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## General

India is located in the S part of Asia. It is bounded on the W by Pakistan and the Arabian Sea; on the E by Bangladesh, Burma, and the Bay of Bengal; on the N by the disputed territory of Jammu and Kashmir; and on the NE by China, Nepal, Tibet, and Bhutan. The far E part is almost separated from the rest of the country by Bangladesh.

The terrain varies and includes the mountainous region of the Himilayas in the N, the coastal lowlands, the almost flat plain of the Ganges River in the NE, and a desert in the W.

The climate varies from tropical monsoon in the S part to temperate in the N.

## Buoyage System

The IALA Buoyage System (Region A) is in effect. See Chart No. 1 for further IALA Buoyage System information.

## Cautions

### Development Area

An extensive offshore area, which is designated as a Development Area, lies in the approaches to the port of Bombay. Several oil fields and exploration sites lie within this area. In addition, numerous derricks, oil production platforms, wells, single point moorings, and other obstructions hinder safe navigation in this area.

Vessels not associated with oil field operations are strongly advised by the Government of India not to approach within 2.5 miles of any production platforms or structures in any Development Areas.

## Routes

The Indian authorities have established recommended routes for vessels bound for the port of Bombay in order to aid traffic transiting the approach areas. The local authorities request that vessels remain 1 to 2 miles to starboard of the recommended route tracklines, which may be seen on the chart, consistent with safe navigation and the International Regulations for Preventing Collisions at sea, 1972 (72 COLREGS).

## Seismic Surveys

Seismic surveys, in connection with offshore oil and mineral exploration, are conducted in and around Indian waters. Details of these surveys are generally provided to mariners by local radio navigational warning or by Indian Notices to Mariners. It is seldom practicable to publish details of the areas of operation except in general terms; therefore, vessels carrying out seismic surveys may be encountered without prior notice. Seismic survey vessels operate either alone or in company and may tow a sensing device in the form of buoyant cable streamed 1 to 2 miles astern. This sensing device may be on the surface or lie at depths of up to 12m below. An orange buoy, which displays a quick flashing light and carries a radar reflector, is usually attached to the end of the cable.

In the process of the survey, repeated shock waves are created, at any level between the bottom and the surface, by the use of explosive charges, compressed air, mechanical librators, or electrical means. Vessels surveying will usually make way through the water, but sometimes they stop for extended periods.

Seismic survey vessels that are unable to maneuver are required to carry the lights and signals as described in the 72 COLREGS and should be given a wide berth.

If charges are being fired by radio or electrically triggered detonators, survey vessels may suspend radio and radar transmissions in order to avoid accidental firings. The charges may be contained in a variety of cylinders, tubes, or bags which may be marked as "Dangerous." No attempt to recover such items should be made and if any are inadvertently taken aboard in trawls, etc., should be jettisoned immediately.

## Currency

The official unit of currency is the rupee, consisting of 100 paise.

## Firing Areas

Firing, bombing, and other defense practice exercises take place within a number of areas lying off the coast of India. The responsibility to avoid accidents rests entirely with the Range Authorities. Therefore, the limits of these areas may not, in all cases, be shown on the charts and their descriptions may not appear in the Sailing Directions (Enroute).

When air to air, air to sea, or ground firing are carried out by aircraft, a large white or red sleeve, a winged target, or a flag is towed by another aircraft moving on a steady course. Generally, warning signals are shown when the targets are stationary, but not when towed targets are used.

All marine craft operating as range-safety craft, target towers, or control launches for remote controlled targets will

display for identification purposes, while within or in the vicinity of the danger area, a large red flag at the masthead.

Remote-controlled craft are about 21m in length and carry "Not Under Command" shapes and lights, as well as normal navigation lights. Exercises consisting of surface firing by ships, practice bombing, air to sea firing, and rocket firing may be carried out against these craft or targets towed by them. In such cases, a control craft will keep a visual and a radar watch extending up to about 8 miles and there will be cover from the air over a much greater range to ensure that shipping is not endangered.

Rocket and guided weapons firing exercises are conducted under Clear (Air and Sea) Range procedures. Devices are generally incorporated whereby the missiles may be destroyed should their flights be erratic.

Warning signals, when given, usually consist of red flags by day and red fixed or red flashing lights at night. However, the absence of any such signal cannot be accepted as evidence that a practice area does not exist. Warning signals are shown from shortly before practice commences until it ceases.

Ships and aircraft carrying out night exercises may illuminate with bright red or orange flares.

Vessels may be aware of the existence of practice areas by monitoring the NAVAREA VIII warning messages, the coastal warning messages, local Notice to Mariners, and by observing warning signals.

The Range Authorities are responsible for ensuring that there is no risk of damage from falling shell-splinters, bullets, etc., to any vessel which may be in the practice area.

## Rocket Launching Areas

### 1. Thumba Equatorial Rocket Launching Station.—

Experimental high altitude meteorological/scientific rocket firing will take place periodically from a launching site at Thumba on the W coast of India (8°32'34"N., 76°51'32"E.).

The danger areas are as follows:

a. Area I.—Within a sector contained in a 5 mile radius from the launching site, between bearings 010° and 120° from seaward.

b. Area II.—Within a sector contained in arcs of 10 and 125 miles radii from the launching site, between bearings 010° and 120° from seaward.

Mariners are advised to keep clear of the above danger areas when firing is due to take place. NAVAREA VIII and coastal radio warnings will be issued sufficiently in advance in accordance with Indian Annual Notices Nos. 11 and 12. No visual warning signals will be displayed. Vessels unavoidably in the danger areas should contact VWB (Bombay) on 500kHz or 8MHz.

2. **Balasore Rocket Launching Station.**—Experimental high altitude meteorological/scientific rocket firing will take place periodically from a launching site at Balasore on the E coast of India (21°25'30"N., 87°00'10"E.).

The danger areas are as follows:

a. Area I.—Within a sector contained in a 10 mile radius from the launching site between bearings 280° and 010° from seaward.

b. Area II.—Within a sector contained in arcs of 45 miles and 75 miles radii from the launching site between bearings 305° and 345° from seaward.

Mariners are advised to keep clear of the above danger areas when firing is due to take place. NAVAREA VIII and coastal radio warnings will be issued sufficiently in advance in accordance with Indian Annual Notices Nos. 11 and 12. No visual warning signals will be displayed. Vessels unavoidably in the danger areas should contact VWC (Calcutta) on 500kHz.

**3. Sriharikota Satellite/Sounding Rocket Launching Stations.**—Experimental high altitude satellite/sounding rocket launching will take place periodically from Sriharikota launching sites on the E coast of India.

a. Satellite Launching Station (13°40'N., 80°14'E.) with danger areas as follows:

(i) A circular zone of 5 miles radius around the launching pad.

(ii) A sector, with a radius of 16 miles, from the launch pad between the azimuth angles of 115° and 155°.

(iii) A circular zone, with a radius of 22 miles, with its center at 11°17'N, 84°04'E.

