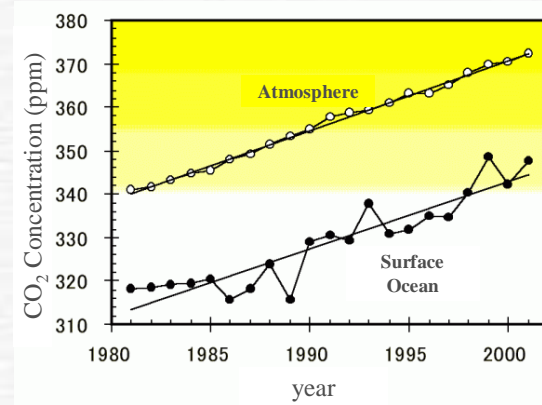


# CO2 海洋隔離技術の現状

Toru Sato  
Department of Environment Systems  
University of Tokyo

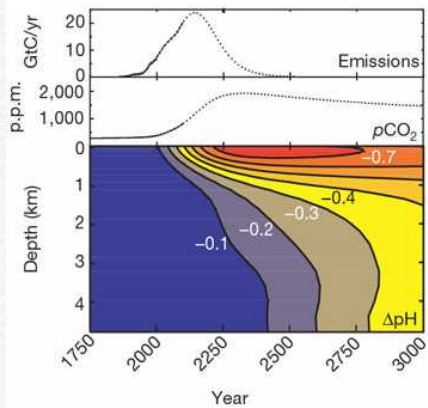
## Surface Ocean Acidification

CO<sub>2</sub> Concentration in Surface Ocean



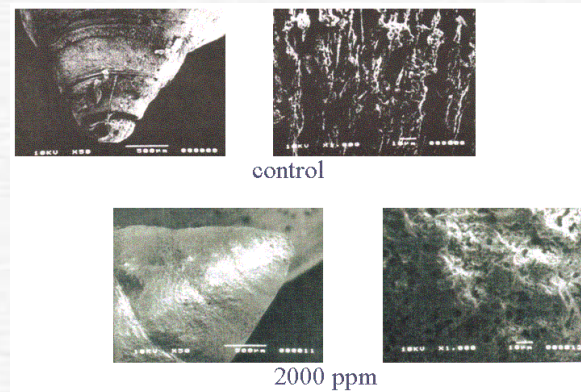
CO<sub>2</sub> Concentration at 137°E, average of 3-30°N in January to February (Japan Metrology Agency)

