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ROUTEING OF SHIPS, SHIP REPORTING AND RELATED MATTERS

Establishment of new recommended Traffic Separation Schemes and other new Routeing Measures in the Adriatic Sea

Submitted by Albania, Croatia, Italy, Slovenia and Serbia and Montenegro

SUMMARY

Executive summary:	This document contains the joint proposal of Albania, Croatia, Italy, Slovenia and Serbia and Montenegro on the establishment of new recommended Traffic Separation Schemes/Recommended Routes system and other new Routeing Measures in the Adriatic Sea
Action to be taken:	Paragraph 8
Related documents:	Resolutions A.572(14) as amended, A.851(20) and A.857(20)

1 Introduction

The Adriatic Sea is natural resource of the countries situated along its coast. As semi closed and particularly sensitive sea it deserves our particular attention and therefore the protection of the Adriatic Sea is of the outmost importance for each and every country along its coast. The protection of the sea and coastal areas is today regulated by international regulations, agreed primarily under the auspices of the International Maritime Organization, and any improvement in that field has to be based on common approach and in close co-operation between all interested coastal states. In relation to that the governments of Albania, Croatia, Italia, Slovenia and Serbia and Montenegro have already proposed to the IMO a document on Mandatory Ship Reporting Systems, which has been adopted by MSC 76 (resolution MSC.139 (76)).

The said governments have also signed series of agreements in order to establish a Traffic Separation Schemes/Recommended Routes system in the Adriatic Sea. The objective is to enhance the safety of navigation and the protection of the marine environment, facilitating the movements of the vessels and supporting SAR and oil pollution response operations.

The system has been prepared in accordance with Regulations V/10 and V/11 of the SOLAS 1974 Convention, as amended, and with IMO resolutions A.572(14) as amended, A.851(20) and A.857(20).

2 Description of the area

2.1 The Adriatic sea is the part of the Mediterranean sea situated between Balkan and Appenine peninsulas, on the geographical longitude between 012°15' E and 019° 45' E and the geographical latitude between 39°45' N and 45°45' N. The south border includes the whole area of the Strait of Otranto and leads on joint line of the Cape of Santa Maria di Leuca – the north coast of the island of Krf – the mouth of the river Butrinit.

The distance of longitudinal spindle from the mouth of river Butrinit to the Porto di Lido (Venezia) is 475 nautical miles and latitudinal spindle; vertical on longitudinal spindle, from the port of Omiš to the port of Vasto is 117 nautical miles. The surface of the Adriatic sea is 138.595 square kilometres.

The total length of all the coasts (land and islands) is 7,912 km and coefficient of the indentendness is 6.1.

2.2 The operational area of the system covers the Adriatic Sea, north from the latitude 40°25'.00 N, as defined in the annex and shown in the attached chartlets (appendix 1, 2 and 3 to the annexes). The reference charts including the operational area of the system are the Italian Chart No. 435 (Edition 1993, Datum ED-50) and No. 39 (Edition 1997, Datum Roma 40) of the Italian Navy Hydrographic Institute, and the Croatian Chart No. 101 (Ed. 1998, Datum Hermanškogel, Bessel elipsoid) and No. 100-15 (Edition 1998, Datum Hermanškogel, Bessel elipsoid) of the Hydrographic Institute of the Republic of Croatia, or the equivalent charts published by the competent hydrographic authorities.

2.3 Between the latitude 43°10'.00 N and the precautionary area, as defined in point 3 of annex, navigational routes are recommended in accordance to the description as per chartlet in appendix 1.

2.4 Between the latitude 40° 25'.00 N and latitude 43°10'.00 N the commonly used navigational routes should remain as in the present.

2.5 In order to avoid risk of pollution due to damage of oil rigs, oil and gas pipelines in the area, bearing in mind overall size of area and other proposed routeing measures, the Governments concerned have proposed an area to be avoided as described in Annex IV which should significantly reduce risk of pollution and other damage to the sensitive environmental heritage as described in paragraph 4.2.

2.6 Beside the nautical charts defined in paragraph 2.2 of the proposal the whole are a is also covered by the following Croatian nautical charts issued by the Hydrographic Institute of the Republic of Croatia: No. 300-31 (Edition 1981, Datum Hermanškogel, Bessel elipsoid, Scale 1:300 000) and No. INT 3410 (Edition 1987, Datum Hermanškogel, Bessel elipsoid, Scale 1:250 000). The Italian Navy Hydrographic Institute has also issued beside charts mentioned in paragraph 2.2 charts No. 921, Edition 1991, No 922, Edition 1992, No 923, Edition 1988 and No 924, Edition 1996, all in scale 1:250 000.

The hydrographic surveys have been performed in the limits of the routeing system in the traffic separation scheme both in north and in northern part of Adriatic in the period up to 1991 as well as in proposed area to be avoided where the surveys have been performed in the period from 1997-2002. Further more surveys have been performed for the edition of the charts mentioned in the previous paragraph.

The state of hydrographic surveys enables Hydrographic Institute of the Republic of Croatia and Italian Navy Hydrographic Institute to obtain information on existing depths and hazards to navigation.