(iv) A circular zone, with a radius of 46 miles, with its center at 2°45'N, 90°14'E.

(v) A circular zone, with a radius of 88 miles, with its center at 13°20'S, 104°50'E.

b. Sounding Rocket Launching Station (13°42'N., 80°14'E.) with danger areas as follows:

(i) Within a circular zone, with radius of 20 miles, with its center at 13°42'N, 80°29'E, the launch pad.

(ii) Within a sector contained in arcs of 45 miles and 75 miles radii from the launch pad, between azimuth angles of 50° and 120° from True North.

(iii) Within a sector contained in arcs of 105 miles and 140 miles radii from the launching pad, between the azimuth angles of 50° and 120° from True North.

(iv) Within a sector contained in arcs of 180 miles and 300 miles from the launch pad, between the azimuth angles of 50° and 120° from True North.

(v) An area enclosed by 13°26'N, 80°14'E; 13°26'N, 80°30'E; 14°00'N, 80°14'E; and 14°00'N, 80°30'E.

Mariners are advised to keep clear of the above danger areas when launching is due to take place. NAVAREA VIII and coast radio warnings will be issued sufficiently in advance in accordance with Indian Annual Notices Nos. 11 and 12. No visual warning signals will be displayed. Vessels unavoidably in the danger areas should contact Madras Coast Radio Station (VWM) or Vishakhapatnam (VWV) on 500 kHz.

### Firing Practice and Exercise Areas

The following firing areas lie off the coast of India:

1. **Bedi (off Balachiri).**—Area enclosed by lines joining the following positions:

- 22°49'00"N, 70°06'00"E.
- 22°45'50"N, 70°13'10"E.
- 22°38'15"N, 70°09'20"E.
- 22°41'10"N, 70°01'50"E.

2. **Nora Island.**—Area of 2 miles around Nora Island (22°31'00"N., 69°20'30"E.).

### 3. Okha

(i) Submarine Exercise Area A—Area enclosed by lines joining the following positions:

- 22°30'N, 68°12'E.
- 22°16'N, 68°24'E.
- 22°04'N, 68°08'E.
- 22°19'N, 67°56'E.

(Reference position "AA" 22°17'N, 68°10'E.)

(ii) Submarine Exercise Area B—Area enclosed by lines joining the following positions:

- 22°07'N, 67°32'E.
- 21°53'N, 67°45'E.
- 21°41'N, 67°29'E.
- 21°55'N, 67°16'E.

(Reference position "BB" 21°54'N, 67°31'E.)

### 4. Dwarka

(i) Area enclosed by lines joining the following positions:

- 22°18'30"N, 68°25'00"E.
- 22°06'00"N, 68°49'00"E.
- 21°30'45"N, 69°27'00"E.
- 21°09'00"N, 69°40'30"E.
- 21°30'30"N, 68°48'30"E.

(ii) Rushton Firing Area—Area enclosed by lines joining the following positions::

- 22°06'00"N, 68°49'00"E.
- 21°30'45"N, 69°27'00"E.
- 21°15'00"N, 69°08'00"E.
- 21°49'00"N, 68°31'30"E.

### 5. Bombay

(i) General Firing Area A—Area enclosed by lines joining the following positions:

- 18°28'N, 70°56'E.
- 18°28'N, 71°16'E.
- 18°10'N, 70°56'E.
- 18°10'N, 71°16'E.

(Reference position "AA" 18°19'N, 71°31'E.)

(ii) Surface Firing Area B—Area enclosed by lines joining the following positions:

- 17°48'N, 71°52'E.
- 17°48'N, 72°10'E.
- 17°28'N, 71°52'E.
- 17°28'N, 72°10'E.

(Reference position "BB" 17°38'N, 72°01'E.)

(iii) Submarine Exercise Area C—Area enclosed by lines joining the following positions:

- 17°40'N, 71°22'E.
- 17°50'N, 71°30'E.
- 17°32'N, 71°33'E.
- 17°36'N, 71°42'E.

(iv) Live and Practice Underwater Firing Area U—Area enclosed by lines joining the following positions:

- 17°40'N, 71°14'E.
- 17°30'N, 71°07'E.
- 17°25'N, 71°30'E.
- 17°18'N, 71°16'E.

(Reference position "UU" 17°28'N, 71°15'E.)

(v) Middle Ground Firing Area—Area enclosed by lines joining the following positions:

- a. 18°50'00"N, 72°54'30"E.
- b. 18°54'30"N, 72°54'00"E.
- c. 18°55'10"N, 72°50'58"E.
- d. 18°54'39"N, 72°50'35"E.

(vi) Oyster Rock Firing Area—Area enclosed by lines joining the following positions:

- a. 18°48'00"N, 72°52'00"E.
- b. 18°50'00"N, 72°54'30"E.
- c. 18°54'39"N, 72°50'35"E.
- d. 18°54'05"N, 72°49'48"E.

(vii) Area enclosed by lines joining the following positions:

- a. 18°48'00"N, 72°38'00"E.
- b. 18°52'00"N, 72°46'00"E.
- c. 18°51'00"N, 72°47'00"E.
- d. 18°53'39"N, 72°48'45"E. (Colaba Point)
- e. 19°00'00"N, 72°44'05"E.
- f. 19°00'00"N, 72°38'00"E.

(Positions [a] and [f] are to be joined by an arc with position [d] as the center.)

(viii) Area enclosed by lines joining the following positions:

- a. 18°51'50"N, 72°38'20"E.
- b. 19°01'20"N, 72°49'00"E.
- c. 19°05'00"N, 72°47'00"E.
- d. 19°04'00"N, 72°35'00"E.

(ix) Torpedo Firing Exercise Area J—Area enclosed by lines joining the following positions:

- a. 17°28'N, 71°02'E.
- b. 17°15'N, 70°55'E.
- c. 17°12'N, 71°15'E.
- d. 17°05'N, 71°05'E.

(x) Submarine Exercise Area K—Area enclosed by lines joining the following positions:

- a. 17°20'N, 71°32'E.
- b. 17°10'N, 71°50'E.
- c. 17°08'N, 71°25'E.
- d. 17°00'N, 71°45'E.

(Reference position "KK" 17°20'N, 71°40'E.)

(xi) Rushton Tracking and Firing Area VAD 31—Area enclosed by lines joining the following positions:

- a. 17°50'N, 72°28'E.
- b. 17°50'N, 72°45'E.
- c. 17°25'N, 72°28'E.
- d. 17°13'N, 72°42'E.

6. **Off the W coast of Ratnagiri**—Missile Firing Area L—Area enclosed by lines joining the following positions

- a. 16°53'N, 72°00'E.
- b. 16°32'N, 72°35'E.
- c. 15°43'N, 71°28'E.
- d. 15°22'N, 72°05'E.

(Reference position "LL" 16°05'N, 72°05'E.)

## 7. Goa

(i) General Exercise Area A—Area enclosed by lines joining the following positions:

- a. 15°12'30"N, 73°20'30"E.
- b. 14°54'00"N, 73°28'30"E.
- c. 15°16'30"N, 73°29'30"E.
- d. 14°58'00"N, 73°38'00"E.

