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中国舌塘鳢属一新种
(鲈形目,塘鳢科)

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提　要　本文报导了鲈形目塘鳢科舌塘鳢属的一新种,定名为中华舌塘鳢 *Parioglossus sinensis* Zhong, sp. nov.

关键词　舌塘鳢属,新种,奉化

舌塘鳢为暖水性小型鱼类,分布于印度——太平洋海域,全世界共有14种[Rennis 和 Hoese, 1985]。在中国已记载的该属鱼类仅2种,即带状舌塘鳢 *Parioglossus taeniatus* Regan [伍汉霖,1987;陈兼善、于名振,1986]和道津舌塘鳢 *P. dotui* Tomiyama 均见于台湾[沈世杰,1984]。1991年10月和1993年10月在浙江省东北部沿海滩涂采集到舌塘鳢属鱼类12尾,经鉴定为一新种,定名为中华舌塘鳢 *Parioglossus sinensis* Zhong, sp. nov.。现将新种的形态描述如下:

中华舌塘鳢(新种) *Parioglossus sinensis* Zhong, sp. nov.。

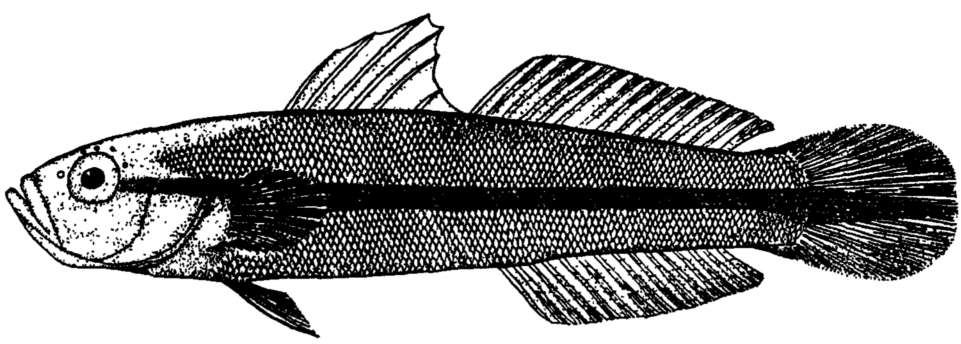

图1　中华舌塘鳢(新种)

Parioglossus sinensis Zhong, sp. nov.

Fig. 1　*Parioglossus sinensis* Zhong, sp. nov.

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背鳍Ⅵ，Ⅰ-14-15；臀鳍Ⅰ-14-15；胸鳍17-19；腹鳍Ⅰ-4；尾鳍19-21。纵列鳞97-107；横列鳞27-32；无背鳍前鳞。鳃耙1-2＋12。

体长为体高4.6-5.7倍，为体宽7.8-8.6倍，为头长3.9-4.5倍。头长为吻长3.3-3.9倍，为眼径3.0-3.8倍，为眼间隔3.0-3.8倍。

体延长，侧扁，背缘浅弧形，腹缘平直；尾柄粗短，尾柄长等于尾柄高。头侧扁，中大。吻钝，吻长等于或略小于眼径。眼中大，上侧位，位于头的前半部。眼间隔较窄，略凸，约与眼径等长。鼻孔每侧2个，前鼻孔短管状，紧贴上唇；后鼻孔圆形，位于眼前方。口大，上位，口裂几垂直。下颌突出。上颌骨向后不伸达眼前缘下方。上下颌各具尖形牙1行，下颌缝合部两侧各具扩大的尖牙1个。舌前端游离，截形。每侧眼上方及后上方各具4个感觉管孔（Sensory canal pore）（见图2 C'，D，E，F'），后鼻孔前上方、颊部、鳃盖部及鳃盖部上方，散具许多感觉乳突（Sensory papillae）（图2）。鳃孔中大。峡部宽，鳃盖膜与峡部相连。鳃耙呈长三角形。

