
# Ecology and annual recruitment levels of Japanese eel in continent China

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# 1. Introduction

**Glass eels (*Anguilla japonica*) arrive in the all estuaries of continent China from November to April every year.**

**The main catches are from the estuaries of Jiangsu province, Shanghai manicipal Zejiang province, Fujian province, Guangdong province.**

# 2. Total annual catchment

**The total annual catch of glass eels in the continent China has gradually decreased from more than 50 metric tons to less than 20 metric tons in the recent 32 years**

# 3. The cause for the decline of catch

**The causes for the decreasing catch of the glass eels should be mainly due to:**

**Environment pollution;**

**Over fishing of glass eels;**

**Lacking policy and poor management;**

**Other environmental factors;**

**…**

# 4. How To guarantee the sufficient recruitment of the glass eels

**Following measures should be taken:**

**(1) Strengthening the environment protection and water pollution control**

**(2) Making more scientific fishing forbidden period & a maximum fishing quantity of glass eels**

**(3)Forbidding commercial fishing the growing eels and catadromous eels;**

**(4) Reasonably exploiting the other eel species for aquaculture;**

**(5) Enduringly studying on the artificial propagation of *A. japonica*.**

# (1) Strengthening the environment protection and water pollution control

Severe water pollution by industry, husbandry (especially pig and chicken farm), agriculture, domestic sewage, and aquaculture itself.

Water pollution has caused many aquatic animal disappeared and eel farms being closed or moved to mountainous areas.

# (2) Making more scientific glass eel fishing forbidden period & a maximum fishing quantity of glass eels

**National and local governments have made restrict glass eel fishing forbidden period.**

**Before 2009, fishing forbidden period is from Dec. 16th to following Mar. 15th, after 2009, from January 16th to following March 15th.**

**No policy to control the maximum fish quantity of glass eel. This is difficult to make without a suficient data on the resource evaluation, detail annual catch records, and the exact mature age of *A. japonica*, and the effects of environmental factors.**

# (3) Forbidding commercial fishing the growing eels and catadromous eels

There are almost no regular commercial fishing growing eels though few fishmen occasionally fish growing eels by longline or electrical fishing illegally.

However, there is lack of policy to forbid fishing catadromous eels.

# (4) Exploiting the other eel species for aquaculture

**Chinese have successfully exploited *A. anguilla* and *A. rostrata* for commecial aquaculture due to the drametical decreasing of the catch and increasing price in *A. japonica*.**

**We now are largely and widely culturing *A. marmorata* and *A. bicolor pacifica*.**

# (5) Enduringly studing on the artificial propagation of *A. japonica*

**Chinese have been continoursly studing the artificial propagation of *A. japonica* since 1972.**

**We consider that the biggest problem is that we never got the physical mature blood fish, therefore the hatched larvae were all abnormal with congenitally deficient and could not survive longer.**

# *A. marmorata* 花鳗苗

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## 花鳗鲡的生活习性

- 同其他其他种类的鳗鲡一样，为典型降海洄游性鱼类，具有特殊的生活史。生长于河口、沼泽、河溪、湖塘、水库等内。白昼隐伏于洞穴及石隙中，夜间外出活动，捕食鱼、虾、蟹、蛙及其它小动物，也食落入水中的大动物尸体。
- 该鱼体壮有力，性情凶猛，能离水爬上湿地或雨后竹林、灌木丛中觅食。其觅食区在菲律宾可达海拔1523.9米的山溪。在中国能达浙江天台山、北雁荡山、南雁荡山，福建韩江上游的长汀和海南岛昌江姜园寿山溪。