Prediction of CO<sub>2</sub> Concentration in the Ocean

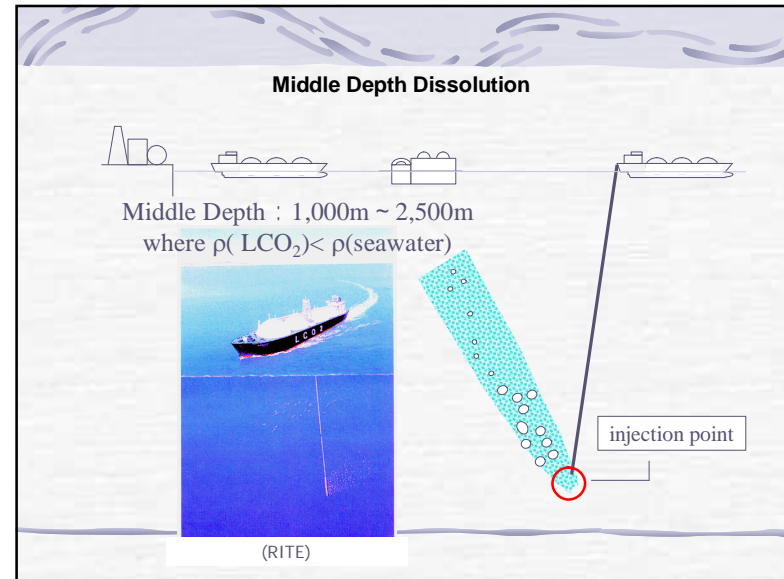
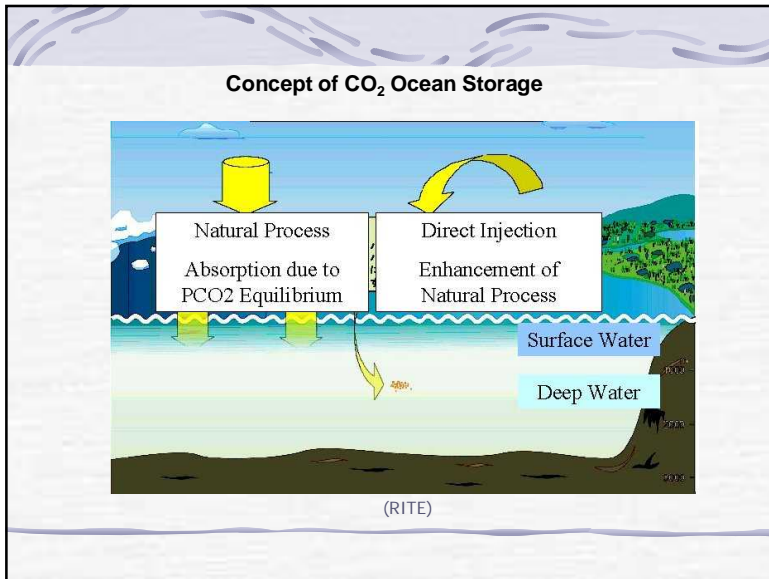
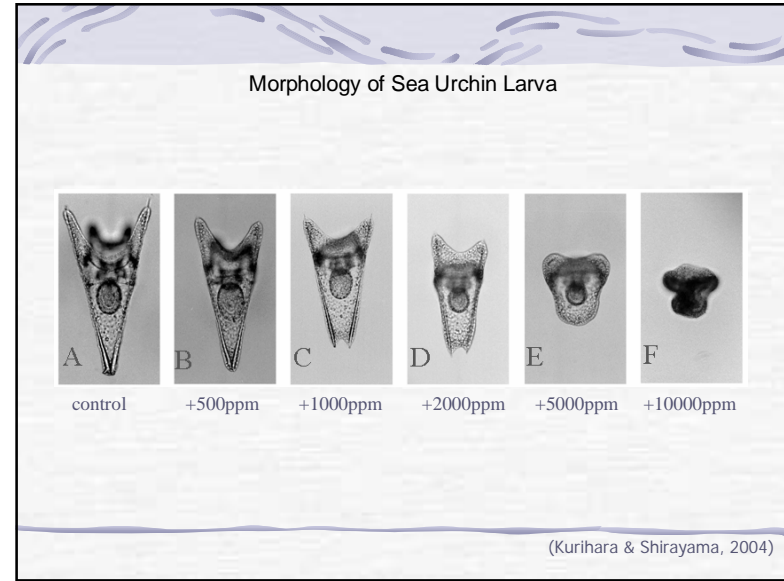
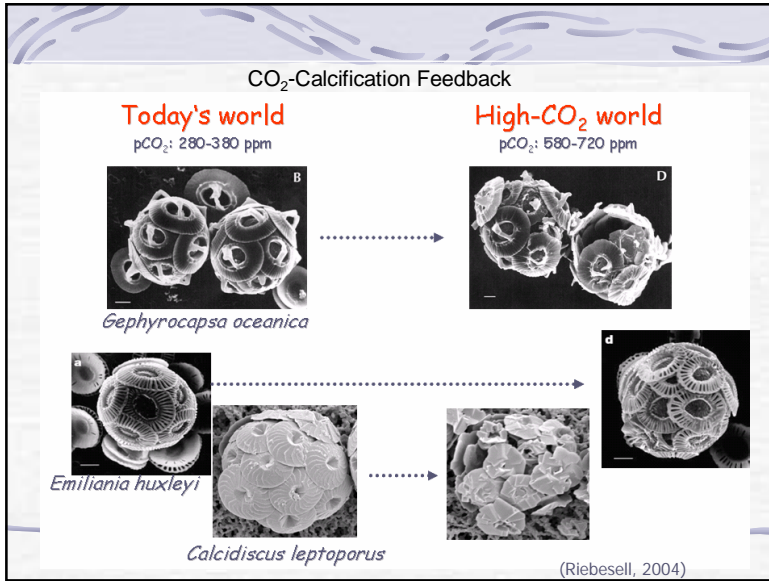


