

Eleusis Bay Lay-up Site

A brief guide with useful information



ΚΟΛΠΟΣ ΕΛΕΥΣΙΝΑΣ
ELEFSINA GULF

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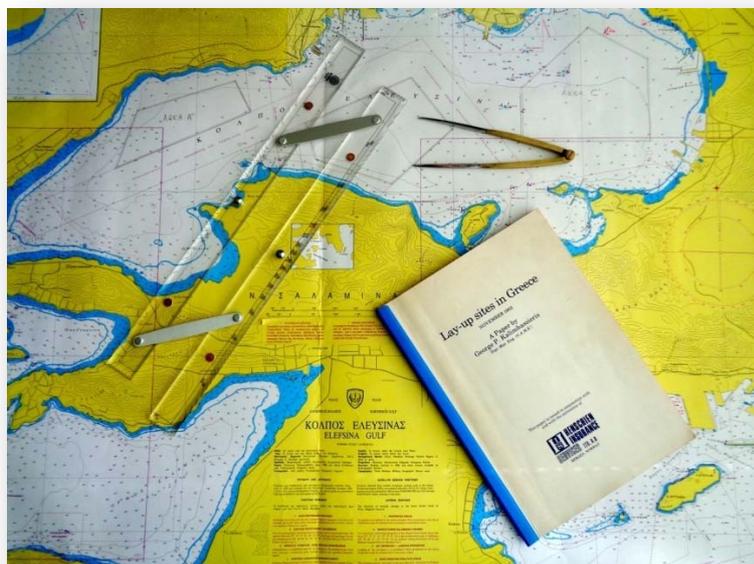
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1. PREFACE

It is not the first time that our Company considers the issue of lay-up sites in Greece. During the shipping crisis of the 1980's, our founder Mr. George P. Kalimbassieris had undertaken a comprehensive study on the lay-up sites in our country and produced a paper, which was distributed to Shipping Insurance



George P. Kalimbassieris' Paper of 1980's

Community, aiming at providing information on the geographical, environmental and other characteristics of the sites and at describing the facilities available for the laid up vessels.

The current shipping crisis has increased the lay up interest in Greece, where the Eleusis Harbour Authorities were bombarded earlier this year with numerous inquiries about the possibilities of laying ships up in the Eleusis Bay.

It is fortunate that only a small percentage of the inquiries led to decisions in laying vessels up. In mid May 2016, less than 40 ships are laid up in Eleusis Bay.

Improving freight rates and rising demolition prices have slowed down the lay-up pace, but nobody rests assured that the worst is behind us. We would be glad to see a significant improvement in the current market conditions especially for the dry cargo tonnage, but some time will be needed for the market to be brought back at sustainable levels.

Although the lay-up trend shows a decreasing rate this month, we thought appropriate to circulate the information we collected the previous months in relation to Eleusis Bay lay-up site, as this could be used by the Shipping Industry if/when considering the Eleusis Bay as a lay-up site.

2. HISTORICAL **BACKGROUND**



Greece has been proven, in the past, a very popular country for ship owners to lay-up their vessels. Back in the 1980s, several hundreds of

ships were laid up in various bays and inlets in Greece, the most important of which was the Eleusis Bay.

It was reported that at the end of July 1983, a total of 677 ships were laid up throughout Greece, 426 of which at Eleusis.

Captain Panagiotis Tsakos has emphatically reminded us that at that time “You could walk from ship to ship from Skaramangas shipyard to Corinth without getting your feet wet”.

The current dry bulk shipping crisis has forced many ship owners to remove some of their vessels from active service. Eleusis Bay is the only anchorage in Greece, currently designated by the Ministry of Shipping in conjunction with the local Coast Guard Authorities and used for laying up vessels.

The pace of ship layups has picked up in Greece over the past months, but, fortunately, the situation nowadays cannot be compared to the crisis in the 1980’s, when Eleusis was so full of tonnage that a number of other anchorages were also put into use as lay-up areas.

In order to provide some information and guidance as to the Eleusis Bay lay-up area, we have issued the present guide, for assisting Underwriters and P&I Clubs in arriving at an as correct as possible risk assessment when considering applications for lay-up of ships in this area.

3. ELEUSIS LAY-UP SITE

General Description

Eleusis Bay is a small and deep basin, between the North coast of Salamina island and the mainland, which may be categorized as an enclosed sea. It covers an area of 68 km² with maximum depth of 37 m.

Eleusis Bay seems to remain Greek owners' favourite lay-up spot. It provides shelter from open seas, winds, waves and swells and it is the only suitable location for big vessels in the Mediterranean, just a short drive away from the big ship management offices of Piraeus.