# 马达加斯加的鳗鱼
# Madagascar eels

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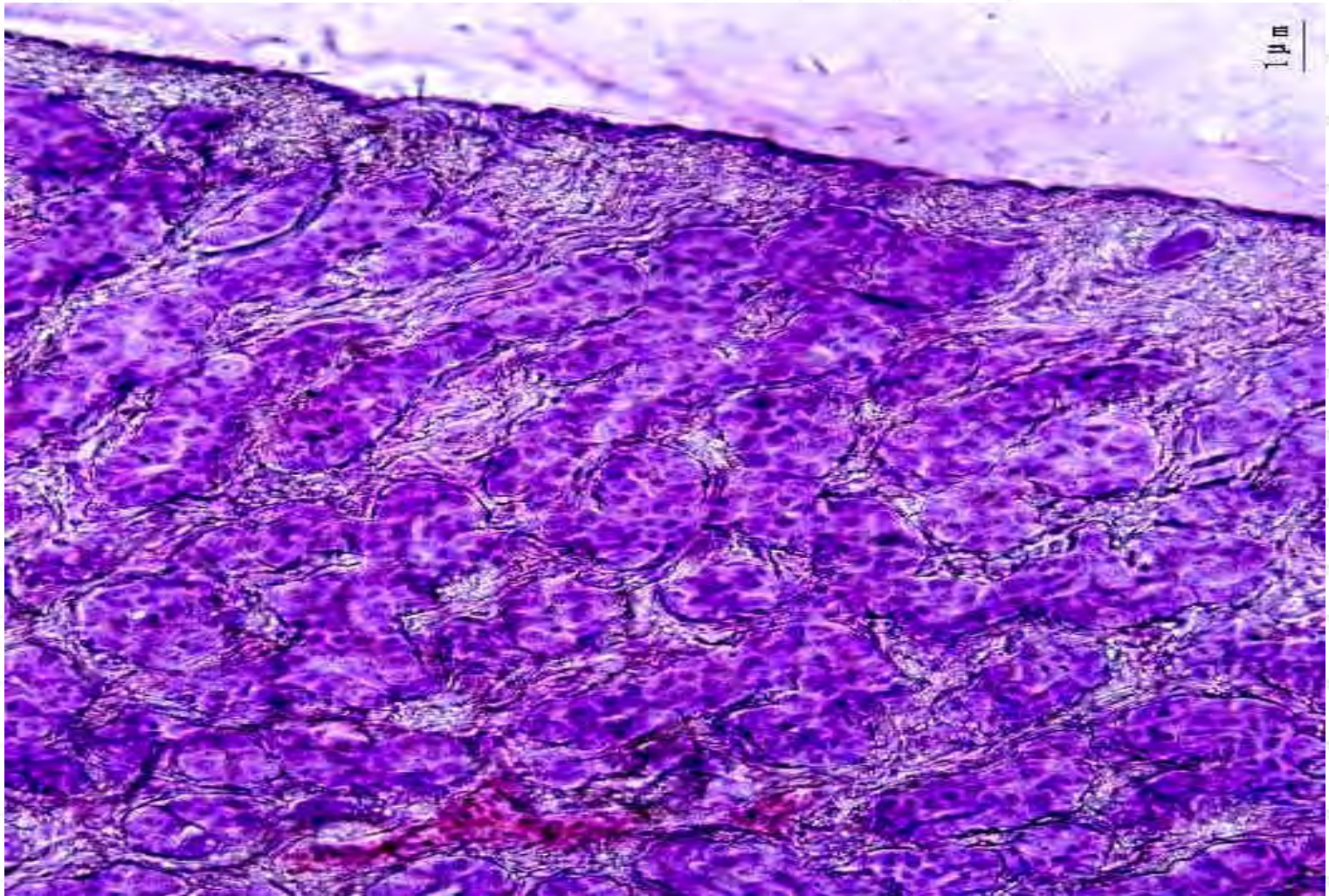
# Madagascar eels

