以耳石形態學暨微量元素分析探討台灣水域產刺鯧(*Psenopsis anomala*)之系群結構

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本研究利用耳石形態學暨耳石核心微化學兩種分析方法並配合先前之相關研究共同探討臺灣周邊水域產刺鯧(*Psenopsis anomala*)可能之系群結構。分析樣本來源為 2015 年春季兩樣點，臺灣東北及西南部海域 和冬季三樣點，臺灣東北、西南及東海南部海域。結果顯示，春季時，臺灣東北及西南部海域所採之刺鯧其耳石型態與耳石核心內微量元素均有顯著差異 (MANOVA, $P < 0.05$) ；冬季時，臺灣東北與西南海域及東海南部海域採之刺鯧其耳石型態與耳石核心內微量元素亦有顯著差異 (MANOVA, $P < 0.05$) ，但臺灣東北及西南海域無論耳石型態與耳石核心內微量元素均無顯著差異。此結果顯示，臺灣周邊(含東北與西南海域)及東海南部海域出現的刺鯧可能分屬不同之系群，但系群內可能有季節性混合的情形；該等結果對臺灣刺鯧漁業管理將提供重要的依據。

關鍵字: 刺鯧(*Psenopsis anomala*) 、耳石、形態學、微量元素、系群結構

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Identification of stock structure of Japanese butterfish, (*Psenopsis anomala*), in surrounding waters of Taiwan using otolith morphology and micro-chemistry analyses

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The possible stock structure of Japanese butterfish (*Psenopsis anomala*) in surrounding waters of Taiwan were examined based on both otolith morphometry and core of otolith microchemistry in comparing with other previous studies. Samples of *P. anomala* were collected from north eastern and south western waters of Taiwan, and South East China Sea during 2015 Spring and Winter. The results showed that *P. anomala* collected from north eastern water of Taiwan were differences in both elemental ratios and combined morphometric analysis from those in south western water of Taiwan during Spring (MANOVA, $P < 0.05$). The sample obtained from South East China Sea were differences in both elemental ratios and combined morphometric analysis from those in north eastern and south western water of Taiwan during Winter (MANOVA, $P < 0.05$), but no differences were detected for both elemental ratios and combined morphometric analysis between north eastern and south western water of Taiwan during Winter. These results implied that two geographically different stocks may be existed for *P. anomala* between South East China Sea and surrounding waters of Taiwan, but seasonal mixing could occurred. Our results also may provide important guideline for future management of Japanese butterfish fisheries in Taiwan.

Key word: Japanese butterfish (*Psenopsis anomala*), otolith, morphology, micro-chemistry, stock structure

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