Figure 1: Aerial view of Attica Prefecture with places of interest

- | | |
|---------------------------------|------------------|
| 1: Piraeus Port | 5: Eleusis Port |
| 2: Athens International Airport | 6: Corinth Canal |
| 3: Salamis Island | 7: Chalkis |
| 4: Eleusis Bay | 8: Lavrio |

Eleusis Bay has a total coast line of 16.7 km with average width of 3.7 km. The Bay is linked to the Saronic sea, through the West passage, whose internal opening has a width of 600 m and minimum depth of 7.5 m.

The East passage is defined as the area between islets of Leros and Kyra and has a width of 1.2 km and maximum depth of 25 m.

There are three (3) distinct areas for lay-up, namely "A", "B" and "C", having sea depths ranging from 15 to 35 metres. The total lay-up capacity is 250 ships.

The water depth is sufficient for the vessels to remain afloat with sufficient under keel clearance at all tide conditions. The vessels are laid up in blocks alternate bow to stern, with anchors in opposite directions.

Current photos of the Eleusis Bay lay-up site, taken in early May 2016, are provided in Enclosure no. 1



Figure 2: Eleusis Bay, located between Salamis Island and the mainland



Figure 3: Eleusis lay-up site; three distinct areas "A", "B" and "C"

Approaches

Approaches to Eleusis Bay is either through Salamina Navy Channel, to the South or Pachi Channel, near Megara to the West.

- Salamis Navy Channel (or Atalanti Channel)

Lat/Lon 37 58'N 23 33'E

BA Charts: 1596

Application for transit must be filed with the Piraeus or Eleusis Port Authorities. Transit must be approved. Turkish flag vessels are not allowed to transit through the Navy Channel.

Transit is permitted only with pilot (and escorting tug for vessels with Loa exceeding 110m) during the official daylight hours. For night navigation, special permission is required which is infrequently approved and, if approved, it requires that all vessels are escorted by tug.

Channel operating times to be regularly checked with Piraeus VTS, since Navy channel closes to commercial traffic, when Navy ships are navigating through the straits.

Max. permissible transit draft is 10.89 m.

Sea water density about 1,025 Kgs/m³.

- Pachi (or Poros Megaron) Channel

Lat/Lon 37 59'N 23 25'E

BA Charts: 1598

Transit of Pachi channel is subject to Piraeus Pilot agreement for sailing out/in Eleusis bay, in case Navy Channel is closed.

Max. Loa 120 m. on max. draft 7.5 m.

Access

The Eleusis area is easily accessible through “El. Venizelos” International Airport of Athens, which is 56 Km away, or 40 minutes driving time via Attica highway.

Facilities

Around the area of Eleusis and particularly at Perama repair zone, the most general services are available including bunkering, lubricants, fresh water, ships stores and technical supplies, provisions, crew changes, repairs and dry-docking facilities.

With regard to dry-docking, the following floating or graving docks are available in the vicinity of Eleusis Bay:

ELEFSIS SHIPBUILDING AND INDUSTRIAL ENTERPRISES S.A.

(2.0 n.m. from Eleusis Bay)

	Floating Dock I	Floating Dock II	Floating Dock III
Capacity:	22,000 DWT	75,000 DWT	120,000 DWT
Lifting Capacity:	7,500 tons	18,000 tons	28,000 tons
Length OA:	162 m	227 m	252 m
Width between walls:	24 m	35 m	41 m
Maximum Length of vessel:	164 m	230 m	276 m

Note: Elefsis Shipyard's Floating Dock III is not active at the moment (under repairs).

HELLENIC SHIPYARDS SA (SKARAMANGA)

(4.0 n.m. from Eleusis Bay)

	Floating Dock 1	Floating Dock 2	Floating Dock 3
Capacity:	72,000 DWT	45,000 DWT	60,000 DWT
Lifting Capacity:	18,000 tons	15,000 tons	18,000 tons
Length OA:	252.20 m	195.66 m	232.27 m
Width between walls:	37 m	32 m	34 m
Maximum Length of vessel:	257 m	207 m	234 m

	Graving Dock 4	Graving Dock 5
Capacity:	250,000 DWT	500,000 DWT
Length OA:	335.28 m	421 m
Breadth:	53.65 m	75 m

Note: Hellenic Shipyards SA are not active for commercial shipping projects, at the moment. They are engaged only in Greek Navy projects.

PIRAEUS PORT AUTHORITY (at Perama repair zone)

(4.5 n.m. from Eleusis Bay)

	Small Floating Dock	Large Floating Dock
Capacity:	12,000 DWT	40,000 DWT
Lifting Capacity:	4,000 tons	15,000 tons
Length OA:	112.38 m	202 m
Width between walls:	20 m	33.20 m
Maximum Length of vessel:	---	---

PIRAEUS PORT AUTHORITY (at Piraeus Port Basin)

(9 n.m from Eleusis Bay)

	Small Graving Dock	Large Graving Dock
Length OA:	100 m	150 m
Maximum Length of vessel:	79 m	130 m

As such, the ship owners would benefit during reactivation period, as bringing-in repair or other teams from a far distance will be avoided.