(Reference position "AA" 15°05'30"N, 73°29'00"E.)

(ii) Live Firing Area B—Area enclosed by lines joining the following positions:

- a. 15°08'00"N, 73°10'30"E.
- b. 14°50'00"N, 73°19'00"E.
- c. 15°12'30"N, 73°20'30"E.
- d. 14°54'00"N, 73°28'30"E.

(Reference position "BB" 15°01'00"N, 73°19'30"E.)

(iii) Submarine Exercise Area D—Area enclosed by lines joining the following positions:

- a. 15°21'N, 72°22'E.
- b. 15°25'N, 72°34'E.
- c. 15°02'N, 72°30'E.
- d. 15°07'N, 72°42'E.

(Reference position "DD" 15°13'N, 72°32'E.)

(iv) Submarine Exercise Area G—Area enclosed by lines joining the following positions:

- a. 15°06'00"N, 73°15'00"E.
- b. 15°10'00"N, 73°27'00"E.
- c. 14°52'00"N, 73°35'00"E.
- d. 14°47'00"N, 73°23'30"E.

(Reference position "GG" 15°00'00"N, 73°26'00"E.)

(v) Deep Water Submarine Exercise Area H—Area enclosed by lines joining the following positions:

- a. 15°27'00"N, 72°51'30"E.
- b. 15°09'00"N, 72°59'30"E.
- c. 15°32'00"N, 73°02'30"E.
- d. 15°14'00"N, 73°10'45"E.

(Reference position "HH" 15°20'30"N, 73°01'00"E.)

(vi) Air to air range enclosed by lines joining the following positions:

- a. 15°44'N, 72°54'E.
- b. 15°53'N, 73°12'E.
- c. 14°58'N, 73°38'E.
- d. 14°50'N, 73°19'E.

(vii) Firing area enclosed by lines joining the following positions:

- a. 15°13'N, 73°57'E.
- b. 15°13'N, 73°52'E.
- c. 15°11'N, 73°52'E.
- d. 15°11'N, 73°57'E.

## 8. Cochin

(i) Area enclosed by lines joining the following positions:

- a. 10°45'N, 75°05'E.
- b. 10°45'N, 75°50'E.
- c. 09°15'N, 75°05'E.
- d. 09°15'N, 76°05'E.

(ii) Submarine Exercise Area R—Area enclosed by lines joining the following positions:

- a. 10°00'00"N, 75°40'00"E.
- b. 10°00'00"N, 75°50'00"E.
- c. 09°45'00"N, 75°51'00"E.
- d. 09°45'00"N, 75°42'00"E.

(Reference position "RR" 09°52'30"N, 75°46'00"E.)

(iii) Deep Water Submarine Exercise Area S—Area enclosed by lines joining the following positions:

- a. 09°39'00"N, 75°43'00"E.
- b. 09°24'00"N, 75°46'00"E.
- c. 09°39'00"N, 75°52'00"E.

d. 09°24'00"N, 75°54'30"E.

(Reference position "SS" 09°31'30"N, 75°48'30"E.)

(iv) Live Firing Area B—Area enclosed by lines joining the following positions:

a. 10°30'N, 75°20'E.

b. 10°30'N, 75°41'E.

c. 10°05'N, 75°31'E.

d. 10°05'N, 75°51'E.

(Reference position "BB" 10°17'30"N, 75°35'30"E.)

(v) Submarine Exercise Area D—Area enclosed by lines joining the following positions:

a. 10°15'N, 75°11'E.

b. 10°17'N, 75°25'E.

c. 09°55'N, 75°14'E.

d. 09°57'N, 75°29'E.

(Reference position "DD" 10°07'N, 75°20'E.)

(vi) Sector with (a) as center and enclosing (b) and (c) as following below:

a. 09°57'20"N, 76°14'10"E.

b. 10°03'50"N, 76°03'10"E.

c. 09°44'50"N, 76°15'09"E.

(vii) Area enclosed by lines joining the following positions:

a. 09°57'30"N, 75°59'30"E.

b. 09°57'42"N, 76°14'12"E.

c. 09°44'00"N, 76°17'30"E.

d. 09°42'30"N, 76°09'30"E.

(viii) Live and Practice Underwater Firing Area U—Area enclosed by lines joining the following positions:

a. 10°00'00"N, 75°28'00"E.

b. 09°43'30"N, 75°31'00"E.

c. 10°00'00"N, 75°38'00"E.

d. 09°43'30"N, 75°41'00"E.

(Reference position "UU" 09°51'57"N, 75°34'30"E.)

## 9. Madras

(i) Area enclosed by lines joining the following positions:

a. 12°56'52"N, 80°20'07"E.

b. 13°04'21"N, 80°17'23"E.

c. 13°09'45"N, 80°23'52"E.

d. 13°02'08"N, 80°25'21"E.

(ii) Area enclosed by lines joining the following positions:

a. 12°55'36"N, 80°25'25"E.

b. 13°07'03"N, 80°17'37"E.

c. 13°17'40"N, 80°26'51"E.

d. 13°06'13"N, 80°32'00"E.

(iii) Area enclosed by lines joining the following positions:

a. 12°51'10"N, 80°17'08"E.

b. 13°04'00"N, 80°17'08"E.

c. 13°10'03"N, 80°28'08"E.

d. 12°58'00"N, 80°28'08"E.

(iv) Submarine Exercise Area D—Area enclosed by lines joining the following positions:

a. 13°25'N, 80°36'E.

b. 13°25'N, 80°50'E.

c. 13°05'N, 80°36'E.

d. 13°05'N, 80°50'E.

(Reference position "DD" 13°15'N, 80°43'E.)

(v) Submarine Exercise/Area M—Area enclosed by lines joining the following positions:

a. 12°47'00"N, 80°26'36"E.

b. 12°47'00"N, 80°35'42"E.

c. 12°37'00"N, 80°35'42"E.

d. 12°37'00"N, 80°26'36"E.

(Reference position "MM" 12°42'00"N, 80°31'00"E.)

(vi) Submarine Exercise Area N—Area enclosed by lines joining the following positions:

a. 13°02'N, 80°33'E.

b. 12°52'N, 80°33'E.

c. 13°02'N, 80°41'E.

d. 12°52'N, 80°41'E.

(Reference position "NN" 12°57'N, 80°37'E.)

(vii) Live and Practice Underwater Firing Area U—Area enclosed by lines joining the following positions:

a. 12°47'00"N, 80°40'42"E.

b. 12°47'00"N, 80°48'42"E.

c. 12°36'48"N, 80°40'42"E.

d. 12°36'48"N, 80°40'42"E.

(Reference position "UU" 12°42'00"N, 80°44'42"E.)

(viii) Rushton Tracking and Firing Area—Area enclosed by lines joining the following positions:

a. 11°35'N, 81°00'E.

b. 11°00'N, 81°00'E.

c. 11°35'N, 81°40'E.

d. 11°00'N, 81°40'E.

