



Radiation Dose and Risk Assessment in Blood Clam (*Anadara ganosa*) from the Gulf of Thailand using ERICA Tool

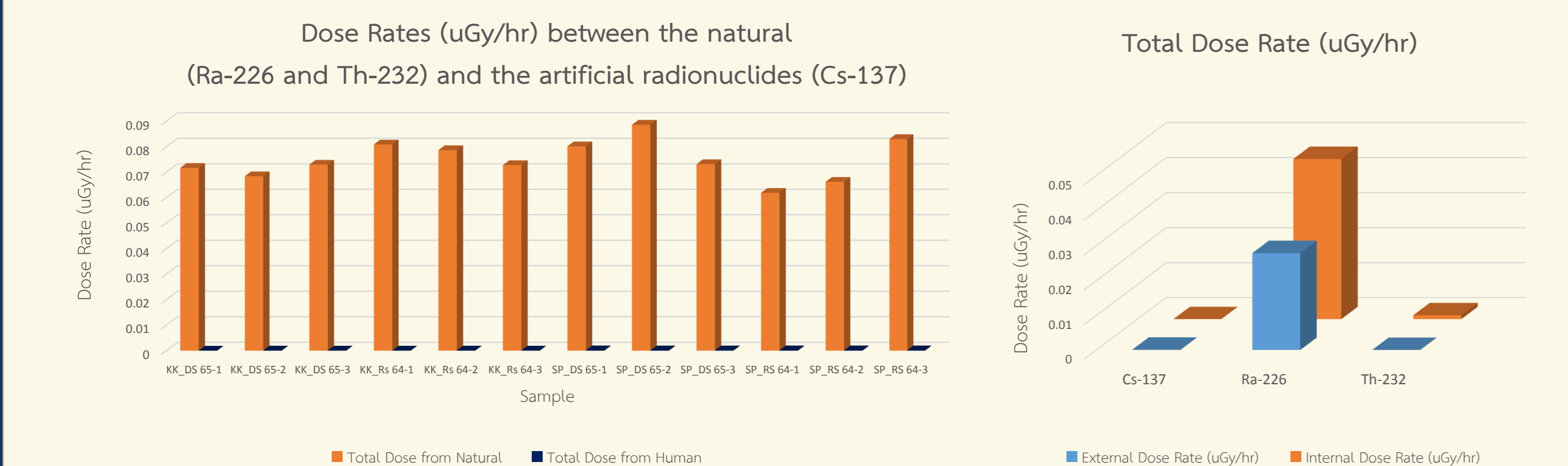
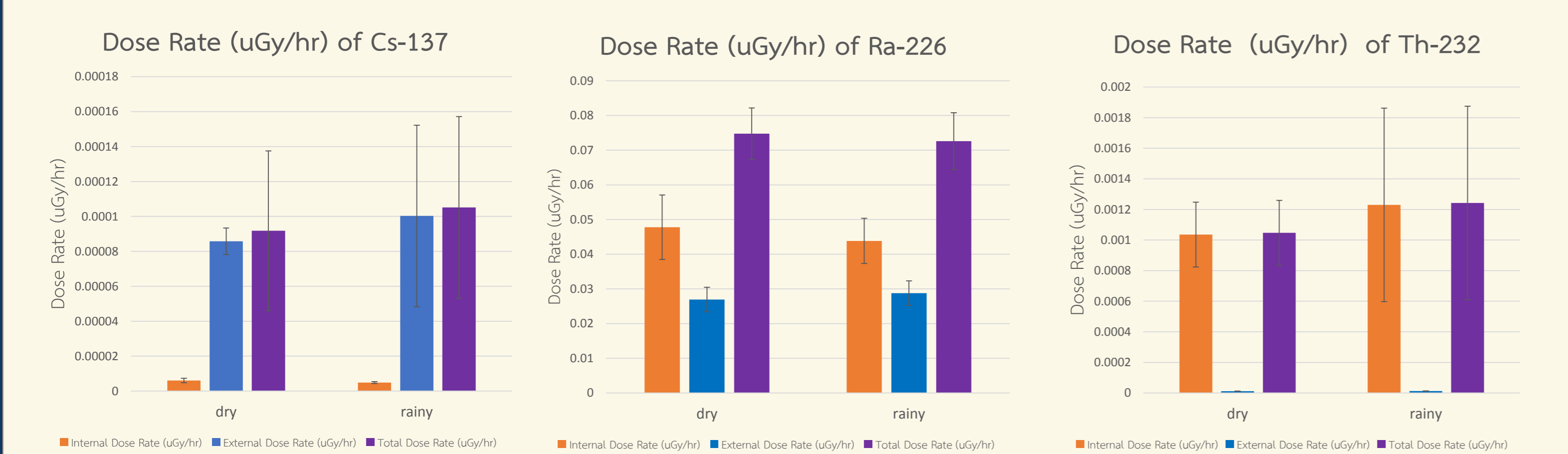
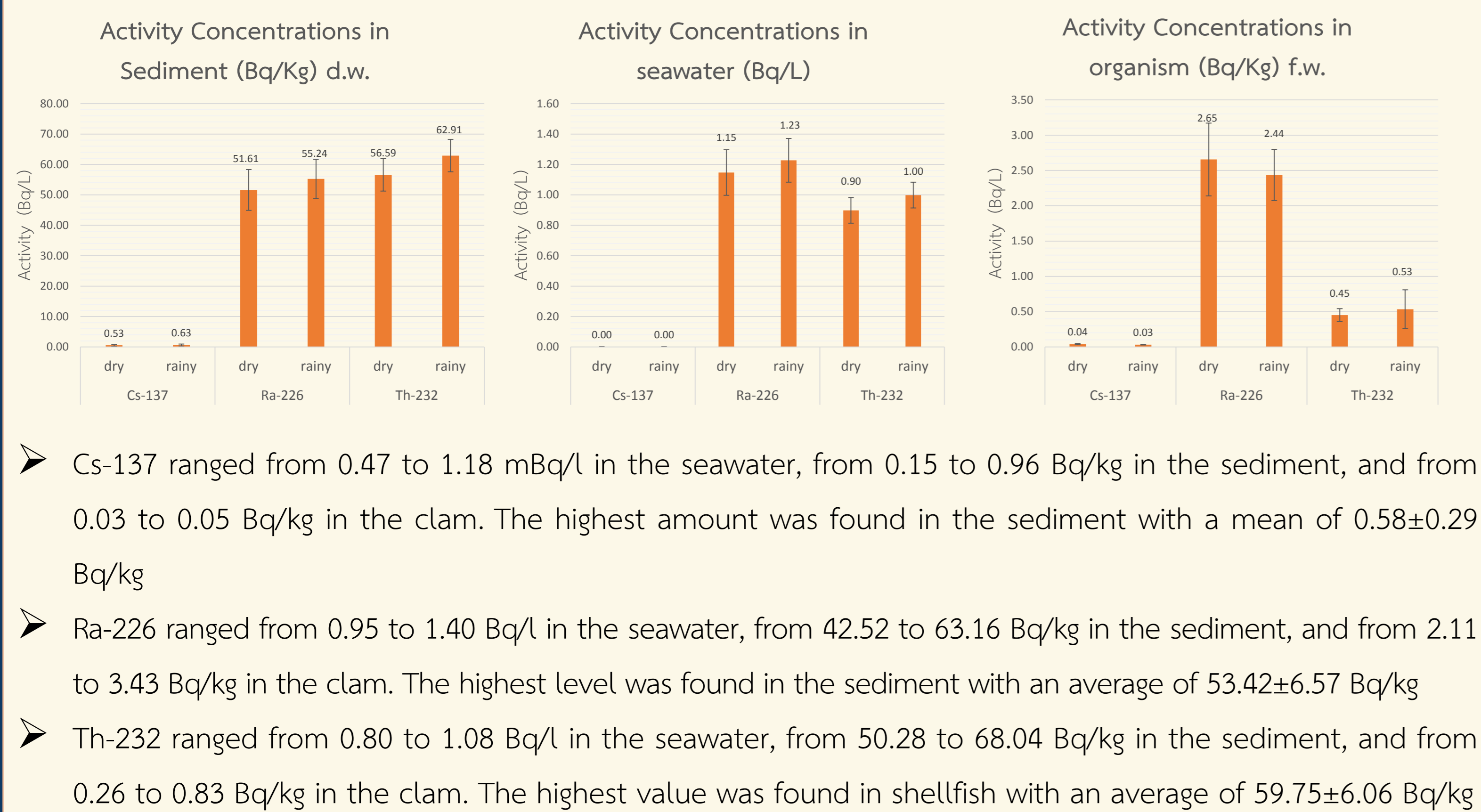
