

## Mercury stable isotope variation of skipjack tuna from western North Pacific Ocean - Possibility as the feeding depth tracer -

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Fish represents the primary source of mercury (Hg) to human populations. The predominant Hg form for the human intake is methylmercury (MeHg), since this form is highly bioaccumulative in aquatic environment. Mercury stable isotope ratio of marine fish is useful tracer of MeHg since it selectively accumulates to the top predators with the factor  $>10^6$  relative to the seawater. Mercury stable isotope signatures reflect not only general mass dependent fractionation, but also mass independent fractionation (MIF) which is sensitive to specific photochemical reactions. The stable isotope signal is likely retained in organisms up to pelagic fishes and top predators. It provides information on inshore-offshore differences and foraging depth which is difficult to constrain by other chemical tracers. The report of Hg stable isotope from highly migratory fish has been limited. Particularly, there have been no reports of regional comparison in global scale using same species. We chose skipjack tuna in this study because our archived specimen of this species covers wide range of western North Pacific. In this report, we provide large regional variation of mercury isotope signature of skipjack tuna ( $n=68$ ,  $\Delta^{199}\text{Hg}$ : 1.7-3.8‰), and also discuss the possibility of MIF as the feeding depth tracer of marine organisms.

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