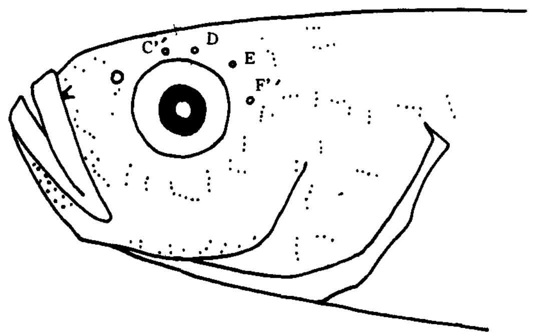

图2　中华舌塘鳢的感觉管孔和感觉乳突

Fig. 2　Sensory canal pore and sensory papillae of *P. sinensis*

体被细小圆鳞，头部、第一背鳍前方、胸部裸露无鳞。无侧线。

背鳍2个，相距较近，第一背鳍起点在胸鳍中部后上方，鳍棘柔软，第一鳍棘短，雄鱼第三及第四鳍棘稍延长，几伸达第二背鳍起点，约为第一鳍棘2倍；雌鱼则不特别延长，第三及第四鳍棘仅为第一鳍棘的1.2倍；第二背鳍略低于第一背鳍，基部较长，前部鳍条略长，向后鳍条渐短，平放时几伸达尾鳍基部。臀鳍与第二背鳍同形，相对，起点在第二背鳍第二或第三鳍条下方，后部鳍条稍短于前部鳍条，最后鳍条伸达尾鳍基部。胸鳍大，团扇形，下侧位，位于鳃孔后方，向后可伸达第一背鳍第三至第四鳍棘下方。左右腹鳍分离，仅在基部相近，不愈合成吸盘，起点位于胸鳍基部后下方，约与胸鳍等长。尾鳍圆形，短于头长。

体银白色。颊部、主鳃盖骨及胸鳍基部具天蓝色斑块。体侧具2条黑色纵带：一条较阔，自眼后方经鳃盖部上方，沿体侧中部、尾鳍中部直达尾端，纵带在尾鳍处渐窄小；另一条较细狭，自项部沿背鳍基部，向后伸达尾柄上方。第二背鳍，臀鳍，尾鳍上、下叶的边缘部均灰黑色，散具许多黑色小点。胸鳍、腹鳍浅色。

栖息于沿岸淡、海水交界滩涂淤泥中。分布于浙江东北部沿海。

本种头部具感觉管孔C'、D、E、F'，前鳃盖骨无感觉管孔n'和o'（图2），体侧具黑色纵带，与分布于日本、印度尼西亚及菲律宾的拉氏舌塘鳢 *Parioglossus raoi*（Herre）相似，[铃木寿之、濑能宏，1992；Akihito *et al.*，1988；Rennis and Hoese，1985；Nakabo，1993]，但两者具有明显区别：本种纵列鳞97～107（后者为70～85）；鳃耙1～2＋12（后者为3～4＋12～14）；第一背鳍灰色，无黑斑（后者第一背鳍灰黑色，第五至第六鳍棘基部及后方具一中大黑斑）。

正模标本：编号SFC-2535，体长283 mm，♂，1993年10月采自浙江省奉化市松岙沿海滩涂。

副模标本：编号SFC-2536，-2537，-2544，体长192～263 mm，♂；编号SFC-2538，-2543，

体长185～248 mm，♀；采集地点及时间均同正模标本。SFC-2545，体长230 mm，♂，1991年10月采自奉化市湖头渡沿海滩涂。

各模式标本均存于上海水产大学鱼类学研究室。

本文承伍汉霖研究员指导并审阅，在此致谢。

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ON A NEW SPECIES OF *PARIOGLOSSUS* REGAN (PERCIFORMES: ELEOTRIDAE) FROM CHINA

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ABSTRACT　A species of *Parioglossus* collected in coastal beach of northeast of Zhejiang Province in 1991 and 1993 is described as a new species. It is very similar to the *Parioglossus raoi* (Herre) in the body color, but deffers in the longitudinal scale, gill rakers and the black spot of the first dorsal fin. The description of the persent species is as follows.

Parioglossus sinensis Zhong sp. nov..

D. VI, I—14—15; A. I—14—15; P. 17—19; V. I—4; C. 19—20. LR97—107; TR27—32; Pred S. O; Gill rakers 1—2+12.

Body depth 4.6—5.7 in length, width 7.8—8.6, head 3.9—4.5, snout 3.3—3.9 in head, eye 3.0—3.8, interorbital 3.0—3.8.

Body elongate, compressed, dorsal profile slightly curved and ventral straight. Head compressed, moderate. Snout obtuse, a little shorter than or equal to diameter of the eye. Eye moderate, super-lateral, locate at anterior part of head. Interorbit narrow and a little protrudent. Nostrils two. Mouth large, nearly vertical. The small teeth are in a single row in both jaws; a pair of slightly enlarge teeth behind synphysis of the lower jaw. Tongue free in the front. Gill-rakers flat-triangle.

