

The 8th International Symposium on Cage Aquaculture in Asia

First Announcement

The 8th International Symposium on Cage Aquaculture in Asia (CAA8)

Conference theme: *“Green and Smart Development of Cage Aquaculture in Asia”*

July 15th - 18th, 2026

Nha Trang, Vietnam

Organized by: Asian Fisheries Society (AFS)

Nha Trang University (NTU)

Shanghai Ocean University (SHOU)

China-ASEAN Belt and Road Joint Laboratory on Mariculture Technology



Co-organized by: Ocean University of China

Centre for Ecological Aquaculture



1. Background

Sea Cage and offshore aquaculture are playing an increasingly important role in ensuring sustainable aquatic food production and environmental stewardship. To foster academic exchange, knowledge sharing, and collaboration in this field, the Asian Fisheries Society (AFS), in partnership with Nha Trang University (NTU), Shanghai Ocean University (SHOU), and the Ocean University of China (OUC), will convene the 8th International Symposium on Cage Aquaculture in Asia (CAA8) in Nha Trang, Khanh Hoa Province, Vietnam, from July 16-18, 2026.

The symposium will feature keynote lectures, plenary sessions, and parallel sessions covering major themes in cage and offshore aquaculture, including production systems, breeding and seed production, nutrition and feed, health and environmental management, carbon sequestration and biofouling, and socio-economic and policy issues.

Khanh Hoa, a beautiful coastal province in south central Vietnam, possesses unique advantages and conditions for the development of offshore and other forms of cage aquaculture. It is the province with the longest coastline (nearly 500 km) in Vietnam, and has sheltered bays and hundreds of islands, international deep-sea ports and airports. These attributes have made Khanh Hoa a leader of cage aquaculture in Vietnam. As the heart of Khanh Hoa, Nha Trang is growing as one of the top destinations in Vietnam for international tourism and events thanks to its natural assets, excellent services and vibrant lifestyle. Vietnam implements a visa-exemption policy for citizens from 29 countries, which greatly facilitates attendance at conferences and ensures convenience for participants.

The CAA8 co-organizer NTU is a long-standing public university in Vietnam with strength in marine sciences and fisheries for over 65 years. During its history, NTU has made remarkable achievements in fisheries and aquaculture in Vietnam, becoming one of the top institutions for international projects in research and training in the fisheries and aquaculture sectors. NTU, with its academic reputation and exclusive location is becoming known as a hub of international and national scientific events in Vietnam.

The main objective of the symposium is to review the current status of cage aquaculture, address critical challenges, and explore innovative solutions for its sustainable development. Although focusing on cage aquaculture, the symposium will also consider advances in the broader field of aquaculture and how they apply to cage culture. Through plenary and parallel sessions, CAA8 will focus on key themes including **production systems, breeding and seed production, nutrition and feed, environmental sustainability and carbon dynamics, health and biosecurity, as well as socio-economics, livelihoods, and governance.**

By bringing together scientists, researchers, industry professionals, policymakers, and students from Asia and the international community, the symposium seeks to promote cooperation and contribute to the sustainable growth of the cage aquaculture industry, ensuring its role in providing high-quality aquatic protein for future generations.

The Asian Fisheries Society aims to promote networking and cooperation among scientists, technicians, and all stakeholders involved in fisheries and aquaculture production, research, and development in the Asian region. The CAA8, jointly

organized by AFS, NTU, and other co-organizers (Shanghai Ocean University and Ocean University of China) and sponsors, seeks to summarize the current status and experiences of cage aquaculture in Asia and worldwide. It will also address the challenges and future areas of development for enhancing the development of sustainable cage culture. The symposium aims to facilitate the upgrading and healthy rapid development of the cage aquaculture industry in Asia.

We cordially invite deans, experts, young scholars, representatives of aquaculture production-related enterprises, as well as doctoral and master's students from relevant institutions specializing in cage aquaculture in Vietnam and other Asian countries to attend the symposium.