# Aquacultue eel after inducing

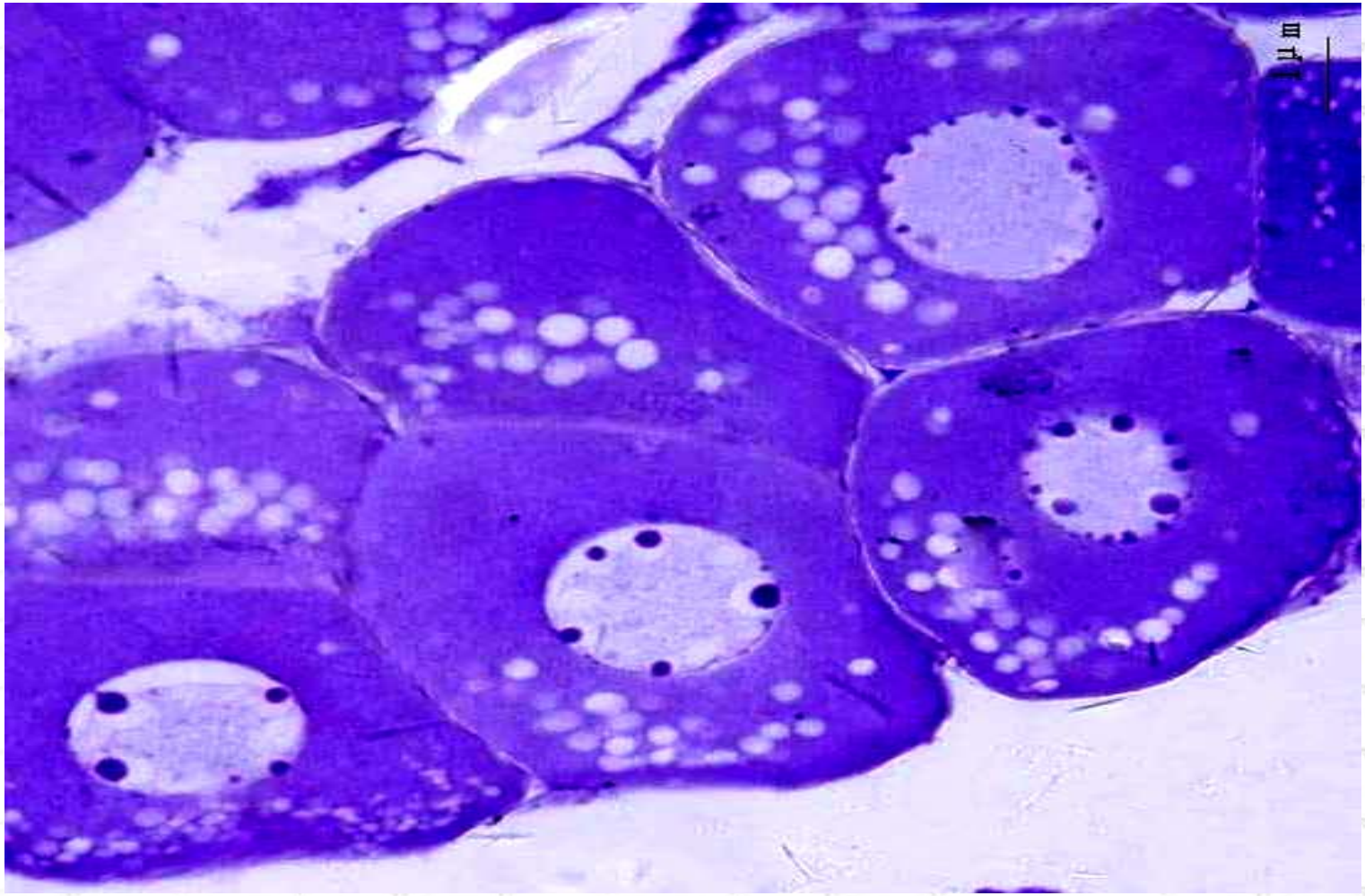
# Artificial induced spermary of eel

# Artificial induced ovary of female eel

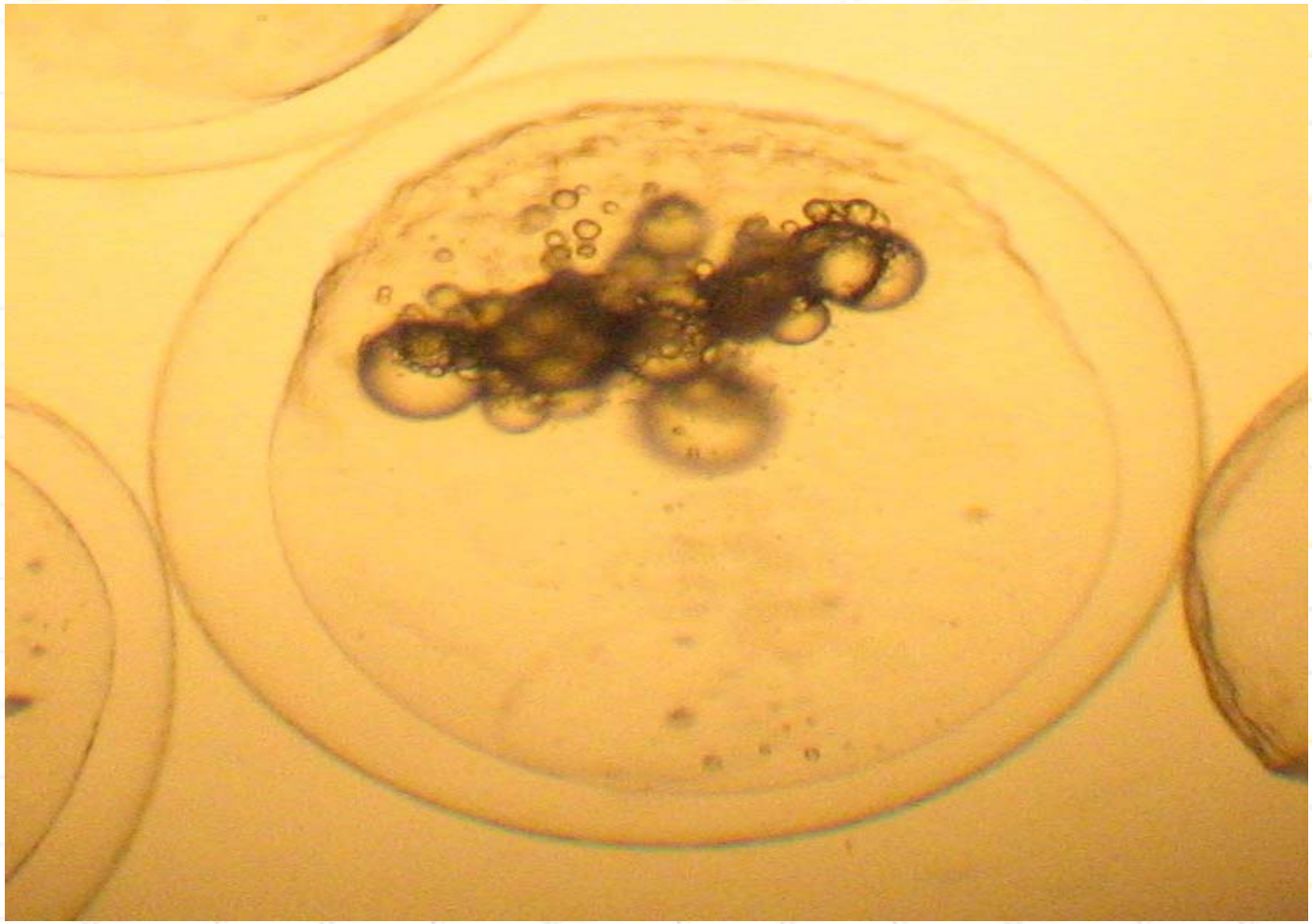
# Artificial induced spermary of male eel