Body covered with small cycloid scales; head, the front of the first dorsal fin and chest

naked, without lateral line.

Two dorsal fin, origin of the first dorsal above at the middle of the pectoral. The base of the second dorsal elongate, anal fin similar and late to second dorsal. Their last ray reach the caudal when depressed. Pectoral broad and round. Ventral fin seperate, not united into a sucking disk. Caudal fin a little rounded, shorter than head. A ridge of skin extents forward from the first dorsal to a point above the hind margin of the preopercle.

Colour pale, a longitudinal black band along the middle of the side until the end of the caudal fin and a subdorsal band from the head to the caudal peduncle.

The new species is similar to *Parioglossus raoi* (Herre), but it differs from the former in having the longitudinal scale 97—107 (vs. 70—85); gill rakers 1—2+12 (vs. 3—4+12—14); the first dorsal fin pale, without black spot (vs. the first dorsal fin dusky to dark; large black spot on membrane at base of first fin extending from dorsal spine 5 to behind dorsal spine 6).

Holotype: No. SFC-2535, Body length 283mm, collected from Songao (29°33′N, 121°38′E) (松岙), Fenghua, Zhejiang Province on October, 1993.

Paratype: Nos. SFC-2536-2544, Body length 185—263mm, all collected with the holotype, No. SFC-2545, Body length 230mm, collected from Hutoudu (湖头渡) (29°33′N, 121°42′E), Fenghua, Zhejiang Province on October, 1991.

All type specimens are kept in the Ichthyology Research Laboratory of the Shanghai Fisheries University.

KEYWORDS *Parioglossus*, new species, Fenghua.

上海水产大学举办《当代水域生态学研究与进展》高级研修班

受农业部委托，1994年7月10日至25日上海水产大学举办了《当代水域生态学研究与进展》高级研修班(以下简称高研班)。

在高研班上，我校渔业学院李思发教授、殷名称教授分别作了《中国的水产养殖业和水域生态的多样性》和《鱼类早期发育生态》的报告，详细介绍了他们的研究成果，特别介绍了在当前经济飞速发展的情况下，鱼类资源补充机制、繁殖保护及科质保护的迫切性和重要性。除这两位教授外，还特邀我校选派赴美学习、现已在美国大学、研究单位工作并学有成就的林俊达、何希、郭春植和罗建钢等四位博士分别作了《食物网结构与湖泊生态系统》、《海洋底楼生态学以及多变量分析在生态学上的应用》、《海洋初级生产力研究新进展》等专题报告。整个高研班的报告内容丰富，涉及面广，几乎涉及到当代水域生态学的各个重要领域。选题也十分新颖，对当代国际前沿的研究动态、热点和进展作了系统介绍。所讲的内容既综述性又突出重点，介绍和预测了发展前景以及当前和今后的研究重点，并着重介绍了新概念、新方法和新技术。高研班上除了主讲者讲授以外还开展了研讨，并向学员提供了录像片和计算机等多种形式的辅助教学内容，受到学员们的欢迎和肯定。高研班上主讲者与学员还就当前我国水域生态领域中部份浅海、河口和淡水水体严重污染；水域生态环境恶化和生物多样性呈不同程度下降；近海和江、湖水产资源衰退；鱼类科群结构普遍低龄化和小型化；一些淡水养殖鱼类种质退化以及鱼虾等水产动物疾病流行等共同感兴趣的问题进行了广泛交流。

我校校长陈坚、党委书记林樟杰、副校长周应祺和有关的专家、教授出席了高研班的开班和结业典礼。陈坚校长、周应祺副校长发表了热情洋溢的讲话，充分肯定了四位博士的爱国爱校举动。校领导又专门与四位博士座谈并设宴款待。四位博士在沪期间还参观了正在日新月异变化中的上海市容。高研班已于7月25日圆满结束。

(上海水产大学　赵　玲)

