean Society of Environment Biology, Chonnam National University, Gwangju, Korea.

22. Bum Soo Park, **Pengbin Wang**, Jin-ho Kim, Ju-Hwan Kim, Li Zhun and Myung-Soo Han. (2012.05.31). Distribution and seasonal fluctuation of diverse ribotype of *Cochlodinium polykrikoides* in Southern Korean coastal water. Talk presented at Korean Society of Oceanography, EXCO, Daegu, Korea.

23. 김주환, 박범수, 김진호, **왕평빈**, 한명수. (2012.05.31). Quantitative Real- time PCR 을 이용한 *Heterosigma akashiwo* 휴면포자 정량기법의 현장 생태계 적용. Talk presented at Korean Society of Oceanography, EXCO, Daegu, Korea.

24. **Pengbin Wang**, Soo-Yeon Cho, Myung-Soo Han. (2011.12.19). Morphological and molecular studies on *Amphora* Ehrenberg ex Kützing in the coastal area of Korea. Talk presented at Korean Society of Environment Biology, Hanyang University, Seoul, Korea.

25. **Pengbin Wang**, Soo-Yeon Cho, Myung-Soo Han. (2011.04.21). Taxonomic study on eight *Amphora* species in the Korean coastal waters. Talk presented at Korean Society of Phycology, Sungkyunkwan University, Suwon, Gyeonggi Province, Korea.

POSTERS

1. Yan Shi, **Pengbin Wang**, Myung-Soo Han, Baik-Ho Kim. (2016.06.30). Morphology and molecular phylogenetic position of benthic diatoms in the Korean freshwaters. Poster presented at Korean Society of Environment Biology, Seoul National University, Seoul, Korea.

2. **Pengbin Wang**, Joo-Hwan Kim, Bum Soo Park, Jin Ho Kim, Myung-Soo Han. (2015.08.26). Change of microbial community due to extra-cellular substance from *Tetraselmis* sp. mass cultivation in microcosm. Poster presented at Korean Society of Environment Biology, Korea University, Seoul, Korea.

3. Joo-Hwan Kim, Bum Soo Park, **Pengbin Wang**, Jin Ho Kim and Myung-Soo Han. (2015.08.26). Cyst morphology and germination in *Heterosigma akashiwo* (Raphidophyceae). Poster presented at Korean Society of Environment Biology, Korea University, Seoul, Korea.

4. **Pengbin Wang**, Bum Soo Park, Joo-Hwan Kim, Jin-Ho Kim and Myung-Soo Han. (2014.02.20). Affections on microbial loop by DOM excretion from marine microalgae cultivation, studied by microcosm experiments. Poster presented at Korean Society of Environment Biology, Catholic University of Korea, Bucheon, Korea.

5. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han. (2014.02.20). Seasonal fluctuation and migration of clade III population of *Pseudo-nitzschia pungens* (Bacillariophyceae) in Korean Coastal Waters. Poster presented at Korean Society of Environment Biology, Catholic University of Korea, Bucheon, Korea.

6. Bum Soo Park, Jin Ho Kim, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han. (2013.09.27). The population dynamics of ribotypes within *Cochlodinium polykrikoides* in southern Korean coastal waters. Poster presented at Korean Society of Phycology, KAIST, Daejeon, Korea.

7. Jin Ho Kim, Bum Soo Park, Joo-Hwan Kim, **Pengbin Wang**, Myung-Soo Han. (2013.09.27). Intraspecific diversity and distribution of *Pseudo-nitzschia pungens* (Bacillariophyceae) cosmopolitan species. Poster presented at Korean Society of Phycology, KAIST, Daejeon, Korea.

8. 박범수, **왕평빈**, 김진호, 김주환, 이준, 한명수. (2011.12.19). Distribution and seasonal fluctuation of diverse ribotype of *Cochlodinium polykrikoides* in Southern Korean coastal waters. Poster presented at Korean Society of Environment Biology, Hanyang University, Seoul, Korea.

9. **Pengbin Wang**, Jin-Ho Kim, Soo-Yeon Cho and Myung-Soo Han (2010. 12. 20). Taxonomic study on Eight Species of Benthic Pennate Diatoms in the Coastal Area of Korea. Poster presented at Korean Society of Environment Biology, Yong In University, Yongin, Korea.

FIRST INSTITUTE OF OCEANOGRAPHY,
MINISTRY OF NATURAL RESOURCES
6 Xianxialing Road, Qingdao 266061, China
Tel: +86-532-88963909, Fax: +86-532-88963909

March 25, 2020

Dear Dr. Robin Brown,

Subject: Nomination of the 2020 Zhu-Peterson Award

I am writing to you for nomination of the 2020 Zhu-Peterson Award. On behalf of the First Institute of Oceanography (FIO), Ministry of Natural Resources of China, I have the honor to recommend Dr. SONG Wei and Dr. XU Qinzeng, both of whom are young scientists for marine ecology in FIO, as candidates for the Award.

Attached please find the documents with detailed information of Dr. SONG and Dr. XU. Thanks for your consideration.

Best wishes,

Sincerely yours,

QIAO Fangli
Deputy Director-General,
First Institute of Oceanography,
Ministry of Natural Resources of China

CURRICULUM VITAE

Wei Song

Date of Birth: March, 12, 1986
Gender: Male
Nationality: People's Republic of China
Address: Marine Ecology Research Centre, First Institute of Oceanography, Ministry of Natural Resources. No.6 Xianxialing Road, Laoshan District, Qingdao 266061, Shandong Province, P. R. China
Telephone: +86-532-88967447, +86-18266239826
E-mail: songw@fio.org.cn, kaso1986@126.com

EDUCATION

- 2011.09- 2014.06:
  Doctor of Philosophy in Plant Physiological Ecology
  Hunan Agricultural University
  First Institute of Oceanography, Ministry of Natural Resources
  Advisor: Professor Keqin Peng, Professor Zongling Wang
- 2008.09- 2011.06
  Master of Nature Cell Biology
  Hunan Agricultural University
  Advisor: Professor Yahui Hong
- 2004.09- 2008.06
  Bachelor of Bioengineering, Department of life science and technology, Hunan Agricultural University