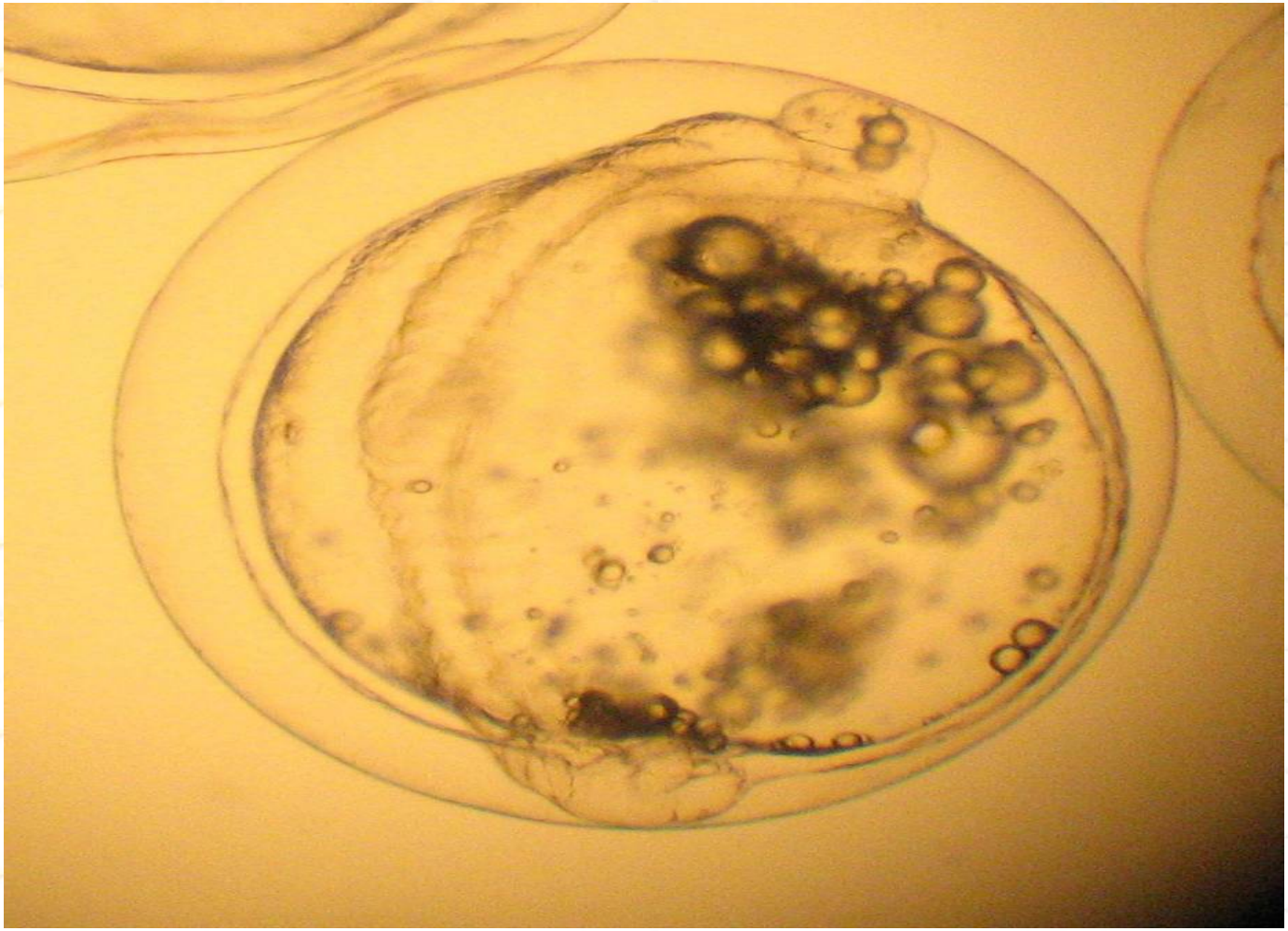
# Artificial induced ovary of female eel



