

# The Upcycled Candle Project

- From Waste to a Light of Hope -

Ritsumeikan High School

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## Introduction

### Used Cooking Oil, Transformed into a Candle

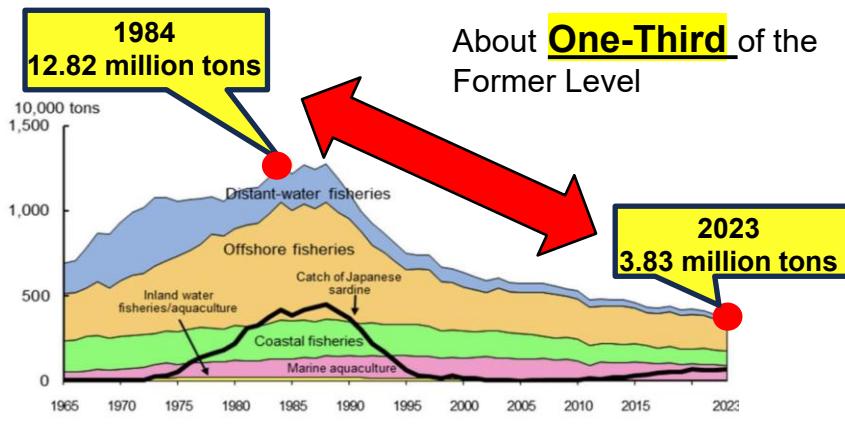
Our daily lives are **closely connected** to the natural environment. By turning used cooking oil into candles, we reduce negative environmental impacts by promoting sustainable household practices.

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## Background

### The Current Situation of Fisheries in Japan

Japan's fish catch peaked at 12.82 million tons in 1984, but declined to 3.83 million tons in 2023, representing a dramatic decrease to approximately one-third of its former level (See Figure 1).



Focused on

### Disposal of Used Cooking Oil

All results came from the questionnaire below.

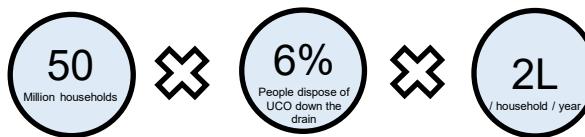
### How much used cooking oil is improperly disposed of in Japan?

6% of people do not dispose of used cooking oil properly (See Table 1). However, this is not a small percentage.

Table 1 Results from Questionnaire about Cooking Oil Disposal Method

Disposal Method of Used Cooking Oil (UCO)	Percentage (%)
Absorb used oil with paper or cloth	65.0
Use a solidifying agent to harden used oil	53.4
Take used oil to a waste cooking oil collection point	15.0
<b>Pour used oil into the kitchen drain</b>	<b>6.0</b>

\*Total percentage may exceed 100% due to multiple responses.  
Source: J-Oil Mills "Home Cooking Oil Usage & Disposal Survey" (2024)

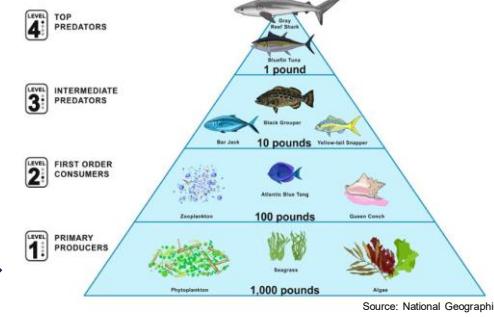
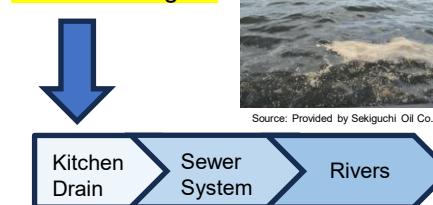


**6 million L / year**

### Impact of Improper Disposal of Used Cooking Oil

Oil film seen on the ocean surface **inhibit phytoplankton photosynthesis**, leading to disruption of the marine ecosystem. (Mudge, 1995)