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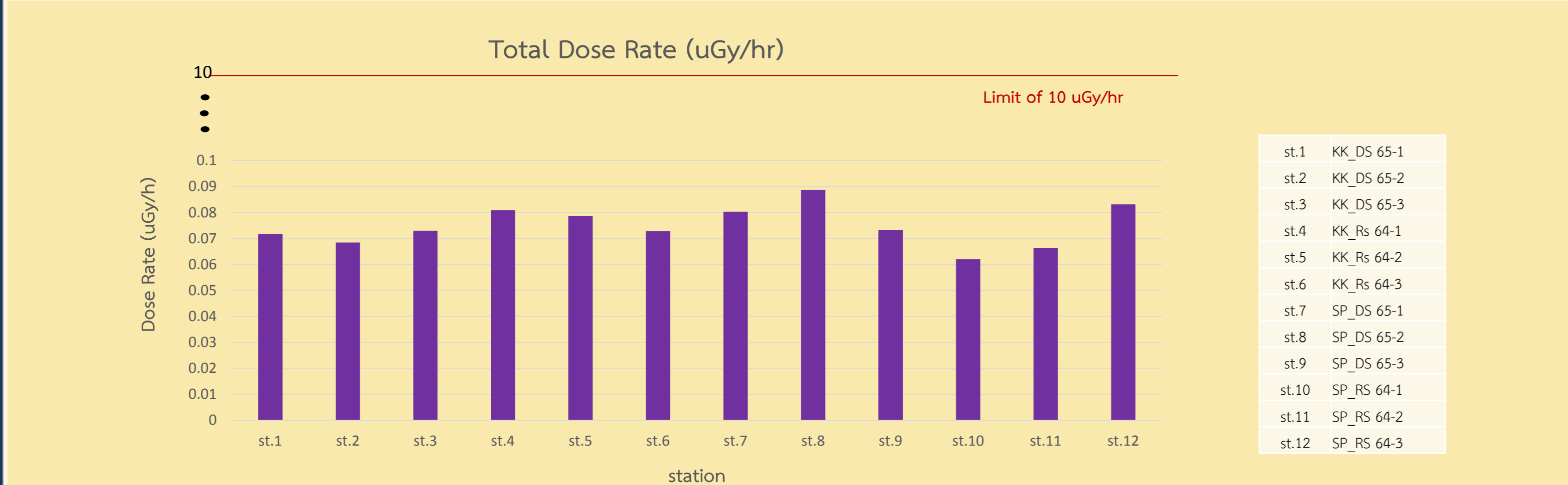
Introduction