3 Traffic considerations

3.1 Existing aids to navigation

The complete list of existing aids to navigation including their geographical positions is in the Appendix 4 to this proposal.

3.2 Quantity of hazardous cargo

Total traffic flow of hazardous cargo in the Adriatic ports is listed in the Appendix 5.

4 Marine environmental considerations

4.1 Prevailing weather conditions

4.1.1 Winds in the Adriatic

Winds in the Adriatic depend on its geographical position, on the influence of the Mediterranean and the mainland, on its deep protraction into European mainland, on the direction of the surrounding mountain ranges, on the vicinity of land and numerous island and on the depth and the sea currents that make winds so specific in the Adriatic.

In the Adriatic predominant winds come from SE, S, NE and NW. Southeastern or south wind (called jugo or scirocco) generally blows in the cold part of the year on the frontal side of the Mediterranean or of the Adriatic cyclone: it is a gradient wind of cyclonal circulation and blows in the summer too, but rarely when there is a high-pressure area over the Balkan peninsula.

On the eastern part of the Adriatic during the whole year, and especially in the winter period a strong and cold wind blows from the NE quadrant (called bura or bora): it blows most frequently in the northern and middle Adriatic where it achieves its greatest speed (>50m/s); the frequency and the strength of it diminishes towards the SE.

Along the Adriatic coast the frequency of bura and jugo changes: in the northern part bura is far more frequent, in the middle part the frequency is almost the same, and in the southern part jugo is dominant. On the high sea and external islands bura is rare, but jugo and NW wind are far more frequent; especially jugo. On the high sea there is an obvious ethesian currents coming from NW especially in the summer. Along the coast this summer ethesian currents covered by daily and nocturnal winds: during the day from the sea (direction SW and W) and during the night from land (NNE and NE). In the cold part of the year there is 30% of sea calm and weak winds, moderate winds cca.50%, and strong and stormy winds cca.20%. In the warm part of the year there is cca.40% of sea-calm and weak winds, 55% of moderate winds and only 5% of strong winds. Only in the summer months there are no strong winds. The frequency of strong winds increases in autumn and it reaches maximum in December, and it decreases greatly in April.

4.1.2 About waves in the Adriatic

Since that the Adriatic Sea is a relatively small and closed one, big waves (ocean waves) simply don't get created. However, in specific wind conditions very dangerous waves can occur as a result of strong or stormy winds. These then affect the safety of navigation for small and medium size vessels, sometime even for bigger size vessels. The biggest waves in the Adriatic Sea are generated by jugo (SE wind, then bura (NE wind), tramontana (NW wind) and rarely lebić (SW wind). Jugo blows from the southeast, along the axis of the Adriatic sea, the fetch is longer, and its waves are therefore of fuller and longer form. Jugo waves are the highest in the open sea of the middle and southern Adriatic: in the hurricane strong jugo they can be from 8-10 meters. Bura, instead, blows from NE, and the biggest wave heights were measured in the north Adriatic (5-7 m). Though bura sometimes achieves hurricane speeds its waves are never too high: they are rather short and steep. The waves generated by the NW wind are always shorter then those generated by jugo except when this wind reaches hurricane strength in the open sea of the middle and south Adriatic.

The waves caused by the SW wind are not big but they often cause coastal damage in the harbours that aren't protected because this wind blows vertically to the coast.

Long-lasting waves of S and SE direction are especially important for the safety of navigation because they generate very big waves. The NW wind also generates waves dangerous for navigation.

4.1.3. Sea Currents and Tides

The currents in the Adriatic are relatively weak but circulate constantly under the influence of winds and tides.

A branch of the Mediterranean current flows from the Ionian Sea NW up to the Adriatic coast and down the Italian coast in a SE direction. The normal speed of this current is 0.5-1 knot. It is stronger in summer than in winter and stronger on the west coast than on the east. It is strongest on the eastern Adriatic coast during a sirocco and at high tide. Through straits and channels the current is considerably stronger.

Tidal changes are caused by the pull of the moon, and to a lesser extent by the sun. The difference between high and low tide in the Adriatic is negligible for small craft. It is least in the central Adriatic (Šibenik-Zadar: 15-30 cm), slightly more towards the south and the north (Istra 60 cm, exceptionally 100 cm, Venice up to 120 cm).

Tidal differences are greater at full moon and new moon, and greatest during the first and last lunar quarters.

Weather also affects tidal action. During periods of high pressure and the *bora* the water level is lower (as much as 40 cm). Low pressure and southern winds make it higher (to 70 cm).

There are stationary waves (known as seš or štiga) in a number of bays and channels caused by weather or proximity to the open sea. These are usually negligible.

4.2 Environmental considerations

The Adriatic environmental resources are a big heritage which is not property of just the coastal countries, but of the whole world too, and the evidence of it is the yearly amount of tourists visiting the Adriatic sites.

The Adriatic Sea is, however, an area where, in the last 20 years, words like “eutrophication” and “mucilage” have become warnings of very serious environmental problems, which has been caused by the maritime traffic and incidents too: there is the need, then, of preserving such a big common heritage in order to transmit it to the next generations.