10. **Nizampatnam Bay.**—Weapons Firing Range—Area enclosed by lines joining the following positions:

a. 14°45'N, 80°08'E.

b. 15°00'N, 81°30'E.

c. 16°00'N, 81°10'E.

then along the coast to join back with position a.

## 11. Vishakhapatnam

(i) General Exercise/Live Firing Area A—Area enclosed by lines joining the following positions:

a. 17°44'00"N, 84°05'00"E.

b. 17°44'00"N, 83°48'06"E.

c. 17°48'08"N, 83°42'06"E.

d. 17°58'00"N, 83°52'00"E.

e. 17°58'00"N, 84°19'00"E.

(ii) General Exercise/Live Firing Area B—Area enclosed by lines joining the following positions:

a. 17°05'48"N, 82°58'48"E.

b. 16°49'42"N, 83°06'42"E.

c. 17°04'30"N, 83°27'36"E.

d. 17°20'30"N, 83°19'36"E.

(iii) Area D—Area enclosed by lines joining the following positions:

a. 17°42'N, 83°47'E.

b. 17°42'N, 84°07'E.

c. 17°18'N, 83°47'E.

d. 17°18'N, 84°07'E.

(Reference position "DD" 17°30'N, 83°57'E.)

(iv) Firing from naval coast battery area—Area enclosed by lines joining the following positions:

a. 17°42'03"N, 83°18'24"E.

b. 17°41'30"N, 83°18'07"E.

c. 17°30'24"N, 83°18'07"E.

- d. 17°34'04"N, 83°30'18"E.  
e. 17°46'04"N, 83°32'04"E.
- (v) Submarine Exercise Area R—Area enclosed by lines joining the following positions:  
a. 17°45'00"N, 83°39'12"E.  
b. 17°40'24"N, 83°44'42"E.  
c. 17°32'36"N, 83°38'12"E.  
d. 17°37'18"N, 83°32'12"E.  
(Reference position "RR" 17°39'00"N, 83°38'36"E.)
- (vi) Submarine Exercise Area S—Area enclosed by lines joining the following positions:  
a. 17°31'36"N, 83°31'24"E.  
b. 17°26'42"N, 83°37'30"E.  
c. 17°19'00"N, 83°30'36"E.  
d. 17°23'54"N, 83°24'36"E.
- (vii) Submarine Bottoming Area—Area enclosed by lines joining the following positions:  
a. 17°45'18"N, 83°25'24"E.  
b. 17°44'54"N, 83°25'48"E.  
c. 17°44'48"N, 83°24'54"E.  
d. 17°44'12"N, 83°25'06"E.
- (viii) Deep Diving Area—Area enclosed by lines joining the following positions:  
a. 17°16'54"N, 83°29'00"E.  
b. 17°15'00"N, 83°30'00"E.  
c. 17°26'12"N, 83°43'24"E.  
d. 17°28'00"N, 83°41'36"E.
- (ix) Missile Firing Area—Area enclosed by lines joining the following positions:  
a. 17°05'N, 83°30'E.  
b. 16°35'N, 83°52'E.  
c. 16°00'N, 84°15'E.  
d. 15°16'N, 83°20'E.  
e. 15°50'N, 82°55'E.  
f. 16°05'N, 82°45'E.
12. **Kalaikunda**—Area enclosed by lines joining the following positions:  
a. 20°00'N, 88°00'E.  
b. 20°00'N, 89°00'E.  
c. 20°35'N, 88°00'E.  
d. 20°35'N, 89°00'E.
13. **Balasore**—Area B—Area enclosed by lines joining the following positions:  
a. 21°27'30"N, 87°02'00"E.  
b. 21°18'30"N, 87°12'00"E.  
c. 21°06'30"N, 87°01'30"E.  
d. 21°04'30"N, 86°50'15"E.
14. **Calcutta**—Area enclosed by lines joining the following positions:  
a. 22°11'30"N, 88°11'00"E.  
b. 22°11'24"N, 88°08'00"E.  
c. 22°06'00"N, 88°09'30"E.  
d. 22°01'00"N, 88°03'18"E.  
e. 22°07'00"N, 88°10'30"E.  
f. 22°05'00"N, 88°15'00"E.
15. **Port Cornwallis**—Area A—Area enclosed by lines joining the following positions:  
a. 13°10'N, 93°24'E.  
b. 13°30'N, 93°24'E.  
c. 13°10'N, 93°48'E.  
d. 13°30'N, 93°48'E.  
(Reference position "AA" 13°20'N, 93°36'E.)
16. **Port Blair**  
(i) Area A—Area enclosed by lines joining the following positions:  
a. 11°39'N, 92°49'E.  
b. 11°39'N, 93°03'E.  
c. 11°24'N, 93°03'E.  
d. 11°24'N, 92°49'E.  
(Reference position "AA" 11°31'30"N, 92°56'00"E.)  
(ii) Area B—Area enclosed by lines joining the following positions:  
a. 11°39'N, 93°03'E.  
b. 11°39'N, 93°18'E.  
c. 11°24'N, 93°18'E.  
d. 11°24'N, 93°03'E.  
(Reference position "BB" 11°31'30"N, 93°10'30"E.)  
(iii) Area C—Area enclosed by lines joining the following positions:  
a. 11°24'N, 92°49'E.  
b. 11°24'N, 93°18'E.  
c. 11°00'N, 93°18'E.  
d. 11°00'N, 92°49'E.  
(Reference position "CC" 11°12'00"N, 93°03'30"E.)  
(iv) Area D—Area enclosed by lines joining the following positions:  
a. 11°24'N, 92°55'E.  
b. 11°24'N, 93°12'E.  
c. 11°00'N, 92°55'E.  
d. 11°00'N, 93°12'E.  
(Reference position "DD" 11°15'N, 93°04'E.)
17. The safe flying heights are, as follows:  
a. In areas of firing by aircraft:  
(i) Air to air range—10,000m.  
(ii) Air to sea/ground range—7,000m.  
b. In gunnery practice areas:  
(i) 4 inch and above—13,000m.  
(ii) 40/60 and 20mm—8,000m.  
c. In missile firing areas—20,000m.

## Government

India, which received independence from the United Kingdom in 1947, is a federal republic with a parliamentary government.

The country is a Union and consists of 28 States and 7 Union Territories. Each State is administered by a Governor appointed by the President for a 5-year term. Each Union Territory is administered by the President through an appointed administrator or Lieutenant-Governor.

The head of the Union is the President, who is elected by an electoral college for a 5-year term, in whom all executive power is vested. The electoral college consists of all the elected members of the Parliament and the State Assemblies.

The Council of Ministers aids and advises the President. The Prime Minister is elected by the members of the majority party.

The Sansad (Parliament) consists of an upper house and a lower house.

The Rajya Sabha (Council of States), consisting of not more than 250 members, is the upper house; it is a combination of members selected by the elected members of the state and territorial assemblies and up to 12 members appointed by the President. All members serve 6-year terms.