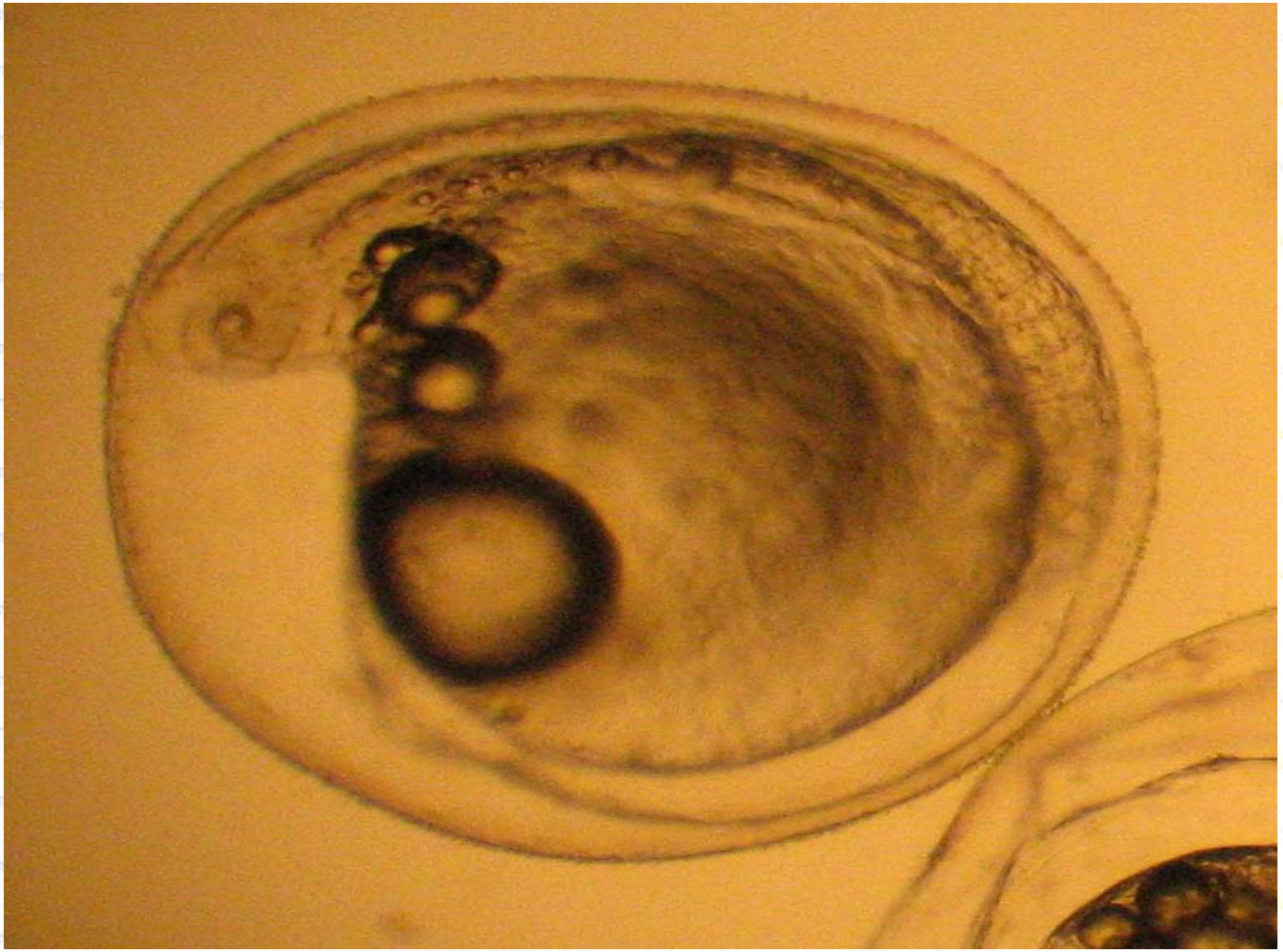
# Fertilized eggs



# Fertilized eggs



# Fertilized eggs