# STUDY ON THE INFLUENCE OF HYPOXIA ON FISH IN COASTAL CONSTRUCTION AREA

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## INTRODUCTION

Coastal construction works tend to change current and create dead water areas, which may cause hypoxia in enclosed water areas. Hypoxia has acritical effect to aquatic life, and sometimes cause a serious damage on fishery. Although the tolerance of aquatic life to hypoxia is known, there is no information how a mortality of fish is caused by hypoxia, because fish can swim and avoid it. We examine those mechanism through field surveys and laboratory experiments, and construct a model to predict the influence of hypoxia on fish.

## FIELD SURVEY

We release marbled sale with luminescent tags in a hypoxic bay and track it by a boat. At the same time, we examine the location of the fish by GPS and the vertical profile of DO, salinity and temperature. The fish escaped from the hypoxic area through a specific path toward the mouse of the bay when hypoxia was occurring, while the fish didn't move when there was no hypoxia.

## LABORATORY EXPERIMENT

We conduct a series of preference tests for DO, salinity and temperature on marbled sale in a laboratory tank. DO and temperature influenced much on the fish although salinity with the field level did not affect.

## MODEL

By using the results of field surveys and laboratory experiments, we construct a model to predict the behavior of marbled sale based on the preference of the fish for DO and temperature.

## CONCLUSION

From the results of field surveys and laboratory experiments, we constructed a model of fish behavior affected by DO and temperature. By combining the model with a water quality simulation model, we can predict a mortality of fish by hypoxia.