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## Meteorological and Oceanographic Data Buoys

### Notice to all Shipowners, Masters and Officers of Merchant Vessels and Skippers of Fishing Vessels

*This MIN expires 15 November 2007*

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**PLEASE NOTE:-**

Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel and you should consider seeking independent legal advice if you are unsure of your own legal position.

#### Summary

- The purpose of this notice is to raise awareness amongst the marine community of the importance of Data buoys, to provide examples of the type of buoys that may be encountered and advice on the action to be taken when encountering a Data buoy at sea.
- The increasing number of meteorological and oceanographic data buoys is inevitably accompanied by a rise in damage caused by human activity and although cases of collision are still fairly rare and generally harmless, incidents of buoys caught in trawls or entangled in fishing lines are fairly frequent.
- The Data Buoy Cooperation Panel (DBCP) considers simple acts of vandalism and problems linked with fishing as a matter of concern and the World Meteorological Organization (WMO), Intergovernmental Oceanographic Commission (IOC), International Maritime Organization (IMO), International Hydrographic Organization (IHO) and the United Nations Food and Agriculture Organization (FAO) encourage their Member States to take all appropriate legal steps to control acts of vandalism.

### 1. Introduction

1.1 Meteorological and oceanographic buoys, whether drifting or moored, are essential to improve our knowledge of the oceans. They measure parameters such as sea-surface temperature, atmospheric pressure, air temperature, wind speed and direction, and water temperature at various depths (in some cases, down to 500 metres below the surface), as well as sea currents from their own tracks in the case of drifting buoys. All buoys transmit their positions along with the measurements to operational meteorological and oceanographic centres in real time.

## 2. Application of Data

2.1 **Weather forecasting.** Numerical weather prediction models use measurements from various sources including satellites, balloon-sondes, land stations, ships, and buoys. At sea, particularly outside the well-used shipping lanes, buoy data are crucial, as satellites cannot always measure accurately certain parameters such as atmospheric pressure or subsurface sea temperature.

2.2 **Fishing.** Sea-surface temperature and its spatial variations (presence of thermal fronts) are an important indicator in the search for certain species of fish. Using this knowledge well saves both fuel and time. Sea temperature is also the basis for studying reproduction and monitoring stocks. Data from buoys moored in the tropical regions as well as float-type deep profilers can also be used to predict El Niño events and other similar ocean disturbances which have a strong impact on the whole economy linked to fishing.

2.3 **Rescue at Sea.** Search-and-rescue operations now commonly use drift forecast models to help locate missing people or boats. These models use surface wind and ocean current data transmitted, inter alia, by buoy arrays.

2.4 **Research.** Research on major disturbances such as El Niño, as well as on seasonal weather forecasting and climate prediction, has led to the deployment of several buoy arrays: the TAO array in the equatorial Pacific (70 moorings), the Pirata array in the tropical Atlantic (12 moorings), the Argo float-type deep drifters (when completed, 3,000 floats in working order over all the oceans), the IBPIO drifting buoy array in the Indian Ocean to monitor cyclones (deployment of about 15 buoys each year), etc.

## 3. Buoys and Moorings

3.1 The increasing number of meteorological and oceanographic data buoys (currently about 200 moored buoys on the high seas, 1,000 drifting buoys and 1,500 float-type deep drifters over all the oceans) is inevitably accompanied by a rise in damage caused by human activity.

3.2 Cases of collision are still rare and harmless as the buoys are generally placed outside the shipping lanes, the larger ones being well identified by flashing beacons and radar reflectors, while drifting buoys are small, light and usually made of plastic.

3.3 However the Data Buoy Cooperation Panel (DBCP, <http://www.dbcp.noaa.gov/dbcp/>), the body responsible at international level for buoy array deployment on the high seas, considers simple acts of vandalism and problems linked with fishing as a matter of concern particularly as incidents of buoys caught in trawl-nets or entangled in fishing lines are fairly frequent.