The locations of the docking facilities, closest to lay-up site, are indicated in the following figure.



Figure 4: Docking facilities near Eleusis Bay lay-up site

- 1: Elefsis Shipyards
- 2: Hellenic Shipyards SA (Skaramanga)
- 3: Piraeus Port Authority – Perama floating docks
- 4: Piraeus Port Authority – Piraeus graving docks

4. COAST GUARD REQUIREMENTS

The lay-up areas “A”, “B” and “C” are controlled, from financial point of view, either by the Ministry of Shipping/Coast Guard of Eleusis or by the Eleusis Port Authority (up to bathymetric of 30 m.). In the below figure 5, the areas marked in red are those controlled by the Ministry of Shipping and those in blue, by the Eleusis Port Authority.

In any case, all procedural matters are undertaken by the Coast Guard of Eleusis, which is the only responsible entity to approve the Owners’ applications for lay-up of their vessels.

Therefore all, applications or simple inquiries for lay-up at Eleusis Bay should be addressed to:

Coast Guard of Eleusis

10, Kanellopoulou str., 19200 Eleusis, Greece

Tel: +30 210 5565520 & +30 210 5565580

Fax: +30 210 5547980

e-mail: elef@yen.gr

URL: <http://www.hcg.gr/node/168>

Person in Charge: Mr. Gribilakos

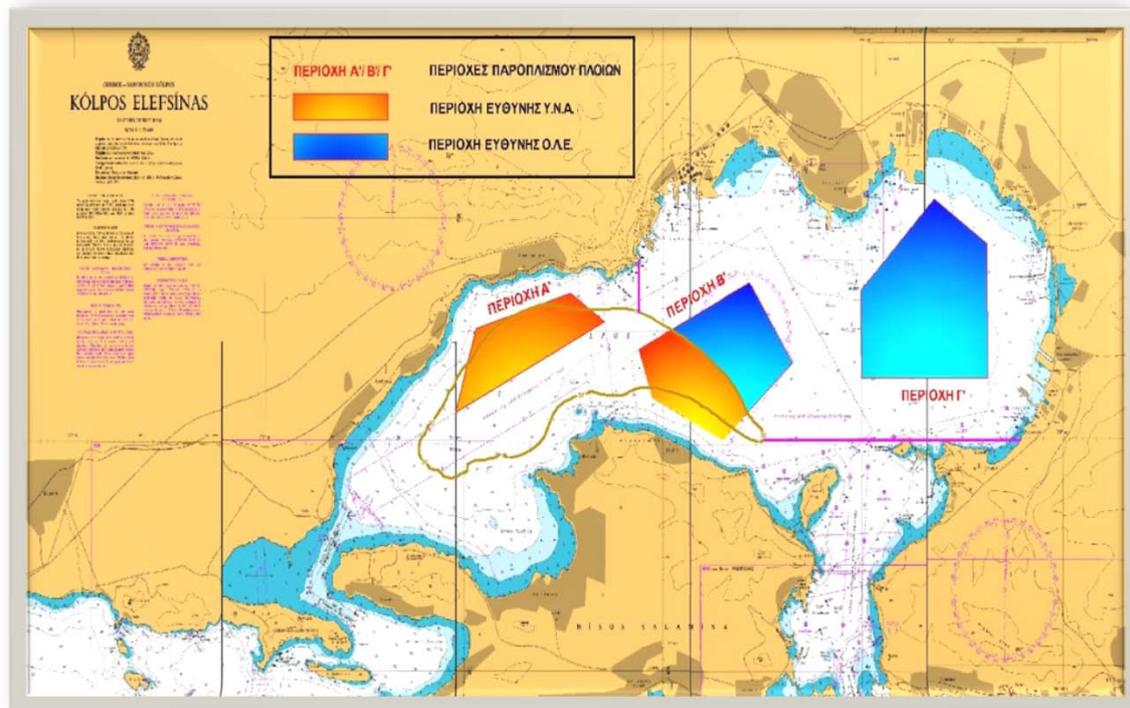


Figure courtesy Environmental Protection Engineering

Figure 5: Lay-up areas controlled by Ministry of Shipping or by the Eleusis Port Authority

The documentation that needs to be submitted to the Eleusis Coast Guard is:

1. Arrival declaration;
2. Registry certificate;
3. Application for vessel's lay-up, where the following information is to be declared:
 - 3.1. Name/Type/Flag/Registry No/IMO No
 - 3.2. Call sign/GT/NT/DWT
 - 3.3. L.O.A. /Breadth/Arrival draft
 - 3.4. Preferred lay-up position
 - 3.5. Time of scheduled lay-up (commencement-duration).
 - 3.6. Full details of ship owing / managing company and its representative / manager in Greece.