2. Symposium Organization Institution

a) Organizers

- Asean Fisheries Society (AFS): <https://www.asianfisheriessociety.org/>
- Nha Trang University (NTU): <https://ntu.edu.vn/>
- Shanghai Ocean University (SHOU): <https://www.shou.edu.cn/eng/>
- China-ASEAN Belt and Road Joint Laboratory on Mariculture Technology

b) Co-organizer

- Ocean University of China: <https://eweb.ouc.edu.cn/>

3. Theme and Schedule

a) Theme: *“Green and Smart Development of Cage Aquaculture in Asia”*

b) Sub-themes

- **Session I: Cage and Offshore Aquaculture Systems:** Focus on technological innovations, IOT, engineering designs, and management practices for sustainable cage and offshore aquaculture.
- **Session II: Breeding, Seed Production, and Genetic Improvement:** Focus on broodstock management, seed production, and genetic resources for resilient aquaculture development.
- **Session III: Nutrition, Feed, and Resource Efficiency:** Focus on nutrition research, feed innovations, and strategies for optimizing feed efficiency and reducing environmental impact.
- **Session IV: Environment, Climate, and Carbon Dynamics:** Focus on environmental sustainability, biofouling, ecosystem services, and the role of cage aquaculture in carbon balance and climate adaptation.
- **Session V: Health Management and Biosecurity:** Discuss fish health, disease prevention, diagnostics, and biosecurity practices to ensure sustainable production.
- **Session VI: Sustainable Welfare in Aquaculture:** Focus on optimum stocking density, water quality management, animal behavior monitoring, welfare assessment and evaluation, and humane slaughter to ensure farmed fish health and well-being.

- **Session VII Socio-economics, Livelihoods, and Governance:** Examine socio-economic aspects, gender roles, community livelihoods, and policy frameworks supporting sustainable cage aquaculture in Asia.

- **Session VIII,** Special session in Vietnamese for Fishery industries and Policy Maker in Vietnam.

a) Conference Schedule

Time	Event	Note
Day 1 (July 15, 2026)		
9h00 - 17h00	AFS Council meeting and Organizing Committee meeting, reviewing preparation tasks	Organizing Committee
	Delegate registration	Secretariat
Day 2 (July 16, 2026)		
8h00 - 9h00	Delegate registration	Secretariat
9h00 - 10h00	Opening Ceremony	Organizing Committee
10h00 - 12h00	Plenary Session	Scientific Committee
13h00 - 17h00	Parallel Sessions	Scientific Committee
Day 3 (July 17, 2026)		
9h00 - 12h00	Plenary Session	Scientific Committee
13h00 - 16h00	Parallel Sessions	Scientific Committee
16h00 - 17h00	Closing Ceremony	Organizing Committee
19h00 - 22h00	Gala dinner	Secretariat
Day 4 (July 18, 2026)		
9h00 - 17h00	Fieldtrip	Secretariat

4. Conference Format and Activities

The symposium will be held on-site, with online (via Zoom meeting) participation as an option for specially invited experts unable to attend in person. The conference will be conducted in English, and plenary speakers will have 25 minutes for their presentations, while other experts and scholars will have 15 minutes for their oral presentations. There will be a poster exhibition for showcasing significant research and production technology achievements.

5. Date, Venue, and Registration

a) **Date:** July 15th to July 18th, 2026

b) **On-site Venue:** Nha Trang University, Vietnam. Address: No. 2 Nguyen Dinh Chieu Street, Nha Trang, Khanh Hoa, Vietnam.

c) Important Dates

February 28, 2026	Abstract submission (deadline)
January 30, 2026	Registration open

March 31, 2026	Abstract acceptance
June 15, 2026	Full manuscript submission
May 20, 2026	Registration close
July 16-18, 2026	Conference dates

d) Registration Fees and Payment Options

Category	Before May 15, 2026	After May 15, 2026
Delegates	250 USD	300 USD
AFS Member	200 USD	250 USD
Student	190 USD	230 USD
Student from AFS member institution	150 USD	180 USD
Vietnamese delegates	150 USD	180 USD
Vietnamese students	100 USD	130 USD

*AFS Membership Guidelines:

<https://www.asianfisheriessociety.org/membership.php?id=membership-guidelines>

Conference attendees can pay the registration fees either through bank transfer or on-site payment. The bank details will be informed in the second announcement.