---

WORK EXPERIENCE

- 2018.12- now：
  Marine Ecology Research Centre, First Institute of Oceanography, Ministry of Natural Resources
  Associate Professor
- 2014.07- 2018.12:
  Marine Ecology Research Centre, First Institute of Oceanography, Ministry of Natural Resources
  Assistant Researcher

RESEARCH INTERESTS

- Formation mechanism of green tides in the coastal areas
- Prevention and control strategies for the green tides events
- Medicinal properties and applications of seaweed polysaccharides

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PUBLICATIONS

1. **Song, W**., Wang, Z., Li, Y., Han, H., Zhang, X., 2019. Tracking the original source of the green tides in the Bohai Sea, China. Estuarine Coastal and Shelf Science, 163: 29-35

2. **Song, W**., Han, H., Wang, Z., Li, Y., 2019. Molecular identification of the macroalgae that cause green tides in the Bohai Sea, China. Aquatic Botany, 156: 38-46

3. **Song, W**., Li, Y., Zhang, X., Wang, Z., 2019. Effects of *Blidingia* sp. extract on intestinal inflammation and microbiota composition in LPS-challenged mice. Frontiers in Physiology, doi:10.3389/fphys.2019.00763_Song

4. **Song, W**., Li, Y., Zhang, X., Wang, Z., 2019. Potent anti-inflammatory activity of

polysaccharides extracted from *Blidingia minima* and their effect in a mouse model of inflammatory bowel disease. Journal of Functional Foods, doi: 10.1016/j.jff.2019.103494
5. **Song, W**., Jiang, M., Wang, Z., Wang, H., Zhang, X., Fu, M., 2018. Source of propagules of the fouling green macroalgae in the Subei Shoal, China. Acta Oceanologica Sinica, 37(4), 102-108
6. **Song, W**., Wang, Z., Zhang, X., Li, Y., 2018. Ethanol Extract from *Ulva prolifera* Prevents High-Fat Diet-Induced Insulin Resistance, Oxidative Stress, and Inflammation Response in Mice. BioMed Research International. doi : 10.1155/2018/1374565
7. **Song, W**., Li, Y., Fang, S., Wang, Z., Xiao, J., Li, R., Fu, M., Zhu, M., Zhang, X., 2015. Temporal and spatial distributions of green algae micro-propagules in the coastal waters of the Subei Shoal, China. Estuarine Coastal and Shelf Science, 163: 29-35
8. **Song, W**., Peng, K., Xiao, J., Li, Y., Wang, Z., Liu, X., Fu, M., Fan, S., Zhu, M., Li, R., Effects of temperature on the germination of green algae micro-propagules in coastal waters of the Subei Shoal, China. Estuarine Coastal and Shelf Science, 163: 63-68
9. Han, H. , **Song, W**., Wang, Z., Ding, D., Yuan, C., Zhang, X., Li, Y., Distribution of green algae micro-propagules and their function in the formation of the green tides in the coast of Qinhuangdao, the Bohai Sea, China. Acta Oceanologica Sinica, 2019, 38(8):72-77
10. Li, Y., **Song, W**., Xiao, J., Wang, Z., Fu, M., Zhu, M., Li, R., Zhang, X., Wang, X., Tempo-spatial distribution and species diversity of green algal micro-propagules in the Yellow Sea, during the development process of the large-scale green tide. Harmful Alaga, 2015, doi: 10.1016/j.hal.2014.05.013
11. Cheng, P., **Song, W**., Gong, X., Huang, W., Hong, Y., Proteomic approaches of *Trichoderma hamatum* to control *Ralstonia solanacearum* causing pepper bacterial wilt.. International Journal of Agriculture & Biology, 2015, 17(6):125-131
12. Han, H., Li, Y., Song, W., Wang, Z., Zhang, X., The complete mitochondrial genome sequence of *Bryopsis plumosa*. Mitochondrial DNA Part B. 5:1, 1067-1068
13. Xiao, J., Li, Y., **Song, W**., Wang, Z., Fu, M., Li, R., Zhang, X., Zhu, M., Discrimination of the common macroalgae (*Ulva* and *Blidingia*) in coastal waters of Yellow Sea, northern China, based on restriction fragment-length polymorphism (RFLP) analysis. Harmful Alaga, 2013, doi: 10.1016/j.hal.2013.05.003
14. Liu, Y., Zhang, X., **Song, W**., Wang, Z., Artificial seed germination and seedling production of *Zostera marina* L. by salinity manipulation. Acta Oceanologica Sinica, 2016, 35(8):99-105
15. Fu, M., Fan, S., Wang, Z., **Song, W**., Sun, K., Han, H., Xiao, J., Shen, S., Buoyancy potential of dominant green macroalgal species in the Yellow Sea's green tides, China. Marine Pollution Bulletin, 2019, 140: 301-307
16. Li, Y., Xiao, J., Ding, L., Wang, Z., **Song, W**., Fang, S., Fan, S., Li, R., Zhang, X., Community structure and controlled factor of attached green algae on the Porphyra yezoensis aquaculture rafts in the Subei Shoal, China. Acta Oceanologica Sinica,

2015, 34(8):93-99
17. Fan, S., Fu, M., Wang, Z., Zhang, X., **Song, W**., Li, Y., Liu, G., Liu, X., Wang, X., Zhu, M., Temporal variation of green algal assemblage on Porphyra aquaculture rafts in the Subei Shoal, China. Estuarine Coastal and Shelf Science, 163: 23-28

PATENTS

1. **Song, W**., Han, H., Zhang, X., Jiang, M., Pang, M., Sun, P., Collection net of floating algae, Utility Model Patent (ZL201820778814.1)
2. **Song, W**., Han, H., Wang, Z., Fan, S., Zhang, X., Li, Y., Mesocosm device of green macroalgae, Utility Model Patent (ZL201820778813.7)