before hatched



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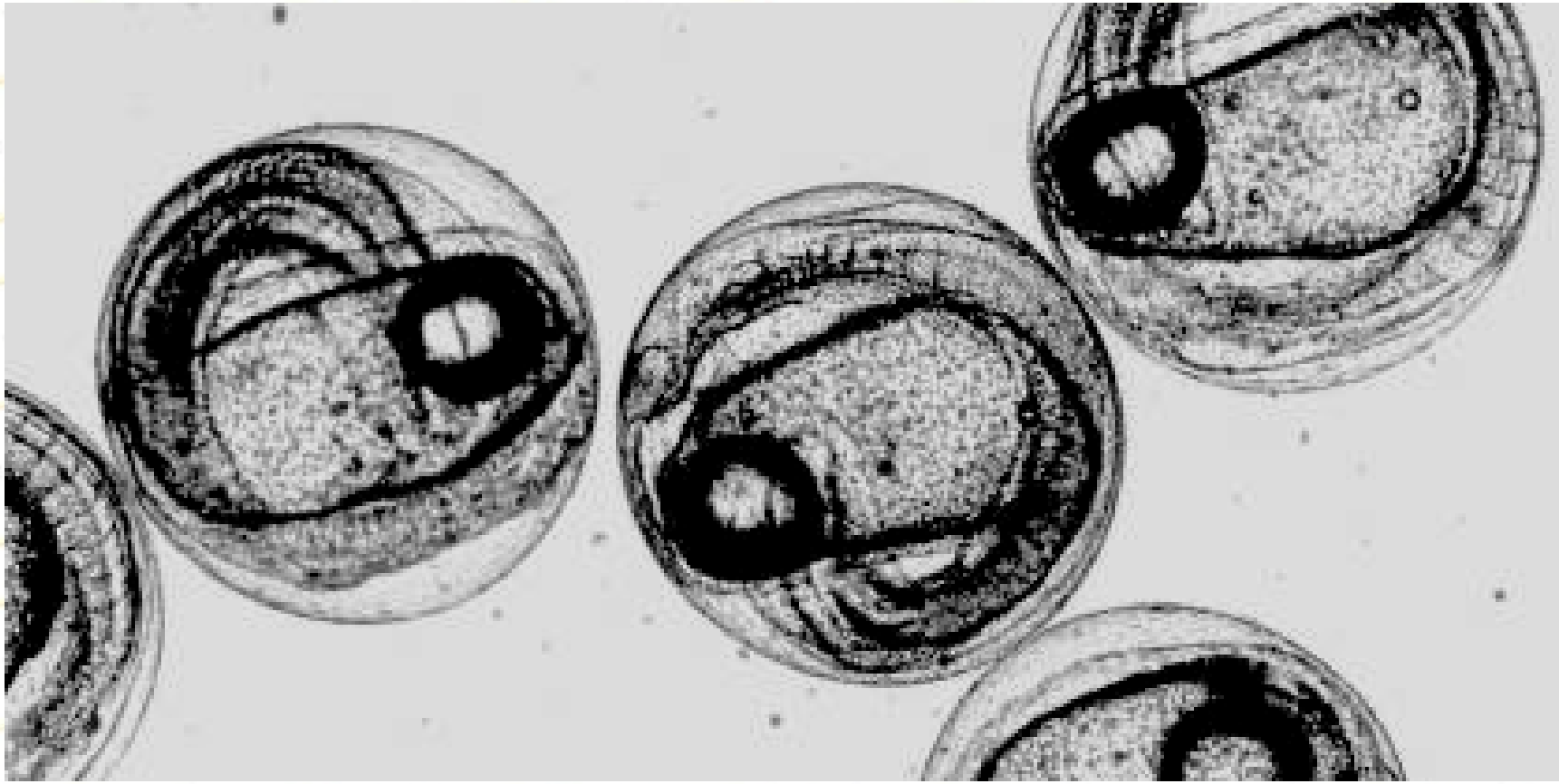