6. Organizing Committee

The International Organizing Committee, Scientific Committee, Local Organizing Committee, and Secretariat have been established with members from universities, research institutes, and enterprises in Asia and worldwide.

a) International Organizing Committee

No	Name	Institution	Title
1	Pham Quoc Hung	Vice - Rector, Nha Trang University, Vietnam	Chair
2	LIU Liping	President, Asian Fisheries Society; Shanghai Ocean University, China	Co-chair
3	Neil Loneragan	Immediate Past President, Asian Fisheries Society, Australia	Member
4	Budy Wiryawan	Vice president, Asian Fisheries Society, Indonesia	Member
5	HUANG Xuxiong	Councilor, Asian Fisheries Society; Dean, Shanghai Ocean University, China	Member
6	Murni Marlina Abd Karim,	Councilor, Asian Fisheries Society; Universiti Putra Malaysia, Malaysia	Member
7	Nur Leena Wong Wai Sin,	Councilor, Asian Fisheries Society; Universiti Putra Malaysia, Malaysia	Member
8	Wilfredo Campos	Councilor, Asian Fisheries Society; University of the Philippines Visayas, Philippines	Member
9	Marieta Sumagaysay	Councilor, Asian Fisheries Society; University of the Philippines Tacloban College, Philippines	Member

9	Kuldeep Kumar Lal	Councilor, Asian Fisheries Society; Director, Indian Council of Agricultural Research (ICAR)-National Bureau of Fish Genetic Resources, India	Member
10	Joykrushna Jena	Councilor, Asian Fisheries Society; Indian Council of Agricultural Research (ICAR), India	Member
11	Yu-Hung Lin	Councilor, Asian Fisheries Society; National Pingtung University of Science and Technology, Taiwan, China	Member
12	Han-Jia Lin	Councilor, Asian Fisheries Society; National Taiwan Ocean University, Taiwan, China	Member
13	Indah Susilowati	Councilor, Asian Fisheries Society; Diponegoro University, Indonesia	Member
14	Nguyen Phu Hoa	Councilor, Asian Fisheries Society; Nong Lam University, Vietnam	Member
15	MAI Kangsen	Professor, Ocean University of China, China	Member
16	LIU Shaojun	Professor, Hunan Normal University, China	Member
17	CHEN Songlin	Professor, Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, China	Member
18	GUI Jianfang	Vice President, China Society of Fisheries, Institute of Hydrobiology, Chinese Academy of Sciences, China	Member
19	Patrick Sorgeloos	Ghent University, Belgium	Member
20	Yuan Xinhua	FAO, Rome	Member
21	ZHOU Yongcan	President of CAA7, Hainan University, China	Member
22	HE Jianguo	Professor, Sun Yat Sen University, China	Member
23	AI Qinghui	Professor, Ocean University of China,	Member
24	LUO Yi	Vice President, Shanghai Ocean University, China	Member
25	WANG Qing	Research Director, Pearl River Fisheries Research Institute, Chinese Academy of Fishery Sciences, China	Member
26	YAN Xiaojun	Professor, Zhejiang Ocean University, China	Member

b) Honorary Members

1	MAI Kangsen	Ocean University of China, China	Member
2	LIU Shaojun	Hunan Normal University, China	Member
3	CHEN Songlin	Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, China	Member
4	GUI Jianfang,	Institute of Hydrobiology, Chinese Academy of Sciences, China	Member
5	Patrick Sorgeloos	Ghent University, Belgium	Member
6	Yuan Xinhua	FAO, Rome, Italy	Member
7	HAN Gang	National Aquaculture Technology Extension	Member

		Station, China	
8	HU Wei	Shanghai Ocean University, China	Member
9	Dave Little	University of Stirling, The UK	Member
10	HE Jianguo	Sun Yat Sen University, China	Member