Staying on the eastern side of the basin, there is the island of Vis, the biggest open sea island (88 km^2) containing representatives of 76 plant families, about 500 species, several of them recognised as endemic ones; there are several small islands in the south Adriatic open sea (Jabuka, Svetac, Biševo, Sv. Andrija, Sušac and Palagruža), which are a classical example of strongly isolated area and habitats; there is the island of Mljet, which is out of reach from coastal forms of "pollution" due to its morphological characteristics, and which is the site of a National Park created in 1960 to preserve one of the richest terrestrial and marine floral and faunal communities in the Adriatic.

About the western side of the basin, instead, the greatest example of sites needing a particular attention and protection is the city of Venice and its own lagoon, but there are many other ones too.

It should be taken note also, in fact, of the existence of various protected marine areas along the coast: just for example, it is the case to recall the sites of Torre Guaceto and of the Tremiti Islands (in Puglia), and of Miramare (in Friuli Venezia Giulia).

In addition to them, it should be taken into account too the existence of many sites to be classified as relevant ones because of their environmental value, just like the Falesie of Duino Reserve Area, the Mouth of Isonzo River Natural Reserve, the Natural Park of Mount San Bartolo, the Delta of Po River Regional Park, the Natural Park of the Conero.

5 Summary of the proposed routeing measures

The Governments concerned propose the following new routeing measures:

- two new Traffic Separation Schemes in the North Adriatic Sea;
- two new Traffic Separation Schemes in the Northern part of the North Adriatic Sea;
- three new Traffic Separation Schemes in the Gulf of Trieste;
- an Area to be avoided in the North Adriatic Sea;
- other routeing measures to support the flow of traffic to and from the Traffic Separation Schemes.

Details of the proposed routeing measures are given in the attached annexes.

6 Categories of ships required to participate in the system

Proposed Routeing Systems are recommended for all ships and should be used in accordance with the General Provisions on Ships' Routeing, as amended.

7 Rules and regulations in force in the area of the system

The international regulation for preventing collisions at sea (COLREG) is applicable through the whole area covered by the system.

8 Action requested of the Sub-Committee

The Sub-Committee is invited to approve the proposed recommended routeing system in the Adriatic Sea and to forward the proposal to the Maritime Safety Committee for the adoption. The proposing countries request that the effective date of implementation is six month after the adoption.

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ANNEX 1

TRAFFIC SEPARATION SCHEMES

IN THE NORTH ADRIATIC SEA

Reference chart: No. 435 of the Italian Navy Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskőgel, Bessel Elipsoid

Description of the traffic separation scheme

The traffic separation scheme in the North Adriatic Sea consists of two parts:

PART I:

Eastern part of the traffic separation scheme

4 A separation zone is bounded by a line connecting the following geographical positions:

(4a)	44° 05'.90 N	014° 03'.97 E	(4c)	44° 55'.30 N	013° 21'.17E
(4b)	44° 06'.70 N	014° 05'.77 E	(4d)	44° 54'.80 N	013° 19'.57E

5 A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

(5a)	44° 08'.20N	014° 08'.77 E	(5b)	44°56'.90 N	013° 24'.67 E

6 A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

(6a)	44° 04'.40 N	014° 00'.97 E	(6b)	44° 53'.20 N	013° 16'. 17 E

The established directions of traffic flow are: 327°-147°

PART II

Western part of the traffic separation scheme

8 A separation zone is bounded by a line connecting the following geographical positions:

(8a)	43° 58'.30 N	013° 52'.47 E	(8d)	44° 44'.50 N	012° 55'.67 E
(8b)	44° 00'.80 N	013° 54'.97 E	(8e)	44° 43'.50 N	012° 51'.97 E
(8c)	44° 28'.00 N	013° 06'.77 E	(8f)	44° 26'.0 N	013° 03'.47 E

9 A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

(9a) 44° 02'.80 N 013° 57'.37 E
(9b) 44° 30'.50 N 013° 08'.47 E
(9c) 44° 52'.00N 013° 05'.77 E

10 A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

(10a) 43° 55'.80 N 013° 49'.97 E
(10b) 44° 23'.50 N 013° 00'.97 E
(10c) 44° 42'. 50 N 012° 47'.97 E

The established directions of traffic flow are: 308° - 154°
355° - 128°

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ANNEX 2

TRAFFIC SEPARATION SCHEMES

IN THE NORTH PART OF THE NORTH ADRIATIC SEA

Refrence chart : No 435 of the Italian Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskőgel, Bessel Elipsoid

Description of the traffic separation scheme

The traffic separation scheme in the North Part of Adriatic Sea consists of two parts:

PART I:

Eastern Part

11 A separation zone is bounded by a line connecting the following geographical positions:

(11a)	45° 08'.60 N	013° 06'.47 E	(11c)	45° 23'.20 N	013° 06'.47 E
(11b)	45° 09'.40 N	013° 10'.97 E	(11d)	45° 21'.50 N	013° 02'.57 E