The Lok Sabha (House of the People) forms the lower house and consists of about 545 directly-elected members serving 5-year terms.

The constitution declares that the caste system (untouchability) has been abolished and its practice in any form is punishable.

The legal system is based on English common law.

The capital is New Delhi.



Flag of India

## Holidays

Many of the religious holidays (feasts) vary from year to year and depend on astronomical observations. The dates are usually declared at the beginning of the year in which they fall.

The following holidays are observed with local variations:

1. **Bombay**—January 26, Republic Day; April 14, Ambedkar Jayanti; May 1, May Day; and August 15, Independence Day.

Other public religious holidays are Holy Day (2nd Day), Chatrapati Shivaji Maharaj Jayanti, Ramzan Id (Id-UI-Fitr), Gokul Ashtami, Ganesh Chaturthi, Bakri (Id-UI-Zuha), Dassara, Muharram, and Diwali.

2. **Calcutta**—January 26, Republic Day; May 1, May Day; August 15, Independence Day; October 2, Gandhi's Birthday; and December 25, Christmas Day.

Other public religious holidays are Kali Puja and Bijoya Dasami.

3. **Calicut**—January 1, New Year's Day; January 26, Republic Day; and August 15, Independence Day.

Other public religious holidays are Good Friday, Vishu, Ramzan Id (Id-UI-Fitr), Thiru Onam, Bakri (Id-UI-Zuha), Muha Navami, and Deepavali.

4. **Cochin**—January 1, New Year's Day; January 26, Republic Day; May 1, May Day; August 15, Independence Day; October 2, Gandhi Jayanthi; and December 25, Christmas Day.

Other public religious holidays are Good Friday, Vishu, Ramzan Id (Id-UI-Fitr), Thiru Onam, and Mahanavami.

5. **Cuddalore**—January 1, New Year's Day; January 14, Pongal; January 15, Thiruvalluvar Day; January 16, Uzhavar Thirunal (Farmers' Day); January 18, Pennar Festival;

January 26, Republic Day; May 1, May Day; August 15, Independence Day; October 2, Gandhi's Birthday; and December 25, Christmas Day.

Other public religious holidays are Masi Magam, Good Friday, Telugu New Year's Day and Tamil New Year's Day, Ramzan Id (Id-UI-Fitr), Vinayakar Chaturthi, Bakrid, Ayudha Pooja, Muharram, Deepavali, Meelad-un-Nabi, and Aruthra Darisanam.

6. **Gujarat State (except Kandla)**—January 26, Republic Day.

Other public religious holidays are Holi, Ramnavami, Ramzan-Id (Id-UI-Fitr), Janmashtami (Gokul Asthami), Bakri (Id-UI-Zuha), Dussehra, Muharram (Asura or 10th Muharram), and Diwali.

7. **Kandla**—January 26, Republic Day; and August 15, Independence Day.

Other public religious holidays are Holi, Ramzan Id (Id-UI-Fitr), Raksha Bandhan, Janmastami, Muharram, and Diwali.

8. **Karwar and Belekeri**—January 26, Republic Day; and August 15, Independence Day.

Other public religious holidays are Maha Shivarathri, Good Friday, Chandramana Ugadi, Kutub-e-Ramzan, Ganesha Chaturthi, Ayudha Pooja (Mahanavami), Last Day of Muharram, Rajyotsava Day, Balipadyami, and Id-Meelad.

9. **Madras**—Public religious holidays are Tamil New Year's Day/Telugu New Year's Day, and Deepavali.

10. **Kakinada**—January 1, New Year's Day; January 13, Bhogi; January 14, Sankranti; January 15, Kanuma; January 26, Republic Day; and August 15, Independence Day.

Other public religious holidays are Chollangi Amavasya, Good Friday, Telugu New Year's Day, Ramzan Id (Id-UI-Fitr), Vinayaka Chaturdhi, Mahanavami, Deepavali, and Nagulachavithi.

11. **New Mangalore**—January 26, Republic Day; August 15, Independence Day; and November 1, Rajyotsava Day.

Other public religious holidays are Mahashivaratri, Good Friday, Chandramana Ugadi, Kutub-e-Ramzan, Ganesh Chaturthi, Auydha Pooja, Last Day of Muharram, Naraka Chaturdashi, and Id-Meelad.

12. **Mormugao, Goa**—January 1, New Year's Day; January 26, Republic Day; May 1, May Day; August 15, Independence Day; October 2, Gandhi's Birthday; December 3, Feast of St. Francis Xavier; December 19, Goa Liberation Day; and December 25, Christmas Day.

Other public religious holidays Holi, Good Friday, Ramzan Id (Id-UI-Fitr), Ganesh Chaturthi, Bakri (Id-UI-Zuha), Muharram/Dussehra, Diwali, and Guru Nanak's Birthday.

13. **Nagapattinam**—January 1, New Year's Day; January 14, Pongal; Thiruvalluvar's Day; January 26, Republic Day; April 5, National Maritime Day; and August 15, Independence Day.

Other public religious holidays are Good Friday, Tamil and Telugu New Year's Day, Ramzan Id (Id-UI-Fitr), Vinayaka Chaturthi, Bakri (Id-UI-Zuha), Ayudha Pooja, Muharram, Deepavali, and Meelad-Un-Nabi.

14. **Paradip**—January 26, Republic Day; April 14, Maha Bisuva Sankranti (Oriya New Year's Day); August 15, Independence Day; October 2, Gandhi's Birthday; and December 25, Christmas Day.

Other public religious holidays are Basanta Panchami, Holi, Utkal Divas, Good Friday, Mahavir Jayanti, Budha Purnima, Raja Sankranti, Ramzan Id (Id-Ul-Fitr), Ratha Jatra, Janmashtami, Beswakarma Puja, Bakri (Id-Ul-Zuha), Durga Puja, Dussehra, Muharram, Deepavili, Kalipuja, Rahas Purnima, and Guru Nanak's Birthday.

15. **Pondicherry**—January 26, Republic Day; May 1, May Day; August 15, Independence Day; August 16, De-Jure Transfer Day; October 2, Gandhi's Birthday; and December 25, Christmas Day.

Other public religious holidays are Karinal, Masi Magam, Tamil New Year's Day, Villianur Car Festival, Ramzan Id (Id-Ul-Fitr), Veerampattinam Car Festival, Vinayaka Chathurthi, Bakrid, Ayudha Pooja, and Deepavali.

16. **Redi**—January 14, Makar Sankranti (Pongal); January 26, Republic Day; August 15, Independence Day; October 2, Gandhi's Birthday; and December 25, Christmas Day.

Other public religious holidays are Holi, Good Friday, Gudi Padwa/Vaishaki/Dr. Ambedker Jayanthi Day, Mahavira Jayanthi, Buddha Purnima, Ramzan Id (Id-Ul-Fitr), Bakri (Id-Ul-Zuha), Dusserha (Vijaya Dashmi), Muharram, Diwali, and Guru Nanak's Birthday.

