

4. Results of questionnaire survey on initiatives to prevent accidents due to pitching at the bow

The Japan Transport Safety Board conducted a questionnaire survey (July ~ August, 2022) with the aim of ascertaining the state of initiatives to prevent injuries of anglers due to pitching at the bow in cooperation with 19 recreational fishing vessel operators of the Tokyo Bay. The outline of results is presented here.

The gross tonnage and sea speed of recreational fishing vessels surveyed are 5~19 tonnes and 5~20 knots, respectively. 17 operators offer fishing services in the Tokyo Bay.

Operational Rules

All operators subject to this questionnaire survey are aware of the following instructions on how to prevent accidents involving injuries of anglers due to pitching of the bow set forth in the Operational Rules.

- (1) The masters and chiefs of operations of recreational fishing vessels shall act as follows in order to ensure safety of passengers.
 - * When the ship's body bounces due to waves while sailing, they must appropriately monitor waves, change the course with respect to waves, and strive to control bouncing by sufficiently slowing down to a speed that ensures safety.
 - * If a danger is expected to be caused by bouncing due to waves while sailing, they must instruct passengers to move to the stern side where bouncing is less severe than the midship.
- (2) The chiefs of operations of recreational fishing vessels shall make sure to notify passengers of the following information by placing a notice on the ship or by other means.
 - * While sailing, passengers should stay at the stern side from the midship where pitching and rolling are less severe, because the ship's body may pitch and roll due to waves.

Awareness raising for anglers

In order to prevent accidents involving injuries, 14 operators give anglers an oral explanation about precautions, while three operators place a notice on the ship in addition to oral explanation (See Figure 3).

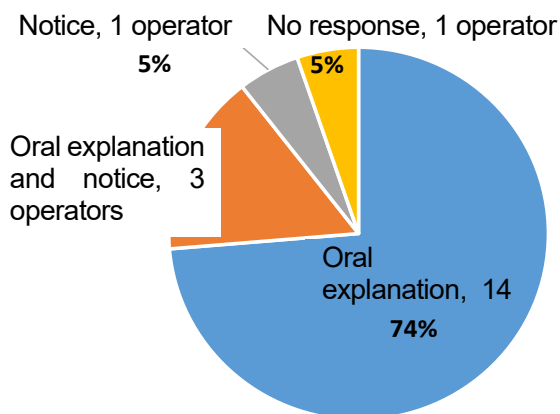


Figure 3: Method of explanation to anglers

Sea areas that require special attention

13 operators are ware of sea areas that require special attention where waves can be high due to the wind and tides. More specifically, they chose the sea areas around the first and second artificial fortresses, off the coast of Kurihama, off the coast and south of Kannonzaki, and off the coast of Tsurugizaki (See Figure 4).

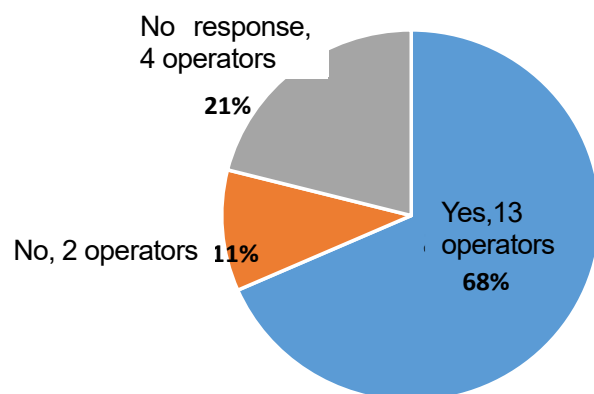


Figure 4: Recognition of sea areas that require special attention

Measures for controlling pitching and rolling

Slowdown and course change are some of measures for controlling pitching and rolling. The timing of slowdown is when the bow pitches (30~200cm), the wind speed reaches 8~15m/s (depending on wind direction), or the wave height reaches 0.5~2.5m (depending on wave height). Some operators have set a policy of reducing the speed to approximately 10 knots, but half of operators have set a policy of reducing the speed until the bow does not bounce or pitching and rolling calm down (5~10 knots).

Moreover, the timing of course change is almost the same as that of reducing the speed. A changed direction should be where pitching and rolling are less severe.

Timing of slowdown			Degree of slowdown	
• When the bow pitches			• Until the bow does not bounce	9 operators
	Pitch: 200cm	1 operator	• Down to approximately 10 knots	2 operators
	Pitch: 50~100cm	2 operators	• Down to approximately 5 knots	1 operator
	Pitch: 30~40cm	1 operator		
• Wind speed	10~15 m/s	6 operators	Course change	
	8 m/s	1 operator	• To a direction where waves are not high	3 operators
• Wave height	2.0~2.5 m	2 operators	• To a direction where pitching and rolling calm down	1 operator
	1.0~1.5 m	6 operators	• Depending on the situation and sea area	1 operator
	0.5 m	1 operator		

Movement of anglers to the stern side from the midship

11 operators have meteorological and hydrographic standards for moving anglers to the stern side from the midship. The most common wind speed is around 10 m/s and falls under 7~15 m/s (depending on wind direction), while the most common wave height is 1.0~1.5m and falls under 0.5~2.5m (depending on wave direction), before the ship sets sail or moves to another fishing spot. Other operators move anglers to the stern side when the ship's body is expected to pitch and roll significantly depending on the situation.

If anglers refuse to move, operators have a policy that the ship does not set sail until they cooperate or sets sail at a low speed.

The timing of moving anglers while sailing is when the bow pitches (30~100cm) or when meteorological or hydrographic conditions become similar to those before sailing or changing a fishing spot.

Standards for moving anglers before sailing			If an angler refuses to move	
• Wind speed	7~12m/s	8 operators	• The ship does not set sail until the angler cooperates	11 operators
	13~15m/s	3 operators	• The ship sets sail at a low speed	8 operators
• Wave height	2.0~2.5m	2 operators	Timing of moving anglers while sailing	
	1.0~1.5m	7 operators	• When the bow pitches and rolls (30~100cm)	4 operators
	0.5m	1 operator	• When meteorological or hydrographic conditions become similar to those before sailing or changing a fishing spot	10 operators
• Others				
	When the ship's body is expected to pitch and roll significantly	1 operator		
	When the bow is likely to hit waves	1 operator		

Other initiatives to prevent accidents

Additionally, operators have taken initiatives to prevent accidents such as exchange of meteorological and hydrographic information and information on pitching and rolling with consorts, communication with consorts about the appropriateness of setting sail, and placement of cushions on seats.

The results of this questionnaire survey reveal that more than half of operators have set meteorological and hydrographic standards for moving anglers to the stern side from the midship before sailing, before moving to another fishing spot, or while sailing.