c) Scientific Committee

1	YU Ermeng	Guangxi Academy of Marine Sciences (Guangxi Mangrove Research Center), China	Chair
2	Le Minh Hoang	Institute of Aquaculture, Nha Trang University, Vietnam	Co-chair
3	DONG Bo	Ocean University of China, China	Member
4	QI Xin	Ocean University of China, China	Member
5	XU Peng	Xiamen University, China	Member
6	XIE Songguang	Hainan University, China	Member
7	LUO Jian	Hainan University, China	Member
8	MA Aijun	Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, China	Member
9	XU Yongjiang	Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, China	Member
10	WANG Chenghui	Shanghai Ocean University, China	Member
11	BAO Baolong	Shanghai Ocean University, China	Member
12	CHEN Liangbiao	Shanghai Ocean University, China	Member
13	ZOU Jun	Shanghai Ocean University, China	Member
14	MA Zhenhua	South China Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, China	Member
15	Yuan Derun	FAO, Rome, Italy	Member
16	Matthias Halwart	FAO, Rome, Italy	Member
17	Nguyen Phu Hoa	Nong Lam University, Vietnam	Member
18	Le Anh Tuan	Nha Trang University, Vietnam	Member
19	Luong Cong Trung	Nha Trang University, Vietnam	Member
20	Nguyen Van Minh	Nha Trang University, Vietnam	Member
21	Pham Duc Hung	Nha Trang University, Vietnam	Member
22	Vu Trong Dai	Nha Trang University, Vietnam	Member
23	Ngo Van Manh	Nha Trang University, Vietnam	Member
24	Tran Van Phuoc	Nha Trang University, Vietnam	Member
25	Tran Vi Hich	Nha Trang University, Vietnam	Member
26	Tran Minh Phu	Can Tho University, Vietnam	Member
27	Truong Quoc Thai	Research Institute of Aquaculture III, Vietnam	Member
28	Nguyen Van Hung	Research Institute of Aquaculture III, Vietnam	Member
29	Do Huu Hoang	Institute of Oceanography, Vietnam	Member
30	Huyynh Minh Sang	Institute of Oceanography, Vietnam	Member
31	Doan Nhu Hai	Institute of Oceanography, Vietnam	Member
32	Nguyen Ngoc Lam	Institute of Oceanography, Vietnam	Member
33	Hoang Ngoc Binh	Australis Co. LTD, Vietnam	Member

d) Local Organizers

1	Pham Quoc Hung	Vice Rector, Nha Trang University, Vietnam	Chair
2	Nguyen The Han	International Cooperation Dept., Nha Trang University, Vietnam	Deputy Chair
3	Le Minh Hoang	Director, Institute of Aquaculture, Nha Trang University, Vietnam	Deputy Chair
4	Tran Ngoc Hai	Can Tho University, Vietnam	Member
5	Vu Ngoc Ut	Can Tho University, Vietnam	Member
6	Dang Thi Lua	Research Insitute of Aquaculture I, Vietnam	Member
7	Vo Van Nha	Research Insitute of Aquaculture III, Vietnam	Member
8	Vu Ke Nghiep	Nha Trang University, Vietnam	Member
9	Pham Hong Manh	Nha Trang University, Vietnam	Member
10	Pham Ngoc Bich	Nha Trang University, Vietnam	Member
11	Nguyen Van Han	Nha Trang University, Vietnam	Member
12	Tran Minh Van	Nha Trang University, Vietnam	Member
13	Joshua Nathan Goldman	Autralis Co. LTD, Vietnam	Member
14	Zhang Dongdong	Hainan University, China	AFS representative
15	ZHOU Tingting	Shanghai Ocean University, China	AFS representative

e) Secretariat

1	Luong Dinh Duy	Nha Trang University (NTU)	Chair
2	Vu Trong Đại	Institute of Aquaculture, NTU	Deputy Chair
3	Tran Thi Phuong Hanh	International Cooperation Dept., NTU	Member
4	Ho Hoang Dieu Linh	International Cooperation Dept., NTU	Member
5	Dao Ngoc Anh	International Cooperation Dept., NTU	Member
6	Nguyen Thi Minh Thu	International Cooperation Dept., NTU	Member
7	Le Anh Mai Han	International Cooperation Dept., NTU	Member
8	Nguyen Thi Oanh	Science & Technology Dept., NTU	Member
9	Nguyen Thi Phuong	Planning and Finance Dept., NTU	Member
10	Mai Nhu Thuy	Institute of Aquaculture, NTU	Member
11	Pham Phuong Linh	Institute of Aquaculture, NTU	Member
12	Tran Van Dung	Institute of Aquaculture, NTU	Member
13	Le Thanh Cuong	Institute of Aquaculture, NTU	Member
14	Malathi Thanamsegaram	Asian Fisheries Society; Universiti Putra Malaysia	AFS representative