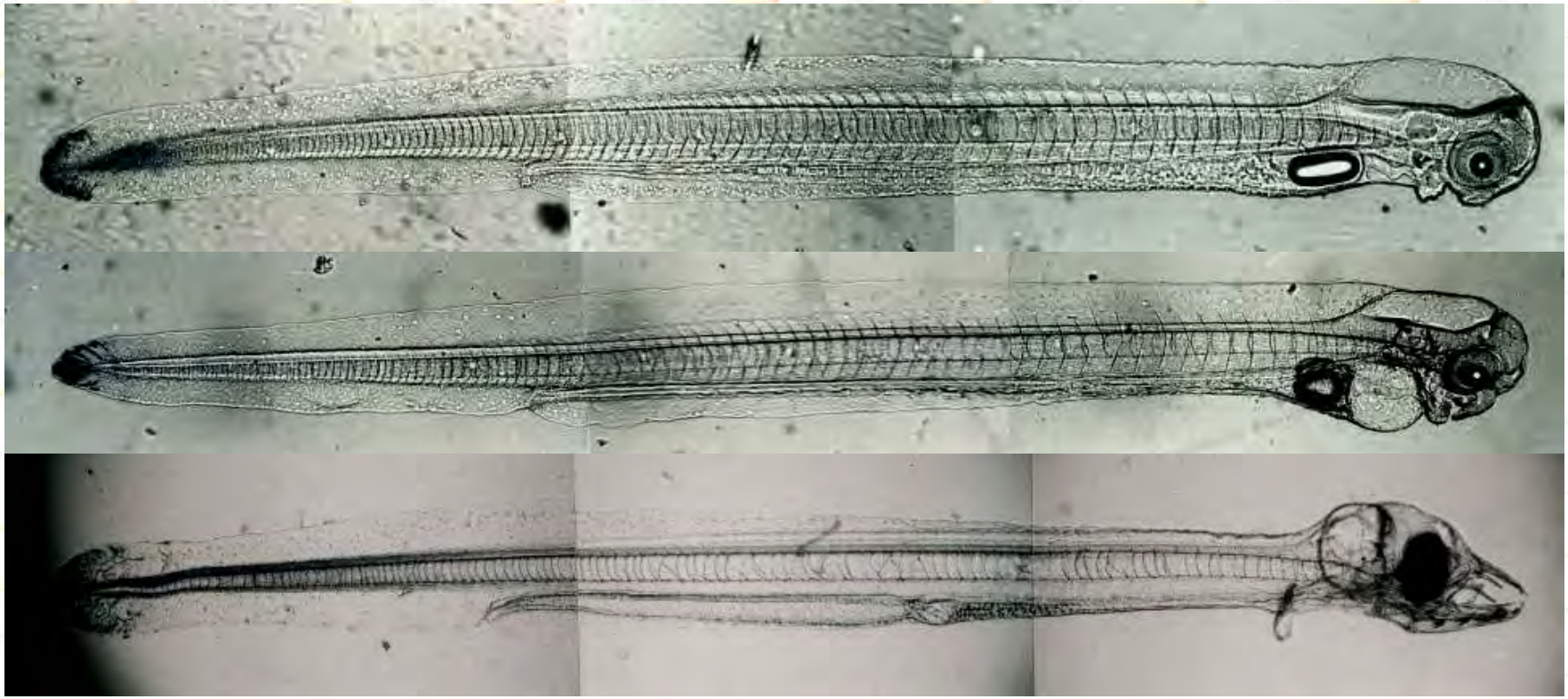
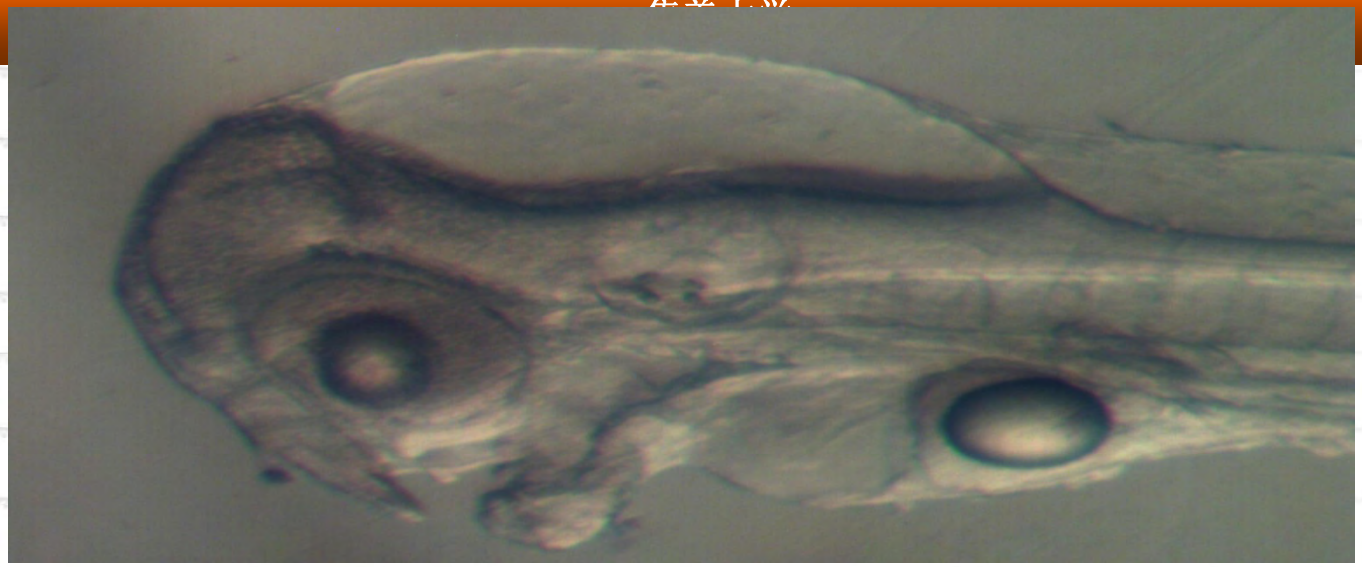