Supporting documentation to be submitted to the Authorities, as follows:

- a. Class certificate for vessels maintaining class or declaration from certified naval architect for integrity, strength, buoyancy and stability.
- b. Safety equipment certificate.
- c. Radio license certificate.
- d. International oil pollution certificate.
- e. Blue card/Pollution liability coverage.
- f. Gas free certificate/Antifouling certificate.
- g. General arrangement/Capacity plan signed from Master and appointed person in charge of laid-up vessel, indicating tanks positions and their contents upon lay-up.

- h. Official declaration of Master and appointed person in charge of laid -up vessel stating above mentioned condition.
- i. Oil record book.
- j. Wreck removal insurance coverage.
- k. For vessels flying non EU flags, statement from tug company, stating that they are appointed to tow vessel outside anchorage, upon receipt of instructions from port authorities, in case of emergency.
- l. Appointment of protective agent issued from owners/managers.
- m. Acceptance of appointment from agents
- n. Appointment of person in charge while vessel is in laid up condition, issued by owners/managers.
- o. Acceptance of appointment on being the person in charge stating all responsibilities concerns.
- p. Statement from owners /managers for appointing watchmen.
- q. Watchmen certification.

5. AREA ASSOCIATED RISKS

Environmental/weather conditions

Eleusis Bay is a naturally weather protected area with average Mediterranean climate. High risk weather conditions hardly existed in the last 15 years (see note on the next page), air temperatures of less than 0°C, or significant currents and tidal variations, due to the natural protection of the area by mainland and Salamina island. The environmental conditions are as follows:

Temperature: Typical temperatures vary from 5° to 20°C, during winter period (November-April) with temperatures from 0° to 5°C developing for less than 5% of the year, whilst during summer period (April to November) temperatures vary in the region between 15° to 40°C.

Wind: Historical data between 2000 and 2015 indicate that for almost 28% of the year, no winds are blowing (calm). Also, for around 98% of the period under review, wind force is limited to below 5 Beaufort with typical direction N-NW-S. Maximum wind force above 6 Beaufort develop for less than 1%, usually of N-NW direction. Relevant tables/charts/diagrams are given on pages 11 and 12.

Wave heights: Due to Eleusis Bay's limited area, waves are of insignificant height.

Ice conditions: Not existent

Tidal variations: At the coastline of Salamina tide variation has been recorded from 0.01 up to 0.4 m.

Sea currents: Currents of average velocity of less than 10.5 cm/s have been measured. The most frequent current condition is during winter period with current direction from West to East at a rate of 240 m³/s and with less frequency during summer period the opposite direction with rate of 450 m³/s. Schematic presentation of sea currents during winter and summer periods are given on page 13.

Wind Force		Wind Direction									TOTAL	
BF	Knots	N	NE	E	SE	SE	SW	W	NW	Calm		
<1	0<1										27.88	27.88
1	1 - 3	3.33	0.44	0.94	0.55	1.75	0.67	0.68	2.79	0	11.15	
2	4 - 6	5.18	0.32	1.10	0.67	3.15	1.04	0.82	4.58	0	16.86	
3	7 - 10	9.28	0.27	1.30	0.88	6.29	2.00	1.33	7.79	0	29.15	
4	11 - 16	5.94	0.06	0.54	0.41	1.42	0.30	0.72	3.70	0	13.09	
5	17 - 21	0.74	0.01	0.03	0.04	0.10	0.01	0.09	0.45	0	1.46	
>=6	>= 22	0.17	0.00	0.01	0.01	0.03	0.00	0.02	0.16	0	0.40	
TOTAL		24.64	1.10	3.92	2.56	12.74	4.03	3.66	19.47	27.88	100.00	

Figure 6: Eleusis Bay: Frequency (%) of wind direction and force, as observed between 2000 and 2015