CONFERENCE PRESENTATIONS

1. **Song, W**., Distribution of the green algal micro-propagules in Yellow Sea and the function in green tide initiation. Oral Report in the 2nd International Seaweed Ranching and Bioremediation Conference & International Symposium of Advanced Research on Green Tides, Shanghai China
2. **Song, W**., Growth patterns of the fouling green macroalgae during the *Pyropia* aquaculture period in the Subei Shoal. Oral Report in EASTHAB Symposium, Guangzhou China

AWARDS

Wang, Z., Liu, D., Shi, X., Guan, W., Wang, J., Fan, S., Li, Y., Xiao, J., Fu, M., Bao, M., Zhang, C., Zhang, X., Han, X., Tan, L., **Song, W**., Occurrence mechanism of the Yellow Sea large-scale green tides. National Grand Prize for Progress in Marine Science and Technology, 2017

RESEARCH AND CONTRIBUTIONS IN PICES AREAS

As the student of Professor Zhu Mingyuan, I devoted myself to the research of green tides events in PICES areas since 2012. The major research contents are as follows: (1) Large-scale green tides bloomed in the Yellow Sea; (2) Green tides bloomed in the coastal areas of Qinhuangdao in the Bohai Sea; and (3) Applications of the macroalgae in the green tides.

YELLOW SEA LARGE-SCALE GREEN TIDES

Algae source of the floating green macroalgae

Since 2008, large-scale *Ulva prolifera* green tides have occurred consecutively in the Yellow Sea and resulted in severe negative effects on coastal environments, tourism, and the aquaculture industry of the coastal cities of Shandong province. Previous studies showed that the floating *Ulva prolifera* in the Yellow Sea green tides were very possible from the *Porphyra* aquaculture facilities in the Subei Shoal located

in the coastal areas of Jiangsu province. To confirm the origin source of green macroalgae, the assemblage of fouling macroalgae growing on the *Porphyra* aquaculture facilities were investigated from early March to the middle of May across the growing season in 2013. We found that the fouling green macroalgae increased rapidly and reached to the maximum in biomass during mid-May. Six species, including *Blidingia* sp., *Ulva prolifera*, *Ulva linza*, *Ulva compressa*, *Ulva intestinalis* and *Ulva clathrata* were identified from the facilities. In early March, the dominant species were *U. compressa*, *U. intestinalis* and *U. clathrata*; while they shifted to *Blidingia* sp. and *U. prolifera* in late March to middle May. Our research indicated that the changes in sea temperature might affect the nutrient uptake rate of the green macroalgae, and then affect the temporal variation in the fouling green macroalgae. The biomass of *U. prolifera* was sufficient to seed a massive green tides, based on its high growth rate.

Seed source of the Yellow Sea large-scale green tides

Green algae micro-propagules refer to the microscopic gametes, zygotes, spores, or germlings in the opportunistic life of the green macroalgae species. They constituted the "seed bank" in nature for future blooms in favorable environmental conditions, and played very important roles in the formation of the green tides. In 2012, monthly surveys in the coastal area of the Subei Shoal were conducted to investigate the temporal and spatial distributions of green algae micro-propagules in the water column and sediment. We found that the green algae micro-propagules were widely distributed in the waters and sediments throughout the year, and their distribution significantly corresponded to *Porphyra* aquaculture activities. The abundance of the micro-propagules decreased gradually from inshore to offshore. The average number of micro-propagules reached a maximum in late April and was low during the winter and summer. The source of the micro-propagules was the green algae attached to the *Porphyra* aquaculture rafts. The green algae micro-propagules serve as the seed stock of the fouling green algae and provide the initial conditions for the formation of green tides.

GREEN TIDES IN THE BOHAI SEA

Blooming process of the Bohai Sea green tides

In 2015, a novel green tide began to bloom in Qinhuangdao on the coast of the Bohai Sea, northern China, and it has recurred each spring to summer since. Because of the great concerns about its possible expansion and detrimental effects on the coasts along the Bohai Sea, we conducted a two-year-long field survey in 2016 and 2017 to investigate the blooming dynamics and underlying mechanism of the green tide. The field observations revealed a single-peak pattern in the bloom of the macroalgae biomass. The suspended macroalgae began to appear in shallow water in April, and reached a peak in July and August, after which they declined rapidly in September. The bloom extended approximately 12km along the beach, and largely was restricted to the shallow intertidal and sub-tidal zones (approximately 0-10m

from the shoreline, 0-2m depth at maximum). Species succession was evident during the blooms and exhibited 3 distinct development stages. Stage I occurred from late April to mid-May with a low biomass, during which *Ulva pertusa* was the dominant species. During Stage II, from mid-May to mid-June, the biomass of *Bryopsis plumosa* increased rapidly and became the dominant species. Stage III occurred from mid-June to September, during which *U. prolifera* was the most abundant species. In Stage III, the total blooming biomass reached a peak much higher than that in the other two stages. Because of the significant variation in the growth rates of these dominant species in laboratory testing, seawater temperature may be one of the key factors that regulates the species succession and development of this coastal green tide. The study indicated that: (1) with the deterioration of the marine environment, the Bohai Sea has become the second area in China affected by green tides; (2) for the first time, *B. plumosa* was found to be the green tide causative species, and (3) the dominant species exhibited obvious successions during the development of the green tides.

Molecular identification of the macroalgae that cause green tides in the Bohai Sea

Accurate identification of the causative species of the green tides is the first step in studying this marine ecological disaster. However, infrageneric classification of the macroalgae species is quite difficult because of their extensive distribution, small intraspecific differences, and high morphological variability attributable to changes 15 dominant green macroalgal samples and 9 dominant red macroalgal samples were collected according to the development process of the Bohai Sea green tide. Seven gene markers, ITS, *rbc*L, *tuf*A, and 5S spacer and COI, LSU, and UPA were co-employed to classify the species in the green and red macroalgae, respectively. In a comprehensive analysis of the molecular identification results and the morphological characteristics of the macroalgae, *Ulva pertusa*, *Bryopsis plumosa*, and *Ulva prolifera*, respectively, were confirmed to be the first dominant species in the three distinct stages of the green tide. In addition, we also found that the *rbc*L and COI genes can serve as the appropriate gene markers for molecular identification of the green and red macroalgae, respectively, in the Bohai Sea green tide.