17. **Tuticorin**—January 1, New Year's Day; January 14, Pongal; January 15, Thiruvalluvar Day (Karinal); January 26, Republic Day; August 5, Feast of Our Lady of Snows; and August 15, Independence Day.

Other public religious holidays are Maundy Thursday, Good Friday, Tamil New Year's Day, Ramzan Id (Id-Ul-Fitr), Muharram, and Deepavali.

18. **Visakhapatnam**—January 14, Pongal (Sankranthi); January 15, Kanumu; January 16, Mukkanumu; January 26, Republic Day; August 15, Independence Day; and October 2, Gandhi's Birthday.

Other public religious holidays are Kotha Amavasya, Ugadi (Telugu New Year), Vijayadasami, and Nagulachavithi.

## Industries

The major industries include textiles, chemicals, food processing, petroleum and natural gas production, steel, mining, pharmaceuticals, cement, transportation equipment, livestock raising, and fishing.

The main agricultural crops are rice, cereals, tea, oilseed, cotton, jute, opium, and sugarcane.

## Languages

The official national language is Hindi. English is also very widely used, especially in business, communications, and government. In addition, there are 14 other official languages and numerous dialects are also spoken.

## Offshore Islands

### Andaman Islands

The Andaman Islands, a group of about 204 islands and rocks, lie between 10°30'N and 13°40'N, and between 92°11'E and 93°07'E.

The Andaman Islands, together with the Nicobar Islands, are administered as a Union Territory by the President of the Re-

public of India, acting through a Lieutenant Governor. The seat of administration is situated at Port Blair. The islands are densely wooded and contain valuable hardwood and softwood trees which form the principal export. They are deeply indented and form several deep and spacious harbors.

The observed Standard time is 5 hours 30 minutes fast of UT(GMT). Daylight Savings Time is not observed.

### Nicobar Islands

The Nicobar Islands, a group of about 19, are a dependency of the Andaman Islands. They lie between 6°45'N and 9°15'N, and between 92°40'E and 93°55'E.

The islands are mostly hilly and undulating. Rivers are found only on the island of Great Nicobar. Severe earthquakes can be expected in this vicinity as the islands lie on a fault line. Coconuts and tobacco are grown.

The observed Standard time is 5 hours 30 minutes fast of UT(GMT). Daylight Savings Time is not observed.

## Regulations

### Dangerous and Hazardous Cargo

It is required that all vessels above 100 grt carrying dangerous and hazardous cargo transiting through the Indian Exclusive Economic Zone (EEZ) report the details of the cargo carried 48 hours before entering any Indian port or 24 hours prior to entering the Indian EEZ. Vessels sailing from neighboring countries are also required to report on their cargo 24 hours prior to departure.

This information shall be included in line P of the Indian Ship Position and Information Reporting System (INSPIRES) reporting format.

### Restricted Area

The union territory of Andaman and Nicobar islands has been declared a Restricted Area by the Government of India. Foreign vessels and foreign nationals are prohibited from visiting the Andaman and Nicobar islands without prior permission from the Government of India.

## Search and Rescue

The Indian Navy is responsible for coordinating Search and Rescue Operations (SAR) in the waters adjoining the Indian coast between 6°00'N and 23°30'N on the W seaboard, including the Lakshadweep Islands, and between 6°00'N and 22°00'N on the E seaboard.

Coverage is also provided within a radius of 100 miles around the Andaman Islands and the Nicobar Islands. The range of operation will depend on the radius of action of the forces taking part; these include ships and aircraft of the Indian Navy, Coast Guard, and Air Force.

## Ship Reporting System

The Indian Ship Position and Information Reporting System (INSPIRES) covers the sea area within the limits defined by the following:

- (a) The India-Pakistan border at the coast.
- (b) 12°00'N, 63°00'E.
- (c) The African coast at 12°00'N.
- (d) The African coast at 10°30'S.

- (e) 10°30'S, 55°00'E.
- (f) 30°00'S, 55°00'E.
- (g) 30°00'S, 95°00'E and N to the coast.

The Indian Ship Position and Information Reporting System (INSPIRES) is mandatory for all Indian merchant vessels, including coastal and fishing vessels, of more than 300 grt.

Other vessels within the reporting area are encouraged to participate in the system. The purpose of the system is to provide data for SAR operations, vessel traffic management, weather forecasting, and the prevention and containment of marine pollution.

Vessels participating in the system should send regular reports through selected radio stations.

There are four types of messages, each containing a selection of the items listed in the Message Format in the accompanying table.

1. The Sailing Plan (SP) should be sent just prior to sailing or as soon as possible after leaving from a port within the reporting area, or when the vessel enters the area.

2. A Position Report (PR) should be sent every day according to the accompanying table.

3. A Deviation Report (DR) should be sent when the vessel's position varies significantly from the position that would have been predicted from previous reports, when changing the reported route, or as decided by the Master.

4. A Final Report (FR) should be sent on arrival at the destination or when leaving the reporting area.

Brief reports on cyclones, deep depressions, defect and damage to the participating vessel, and marine pollution may be sent at the discretion of the Master.

The first line of every message should always state the INSPIRES/message type (SP, PR, DR, FR, or title in full for other reports). Subsequent lines should start with the line identifier; the line identifier and other data items on a line should be separated by "/" and lines should be terminated by "//".

INSPIRES Position Report Schedule		
Longitude of vessel	Latitude of vessel	Time Schedule UT (GMT)
West of 80°E	0°-10°N	0400-0455
	10°N-20°N	0500-0655
	N of 20°N	0700-0755
	0°-30°S	0400-0455
East of 80°E	0°-10°N	0300-0355
	10°N-20°N	0500-0555
	N of 20°N	0600-0655
	0°-30°S	0400-0455

**Message Format.**—The line identifiers listed in the accompanying table should be used when preparing an INSPIRES message

INSPIRES messages will be accepted free of charge by Indian Naval Communication Centers (COMCEN) Mumbai (Bombay) (VTF) and Vizag (Vishakhapatnam) (VTO). On establishing contact, vessels are requested to forward their working frequencies.