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ROUNDUP

THE OUTLINE OF THE FISHRIES INDUSTRY AND ITS ENERGY OPTIMIZATION IN CHINA

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1 Introduction

The People's Republic of China stretches for about 5,000 kilometres from east to west and about 5,500 kilometres from north to south. Its land frontier is about 20,000 kilometres and its coastline is 18,000 kilometres in length. It is bounded by the Bohai Sea to the north, the Yellow Sea and the East China Sea to the east and the south China Sea to the southeast. The numerous islands are dotted around the sea areas like stars in the sky. China enjoys exceptional advantages for fisheries production. Since 1949, The year of founding of the People's Republic of China, the fisheries industry has been in full bloom and made remarkable achievements, which have attracted worldwide attention. Fisheries productivity has progressively increased and the living standard of the fishermen has greatly improved. The yield of fisheries products has been increasing continuously in the past four decades with the average yearly increase being more than 10%. With the implementation of the refrom and open policy and introduction of a market economy, production and construction has developed rapidly. There is no exception in the fisheries industry. According to statistics, the total yield of fisheries products of China reached 18 million tons in 1993, which ranked first in the world. [农业部水产司渔情统计处, 1994]. Since China has 1,200 million people, the per capita yield of fisheries products amounting to 14kg seems to be low in comparison with that of developed countries. The total yield of fisheries peoducts, nearly one third came from ocean fisheries. Statistics showed that the products from aquaculture surpassed the yield of sea catches for the first time in history. As a result of market demands and high economic returns, the farming of high value species is booming.

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The sea fisheries production, especially for state-owned enterprises, has been in decline due to resource deterioration and high production costs. The main commercial and the former staple fish species production have decreased sharply, but the deep sea fisheries, both for state-owned and collective communities, have developed quite well [何志成, 1994;邱盛尧等, 1993].

The operation of the distant water fishing fleet has spread into coastal and offshore areas of many fisheries countries under contract. For example, those areas and countries are mainly referred to include Africa (Senegal, Guinea-Bissau, Morocco, Nigeria, Mauritania, Sierra Leone, Angola); Oceania (Belau); North America (Alaska, Bering Sea); South America (Argentina, Uruguay, Peru); Russia (Sea of Japan); Asia (Iran, Burma, Philippines, Indonesia, Sri Lanka); open area of Bering Sea and sea of Ochotsk. (周松涛, 1992) The total yield of distant water fishing was approx. 500,000 tons in 1993 and is increasing.

In recent years, with deteriorated fisheries resources in coastal areas, quite a few fishing vessels have had to travel long distances to pursue unsustainable fish stocks at the cost of consuming large amounts of energy [葛银水, 1993].

The energy consumption in the fisheries of China has restricted fisheries development. The government and the authorities concerned often pay great attention to energy efficiency or optimization in fisheries production. Several important principles such as "to raise the quality, to optimize the structure, to increase efficiency", "to attach importance to economizing on energy and raw materials, and to improve the efficiency of using resources", have been put forward by the Government. The industry. agriculture and all trades and profeessions will obey the principles.

No matter how organization and management might change, the basic demand for energy optimization will not be changed or weekened.

The potential resources of energy in China do not appear to be abundant in comparison with other countries in the world. Recently, the consumption ratio of energy usage in China has increased and reached 30%, but it is still far lower than the 50% of developed countries. The sources said, that different energy optimization levels have been observed among the domestic enterprises, including fisheries, and the energy consumption ratio varies in a wide range from one to four multiples. From the viewpoint of energy optimization, the different levels of consumption ratio would indicate potential for further energy conservation.

The work on energy optimization in the fisheries industry of China started 10 years ago, and has obtained a distinct success.

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2 Organization

In order to strengthen and guide the enery optimization work in fisheries, a special organization, the National Fisheries Energy Optimization Cooperative Group, was founded in 1983. The office of the group is situated on the campus of the Shanghai Fisheries University. The Group carries out work under the auspices of the Fisheries Department of the Agriculture Ministry, and cooperates with the appropriate section of each Provincial Fisheries Bureau. The Group is responsible for sponsoring nation-wide workshops, promoting new products of energy optimization, investigating the relative work conditions in the country, editing and publishing a quarterly magazine (domestic edition only), and holding training courses.

The leading Group and the various sections have formed a network, to ensure energy optimization in the fishries.

3 Review

Since the network on fisheries energy optimization was formed in 1983, good results have been achieved in raising energy efficiency. According to statistics. the combined energy consumption of fisheries products reached 0. 35 ton of standard coal* per ton of product in 1991 versus 0. 57 ton of standard coal per ton of product in 1984, The annual saving of standard coal increased from 90,000 tons in 1986 to 220,000 tons in 1992, and the total savings amounting to 1140,000 tons from 1986 to 1992 (郑国标, 1993).

Since 1983, the fisheries leading and administrative organizations have increasingly paid attention to energy optimization. At the beginning, energy optimization work was only carried out on fishing vessels. Later many options available for energy optimization were extended to aquaculture, aquatic products processing, fishing gear, machinery repair and in all other aspects of the fisheries industry. During the past 10 years, a network of management produced rules, regulations and standard energy consumption quotas.

