

武陵地區河水中硝酸鹽之來源

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摘要 本研究分析武陵地區河水中 NO_3^- 的氮、氧同位素組成，以鑑別該地區溪水中硝酸鹽的來源及其與農業活動之關係。由現階段分析結果顯示研究區內桃山西溪、高山溪與司界蘭溪水體 NO_3^- 之濃度最低，而最高濃度出現在有勝溪。七家灣溪之 NO_3^- 濃度顯示出季節變化，雨季時期之濃度高於旱季。由 NO_3^- 之氮、氧同位素分析顯示，桃山西溪、高山溪與司界蘭溪河水中 NO_3^- 之來源主要與雨水有關；而有勝溪河水中 NO_3^- 之肥料來源訊號明顯大於其它各溪。七家灣溪水體之 NO_3^- 來源主要為土壤氮源，然而在雨季時期發現有化學肥料的訊號。也就是說，現階段之農業活動仍些微影響到台灣櫻花鉤吻鮭主要棲息之七家灣溪流域。

關鍵詞：硝酸鹽來源、農業活動、氮氧同位素、河水、武陵地區。

Sources of River Nitrate in Wu-Ling Area

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ABSTRACT The nitrogen and oxygen isotope compositions and concentration of river nitrate were analyzed to identify the nitrate sources and their relationship with farming in the Wu-Ling area, central Taiwan. The current results suggest the rivers of Taoshan western Xi, Kaoshanxi, and Sizeilangxi carried the lower NO_3^- concentrations in this area; by comparison, Yoshengxi river water displays the highest level. In addition, water of Chichiawanxi shows a seasonal difference with higher NO_3^- concentration in rainy period than in dry ones. Evidence of nitrogen and oxygen compositions of water NO_3^- points out the potential nitrate source for waters in Taoshan western Xi, Kaoshanxi, and Sizeilangxi are mainly related to rainwater. The nitrate sources for Yoshengxi river water are complex and relate to all potential nitrogen sources. The source signal of fertilizer is more prominent than any other water in this study. The nitrate in Chichiawanxi river water is mainly derived from soil nitrogen; however, the chemical fertilizer source signal is traced in the rainy period. That is, current farming also affects the Chichiawanxi river basin but there is little effect in the habitat of the Taiwan Salmon.

Key Words: nitrate source, farming, nitrogen and oxygen isotopes, river water, Wu-Ling area.

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