7. Visa Application Guide for Vietnam

a) Vietnam Visa-Free Entry Policy Guide

A Vietnam e-visa is a 90-day electronic travel document for eligible foreigners, applied for online through the official government website. It can be single or multiple-entry and costs \$25 for a single entry or \$50 for a multiple entry. You will need to upload a passport photo and a scan of your passport's data page during the application process.

b) How to apply

- Visit the official website: Apply through the [Vietnam National Electronic Visa system](https://evisa.gov.vn/) at: <https://evisa.gov.vn/>
- Fill out the application: Complete the online form with your personal information and travel details.
- Upload documents: Upload a passport-style photo and a scan of your passport's data page.
- Pay the fee: Pay the e-visa fee online. A single-entry visa costs \$25, and a multiple-entry visa costs \$50.
- Wait for approval: The processing time is typically around three working days.
- Receive and print: Download and print the e-visa document once it is approved.

c) Important Notes

- Validity: The e-visa is valid for a maximum of 90 days, with a start date before your intended entry.
- Entry/Exit: You must use one of the designated entries and exit border gates, which include all international airports.
- Documents: You will need a passport that is valid for at least six months and has at least two blank pages.
- Visa type: Options include single-entry and multiple-entry visas, with the latter allowing you to leave and re-enter Vietnam within the validity period.

d) The list of visa-exempt countries to Vietnam

Countries	Length of stay	Purpose of entry	Passport type
Germany, France, Italy, Spain, the United Kingdom of Great Britain and Northern Ireland, Russia, Japan, Korea, Denmark, Sweden, Norway, Finland	45 days	All accepted	All accepted
Thailand, Laos, Cambodia, Malaysia, Indonesia	30 days	All accepted	All accepted
Singapore	30 days	Except labor with income	All accepted
Myanmar	30 days	Except labor/commerce	All accepted
Philippines	21 days	All accepted	All accepted
Brunei	14 days	All accepted	All accepted

Other countries, different types of passports, please refer to <https://mofa.gov.vn/tin-chi-tiet/chi-tiet/danh-muc-mien-thi-thuc-cua-viet-nam-voi-cac-nuoc-57162-172.html>

For information on visa, please consult the local Vietnamese Embassy or Consulate in your home country or contact NTU staff at: linhhhd@ntu.edu.vn

8. Abstract Submission and Sponsorship Invitation

a) Abstract

The conference is currently accepting abstract submissions for research papers relevant to the conference theme. Abstracts should be written in English and limited to a maximum of 250 words. All submitted abstracts will be included in the conference handbook and considered for oral presentations. Attendees may request a certificate of attendance. Abstracts are required to format according to **Appendix 1**.

b) Sponsorship

We cordially invite organizations, companies, and institutions to support the CAA8 as sponsors. Various sponsorship levels: **Diamond, Platinum, Gold, Silver, and Friend**, offer excellent opportunities for visibility, networking, and engagement with international experts, researchers, and industry leaders. Your partnership will contribute to the success of this significant regional event and promote sustainable development in aquaculture.

Sponsorship Level	Benefits
Diamond Sponsorship (US\$20,000)	- Listed as the Diamond Co-organizer of the conference - Exclusive banquet naming rights - Naming rights for two thematic sessions - One full-color page advertisement in the conference handbook - Two pages of company introduction in the proceedings - Company logo on all conference backdrops - Promotional materials (max. 10 pages) in delegate bag - VIP guest status at opening ceremony (front-row seat) - 1-hour use of 30-person meeting room for technical seminar - 15-minute technical presentation in main or parallel session - Logo shown as Diamond Sponsor in slides and materials - Five complimentary registrations with meals and materials - One core booths (~20 m²/) in prime location - Company logo/name on guest badges
Platinum Sponsorship (US\$10,000)	- Listed as one of the Platinum Co-organizers - Naming rights for one thematic session - Half-page color ad in handbook - One page of company introduction in proceedings - Company logo on all conference backdrops - Promotional materials (max. 5 pages) in delegate bag - VIP guest status at opening ceremony (second-row seat)