Tracking the original source of the green tides in the Bohai Sea

Cruise observations in the regions offshore from the areas affected by the green tides showed that the Bohai Sea green tides originated locally. A series of collections of the macroalgae attached to different inshore structures near the affected areas, including naturally-occurring seaweed beds, submerged breakwaters, Lianhua and Hailuo artificial islands, and *Argopecten irradians* aquaculture facilities, were conducted from late April to late September 2016, and the analyses revealed the species composition and proportion of the attached macroalgae. The green macroalgae species *Bryopsis plumosa* and *Ulva prolifera*, which were the dominant species in the second and third stages of the green tides, respectively, were found only on seaweed beds. The chloroplast-encoded *rbc*L genes of these two species were genetically

identical to those of the *B. plumosa* and *U. prolifera* suspended in the green tides. Furthermore, the seasonal timing of bloom origin and the community succession trends of these two signature green macroalgae on seaweed beds were highly consistent with those in the green tides. Based on these results, we concluded that the attached macroalgae on seaweed beds are the major original source of the green tide blooms in the Bohai Sea.

Seed source of the Bohai Sea green tides

Monthly surveys in the inshore and offshore areas of the Qinhuangdao coast were conducted from April to September, 2016 and in January, 2017 to investigate the tempo-spatial distribution patterns and the biomass variations of the green algae micro-propagules. The obtained results showed that micro-propagules were mainly distributed in the inshore areas with a significantly decreasing abundance towards offshore areas. Their biomass was highest in July and August, and lowest in winter. The areas that were affected by the green tides showed a remarkably higher abundance of micro-propagules compared to other areas. These micro-propagules could serve as the "seed" source of green tides. Their distribution patterns indicate that the green tide in the coastal areas of Qinhuangdao originated locally.

APPLICATIONS OF MACROALGAE

Applications of *Ulva prolifera* in the Bohai Sea green tides

Alternative uses of biomass to profit from the green tide events are effective methods to offset the bill for environmental damage. *U. prolifera* is mainly used as food or for medical purposes, because it is rich in polysaccharides, proteins, and essential mineral elements for human health, and it also has low content of fats and cellulose. We investigated the effects of ethanol extract of *U. prolifera* (EUP) on insulin sensitivity, inflammatory response, and oxidative stress in high-fat-diet-(HFD-) treated mice. HFD-treated mice obtained drinking water containing 2% or 5% EUP. We found d that EUP supplementation significantly prevented HFD-induced weight gain of liver and fat. EUP supplementation also improved glucose tolerance and insulin resistance in HFD-treated mice. Moreover, EUP supplementation prevented the increased expression of genes involved in triglyceride synthesis and proinlammatory genes and the decreased expression of genes involved in fatty acid oxidation in liver of HFD-treated mice. Furthermore, EUP supplementation decreased reactive oxygen species content, while increasing glutathione content and glutathione peroxidase activity in HFD-treated mice.

Applications of *Blidingia* sp. in the Subei Shoal

Blidingia sp. is the major species on the *Pyropia* aquaculture facilities in Subei Shoal, China. To explore the potential beneficial effects of *Blidingia* sp., we investigated the anti-inflammatory activity of its water–methanol extract of *Blidingia* sp. in a mouse model of lipopolysaccharide (LPS)-induced intestinal inflammation. The results revealed that the administration of *Blidingia* extract significantly alleviated the LPS-induced increase of the inflammatory cytokine content in the serum, as well as latter's gene expression in the ileum. Moreover, the extract inhibited

the phosphorylation of NF-kB and IkBain LPS-challenged mice. Apart from these changes, the extract also averted intestinal morphology damage(s) and cell apoptosis in mice. Interestingly, the extract also had beneficial effects on the diversity and composition of caecal microbiota in LPS-challenged mice. In conclusion, the results suggested that *Blidingia* extract had beneficial effects on the recovery of intestinal function by reducing the inflammatory response, improving the maintenance of intestinal morphology, and decreasing cell apoptosis in LPS-induced intestinal inflammation. In addition, the beneficial effects of the extract on caecal microbiota composition may play a role in its anti-inflammatory activity.

Robin Brown

From: Yongqiang Shi <shiyq@ysfri.ac.cn>
Sent: Monday, March 30, 2020 7:18 PM
To: robin.brown@pices.int
Subject: Application for the Zhu-Peterson Early Career Scientist Award-Yongqiang Shi
Attachments: CV_Yongqiang Shi.pdf; Cover Letter_Yongqiang Shi.pdf; Recommendation Letter_Yongqiang Shi.pdf

Dear Mr. Brown,

I am writing to apply for the Zhu-Peterson Early Career Scientist Award. Attached please kindly find my CV, a Cover Letter and a Recommendation Letter from Professor Xianshi Jin.

I am focusing on the research of marine zooplankton ecology. Because of the similar research field, I had a chance to meet Professor Zhu and Dr. Peterson during my Ph.D. period. I was deeply impressed by their profound knowledge, and benefited from their inspiring encouragement and advice. I think the best way to commemorate them is to continue the research in ocean science they devoted to.

Thank you very much for your consideration. If there is more information needed, please do not hesitate to contact me.

All the best wishes for you.

Yours sincerely,
Yongqiang Shi

--
Dr. Yongqiang Shi
Yellow Sea Fisheries Research Institute (YSFRI), Chinese Academy of Fishery Sciences (CAFS)
106 Nanjing Road, Qingdao, Shandong, P. R. China, 266071
Mobile: +86-13964228207
E-mail: shiyq@ysfri.ac.cn

Mr. Robin Brown

PICES Executive Secretary

March 31, 2020

Dear Mr. Brown,

I am Yongqiang Shi, a Junior Scientist in Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences. I am writing to apply for the Zhu-Peterson Early Career Scientist Award. Please find enclosed my CV for more personal information.