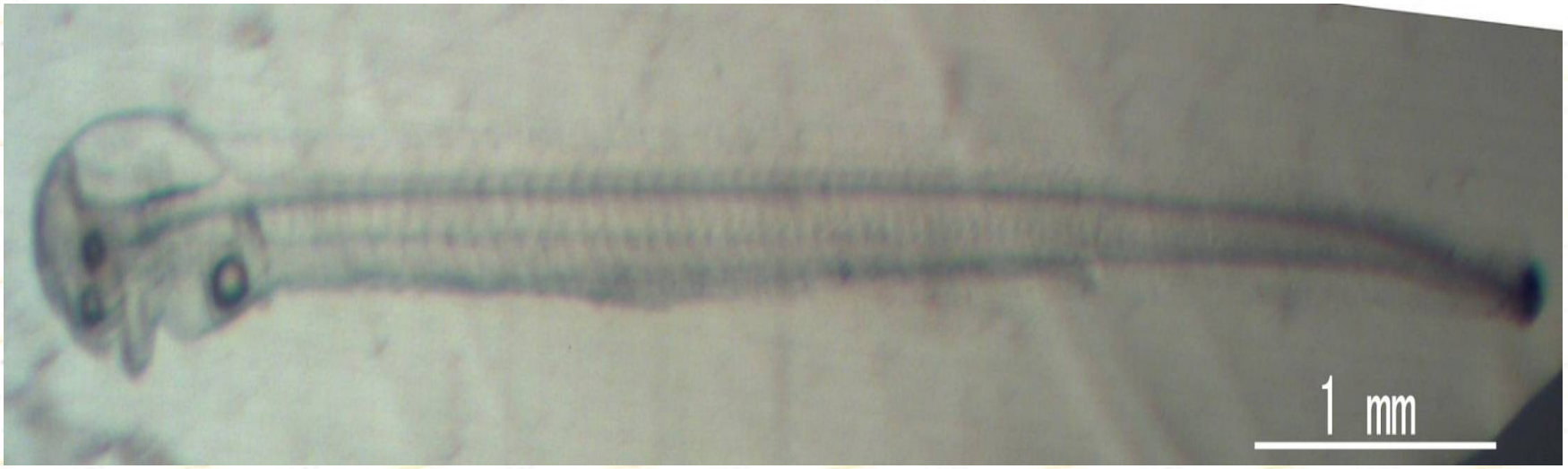
# Inborn lavae

# Hatched larvae



1d larvae






4d larvae

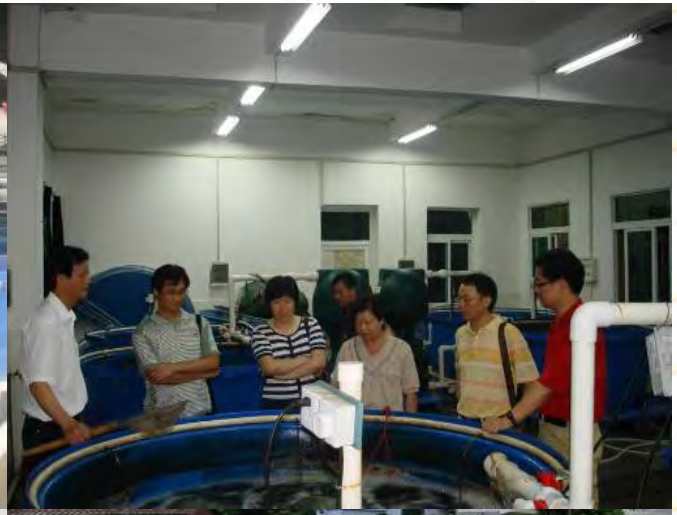
# Aquaculture experimental center of Jimei University

# Earthen ponds for culturing eels

## 一、养殖新模式新技术

# 传统池塘养殖：占用土地，耗水

# Recirculating water system 循环水养殖



# Recirculating water system

# Seening eels

# Recirculating water system

# Recirculating water system

# Heater

# Aeration using air compressor

# Computer monitor

# Traditional food (tubifex larvae) for glass eels

# Artificial feed for glass eels

# Traditional powder feed for growing eels

# Pellet feed for growing eels

# Baken eels mainly for japonese

# Thank you

# 谢谢！