中央研究院生物多樣性研究中心
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Marine Biodiversity and Ecosystems

Development of National Standard for Environmental DNA (eDNA) Tools Used in Environmental Monitoring

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Time: 2023. 02. 10 Fri. 14:00

Venue: Auditorium, 1st Floor,
Interdisciplinary Research Building
跨領域科技研究大樓1樓演講廳

Host: Dr. Ryuji Machida 町田龍二副研究員

~Attendee must wear mask~
~與會者請配戴口罩~

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Abstract

Ecological monitoring and environmental management are being transformed using environmental DNA (eDNA). However, the adoption of eDNA tools in regulatory policy and natural resource management decision-making is being hampered by significant variation in data quality and inadequate understanding of factors affecting eDNA detection. Although significant work has been put into increasing reporting transparency and developing validated frameworks and methodologies for eDNA field workflow components, surprisingly few national standards have been developed for targeted quantitative PCR (qPCR)-based eDNA detection tests, which are by far the most often utilized in the scientific literature. Here, I outlined the critical role that the iTrackDNA (https://itrackdna.ca) project plays in Canada's efforts to standardize the use of targeted eDNA assays for environmental monitoring by highlighting the following: (1) creation of the first Canadian standard document for eDNA tools; (2) development of a pipeline for designing reliable species-targeted qPCR-based eDNA assays; and (3) specific examples of how eDNA tools can be used in building partnership between academe and community stakeholders to do environmental monitoring and impact assessment studies. These three subjects emphasize the importance of method standardization and the availability of eDNA resources to support ecological surveys for monitoring species at risk, managing invasive species, and giving approvals for energy, mining, forestry, manufacturing, and infrastructural projects.