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长江口凤鲚生殖群体的动态特征

Reproductive characteristics and condition status of *Coilia mystus* (Linnaeus) in the Changjiang River estuary

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中文摘要:

根据2005、2006、2008、2009年在长江口附近水域采集的凤鲚样品,通过测量其体长、体重、性腺重、肝重、繁殖力等生物学参数,对凤鲚生殖群体的生殖特征和条件状况进行了研究。结果表明,(1)凤鲚生殖群体的体长、体重范围分别为61.2~224.3 mm、2.1~32.7 g;凤鲚雌性生殖群体的体长和体重普遍大于雄性,尤其是2008、2009年。而且随着体长的增加,体重差异越大;同等体长的雌性体重大于雄性。不同年份生长速度不同,其中2006年生长状况最差;(2)凤鲚生殖潜能受鱼体长、体重的影响比较密切。2005年性腺发育最好,2006年性腺发育最差;(3)凤鲚生殖群体肝重与体长、体重呈正相关。凤鲚肝重与体长、体重拟合关系式存在显著的性别差异,同等体长的雌性肝重大于雄性。雌、雄凤鲚的肥满度有相似的变化趋势,2006年凤鲚的肥满度最小,其他年份雌、雄肥满度K值变化不显著。雌、雄凤鲚的脂肪重和脂肪系数都没有显著的性别差异。总之,短寿命凤鲚的生殖特征和条件状况年际间变化较大,尤其是2006年凤鲚生殖群体的K值较低,体长和体重较大,但是性腺较轻,反映了该年长江流域极端高温、汛期降雨严重偏低的特点。而2005年为历史上温度极高的年份之一,此年凤鲚生长速度减缓,但是性腺发育状况最好,条件状况并没有明显降低。这个结果表明,凤鲚生殖群体的动态变化受长江口地区气候年际变化所影响,径流量和温度都影响河口地区生活的凤鲚群体,径流量的减少对凤鲚生长和生殖有较高的负面影响,而温度升高却促进了生殖状况的提高。

英文摘要:

To detect the reproductive characteristics and condition status of *Coilia mystus* (Linnaeus) in the Changjiang River estuary, a total of 2 138 specimen were collected during breeding season in 2005, 2006, 2008 and 2009, and the biological parameters of *C. mystus* including body length, body weight, gonad weight, liver weight, fecundity etc. were measured. The results showed that (1) Body length of the samples ranged from 61.2 to 195.0mm, body weight ranged from 2.1 to 32.7 g; and female weighted more than male, especially in the years of 2008 and 2009. The weight difference between male and female became greater with the increasing of body length. The growth rates were different among years, with the lowest value in 2006. (2) There were close relationship between the reproductive capacity and the body length and body weight. The gonad development was the best in 2005, and the worst in 2006. (3) Liver weight of the samples showed positive correlation with the body length and body weight, and there were dimorphism between the sexes: the liver weight of female weighted more than male of the same body length. The condition factor (K) of the *C. mystus* showed the same trend in both sexes and the smallest condition factor was found in 2006; no apparent variations were observed in other years. There were also no significant difference between fat

body weight and fat index between the sexes. In other words, the population of the *C. mystus* had higher condition factor (K), greater body length and body weight, yet lighter gonad in 2006. The year of 2006 experienced less river discharge and higher temperatures than many former years. While 2005 was the second warmest year in history record, and the samples showed slow growth, good condition ingonad instead, and condition factor did not decrease rapidly. In conclusion, the reproductive characteristics and body condition of the short life species *C. mystus* varied greatly in different years, which may be caused by yearly weather changes in the Changjiang River estuary.

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