12 A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

(12a)	45° 10'.50 N	013° 17'.17 E	(12b)	45° 22'.50 N	013° 13'.27 E

13 A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

(13a)	45° 07'.50 N	013° 00'.37 E	(13b)	45° 19'.00 N	012°56'.87 E

The established directions of traffic flow are: 347° - 167°

PART II

Western Part

14 A separation zone is bounded by a line connecting the following geographical positions:

(14a)	44° 55'.30 N	012° 43'.97 E	(14c)	45° 12'.70 N	012° 35'.97 E
(14b)	44° 56'.80 N	012° 47'.97 E	(14d)	45° 11'.30 N	012° 31'.97 E

15 A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

(15a)	44° 57'. 50 N	012° 50'.47 E	(15b)	45° 13'.60 N	012° 38'.77 E

16 A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

(16a) 44° 54'.20 N 012° 41'.47 E (16b) 45° 10'.40 N 012° 29'.47 E

The established directions of traffic flow are: 333º - 153º

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ANNEX 3

TRAFFIC SEPARATION SCHEMES

IN THE GULF OF TRIESTE

Reference chart: No. 39 of the Italian Navy Hydrographical Institute, Edition 1991, Datum Roma 40, and No. 100-15 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskőgel, Bessel Elipsoid.

Description of the traffic separation scheme

The traffic separation scheme in the Gulf of Trieste consists of three parts:

PART I:

17 A separation zone is bounded by a line connecting the following geographical positions:

(17a) 45° 31'.34 N 013° 20'.90 E
(17b) 45° 35'.04 N 013° 31'.20 E
(17c) 45° 36'.34 N 013° 30'.70 E
(17d) 45° 32'.84 N 013° 20'.00 E

18 A traffic lane for northeastbound traffic is established between the separation zone and a line connecting the following geographical positions:

(18a) 45° 22'.54 N 013° 13'.30 E
(18b) 45° 26'.64 N 013° 16'.10 E
(18c) 45° 30'.04 N 013° 23'.80 E
(18d) 45° 34'.24 N 013° 32'.20 E

19 A traffic lane for southwestbound traffic is established between the separation zone and a line connecting the following geographical positions:

(19a) 45° 34'.74 N 013° 18'.90 E
(19b) 45° 38'.74 N 013° 32'.80 E
(19c) 45° 41'.14 N 013° 36'.50 E

The established directions of traffic flow are: 58° - 227°
248°

PART II

21 A separation zone is bounded by a line connecting the following geographical positions:

(21a) 45° 35'.24 N 013° 35'.00 E
(21b) 45° 35'.04 N 013° 39'.50 E
(21c) 45° 36'.44 N 013° 37'.50 E

22(a) A traffic lane for northbound traffic is established between the separation zone and a roundabout with a circular traffic separation zone 0.75 nautical miles in radius which is centered on the following geographical position:

(22a) 45° 37'.04 N 013° 34'.00 E

22(b) A circular traffic line 1.8 nautical miles wide is established around a circular traffic separation zone.

23 A traffic lane for eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

(23a) 45° 34'.24 N 013° 35'.00 E (23b) 45° 33'.94 N 013° 39'.40 E

24 A traffic lane for northwestbound traffic is established between the separation zone as defined in Paragraph 21. and a separation zone connecting the following geographical positions:

(24a) 45° 36'.34 N 013° 39'.70 E (24c) 45° 36'.34 N 013° 41'.80 E
(24b) 45° 35'.44 N 013° 41'.00 E

The established directions of traffic flow are: 56°
94°
315°

PART III

25 A separation zone is bounded by a line connecting the following geographical positions:

(25a) 45° 40'.34 N 013° 38'.00 E (25c) 45° 42'.34 N 013° 38'.60 E
(25b) 45° 40'.54 N 013° 38'.60 E (25d) 45° 42'.74 N 013° 38'.00 E

26 A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

(26a) 45° 4 0'.54 N 013° 40'.00 E (26b) 45° 42'.34 N 013° 40'.00 E

27 A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

(27a) 45° 42'.74 N 013° 36'.50 E (27b) 45° 41'.14 N 013° 36'.50 E

The established directions of traffic flow are: 360° - 180°

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ANNEX 4

AREA TO BE AVOIDED

IN THE NORTH ADRIATIC SEA

Reference chart: No. 435 of the Italian Navy Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskőgel, Bessel Elipsoid.

Description of the area to be avoided

In order to avoid the risk of pollution due to damage of oil rigs, oil and gas pipelines in this area the area described below should be avoided by ships of more than 200 gross tonnage.