My research interest is focusing on marine zooplankton ecology. Because of the similar research field, I had a chance to meet Professor Zhu at a conference, and attended Professor Peterson's seminar held in Institute of Oceanology, Chinese Academy of Sciences during my Ph.D. period. I was deeply impressed by their profound knowledge, and benefited from their inspiring encouragement and advice. I think the best way to commemorate them is to continue the research in ocean science they devoted to.

I studied the temporal-spatial variations in zooplankton community in the Yellow Sea, China in relation to the prevalent hydrographic conditions, and have published 16 research papers. The results in the Laoshan Bay, an important fishery enhancement and release area in the Yellow Sea, suggested that releasing time should be restricted to May–August due to high copepod densities as prey. Study of zooplankton community in the Yellow Sea in winter provided information regarding food availability for wintering fish. And I explained the distribution and blooms of giant jellyfish in the Yellow Sea from the view of prey availability. Combined with the monitoring environmental data and remote sensing data, now I am studying the seasonal and inter-annual changes of zooplankton community in the Yellow Sea to provide insights on the effects of climate change and human activities on marine ecosystems. My research contributes to a better understanding of the ecosystem dynamics and the scientific evaluation and management of fishery resources in the Yellow Sea.

Thank you very much for your consideration.

Yours sincerely,

Yongqiang Shi, Ph.D.

Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences

106 Nanjing Road, Qingdao, Shandong, P. R. China, 266071

shiyq@ysfri.ac.cn

+86-13964228207

Yellow Sea Fisheries Research Institute
Chinese Academy of Fishery Sciences
106 Nanjing Road,Qingdao,P.R.China

Tel: +86-532-85836200
Fax: +86-532-85811514
P.C.: 266071
http://www.ysfri.ac.cn

Recommendation Letter

March 30, 2020

To whom it may concern,

I am writing to recommend Dr. SHI Yongqiang to be a nominee for the Zhu-Peterson Early Career Scientist Award.

Dr. SHI Yongqiang, born on September 25, 1987, is a Junior Scientist of Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences. Dr. SHI has been working in the Division of Fishery Resources and Ecosystem of the institute since July of 2015. He visited the University of British Columbia as a Visiting Scientist from September 2018 to September 2019.

Dr. SHI's main research interest is marine zooplankton ecology. He has done some innovative work in plankton dynamics, and the response of these lower trophic levels to bottom-up forcing by climatic and oceanographic conditions in the Yellow Sea. Dr. SHI has published 16 peer-reviewed research papers. His research contributes to a better understanding of the structure and function of pelagic ecosystems, and provides advice for sustainable fisheries management.

The purpose of the Zhu-Peterson Early Career Scientist Award is to encourage early career scientist who has performed innovative research at the frontier of science relevant to the PICES mission. Dr. SHI satisfies the requirements of the award. I recommend Dr. SHI without reservation and shall appreciate your favorable consideration.

Yours sincerely,

JIN Xianshi, Ph.D.

Director General Mar. 30. 2020

Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences

(中国水产科学研究院黄海水产研究所)

Yongqiang Shi

Curriculum Vitae

+ Personal Information

Name: Yongqiang Shi Gender: Male

Date of Birth: September 25,1987

Work Address: Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences

No. 106 Nanjing Road, Qingdao, Shandong, 266071, China

Mobile Phone: +86 139 6422 8207 (cell) Email: shiyq@ysfri.ac.cn

+ Education

Sep. 2010-Jul. 2015

Key Laboratory of Marine Ecology and Environmental Sciences, Institute of Oceanology, Chinese Academy of Sciences / University of Chinese Academy of Sciences, Qingdao, Shandong, China

Ph.D., Marine Ecology

Supervisor: Professor Song Sun

Thesis: Interannual changes of zooplankton functional groups in the Yellow Sea

Sep. 2006-Jun. 2010

School of Earth and Space Sciences, University of Science and Technology of China, Hefei, Anhui, China

B.Sc., Environmental Science

Thesis: Study on the trophic relationship of zooplankton using fatty acid

+ Employment

Jul. 2015-Present

Division of Fishery Resources and Ecosystem, Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, Qingdao, Shandong, China

Junior Scientist-Marine Ecology

Research Area: Focusing on the research of marine zooplankton ecology; responsible for the collection and identification of zooplankton samples; engaged in the research of zooplankton community structure, population dynamics, and influences of zooplankton population variation on fish recruitment.

Sep. 2018-Sep. 2019

Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia (UBC), Vancouver, British Columbia, Canada

Visiting Scientist-Marine Ecology

Research Area: Focusing on the research of marine zooplankton ecology; studying the seasonal and inter-annual variations of zooplankton community in the Yellow Sea to provide insights on the effects of climate change and human activities on marine ecosystems.

+ Publications

Qiang Wu, Xiujuan Shan, Xianshi Jin, Yue Jin, Fangqun Dai, **Yongqiang Shi**, Lisha Guan, Tao Zuo, Jianqiang Sun. Effects of latitude gradient and seasonal variation on the community structure and biodiversity of commercially important crustaceans in the Yellow Sea and the northern East China Sea. Marine Life Science & Technology, 2020, https://doi.org/10.1007/s42995-020-00026-2

Yongqiang Shi, Wei Yuan, Tao Zuo, Jun Wang, Evgeny A. Pakhomov. Seasonal variation in copepod abundance and community structure in the Laoshan Bay, China. Regional Studies in Marine Science, 2019, 28: 100577

Yongqiang Shi, Song Sun, Chaolun Li, Guangtao Zhang, Bo Yang, Peng Ji. Changes in the population structure of *Calanus sinicus* during summer–autumn in the southern Yellow Sea. Acta Oceanologica Sinica, 2019, 38(8): 56-63