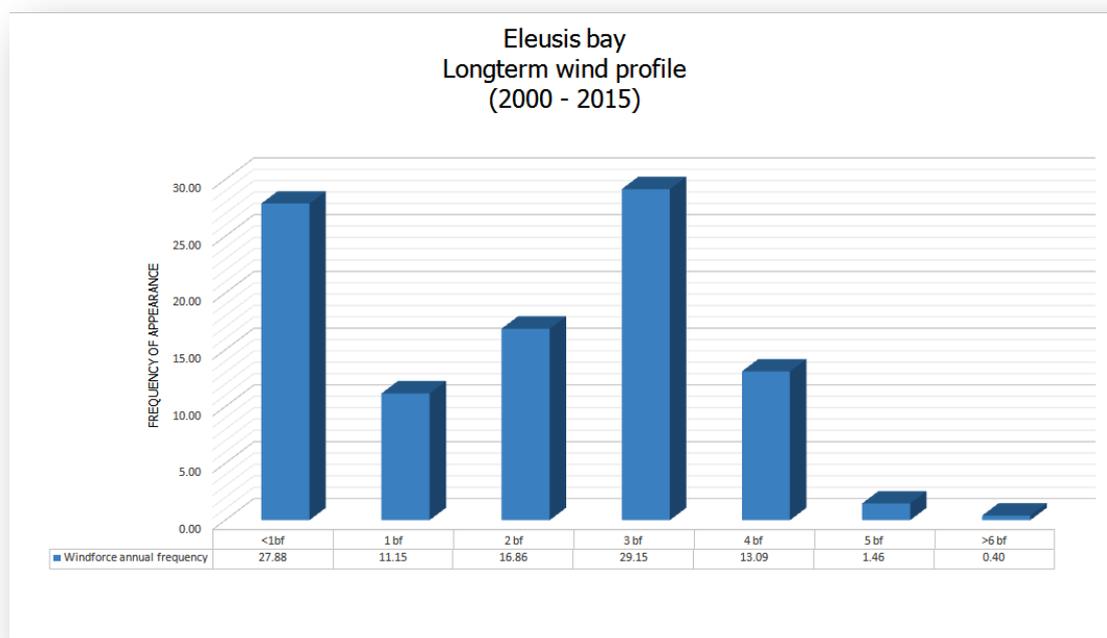


Figure 7: Eleusis Bay: Bar chart of frequency (%) of wind direction and force

Note: Two adverse weather episodes were reported on 09.10.2003, during which gusts of wind reached up to 11 B. force, for a limited period of time, resulting in drifting of some vessels. This was an exception to the rule that winds in the gulf of Eleusis normally do not exceed 6 B.