The area to be avoided is bounded by a line connecting the following geographical positions:

(7a)	44° 13'.50 N	013° 38'.67 E	(7e)	44° 41'.90 N	013° 24'.97 E
(7b)	44° 17'.00 N	013° 43'.77 E	(7f)	44° 52'.00 N	013° 17'.07 E
(7c)	44° 25'.30 N	013° 37'.47 E	(7g)	44° 52'.00 N	013° 05'.77 E
(7d)	44° 34'.50 N	013° 25'.47 E	(7h)	44° 30'.50 N	013° 08'.47 E

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ANNEX 5

OTHER ROUTEING MEASURES

RECOMMENDED DIRECTIONS OF TRAFFIC FLOW IN THE CHANNEL OF OTRANTO, SOUTHERN AND CENTRAL ADRIATIC SEA

Reference chart: No. 435 of the Italian Navy Hydrographical Institute, Edition 1993, Datum ED-50, and No. 101 of the Hydrographical Institute of the Republic of Croatia, Edition 1998, Datum Hermanskőgel, Bessel Elipsoid.

Description of the recommended directions of traffic flow

1 Recommended directions of traffic flow, which should remain as in the present, are established between the latitudes:

(1a) 40° 25'.00 N (1b) 43° 10'.01 N

2 Recommended directions of traffic flow, which should be in accordance with the description as per chart in appendix 1, are established between the latitude:

(2a) 43° 10'.01

and precautionary area

(3b) 43°52'.00 N 014°10'.97 E

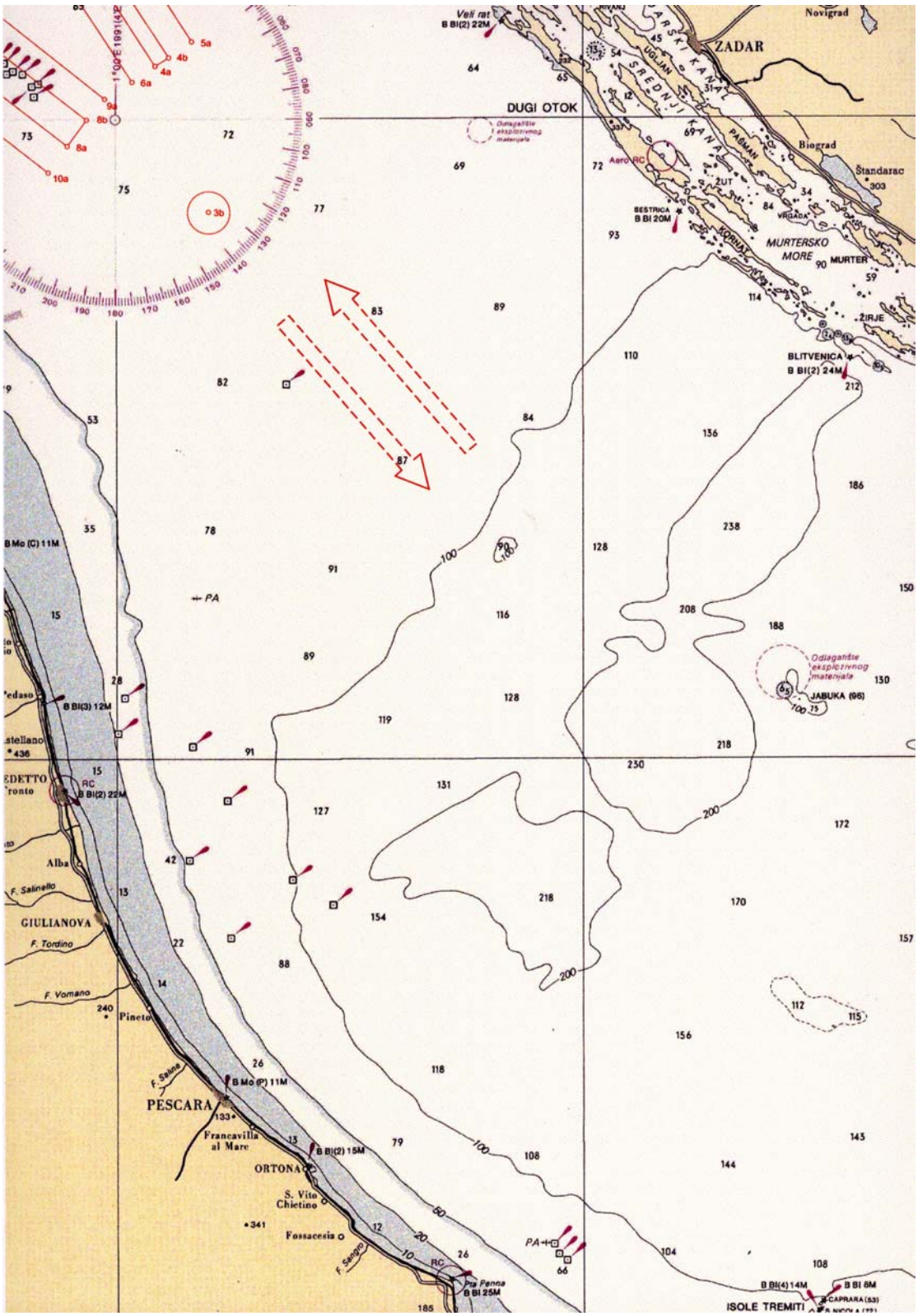
Precautionary area

2 Precautionary area is established on the following geographical position:

(3b) 43°52'.00 N 014°10'.97 E

with a radius of 2 nautical miles.