INSPIRES Message Format					
Identifier	Content	SP	PR	DR	FR
A/	Vessel's name/Call sign//	X	X	X	X
B/	Time (UT (GMT))//—(date and time of report 6 digits, day of month 2 digits, and hour and minutes is a 4 digits)	X	X	X	X
C/	Lat/Long//—(latitude is 4-digit group in degrees and minutes with N or S; longitude is 4-digit group in degrees and minutes E)	X <sup>1</sup>	X <sup>2</sup>	X <sup>2</sup>	X <sup>2</sup>
D/	Position//—(true bearing is 3 digits; distance in miles is 2 digits from clearly identified stated landmark)				
E/	Course//—(true heading is a 3-digit group)	X	X	X	X <sup>3</sup>
F/	Speed//—(knots and tenths of knots e.g. 15.5=15.5)	X	X	X	X <sup>3</sup>
G/	Port of departure//(name of last port of call)	X	X		
H/	Time/Position of entry into the system//—(time as expressed in B; position as expressed in C or D)	X <sup>1</sup>	X		
I/	Destination/ETA//—(port and ETA as expressed in B)	X	X		
J/	Pilot carried//—(state whether deep sea or local pilot is on board)				
K/	Time/point of exit from system//—(time as expressed in B; position as expressed in C or D)				X <sup>3</sup>
L/	Route//—(position of each turn point should be given as expressed in C, together with type of intended track between e. g. RL=Rhumb Line, GC=Great Circle or Coast {in this case ETA of passing significant points expressed as expressed in B should be given})	X	X	X	X <sup>3</sup>

INSPIRES Message Format					
Identifier	Content	SP	PR	DR	FR
M/	Radio communications//—(state full name of stations and frequencies guarded)	X	X		
N/	Time of next report//—(as expressed in B)	X	X	X	
O/	Draft//—(in meters and centimeters expressed as 4 digits)	X	X		
P/	Cargo//—(brief details of any dangerous cargo)	X <sup>4</sup>	X <sup>4</sup>		
Q/	Defects or damage//—(brief details of any defects, damage, or other limitations)			X	
R/	Pollution//—(brief details of type of pollution and position as in C or D)				
S/	Weather//—(brief details of cyclonic conditions only)				
T/	Vessel's agent//—(name and particulars)	I	I	I	I
U/	Vessel size/type//—(length, beam in meters, grt, and type)	I	I	I	I
V/	Medical personnel//—(doctor, physician's assistant, nurse, or no medic)	X	X		
W/	Number of persons on board//	X	X		
X/	Remarks//—(any other information—brief details)				

**Key to Symbols:**  
X—Required information  
X<sup>1</sup>—Required information when entering the area. Either item C or D may be used.  
X<sup>2</sup>—Either item C or D may be used.  
X<sup>3</sup>—Required information when leaving the area.  
X<sup>4</sup>—Reports on dangerous and hazardous cargo shall be made in accordance with the list below:  
1 Correct technical name(s) of cargo.  
2 UN number(s).  
3 IMO hazard class(es).  
4 Name of consignee/consignor and manufacturer of cargo.  
5 Types of packages, including identification, make(s), or whether in portable tank, vehicle, or packaged in vehicle freight container or other portable tank unit.  
6 Quantity and likely condition of the cargo.  
7 Details of arms and ammunition being carried on board.  
I—Must be included by all Indian vessels. Other vessels may include these items in the Sailing Plan (SP) at their discretion.  
**Note.**—The International Code of Signals should be used to send messages when language problems exist.

Reports sent through Mumbai (Bombay) Radio (VWB) and Chennai (Madras) Radio (VWM) are chargeable at present but are likely to be made free in the near future. Vessels are advised to use telex through their agent for SP reports. Vessels fitted with WT are requested to assist vessels fitted with RT only to relay PR reports.

Position Reports must be received within 6 hours of the scheduled times. A list of vessels holding overdue reports will be broadcast daily at 1400 UT(GMT) by Mumbai (Bombay) Naval Radio (VTG) for vessels W of 80°E and by Vishakhapatnam Naval Radio (VTO) for vessels E of 80°E. Vessels listed in these broadcasts must send their reports immediately to COMCEN.

## Signals

### Storm Signals

The system of storm warnings may be briefly described as consisting of the following:

1. A General System, consisting of 11 signals. Two of these signals indicate the existence of distant disturbed

weather; eight indicate that local bad weather threatens the port; and the remaining one indicates that communication with the Meteorological Office concerned has broken down and that, in the opinion of the local officer, there is danger of bad weather.

2. A Brief System, consisting of only five of the above signals. This system is used at ports frequented mainly by smaller vessels engaged in local traffic. The signals used by the Brief System are III, IV, VII, X, and XI.

3. An Extended System, which, in addition to the signals of the General System, includes signals to indicate the position of the disturbance. This system is in use only at certain ports in the Bay of Bengal.

The Meteorological Offices of India, Sri Lanka, and Pakistan keep port offices informed of all necessary warnings and the latest information with respect to disturbances in the seas off the coasts of the Indian peninsula.

The Madras Meteorological Office is the warning center for ports on the W shore of the Bay of Bengal S of, and including, Kalingapatam. The Calcutta Meteorological Office is the warning center for Indian ports N and E of Baruva. The Rangoon

## INDIA—PORT STORM SIGNALS—GENERAL SYSTEM

No.	Day	Night	Remarks
I			<p><b>Cautionary.</b>—There is a region of squally weather in which a storm may be forming.</p> <p>This signal is shown at ports so situated with reference to the disturbed weather that a ship leaving the port might run into danger during its voyage.</p>
II			<p><b>Warning.</b>—A storm has formed.</p> <p>This signal is shown when there is no immediate danger of the port itself being affected, but ships leaving the port might run into the storm.</p> <p>But if, in addition to distant warnings (I and II), there is risk of the port experiencing bad weather, then the appropriate local signals (III to XI) are shown.</p> <p>In general, if the weather situation warrants two or three signals, then the highest-numbered signal is shown.</p>
III			<p><b>Cautionary.</b>—The port is threatened by squally weather (i.e., winds over 20 knots accompanied by rain).</p>
IV			<p><b>Warning.</b>—The port is threatened by a storm, but it does not appear that the danger is as yet sufficiently great to justify extreme measures of precaution.</p> <p>The existence of a storm can often be determined before its direction of motion can be fixed. In this case all those ports which the storm could possibly strike are warned by this signal.</p>
V			<p><b>Danger.</b>—The port will experience severe weather from a cyclone expected to move keeping the port to the left of its track.</p>
VI			<p><b>Danger.</b>—The port will experience severe weather from a cyclone expected to move keeping the port to the right of its track.</p>

## INDIA—PORT STORM SIGNALS—GENERAL SYSTEM

No.	Day	Night	Remarks
VII			<p><b>Danger.</b>—The port will experience severe weather from a cyclone expected to move over or close to the port. The signal is also used when a storm is expected to skirt the coast without actually crossing it.</p>
VIII			<p><b>Great danger.</b>— The port will experience severe weather from a severe cyclone expected to move keeping the port to the left of its track.</p>
IX			<p><b>Great danger.</b>— The port will experience severe weather from a severe cyclone expected to move keeping the port to the right of its track.</p>
X			<p><b>Great danger.</b>— The port will experience severe weather from a severe cyclone expected to move over or close to the port. The signal is also used when a storm is expected to skirt the coast without actually crossing it.</p>
XI			<p><b>Failure of communication.</b>— Communications with the Meteorological Warning Center have broken down and the local port officers consider that there is danger of bad weather.</p>
<p><u>Key to Color of Lights:</u></p>		<p><u>RED</u></p> 	<p><u>WHITE</u></p> 

Meteorological Office is the warning center for Burmese ports. These authorities keep the Port Officers informed of all necessary warnings and the latest information with respect to disturbances in the seas off the shores of the Bay of Bengal. Therefore, vessels may contact the Port Officers for details to supplement the indications of the signals displayed. Vessels will also receive detailed information in the broadcast weather bulletins issued by the Meteorological Offices through the coast radio stations. Vessels are advised to obtain a copy of the Meteorological Manual listing the day signals used in the three warning systems at the first port of call or through their agents.