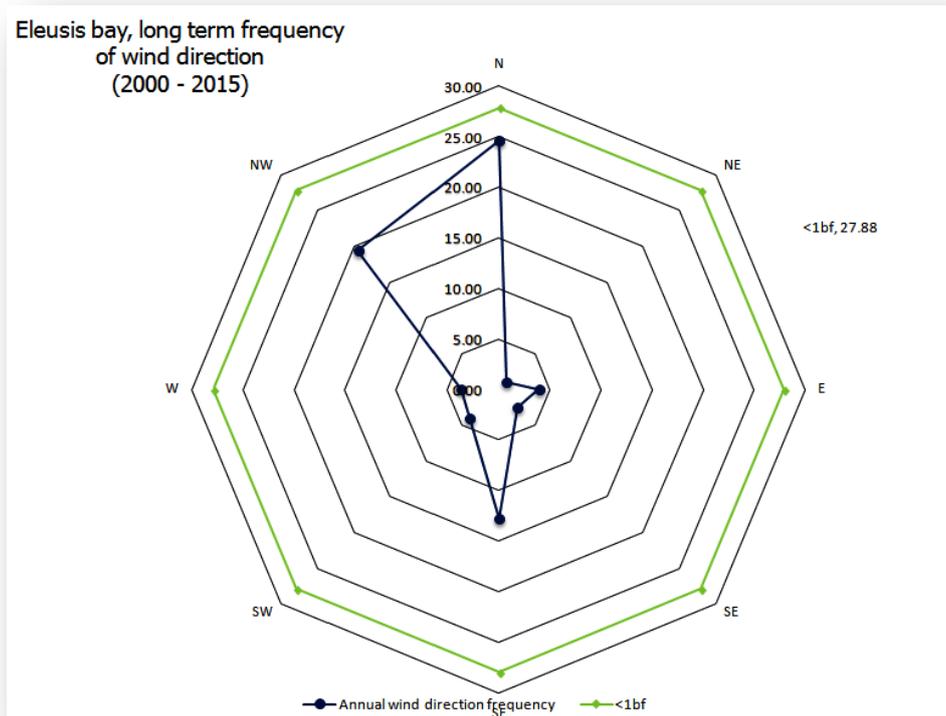


Figure 8: Eleusis Bay: Wind direction long term frequency

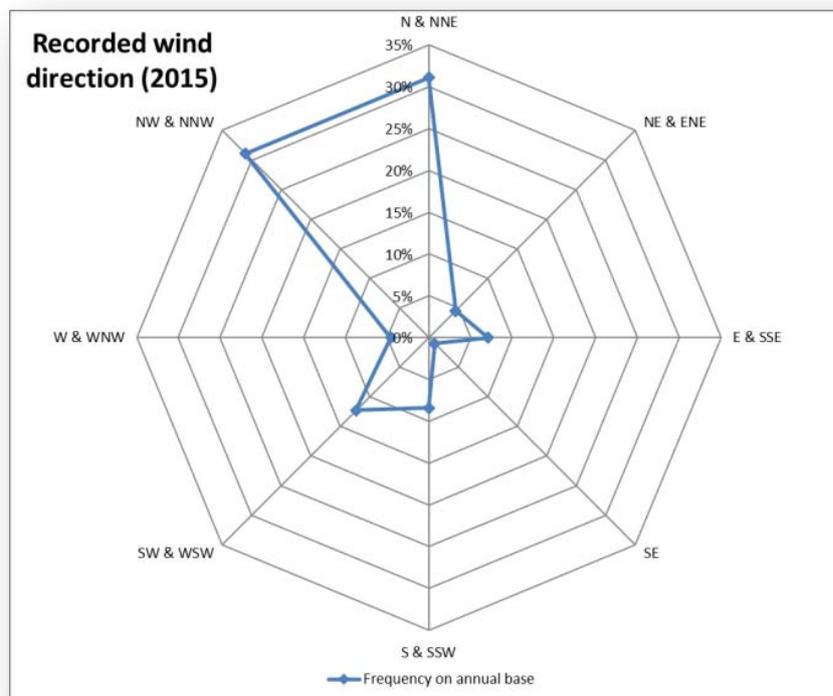


Figure 9: Eleusis Bay: Wind direction frequency recorded for the year 2015

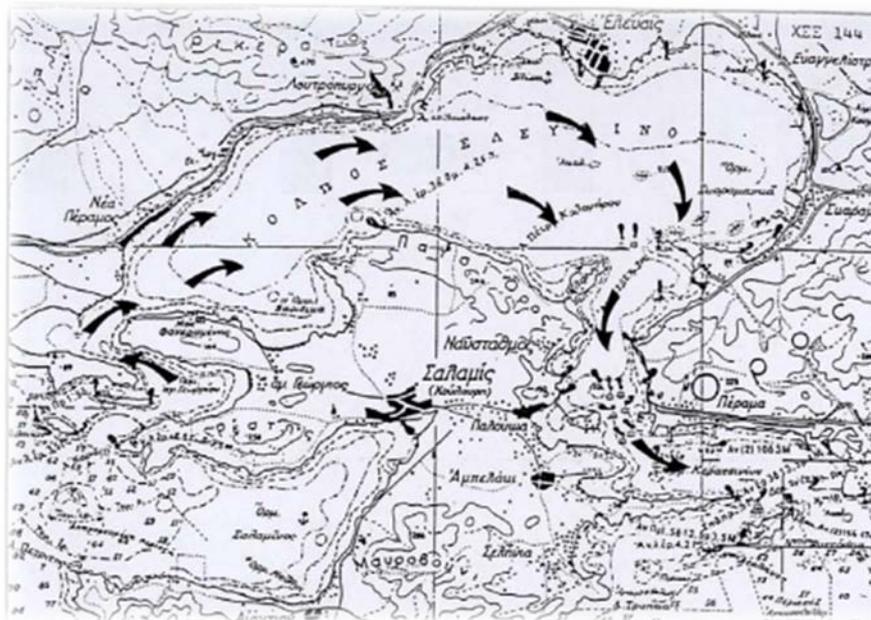


Figure 10: Winter period sea currents

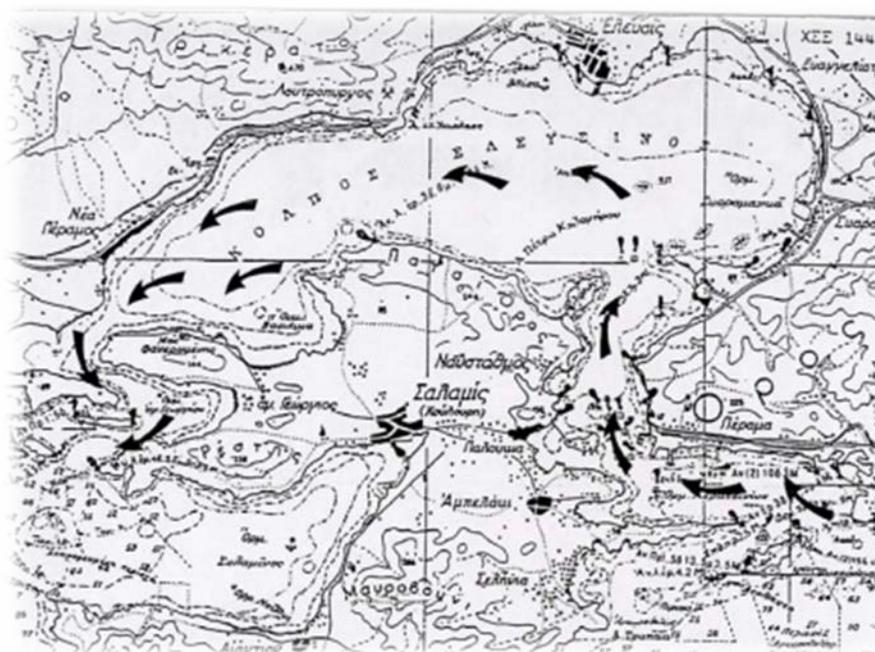


Figure 11: Summer period sea currents

Passing traffic

There are a number of port installations in Eleusis Bay, which give ground for increased passing traffic, like the following (*numbers in brackets indicate the position of each installation on the aerial photo below*):

- Port of Eleusis (#1);
- Eleusis Shipyards (#2);
- Hellenic Petroleum terminal, Eleusis (#3);
- Hellenic Petroleum terminal, Aspropyrgos (#4);
- Titan Cement Plant, Eleusis (#5);
- Hellenic Halyvourgia, Aspropyrgos Plant (#6).



Figure 12: Aerial photo of Eleusis Bay, with major port installations

We note that Hellenic Shipyards (also located at the south-east part of Eleusis Bay, #7) are in the same condition; EU's ban against carrying out any commercial activity other than undertaking work for the Greek Navy, is still in force.

Despite the passing traffic, no major incidents have been reported in the area of the Eleusis Bay, particularly because the navigating ships' awareness is kept on a very high level.

Also, the fact that access to Eleusis Bay through the West Channel (Salamis Navy Channel) is generally not allowed during night time (unless special permission is granted), significantly reduces or even eliminates the risk of passing traffic during the night time.

6. SHIP ASSOCIATED RISKS

Apart from the risks associated with the lay-up site, the ship associated risks should be also considered at the time when a ship enters in lay up period.

Naturally, the risks, which a ship is exposed to during the lay-up period are completely different from those faced during navigation. Indicatively, during the lay-up many risk scenarios may arise like:

- The laid-up ship being struck by another ship;
- Breaking of moorings (and striking another ship);
- Dragging of anchor;
- Grounding (and in the worst case scenario, wreck removal);
- Flooding and/or listing;