APPENDIX 1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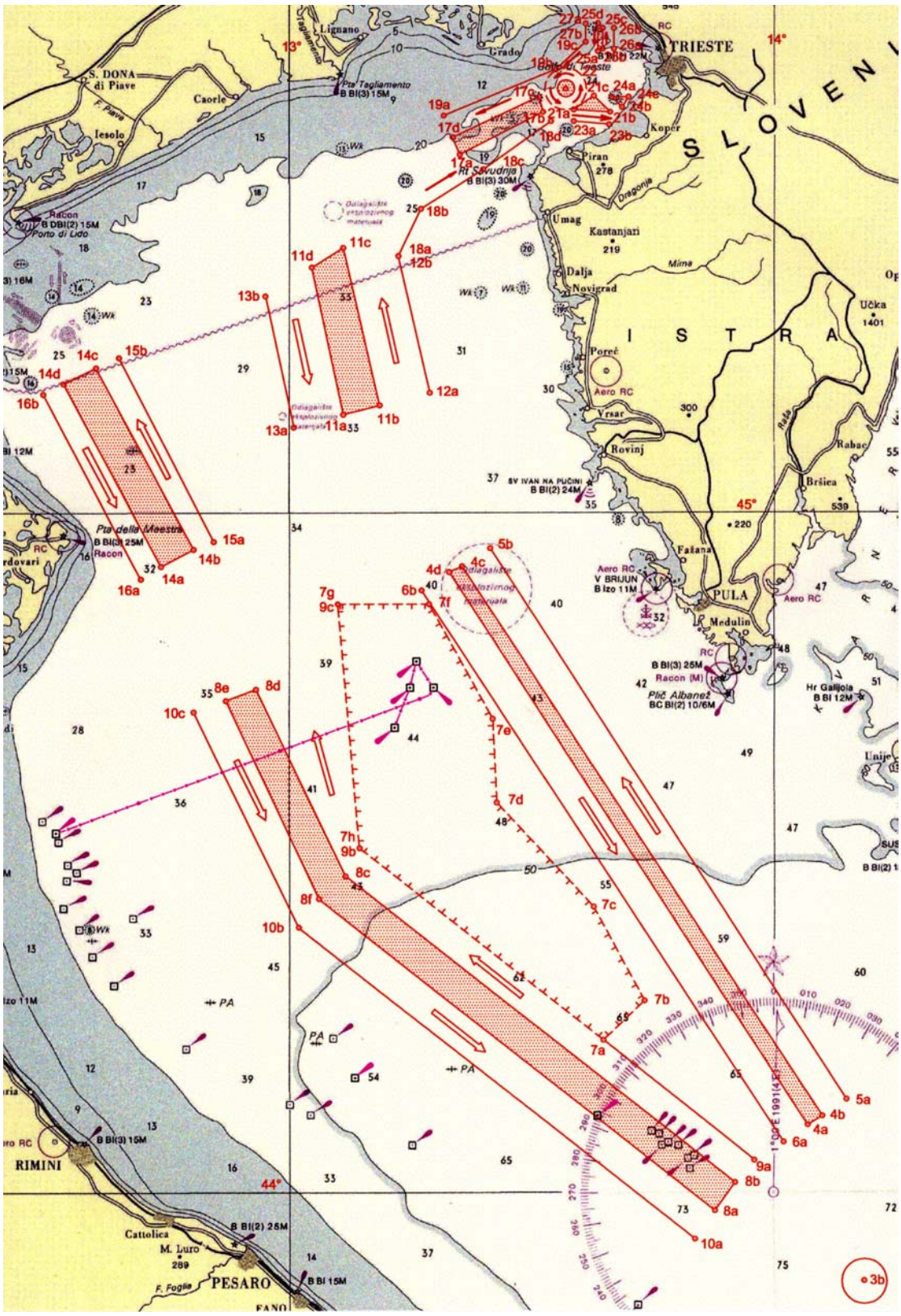
APPENDIX 2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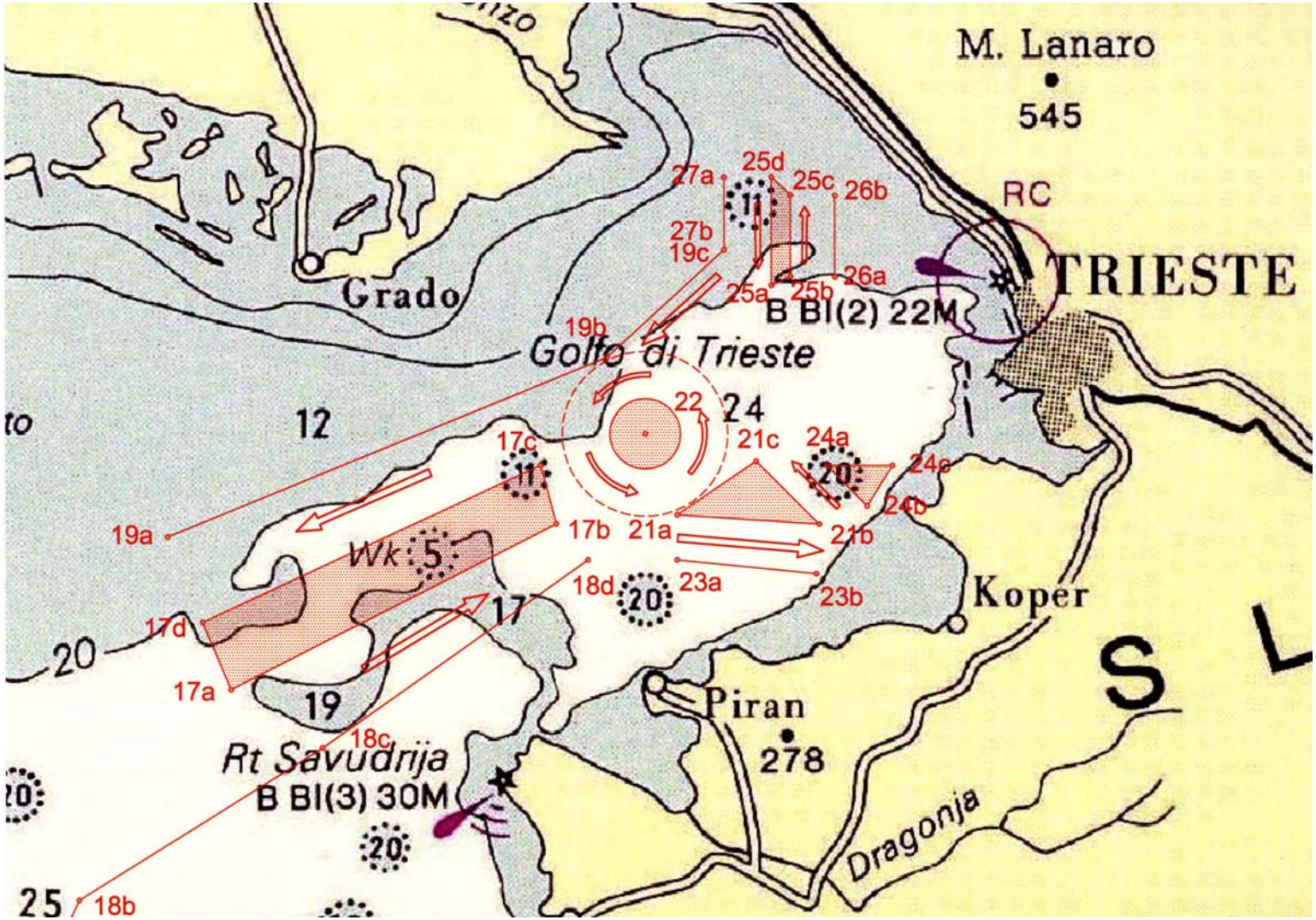
APPENDIX 3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23a
23b
17d
17a
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18b