Xiaoxia Sun, Qingjie Li, **Yongqiang Shi**, Yongfang Zhao, Shan Zheng, Junhua Liang, Tao Liu, Ziyang Tian. Characteristics and retention of microplastics in the digestive tracts of fish from the Yellow Sea. Environmental Pollution, 2019, 249: 878-885

Yongqiang Shi, Tao Zuo, Wei Yuan, Jianqiang Sun, Jun Wang. Spatial variation in zooplankton communities in relation to key environmental factors in the Yellow Sea and East China Sea during winter. Continental Shelf Research, 2018, 170: 33-41

Lei Chen, Chaolun Li, Konglin Zhou, **Yongqiang Shi**, Mengtan Liu. Effects of nutrient limitations on three species of zooplankton. Acta Oceanologica Sinica, 2018, 37(4): 58-68

Tao Zuo, Jianqiang Sun, **Yongqiang Shi**, Jun Wang. Primary survey of finless porpoise population in the Bohai Sea. Acta Theriologica Sinica, 2018, 38(6): 551-561 (In Chinese with English Abstract)

Yongqiang Shi, Tao Zuo, Wei Yuan, Jun Wang. Community structure and spatial distribution of zooplankton in Laoshan Bay in summer. Oceanologia et Limnologia Sinica, 2017, 48(5): 990-997 (In Chinese with English Abstract)

Tao Zuo, **Yongqiang Shi**, Liang Peng, Jun Wang, Xiaodong Bian. Prey size selectivity in relation to the body size of Japanese anchovy (*Engraulis japonicus*) in the southern part of the Yellow Sea. Journal of Fishery Sciences of China, 2017, 24(4): 824-830 (In Chinese with English Abstract)

Tao Zuo, Jun Wang, **Yongqiang Shi**. Seasonal distribution of body length and abundance of *Aidanosagitta crassa* (Tokioka, 1938) in Laizhou Bay, Bohai Sea. Acta Ecologica Sinica, 2017, 37(15): 5189-5197 (In Chinese with English Abstract)

Tao Zuo, Jiancheng Zhu, Xinliang Wang, **Yongqiang Shi**. Management strategy of the observer coverage under the Scheme of International Scientific Observation for Antarctic krill fishery and performance review of observation program in Chinese krill fishery. Chinese Journal of Polar Research, 2017, 29(1): 124-132 (In Chinese with English Abstract)

Yongqiang Shi, Song Sun, Chaolun Li, Guangtao Zhang. Interannual changes in the abundance of zooplankton functional groups in the southern Yellow Sea in early summer. Oceanologia et Limnologia Sinica, 2016, 47(1): 1-8 (In Chinese with English Abstract)

Liang Peng, Tao Zuo, **Yongqiang Shi**, Jun Wang, Moxiao Lv. Fatty acid composition of size-fractionated plankton during winter and spring in the Yellow Sea. Journal of Fishery Sciences of China, 2016, 23(5): 1205-1216 (In Chinese with English Abstract)

Yongqiang Shi, Song Sun, Guangtao Zhang, Shiwei Wang, Chaolun Li. Distribution pattern of zooplankton functional groups in the Yellow Sea in June: a possible cause for geographical separation of giant jellyfish species. Hydrobiologia, 2015, 754(1): 43-58

Nan Wang, Chaolun Li, Yi Liang, **Yongqiang Shi**, Jingliang Lu. Prey concentration and temperature effect on budding and strobilation of *Aurelia* sp. 1 polyps. Hydrobiologia, 2015, 754(1): 125-134

Yongqiang Shi, Song Sun, Chaolun Li, Zhencheng Tao. Population distribution, structure and growth condition of Antarctic krill (*Euphausia superba* Dana) during the austral summer in the Southern Ocean. Advances in Polar Science, 2014, 25(3): 183-191

Nomination of Dr. Erin Sattherthwaite for the Zhu-Peterson Award

by Vera Trainer (31 March 2020)

Dr. Erin Satterthwaite is a Postdoctoral Researcher, with the National Center for Ecological Analysis and Synthesis (NCEAS), University of California, Santa Barbara, CA. She has been a leader in representing and integrating Early Career Professional activities as part of the UN Decade of the Ocean Science strategic planning, and is a co-chair of an early career scientist workshop planned for the Annual PICES meeting in 2020. She won the PICES MONITOR Best Oral presentation by an early career scientist in MONITOR Topic Session (S9) for her presentation "Developing a Biological Global Ocean Observing System: Qualities, attributes, and readiness of existing biological Essential Ocean Variable networks", co-authored with Patricia Miloslavich, Nic Bax, Daniel Dunn, and members of the GOOS Biology and Ecosystems Panel, and PEGASuS project.

Her career has been devoted to promoting and coordinating marine scientific research in order to advance scientific knowledge and preserve marine living resources. She has been a champion of marine science with a specific focus on the collection and exchange of information and data across international boundaries.

Erin Satterthwaite is a marine ecologist who works at the interface of applied marine research, policy engagement, and science communication to advance ocean conservation for sustainable development. She is interested in ocean sustainability issues related to marine biodiversity, fisheries management, social-ecological systems, citizen science, and biological oceanography. She received her Doctor of Philosophy degree in applied marine ecology and conservation in the Environmental Science and Policy Department at the Bodega Marine Laboratory, University of California, Davis in 2018. Her work there consisted of research related to spatial marine management, such as marine protected areas. She focused on understanding the movement of marine larvae to better identify habitats that are priority marine conservation areas and ensure that areas will maintain healthy populations. In addition, she used participatory research methods to assess groundfish populations, such as rockfish and lingcod, inside and outside of marine reserves to understand changes their populations.

Prior to joining the Future Earth and NCEAS partnership, Erin was a California State Sea Grant Fellow with the Environmental Research Division, a research unit of the National Marine Fisheries Service's Southwest Fisheries Science Center. In this fellowship, Erin worked on projects ranging from assessing the social and ecological vulnerability of California fisheries to the use of environmental DNA to assess patterns of marine biodiversity along the California coast.