## Submarine Operating Areas

### Warning Signals

Indian submarines may be encountered by day or at night while operating in any of the waters off the Indian coast. Under certain circumstances, warnings that submarines are exercising in specified areas may be broadcast by local coastal radio stations.

Indian escort vessels fly the International Code Group "NE2" to denote that submarines, which may be submerged or surfaced, are exercising in the vicinity. Vessels are cautioned to give a wide berth to any vessel flying this signal.

It must not be inferred from the above that submarines exercise only when in the company of escorting vessels.

A submarine submerged at a depth too great to show the periscope may sometimes indicate its position by releasing a "smoke candle" that gives off a considerable volume of smoke on first reaching the surface. Submarines may sometimes also indicate their positions by towing on the surface close astern a red-and-white or red-and-yellow float.

The Sindhughosh Class of submarines may, in addition to the above, also display a yellow flashing all-around light (93 flashes per minute) 11m aft of and 1.5m higher than the forward masthead light.

In order to enable the accompanying vessel to identify the position of a submerged Shishumar Class of submarine, an identification light is provided in the aft section of the conning tower. This light emits a white light upward through plexiglass and has a luminous range of 7 miles when measured in the air during clear visibility.

The following signals are used by submerged submarines within designated Submarine Exercise Areas:

1. Red grenades fired in quick succession indicate that vessels should clear the area immediately as the submarine is carrying out emergency surfacing procedure. Vessels must not stop their propellers and should standby to render assistance.
2. Two colored grenades fired 3 minutes apart (white, yellow, or green) indicate that vessels should clear the immediate vicinity. The submarine has indicated its position and is intending to carry out surfacing procedure. Vessels must not stop their propellers.

### Navigation Lights

The navigation lights of submarines are exhibited from the sail (upper conning tower), which is near the center of the vessel. The steaming lights, side lights, and stern light are necessarily low down and closely spaced with the result that they give no indication of the submarine's length nor exact

course. Consequently, they may be mistaken for the lights of a much smaller vessel.

The main steaming light is fitted in the forward part of the sail at a height of 6.3m (8.2m for Sindhughosh Class) above the waterline. The side lights are fitted in the center of the sail at a height of 4m (5.9m for Sindhughosh Class) above the waterline.

The stern light is placed rather low, at a height of only 1m (0.5m for Sindhughosh Class) and may at times be partially obscured by spray and wash. Under these circumstances, a submarine may choose to use a substitute stern light which is fitted at the aft end of the sail at a height of 4m (7.08m for Sindhughosh Class). The overall arrangements of these lights may appear unusual.

### Sunken Submarine

An Indian submarine that is bottomed and unable to surface will try to indicate its position by the following methods:

1. Releasing an indicator buoy as soon as the accident occurs.
2. On the approach of surface vessels and at regular intervals by firing red and green grenades accompanied by red, orange, white, or yellow smoke candles. (It should be noted that submarines may not be able to fire their grenades. Correspondingly, a partially flooded submarine may have only a certain number of grenades available and searching ships should not therefore expect many to appear.)
3. Pumping out fuel or lubricating oil.
4. Blowing out air.

Since oil streaks or debris may be the only indication of the presence or position of the sunken submarine, it is vitally important that surface vessels refrain from discharging anything which might appear to have come from a submarine while in the probability area. Searching vessels and aircraft can waste many valuable hours investigating these false contacts.

In any submarine accident, time is the most vital factor effecting the chances of rescue of survivors. As the sighting of a buoy may be the first indication that an accident has, in fact, occurred, it is vital that no time should be lost in taking action.

At any time after a submarine accident, survivors may start attempting to escape. Conditions inside are likely to deteriorate rapidly and postponement of escape will only be made in order to allow rescue ships to reach the scene. Therefore, any ship finding a moored submarine indicator buoy should not leave the position but should standby, well clear, ready to pick up survivors. Survivors will ascend nearly vertically and it is important that plenty of sea room is given to enable them to do so in safety. On arrival at the surface, survivors may be exhausted or ill, and if circumstances are favorable, the presence of a boat already lowered is very desirable. Some survivors may require a recompression chamber and it will, therefore, be the aim of the Naval authorities to get such a chamber to the scene as soon as possible.

### Submarine Indicator Buoys

Indian Navy submarines carry two indicator buoys. The buoys are painted in four quadrants. The diagonally opposite quadrants are painted yellow and orange. The name of the submarine is painted/affixed on the fore and aft parts of the buoy in black letters, 25mm thick and 140mm high. Each buoy has a white light which can either show steadily or exhibit 120

flashes per minute. A sound-powered telephone is fitted in each buoy, under the base of the light, for communication with the submarine. No radio beacon or wireless transmitter is fitted to the buoys. The indicator buoy has a diameter of 132cms. When in water, the buoy floats 15 to 23cms above sea level. The buoy wire is 350m long. The finder should inform the nearest Naval/Port/Police authorities and should not secure to or attempt to lift the buoy.

The Sindhughosh Class of submarine carries one Emergency Indicator Buoy. This buoy has a white light which flashes once every 3 seconds. A sound-powered telephone is fitted on the top of the buoy for communication with the submarine. A key is available for MCW two-way communication with the submarine on 121.5MHz as long as the buoy is in the water. When the buoy is recovered, communication can be established by two-way telephony. The buoy is also fitted with a radio beacon transmitting on 51.2MHz (the transmission may be continuous or for 20 seconds with a pause of 60 seconds). The buoy has a diameter of 115cms. The buoy wire is 500m long. The finder should inform the nearest Naval/Port/Police authorities and should not secure to or attempt to lift the buoy.

The Shishumar Class of submarine carries an Emergency Indicator Buoy that has three signals. An HF transmission, at a frequency of 8364kHz, consisting of the international distress call "SOS" together with the submarine's identification number; a UHF Sarbe tone transmitted on 243MHz; and an

Xenon light flashing approximately 33 times per minute that is visible at a distance of 5 miles in good weather conditions.

The finder should inform the nearest Naval/Port/Police authorities and should not secure to or attempt to lift the buoy.

## Time Zone

The observed Standard time is 5 hours 30 minutes fast of UT(GMT). Daylight Savings Time is not observed.

### World Time Zone Chart

<http://www.odci.gov/cia/publications/factbook/ref/pdf/802801.pdf>

## U.S. Embassy

The U.S. Embassy is situated at Shanti Path, Chanakyapuri, New Delhi.

The mailing address is Shanti Path, Chanakyapuri, New Delhi 110021.

### U. S. Embassy India Home Page

<http://usembassy.state.gov/posts/in1/wwwhmain.html>