APPENDIX 4

LIGHTHOUSES OF THE ADRIATIC SEA WESTERN SIDE (ITALY)

Lighthouse Name	Number List Of lights and Fog signals	Position	Characteristic of Light
Capo D'otranto	E2178	40° 06'.40N/ 018° 31'.20E	Fl W 5s 85m 18M
Torre Sant'andrea Di Missipezza	E2188	40° 15'.30N/ 018° 26'.70E	Fl(2) WR 7s 24m W 15
Punta San Cataldo Di Lecce	E 2192	40° 23'.40N/ 018° 18'.40E	LFI W 5s 25m 16M
Brindisi- Casale (Aero)	E2208	40° 39'.50N/ 017° 56'.50E	AI FI WGW 17s 69m W 24 G 18
Brindisi - Monumento Al Marinaio D'italia	E2202	40° 38'.60N/ 017° 56'.80E	FI(4) W 20s 69m 17M
Punta Torre Canne	E2222	40° 50'.40N/ 017° 28'.10E	FI(2) W 10s 35m 16M
Bari - Punta San Cataldo	E2232	41° 08'.30N/ 016° 50'.70E	FI(3) W 20s 66m 24M
Molfetta	E2248	41° 12'.40N/ 016° 35'.70E	Iso W 6s 20m 17M
Barletta	E2264	41° 19'.80N/ 016° 17'.40E	LFI(2) W12s 30m 17M
Manfredonia	E2276	41° 37'.70N/ 015° 55'.40E	FI W 5s 20m 23M
TORRE PROPOSTI	E2286	41° 46'.90N/ 016° 11'.60E	FI W 5s 62m 15M
Vieste - Isola Santa Eufemia (Aero M)	E2288	41° 53'.30N/ 016° 11'.10E	FI(3) W 15s 40m 25M
Isola San Nicola (Tremiti)	E2297	42° 07'.40N/ 015° 30'.60E	FI(4) W 15s 87m 12M
Termoli	E2303	42° 00'.30N/ 014° 59'.80E	FI(2) W 10s 41m 15M
Vasto Punta Penna	E2306	42° 10' 20N/ 014° 42'.90E	FI W 5s 84m 25M
Ortona	E2312	42° 21'.50N/ 014° 24'.50E	FI(2) W 6s 23m 15M
San Benedetto Del Tronto	E2332	42° 57'.10N/ 013° 53'.20E	FI(2) W 10s 31m 22M