Erin has a strong interest in science communication. She is passionate about bringing together ocean sustainability research, policy engagement, and education in novel and creative ways. She has participated in COMPASS science communication trainings, engaged in state and national policy briefings, and developed trainings to provide early career scientists with practical skills to link science and policy. In addition, Erin has developed and taught numerous courses and outreach programs. She helped to develop an outreach program at Bodega Marine Laboratory, which exposes students to observation-based learning techniques, and has created a Coastal and Marine Science Pre-College Program at UC Davis. In addition, she has developed a marine science short course for journalism graduate students and an undergraduate course on the science and policy of

global change. Erin is especially passionate about linking art and science as a novel form of science communication, and has displayed her own photography at science and art fusion events.

Her teaching experience includes her role as assistant creator of an outreach program "Marine Biologist for a Day" at the UC Davis Bodega Marine Laboratory, Bodega Bay, CA (2014-2016) where she developed outreach education events for high school biology courses, created a plankton workshop and field notebooks to encourage observation and scientific process, and facilitated preparation and execution of outreach events. She was the outreach educator of the international outreach program for the Hasanuddin University and UC Davis partnership, Sulawesi, Indonesia (2015) for which she helped to lead K-12 outreach program on marine debris on remote Indonesian islands and assisted with coral and seagrass awareness and educational program. She was a teaching assistant for the Scientific Diving Program at the UC Davis Diving and Boating Program, Bodega Bay, CA (2015) where she assisted with teaching scientific diving and boating, taught diving and boating safety, and Coordinated field lessons and lectures. As assistant coordinator of the Bodega Marine Laboratory Open House at UC Davis Bodega Marine Laboratory, Bodega Bay, CA (2014), she created outreach curriculum for general public and assisted with the coordination and day-of activities for the event. In 2014, she was a volunteer biologist on the Beach for the California State Parks, Tomales Bay, CA where she developed sandy beach and eelgrass demo and interacted with park visitors to answer questions. In 2013, she volunteered for the CAMEOS-NSF Graduate K-12 Education Program UC Davis Bodega Marine Laboratory, Bodega Bay, CA, where she assisted high school students with independent research projects and helped teach laboratory skills and scientific process to students. As an instructor at the Biology Boot Camp at the University of California, Davis, Davis, CA (2012), she taught middle and high school students a variety of scientific methods, was responsible for creating marine laboratory and field curriculum, and facilitated an overnight weekend field excursion to Bodega Marine Laboratory. She was a Volunteer Interpreter at the Marine Science and Natural History Ty Warner Sea Center and Santa Barbara Museum of Natural History, Santa Barbara, CA (2002-2006 & 2010-2011) where she educated visitors at various interactive stations and developed observational-based natural history curricula. As a Marine Science Educator for the Waves on Wheels at the Santa Barbara Museum of Natural History, Santa Barbara, CA (2002-2004), she taught ocean awareness to elementary school children and the public and educated students on marine science through interactive exhibits. She was a Teacher Assistant at the Biology Laboratory at the University of California, Davis, Davis, CA (2012), where she taught two biology laboratory sections and was responsible for creating lectures, running lab session, and grading papers. She was also a Teacher Assistant for the Ecology Graduate Group Field Course at the University of California, Davis, Davis, CA (2012) where she assisted with preparation for a two-week long field course and facilitated group activities and lead hikes and orientation activities. In 2010, she was a Teacher Assistant, Interdisciplinary Southwestern Field Course at Juniata College, Huntingdon, PA, where she assisted with the coordination of preparation for three-week long field course. She was responsible for driving several students across the country, facilitating field trips, and encouraging interdisciplinary participation and observational learning. In 2007, she was a Teacher Assistant for an Environmental Science Course for Juniata College, Huntingdon, PA for which she assisted students with coursework and questions, graded exams and posted weekly quizzes online, and entered class grades into database.

She is the first author of several peer-reviewed scientific publications in respected, peer-reviewed journals (see below). She has a very pleasant personality, is a natural-born leader, and is a pleasant and enthusiastic collaborator. Both Drs. Zhu and Peterson would have been impressed by Erin's numerous accomplishments at this early stage in her young life and career.

Publications

Satterthwaite, E., Morgan, S., Ryan, J., Harvey, J., Vrijenhoek, R. 2020. Seasonal and synoptic oceanographic changes influence the larval biodiversity of a retentive upwelling shadow. Progress in Oceanography. 182. 102261. 10.1016/j.pocean.2019.102261.

Bashevkin, S., Dibble, C., Dunn, R., Hollarsmith, J. Ng, G., **Satterthwaite, E.**, Morgan, S. 2020. Larval dispersal in a changing ocean with an emphasis on upwelling regions. Ecosphere. 11. 10.1002/ecs2.3015.

Satterthwaite, E. 2019. Marine Debris on Small Islands: Insights from an Educational Outreach Program in the Spermonde Archipelago, Indonesia. 10.3389/fmars.2018.00035/full.

Rivest, E., Jellison, B., Ng, G. **Satterthwaite, E.,** Bradley, H., Williams, S., Gaylord, B. 2019. Mechanisms Involving Sensory Pathway Steps Inform Impacts of Global Climate Change on Ecological Processes. Frontiers in Marine Science. 6. 346. 10.3389/fmars.2019.00346.

Satterthwaite, E.V and Morgan, S.G. 2019. Surfzone characteristics appear to drive direct relationship between reproduction and recruitment in a common intertidal crab. In Prep.

Drake, P., Edwards, C., Morgan, S., **Satterthwaite, E.** 2018. Shoreward swimming boosts modeled nearshore larval supply and pelagic connectivity in a coastal upwelling region. Journal of Marine Systems. 187. 10.1016/j.jmarsys.2018.07.004.