#### Used Cooking Oil



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## Our Solution

### Upcycled Candle with Used Cooking Oil

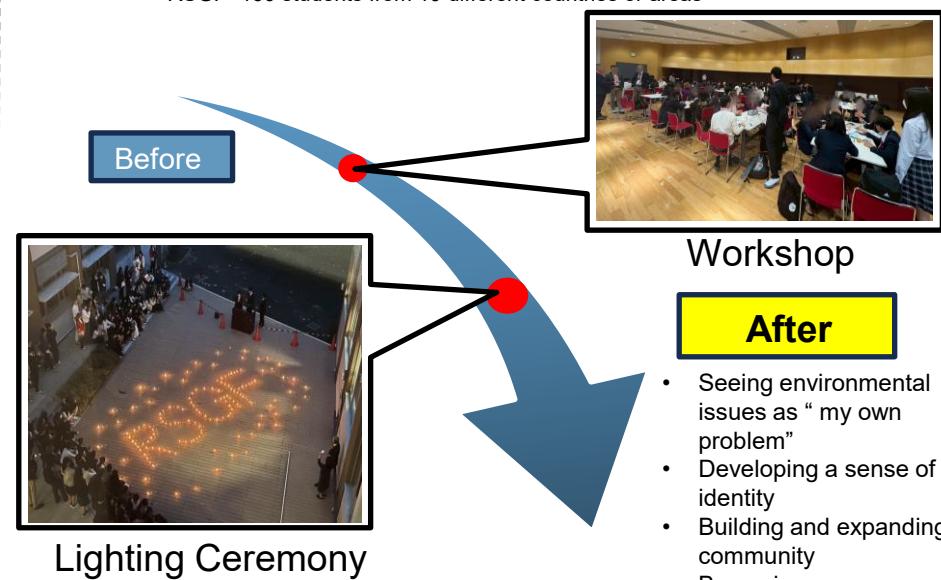


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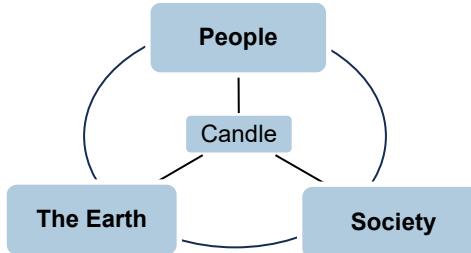
## Real Action

### Rits Super Global Forum

RSGF- 160 students from 10 different countries or areas



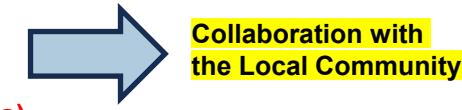
### A First Step to a Society Where We Coexist



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## Future Outlook

- Raising awareness among more people
- Responding to a broader range of needs (Disaster Preparedness)



## References

- Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries. (2025). Trends in the supply and consumption of fishery products in Japan (White Paper on Fisheries, FY2024). Ministry of Agriculture, Forestry and Fisheries.
- J-Oil Mills, Inc. (2024, November 13). Survey on consumer criteria for purchasing household cooking oil products [Press Release]. <https://prtimes.jp/main/html/rd/p/00000228.000038494.html>
- Kumar, A., Bhayana, S., Kumar Singh, P., Tripathi, A. D., Paul, V., Balodi, V., & Agarwal, A. (2025). Valorization of used cooking oil: Challenges, current developments, life cycle assessment and future prospects. *Discover Sustainability*, 6, Article 119.
- McCallum, P., Satush, G., Rabinovitch, L., Filewood, T., Kwok, H., Yan, J., Cody, R., Brunswick, P., & Shang, D. (2025). Identification of plant-based spilled oils using direct analysis in real-time-time-of-flight mass spectrometry with hydrophobic paper sampling. *Environmental Monitoring and Assessment*, 197(2), Article 171.