Lighthouse Name	Number List Of lights and Fog signals	Position	Characteristic of Light
Pedaso	E2336	43° 05'.40N/ 013° 50'.80E	FI(3) W 15s 51m 16M
Ancona	E2344	43° 37'.30N/ 013° 31'.00E	FI(4) W 30s 118m 25M
Senigallia	E2358	43° 43'.20N/ 013° 13'.30E	LFI(2) W 15s 17m 15M
Fano	E2362	43° 51'.00N/ 013° 00'.90E	FI W 5s 21m 15M
Pesaro	E2372	43° 55'.40N/ 012° 53'.00E	FI(2) W 15s 175m 25M
Cattolica	E2381	43° 58'.10N/ 012° 45'.10E	Mo(0) W 14s 17m 15M
Rimini	E2394	44° 04'.40N/ 012° 34'.50E	FI(3) W 12s 27m 15M
Cesenatico	E2404	44° 12'.30N/ 012° 24'.10E	FI(2) W 6s 18m 15M
Ravenna	E2418	44° 29'.50N/ 012° 17'.10E	FI W 5s 35m 20M
Porto Garibaldi	E2426	44° 40'.50N/ 012° 14'.70E	FI(4) W 15s 14m 15M
Po Di Goro	E2434	44° 47'.50/ 012° 23'.80E	FI(2)W 10s 22m 17M
Punta della Maestra (Aero M)	E2440	44° 58'.10N/ 012° 31'.80E	FI(3) W 20s 47m 25M
Rocchetta	E2464	45° 20'.30N/ 012° 18'.70E	FI(3) W 12s 25m 16M
Venezia Porto Di Lido	E2480	45° 25'.30N/ 012° 26'.20E	LFI(2) W 12s 26m 15M
Isola Di Murano (Aero M) (Post)	E2486.1	45° 27'.10N/ 012° 21'.30E	Oc W 6s 37m 17M

EASTERN SIDE OF THE ADRIATIC SEA

Lighthouse name	Number List Of lights and Fog signals	Position	Characteristic of light
(SLOVENIA)			
Rt Debelli (Punta Grossa)	E 2607	45°35'.50N/ 013°42'.20E	Q(9) W 15s 8m 8M
IZOLA	E2618	45°32'.50N 013°39'.60E	Fl W 5s 7m 6M
Piran (Pirano) - Rt Madona	E2624	45°31'.80N/ 013°34'.10E	Iso W 4s 10m 15M
(CROATIA)			
A) SOUTH ADRIATIC			
- Palagruža	E 3586	42°23'.50N/ 016°15'.60E	Fl W 17.5s 110 m 26 M
- Struga	E 3544	42°43'.40N/ 016°53'.40E	Fl W 10s 104 m 27 M
- Sušac	E 3538	42°45'.00N/ 016°29'.70E	Fl (2) W 15s 94 m 24 M
- Stončica	E 3432	43°04'.40N/ 016°15'.60E	Fl W 15s 38 m 30 M
B) NORTH ADRIATIC			
- Susak	E 3036	44°30'.80N/ 014°18'.50E	Fl (2) W 10s 100 m 19 M
- Porer	E3036	44°30'.80N/ 013°37'.10E	Fl (3) W 15s 23 m 25M Racon Mo (M) 120s 20M(M)
- Sv.Ivan na pučini	E 2690	45°02'.60N/ 013°53'.80E	Fl (2) W 10s 23m 24M
- Savudrija	E 2642	45°29'.40N/ 013°29'.50E	Fl (3) W 15s 36m 30M
(SERBIA AND MONTENEGRO)			
Barskog Sidriŝte (Rada Di Antivari) -Rt Volujica	E3690	42°05'.30N/ 019°04'.50E	FI (2) W 10s 29m 16M
(ALBANIA)			
Squepi I Durrësit (Capo Durazzo)	E 3711	41°18'.90N/ 019°26'.10E	FI(2) W 10s 126m 18M
Ishulli Sazanit (Isola Di Saseno) -Sazan	E 3723	40°30'.30N/ 019°16'.10E	FI W 10s 193m 10M

APPENDIX 5

HAZARDOUS CARGO [t]

	1997	**1998**	**1999**	**2000**	**2001**	**2002**
CROATIA	7,729,540	8,159,384	8,482,612	8,182,378	9,682,873	8,888,036
ITALIA	75,891,217	77,343,267	78,181,293	83,546,447	85,666,675	83,609,073
SERBIA AND MONTENEGRO	990,636	891,544	790,153	712,884	642,345	584,597
SLOVENIA	1,408,392	1,486,715	1,626,131	1,909,255	1,877,790	1,865,555
TOTAL	**86,019,785**	**87,880,910**	**89,080,189**	**94,350,964**	**97,869,683**	**94,947,261**