Christine, S., J.M. Abbott, R. Ambo-Rappe,N. Asriani, S.O. Hameed, B.M. Jellison, H.A. Lestari, S.R. Limbong, G. Ng, **E.V. Satterthwaite**, S. Syahid, D. Trockel, W. Umar, S.L. Williams. 2018. Training globally competent conservation scientists through STEM outreach. Frontiers in Marine Science. DOI: 10.3389/fmars.2018.00035

Rivest, E.B., B. Jellison, G. Ha, G. Ng, **E.V. Satterthwaite**, S.L. Williams, B. Gaylord. 2016. Global environmental change in marine systems: insights from sensory ecology. Front. Mar. Sci., 03 July 2019 | https://doi.org/10.3389/fmars.2019.00346

Burgess, S.C., K.J. Nickols, C. Griesemer, L.A.K. Barnett, A. Dedrick, **E.V. Satterthwaite**, et al. 2014. Beyond connectivity: how empirical methods can quantify population persistence to improve marine protected area design. Ecol. Applications 24(2): 257-270.

Glazier, D. S., E.M. Butler, S. Lombardi, T.J. Deptola, A.J. Reese, **E.V. Satterthwaite**. 2010. Fish predators affect growth and ontogenetic scaling of metabolic rate with body mass in the freshwater amphipod Gammarus minus. Ecol. Monographs 81(4): 599-618.

Satterthwaite, E.V. and K. Lane. 2009. Variation in the Diversity of Intertidal Communities of Kachemak Bay, Alaska. NOAA technical report.

Satterthwaite E.V., et al. 2007. The Effects of Abiotic Factors on the Abundance of Symplocarpus foetidus (Eastern Skunk Cabbage) in Two Central Pennsylvania Springs. Journal of Ecological Research at Juniata College: 9.

2020 March 27

Dear PICES Executive Secretary

Please find our proposal for 2020 Zhu-Peterson Early Career Scientist Award nomination.

Motomitsu Takahashi and Shin-ichi Ito

Proposal for 2020 Zhu-Peterson Early Career Scientist Award nomination

We nominate Dr. Tatsuya Sakamoto for the 2020 Zhu-Peterson Early Career Scientist Award of PICES based on his innovative research at the frontier of fish otolith chemistry relating to fish migration and ecology, which improved our skills to elucidate fish response to natural and anthropogenic forcing.

Dr. Tatsuya Sakamoto started his scientific career since 2014 in Atmosphere and Ocean Research Institute, The University of Tokyo. During his master and doctoral researches he developed a method to estimate temperature fish experienced in the natural field from stable oxygen isotope ratio in the otolith. He focused on Japanese sardine since the fish species have shown the largest catch fluctuation in the PICES region. He conducted laboratory rearing experiments for Japanese sardine with different temperature conditions and analyzed otolith stable oxygen isotope ratio formed during the experiments. In general, for stable oxygen isotope analysis, 50μg tissue is required. However, he collaborated with a biogeochemical scientist who developed a high detection system of stable oxygen isotope (Micro-scale Isotopic Analytical System: MICAL3c) and enabled otolith stable oxygen isotope analysis with one-week to 10-days resolution using a high-precision micro-mill. Using the new developed technology, he analyzed otolith stable oxygen isotope ratio formed during the laboratory experiments and compared with the rearing temperature. From the comparison, he established a method to estimate temperature fish experienced from the otolith stable oxygen isotope ratio.

He applied the method for the sardine sampled in the field. However, in the natural condition, the otolith stable oxygen isotope ratio not only depends on temperature, but

also on background sea water oxygen isotope ratio. In many regions, it was already found that the stable oxygen isotope ratio of sea water has linear relationship with salinity. Therefore, as the first step, he corrected a lot of sea water samples in the western North Pacific and developed a linear relationship between salinity and stable oxygen isotope ratio of sea water. As the second step, he used temperature and salinity field produced by a data-assimilated reanalysis data and estimated possible migration pattern inferred from the history of stable oxygen isotope ration in the otolith. The results indicated better understanding of latitudinal migration of Japanese sardine but zonal information had much uncertainty since the isotherms and isohalines distribution are nearly zonal. Therefore, he combined a randomly moving migration model with the history of stable oxygen isotope ratio in the otolith and estimated the probability of geographical distribution. Using the innovative method, he successfully estimated migration route of Japanese sardine from spawning grounds to feeding grounds.

He published the results on Sakamoto et al. (2017, Fisheries Research) and Sakamoto et al. (2019, Methods in Ecology and Evolution). Based on his research, he was awarded Best ECS (Early Career Scientist) Presentation Award at International Symposium "Drivers of dynamics of small pelagic fish resources" from PICES in 2017. He was also awarded The Award of Best Student Oral Presentation at 6th International Otolith Symposium in 2018, The Award of Best Oral Presentation of Young Scientists from The Japanese Society of Fisheries Oceanography in 2017, and Dean Award of Graduate School of Agriculture and Life Science from The University of Tokyo in 2019.

In PICES, he participated PICES symposium on “Drivers of dynamics of small pelagic resources” held at Victoria in 2017 and PICES “Pacific Transitional Areas Symposium” held at La Paz in 2018.

Since 2017, he assigned as a Research Fellowship for Young Scientists of Japanese Society for the Promotion of Science and have been working at Seikai National Fisheries Research Institute, Japan Fisheries Research and Education Agency since 2019. He is extending his research to compare migration and environmental history of sardines in California, Benguela and Japan to improve our understanding on their life strategies responding to climate forcing. The innovative approaches he established will contribute to comprehensive understanding of life strategies of small pelagic fishes in near future. Therefore, we are pleased to recommend Dr. Tatsuya Sakamoto for the 2020 Zhu-Peterson Early Career Scientist Award of PICES.

Motomitsu Takahashi
Group Leader, Seikai National Fisheries Research Institute
Japan Fisheries Research and Education Agency, Japan

Shin-ichi Ito
Professor, Atmosphere and Ocean Research Institute
The University of Tokyo, Japan