- Fire and/or explosion on the laid-up ship or the other ships moored in the block);
- Pollution from leakages;
- Failure of machinery and/or other equipment due to lack of preservation;

As such, the impact of a lay-up on the P&I and Hull & Machinery cover is still significant and sometimes complex, although the main navigating risks do no longer exist.

Usually, the H&M insurers require that a lay-up plan is drawn up and submitted to the hull and machinery insurer for approval.

Nevertheless, for considering the risks associated with the lay-up of a particular vessel, a risk assessment survey should be performed by competent surveyors, focusing on the following aspects:

- Anchoring/Mooring arrangements
- Ballasting
- Power availability
- Manning
- Protection against explosion and fire
- Fire detection and fire fighting
- Precaution against flooding
- Communication
- Navigation lights and fog signalling system
- Lifesaving equipment
- Emergency contingency plan
- Anti-pollution measures
- Security
- Stability
- Preservation (hull – machinery – electrical)

7. EMERGENCY RESPONSE SERVICES

In case of emergency, assistance can be provided at a very short period, as follows:

Towage

A large number of tug boats (harbour and/or salvage tugs) with adequate bollard pull capacity, are located within the wide area of Piraeus and/or in Eleusis Bay and can provide assistance at short notice and in very short time period, in the range of 30 min.

The details of available tugs with their particulars can be found in the respective web pages of the major / reputable tug operators, who are the following:

Spanopoulos Group

Kato Pounta – Ambelakia,
189 02 Salamina, Greece

Tel: +30 210 4674-555, +30 210 4670-224
+30 210 4677-590

Fax: +30 210 4620-864

Emergency: +30 6957 213350 / +30 6951 652257

Email: info@spanopoulos-group.com

URL: <http://www.spanopoulos-group.com/>



Hellenic Tugs (*)

2, Iroon Politechniou, Neo Ikonio,
188 63 Perama, Greece

Tel.: +30 210 4292201 & +30 210 4010024

Fax: +30 210 4292200 & +30 210 4010074

e-mail: info@hellenictugs.gr

URL: www.hellenictugs.gr/



(*) Hellenic Tugs is a joint venture between VERNICOS, KARAPIPERIS, LYBOUSSAKIS and MEGATUGS groups.