- After the Fukushima-Daiichi accident, a focus has been put into the measurement of Cs-137 in local marine species and seawater in Thailand for radiation doses assessment.
- For the first time after the accident, Blood clam (*Anadara ganosa*), seawater, and sediment were collected from the Gulf of Thailand for radiation dose and risk assessment.
- The purpose of this study is to estimate total radiation doses received by Blood clam (*Anadara ganosa*) from Ra-226, Th-232, and Cs-137 using ERICA Tool, and to further strengthen the national and regional marine radioactivity databases.

Results and Discussion



- No seasonal variation observed in all radionuclides and environmental matrices studied
- Ra-226 is the main radiation dose contributor to the Blood clam
- More than 99% of the total dose rates in the Blood clam is from the natural radionuclides



- Total radiation doses reported in this present study are well below the guideline value of 10 μ Gy/h

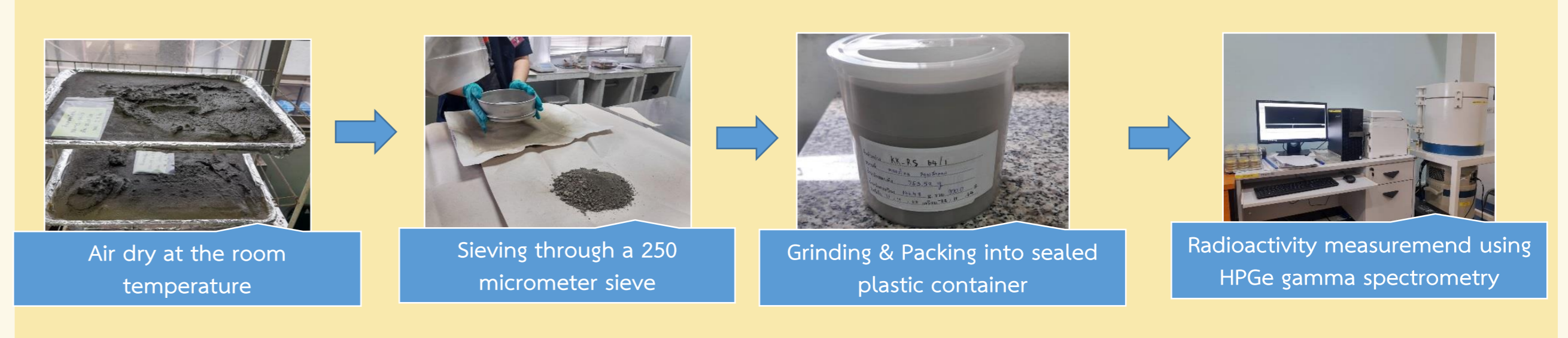
Materials and Methods



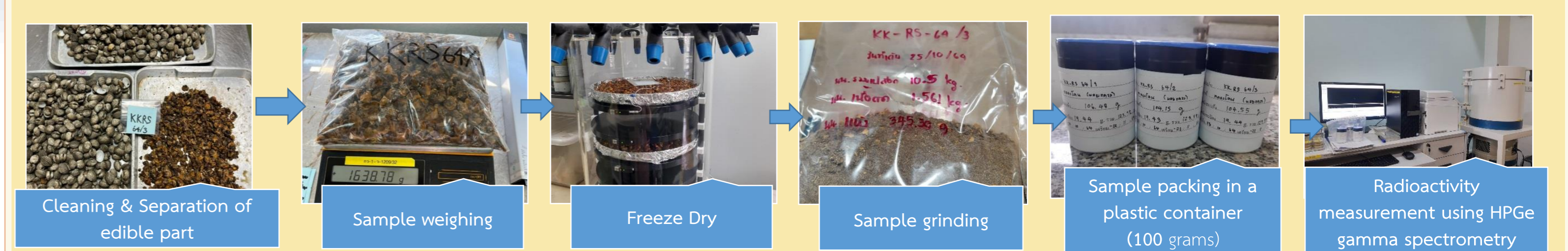
Blood clam (*Anadara ganosa*), seawater, and sediment were collected from 2 farming areas (Samut Songkhram and Samut Prakan provinces) in Gulf of Thailand in dry and rainy seasons during 2021-2022