	- 0.5-hour use of 20-person meeting room for technical seminar - 10-minute technical presentation in a session - Logo shown as Platinum Sponsor in slides and materials - Three complimentary registrations with meals and materials - One exhibition booth (~9m²)
Gold Sponsorship (US\$5,000)	- Option 1: Souvenir Naming Sponsorship (up to 2 sponsors) - Option 2: Other Gold Sponsorships (up to 4 sponsors) - Listed as Gold Co-organizer - Half-page company introduction in proceedings - Company logo on all conference backdrops - Promotional materials (max. 5 pages) in delegate bag - 5-minute technical presentation (Chinese session) - Logo shown as Gold Sponsor in slides and materials - Two complimentary registrations with meals and materials - One exhibition booth (~9 m²)
Silver Sponsorship (US\$3,000)	- Listed as Silver Sponsor - Company logo on all conference backdrops - 3-minute technical presentation (Vietnamese session) - Logo shown in handbook and proceedings - One complimentary registration with meals and materials - One exhibition booth (~6 m²)
Friend Sponsorship (\$1,000)	- Listed as Friend Sponsor - Logo shown in handbook and proceedings - One complimentary registration with meals and materials - One exhibition booth (~3 m²)

9. Other Relevant Matters

To ensure the successful organization of the symposium, we kindly invite aquaculture and cage farming-related enterprises to participate as sponsors. Sponsorship offers an excellent opportunity to showcase advanced technologies and innovative products, foster collaboration with international counterparts, and promote business development.

Conference Registration: Interested participants are requested to submit the completed registration form directly in the conference website <https://caa8.ntu.edu.vn/> before May 15th, 2026.

Accommodation and transportation expenses during the conference will be the responsibility of the participants. Details regarding accommodation reservations will be provided in the second round of notifications.

10. Contact Information

AFS: Mrs. Malathi D/O Thanamsegaram: malathi1813@gmail.com

NTU: Local Organizer: Le Minh Hoang: hoanglm@ntu.edu.vn

Secretary: Luong Dinh Duy: duyld@ntu.edu.vn

Website: <https://caa8.ntu.edu.vn/> ; Email: caa8@ntu.edu.vn ; Telephone: 84.258.2471303

Appendix 1

Abstract Instructions

- **TITLE OF PAPER:** The abstract title should be formatted in bold. Capitalize the initial letter of each word, with the exception of scientific names which should be upper/lower case and italicized (see example). Scientific names should not be preceded or followed by commas or parentheses or other markings.
- **AUTHOR(S):** The first author is typically the presenting author. Use * after the presenting author. Type in upper/lower case.
- **ADDRESS AND EMAIL:** Type only the presenting author's institution, address, and email. Type in regular upper/lower case.
- **KEYWORDS:** Please provide 3-5 keywords.
- **MAXIMUM LENGTH:** 200 – 250 words
- **PAGE SIZE:** Standard A4 paper (210mm x 297mm = 8.27” x 11.69”) (portrait)
- **SPACING:** Single spaced
- **PARAGRAPHS:** Paragraphs should be separated by a blank line and should not be indented.
- **FORMATS:** Character fonts should be 12-point type.
- **PHOTOS, FIGURES & TABLES:** Photos, figures, and tables are highly recommended and they may be in color. They should be reduced to the appropriate size for a one-page abstract and should be clearly readable at the reduced size. The reduced figures and tables should be included in the abstract.
- All accepted abstracts will be included in the conference handbook
- The presentation applications for the submitted abstracts will be evaluated by the organizing committee.
- Attendees can request a presentation certificate as needed.

Abstract Example

Lipid Metabolism Changes during Ovarian Development in Artificially Induced Female Japanese Eel

Presenting author ^{a,b,c*}, Liping Liu ^{a,b,c}

^a China-ASEAN "The Belt and Road" Joint Laboratory of Mariculture Technology (shanghai), Ministry of Science and Technology of China, Shanghai Ocean University, Shanghai 201306, China; ^b Center for Ecological Aquaculture, Shanghai 201306, China; ^c National Demonstration Center for Experimental Fisheries Science Education, Shanghai Ocean University, Shanghai 201306, China

Email address: *****@***.com

Abstract: The purpose of this experiment is to study the characteristics of lipid changes during the ovarian development of Japanese eel (*Anguilla japonica*) and provide a reference for artificial reproduction. Through hormone-induced ovarian development, the fish were sampled at the early stage (group E), middle stage (group M), and late stage (group L), respectively.....

Keywords: Lipid changes; Japanese eel; Ovarian development; Artificial reproduction.