Tsavliris Salvage

10 Akti Poseidonos,
185 31 Piraeus, Greece
Tel: +30 210 42 21 000
Fax: +30 210 42 21 008
+30 210 41 74 885

e-mail: salvage@tsavlis.com

URL: <http://www.tsavlis.com/index.php>

**Five Oceans Salvage**

54 Amalias Avenue,
105 58 Athens, Greece
Tel: +30 210 32 58 210
Fax: +30 210 32 58 219

e-mail: contact@fiveoceansalvage.com

URL: <http://www.fiveoceansalvage.com/>

**Fire fighting**

In terms of fire fighting and rescue services, all ports in the wide area of Piraeus are serviced by the 5th Fire Station of Piraeus, which is located at the entrance of Piraeus Central Port.



Address: Position "Palataki", within Piraeus Central Port

Zip code : 185 38 Piraeus

Tel: +30 210 45 27 400

Fax: +30 210 45 27 409

Chief: Mr. Bouris George

Tel: +30 210 45 27 402

In case of emergency, the call center of the Fire Service should be called at the telephone number **199** or the Civil Protection Centre at the number **112**.

The station is staffed by the following firefighting ships, having the particulars given below:



Π.Σ 10 «Fireman Savvas Karavassilis»
 Built: 1988
 Main engines: 2 MAN, 760 HP each
 Length: 21.5 m.
 Breadth: 5.00 m.
 Draft: 1.70 m.
 Max. speed: 24 kn



Π.Σ. 15 «Chief Kokkinakis Alkiviadis»
 Built: 2011
 Main Engines: 2 MTU 16V 4000 M90
 Power: 2.720 KW each
 Length: 28.60 m.
 Breadth: 7.20 m.
 Draft: 2.00 m.
 Max. Speed: 26 kn



Π.Σ. 16 «Cadet Poullos Constantinos »
 Built: 2011
 Main Engines: 2 MTU 16V 4000 M90
 Power: 2,720 KW, each
 Length: 28.60 m
 Breadth: 7.20 m
 Draft: 2.00 m
 Max. speed: 26 kn

Nevertheless, the majority of the tug boats that operate in the area of Piraeus and Eleusis Bay are equipped with fire fighting means and can provide fire-fighting services in case of need.

Antipollution

A number of experienced and competent anti-pollution contractors operate in the wide area of Eleusis and around Attica prefecture in general, who can provide assistance and emergency response services in cases of marine environment pollution. Contact details, in case of emergency, are provided below:

Environmental Protection Engineering SA
 24, Dervenakion str., 18545 Piraeus, Greece
 Tel.: +30 210 4060000
 Fax: +30 210 4617423
 e-mail: epe@epe.gr
 URL: <http://www.epe.gr>



Antipollution Environmental Protection Services

57, Akti Miaouli str. 18536 Piraeus, Greece
 Tel.: +30 210 4292426 - 7
 Fax: +30 210 4292710
 e-mail: info@antipollution.gr
 URL: <http://antipollution.gr/en/>

**Oil Spill Response Alliance (Greece) Ltd.**

81, Akti Miaouli Str., 185 38 Piraeus, Greece
 Tel: +30 210 4518200
 e-mail: greece@osraint.com
commercial@osraint.com
 URL: <http://www.osraint.com/global-operations/greece>

**New Naval Ltd.**

2nd klm Lavriou-Souniou ave. Lavrion, Greece
 Tel: +30 22920 27936
 Fax: +30 22920 22337
 e-mail: info@newnaval.gr
 URL: <http://www.oilspillresponse.gr/>

**Medical assistance**

The “Thriassio General Hospital of Eleusis” is located at the area of Magoula, at a distance of approx. 5 Km only, from the port of Eleusis, or 12 min. driving time.

“Thriassio General Hospital of Eleusis”

G. Gennimata Ave.,
 19018 Magoula,
 Reception: +30 213 2028000
 E-mail: info@thriassio-hosp.gr



In case of emergency, the National Centre of Emergency Response should be called at telephone number 166 or the Civil Protection Centre at the number 112.

Class emergency response system

The major Classification Societies members of IACS retain offices in Piraeus and could provide service at short notice, if needed.

Kalimbassieris Marine Consultants Co. Ltd.

Elefsis Bay Lay-up Site

ENCLOSURE No. 1

Photos of Eleusis Bay Lay up Site
(taken in early May 2016)



1. Aerial photo of Elefsis bay lay-up site taken on 10 May 2016



2. As above



3. Block of laid up vessels as seen from Salamina island



4. As above



5. Block of laid up vessels as seen from Salamina island



6. As above



7. Block of laid up vessels as seen from Salamina island



8. As above



9. Block of laid up vessels as seen from mainland



10. Block of laid up vessels as seen from mainland



11. Block of laid up vessels as seen from mainland



12. Block of laid up vessels as seen from mainland



13. Laid up vessels as seen from mainland



14. Laid up vessels as seen from mainland