In addition to these factors, technology and products of energy optimization, mainly for vessels, have been developed to good effect (郑国标, 1993). For example, a wing sail assisted application, a comprehensive enegy saving vessel and a waste heat recovery installation have been put into practice, gaining acceptance by fishermen. In addition, over 20 small innovative optimization products such as a magnetic fuel saving device, double speed

* 1t(fuel)=1. 43t(standard coal); 1t(raw coal)=0. 714t(standard coal)
10,000 (kilowatt-hour of electricity)=4t (standard coal)

(2)郑国标,1993。郑国标副司长在全国水产节能协作组成立十周年暨第十次全国水产协作组会议上的总结讲话。渔业节能通讯,(4):1-7。

gear box, nylon propeller and so on, were introduced to fishing industry.

4 Problems

During the past ten years, the significant achievements in fisheries energy optimization have been obtained, but there still exist a number of problems. The main problems can be concluded as following.

a. Lack of awareness in energy optimization;
attaching importance to exploitation, while neglecting economy;
attaching importance to yield, while neglecting consumption of materials;
attaching importance to developing speed, while neglecting energy efficiency.

b. The development of energy optimization is out of balance. In several regions and units, attention has not been paid to energy optimization, therefore, energy optimization programs and staff in these regions are inadequate.

c. Owing to the deterioration of the coastal fish resources, the operation of fishing vessels has extended to outer areas, so that the fuel wasted on non-productive usage has increased year by year. Therefore, the average fuel consumption per ton of fish caught ratio over the country has increased quite a lot, For example, this ratio in 1986 was 396kg of fuel per ton of fish, but in 1991 the ratio read as 521kg per ton, an increase of 31.57%(平 瑛等, 1993). Further, considering the reality of resource deterioration, the authority concerned had to revise the quota of fuel consumption (kg) per ton of fish caught. For example, the revised quota for different sea areas varies from 668 kg/t to 740 kg/t.

This increase in fuel consumption, coupled with higher fuel prices, has significantly increased the cost of per fish caught ratio.

d. A weakness can be seen in basic management of energy optimization. for example, the statistical system and the standard of energy consumption are not reliable.

e. The scientific research work is far below the demand level, but it is going to be strengthened.

f. There is a shortage of funds for energy optimization.

5 Prospects

With the implementation of economic reform and open policy, fisheries energy optimization faces a hard mission.

According to calculations, by the end of this century, the energy needed for the fisheries

(3)平 瑛等,1993。国营海洋捕捞企业的问题和对策。渔业节能通讯,(4):30-35。

industry will be equivalent to 6.3 million tons of coal, with the portion for fishing operations at 3.3 million tons. The total energy consumption consists of 60% fuel, 15% electricity and the remaining percentage of coal.

In order to meet the needs of energy, in addition to the support of government, the key work is to improve energy optimization.

The guiding principle in fisheries energy optimization for the near future is as follows: "Energy efficiency should be dedicated to economic and technical progress."

By the end of this century, the comprehensive energy consumption ratio is going to be decreased by 16,7%, i.e. 1.8% per year.

The measures to be taken in fisheries optimization in the years to come include following key points:

a. In the development of the coastal fishing vessels, it is necessary to control the number of botton trawlers and to further explore the pelagic and midwater fish stocks. New fishing grounds must be detected, so that fishing operations can be carried out in all depths of water and different fishing areas. This will produce catches of multiple fish species. Deep sea fishing and the exploration of international fish resources should be develpoed further, For this prupose, the larger fishing vessels owned by state-owned enterprises will come into full play and should be sent to the deep sea waters in competition with vessels from others countries. This would avoid pursuing the decreased fish stocks, which are considered as the main catching object by the communitie's vessels in coastal areas. Another consideration is the expansion of low energy fishing operation the fishing method for marine fishing vessels.

b. High energy consumption fishing vessels should be retrofitted. This can be achieved through the application of improved propulsion systems such as ducted propellers and controllable pitch propellers. In addition, advanced navigation aids, fish finders and colour sonars should be installed.

c. When the techniques of energy optimization and energy saving products have been introduced, the exploitation of energy concepts including wind energy, solar energy, groundheat and waste heat from power stations are expected to be adoped.

d. The dissemination of information and traning in energy optimization should be strengthened.

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