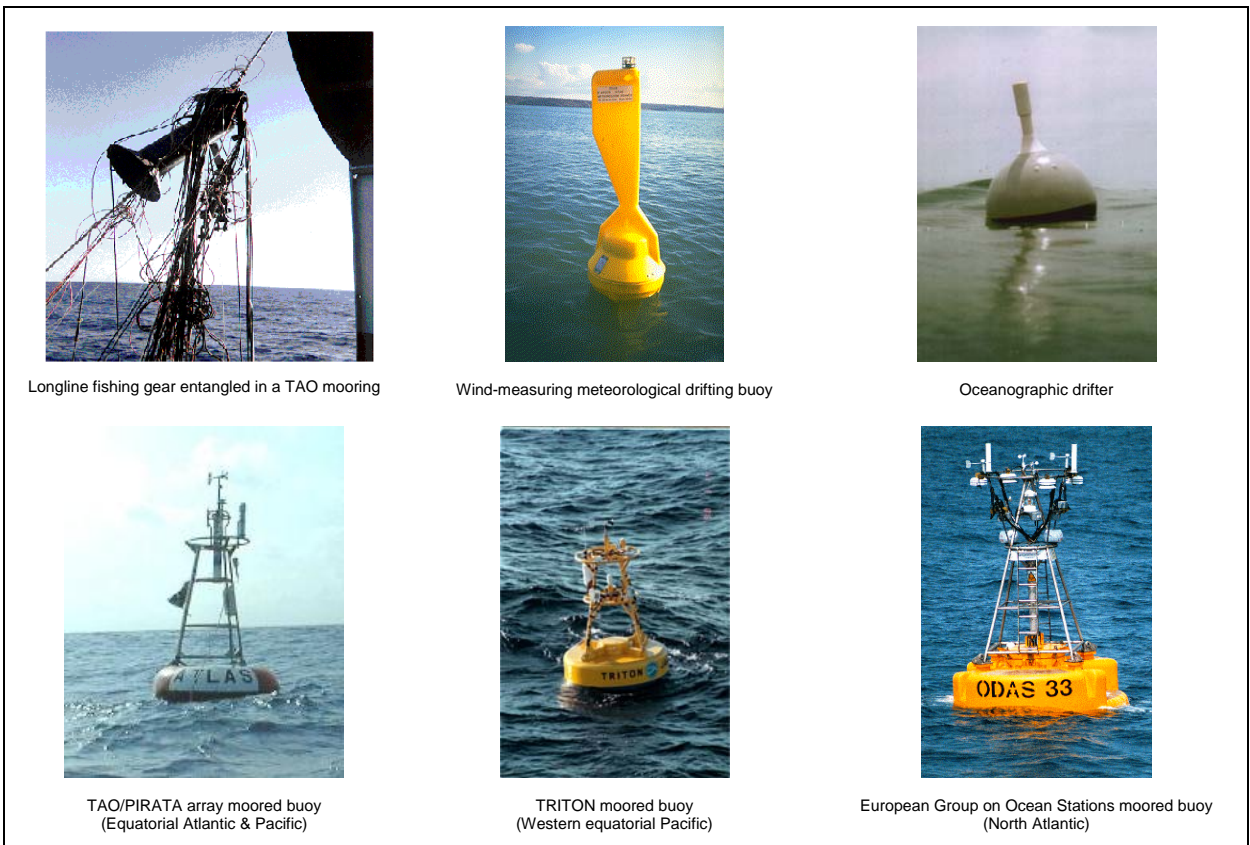
3.4 While it is recognised that buoys attract fish, what is less well known is that these buoys generally have a “ball and chain” mooring arrangement. Almost all drifting buoys now have a submerged floating anchor, usually at a depth of 15 m and, less frequently, a bathythermal cable 100 to 500 m long, enabling the subsurface temperature to be measured. There are also buoys moored far out to sea in depths of 5,000 m, where, because of the depth, the mooring cable is made up of relatively fragile textile rather than a chain.

3.5 To control acts of vandalism and avoid incidents linked to fisheries, the WMO and IOC, as well as the IMO, IHO and the United Nations FAO, have undertaken communication activities besides encouraging their Member States to take all appropriate legal steps.

3.6 Drifting and moored buoys supply valuable information for many communities, including mariners and fishermen. In order to maintain these measurement networks in working order, the cooperation of everyone is needed, particularly that of mariners and fishermen.

#### 4. Advice to mariners

- 4.1 Do not hoist drifting buoys on board. They are designed to stay at sea as long as possible and transmit meteorological and oceanographic data constantly. If loaded, they would continue to transmit their positions along with erroneous measurements from the deck of your ship.
- 4.2 Do not moor your ship to a moored buoy, or drop anchor nearby. You could damage the mooring cable or the buoy itself.
- 4.3 Buoys sometimes attract fish: although it may be tempting, do not deploy fishing gear around buoys. It could get entangled with, and damage the buoys' mooring gear.



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