(Caldeira and Wickett, 2003)

Dissolution of Shell in pCO<sub>2</sub> of 2000 ppm

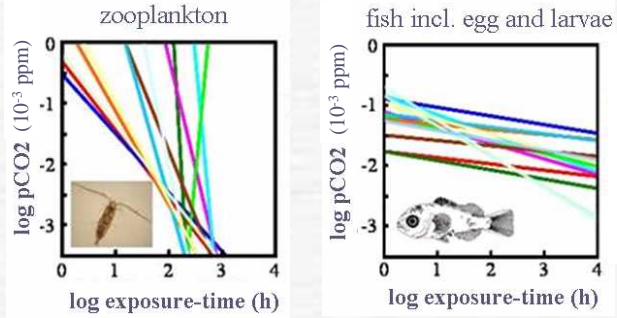


(Shirayama, unpublished)



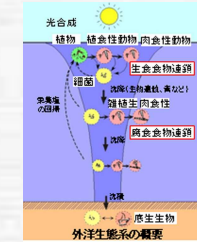
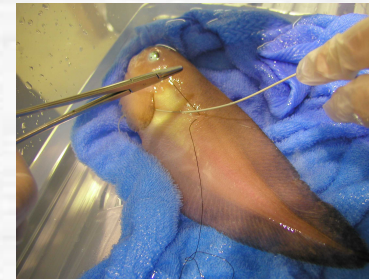
### LC<sub>50</sub> for Exposure Time and pCO<sub>2</sub>

LC<sub>50</sub>: lethal concentration for 50% mortality



(RITE)

### Further Research on Biological Impacts



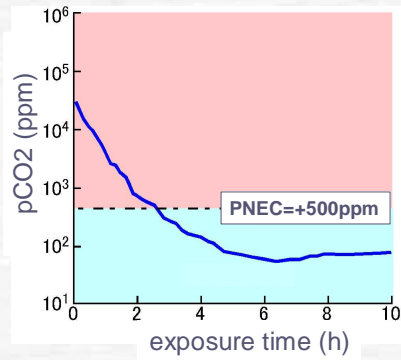
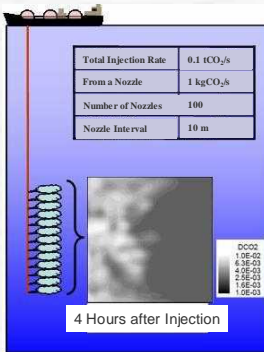
Deep-Sea Ecosystem Model

(RITE)

Physiological Study for Deep-Sea Fish

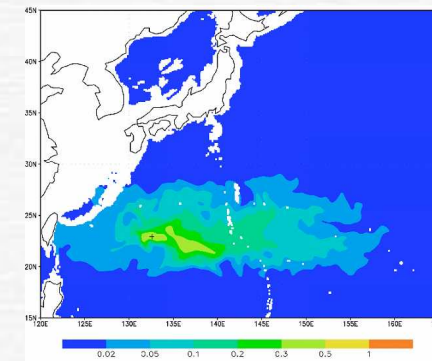
(Ishimatsu et al., unpublished)

### Near Field LES Model Result



(RITE)

### Large-Scale Ocean Model Result



(RITE)

# Why Japan Seeks Ocean Storage

## Potential Storage Amount in Japan

Categories of Geological Storage		Storage Potential
Structured Aquifer	Core & seismic data measured (A2)	5.2Gt CO <sub>2</sub>
	Seismic data measured (A3)	21.4Gt CO <sub>2</sub>
Unstructured Aquifer (water depth < 200m)	Core & seismic data measured (B1)	27.5Gt CO <sub>2</sub>
	Seismic data measured (B2)	88.5Gt CO <sub>2</sub>

(RITE)

Expected CCS Amount : 0.5 - 4.0GtCO<sub>2</sub>/year for 2025-2100 (METI)

