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Technology

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**BALLAST WATER MANAGEMENT SYSTEMS AND IMPACT
ON SHIPPING INDUSTRY**

ΣΤΑΥΡΟΥΛΑΚΗΣ ΝΙΚΟΛΑΟΣ

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Του

Σταυρουλάκη Νικόλαου

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Έντυπο έγκρισης

Μεταπτυχιακή Διατριβή
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ON SHIPPING INDUSTRY

Παρουσιάστηκε από
Νικόλαο Σταυρουλάκη

Επιβλέπων Καθηγητής: Φώτης Παναγίδης ,Professor of Shipping and
Maritime Economics

Υπογραφή _____

Μέλος επιτροπής:

Υπογραφή _____

Μέλος επιτροπής:

Υπογραφή _____

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Η έγκριση της μεταπτυχιακής διατριβής από το Τμήμα Εμπορίου,
Χρηματοοικονομικών και Ναυτιλίας του Τεχνολογικού Πανεπιστημίου Κύπρου
δεν υποδηλώνει απαραίτητως και αποδοχή των απόψεων του συγγραφέα εκ
μέρους του Τμήματος.

Ευχαριστίες

Θα ήθελα να ευχαριστήσω ιδιαίτερα τον Δρ. Φώτη Παναγίδη ,τον επιβλέποντα καθηγητή μου , για την εμπιστοσύνη που μου έδειξε καθώς και για την καθοδήγηση και την πολύτιμη βοήθεια του κατά την εκπόνηση της μεταπτυχιακής μου διατριβής. Η συνεργασία μας ήταν άψογη και η προθυμία του όποτε χρειάστηκε η βοήθεια του ήταν άμεση.

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ABSTRACT

The International Maritime Organizations ballast water convention, it was ratified in 2017. As result of this, the shipping industry will need to adjust its ships so as to meet the new requirements. The industry (Ship-owners) will need to consider aspect would be useful. The purpose of this thesis is to produce a model that will assist ship-owners in finding the most suitable and economical treatment system by focusing on meeting the critical and less critical operative patterns of the Vessel.

The output of the model is a scoring system, which shown the degree of harmonization and provides a transparent comparison between the ship-owners needs and the characteristics of some of the leading systems on the market today.

The result was accomplished by conducting an objective comparison of ballast water management systems based on pre-defined criteria relevant for their intended use onboard ships. Before matching treatment systems and needs a qualification stage is conducted to discard systems that fail to meet essential requirements.

Only systems with no critical mismatched make it through to the matching phase. Furthermore, a weighting stage provides the information needed to ascertain the degree of harmony and the transparency between the needs of ship-owner and the characteristics of each qualified treatment system. The core technologies used for ballast water treatment are: UV radiation, electro-chlorination, ozone, advanced oxidation processes, deoxygenation and filtration. Their strengths and weaknesses are described in this thesis. The decision-making tool will provide the ship owner with knowledge of how he values different categories of criteria related to ballast water treatment, what systems on today's market will provide the best match for his needs and how the installation will affect positive or negative the shipping industry or freight market.