Sample preparation and measurement

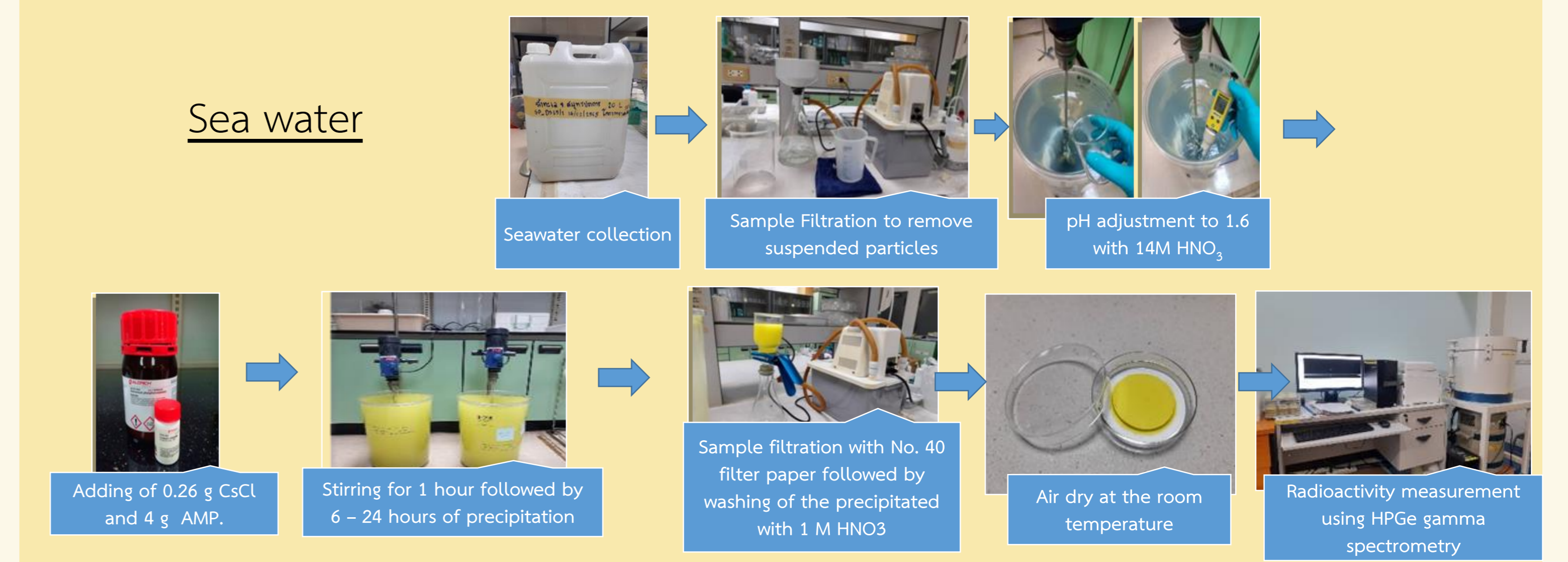
Sediment



Blood Clam (*Anadara ganosa*)



Sea water



Cs-137, Ra-226, Th-232 activities using gamma spectrometry

Dose assessment using ERICA Tool

Conclusion

- The clam received the total dose rates ranging between 6.20×10^{-2} and $8.87 \times 10^{-2} \mu$ Gy/h.
- More than 99% of the calculated total doses was from Ra-226 and Th-232 indicating that the natural radionuclides play an important role as the main contributor to radiation doses received by the studied species.
- The total radiation doses reported below the guideline value of 10 μ Gy/h implying that those radionuclides do not pose any radiological hazards to the clam of interest
- The obtained data will be used to strengthen the national and regional marine radioactivity databases and to develop relevant guideline/plan for marine environmental radiation protection.

Acknowledgment

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