Review of Special Interest Wrecks inside the Danish Legal Framework and Defining Cultural Management Strategy for these Wrecks.

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“Poor is the country that has no heroes, but beggared is that people who, having them, forgets"[1]. (“Maarleveld, 2009.).

[1] William A Jones Colonel, United States Air Force (Maarleveld, 2009.)

1. Introduction.

The concept of writing legislation which covers an international spectrum for protection and management of any finite resource is obviously fraught with difficulties. Firstly, there are different ideas and viewpoints that exist in each country's understanding and definition of what is important heritage and therefore protected heritage. Secondly, a public's perception and changing attitude towards maritime culture, the interpretation of what is heritage and thus in need of documentation and protection is an ever changing difficult term to define. Assessing the perceptions and attitudes of the local and national maritime community would go some way towards quantifying their opinions and experiences. This will be a useful exercise in planning future cultural management strategies.

What can we learn from the Schnellboote case study? The Schnellboote wrecks are located in the Danish waters between islands of Langeland and Funen which were first discovered by Lars-Erik S. Larsen. Unfortunately these wrecks were looted prior to protection legslation being put in place. A wealth of information is documented in historical archives on Schnellboote and their development throughout the first and second world war. How do such wreck sites fit into the context of underwater cultural heritage existing legislation? Do they have less value due to the fact that we have sustainable data about their origins?

Finally comparative analysis of international cultural heritage legislation will give some insight into current practices worldwide. Can one nation push its idea of maritime heritage stemming from proud naval history on to other county and enforce its legal framework outside of its jurisdiction? Furthermore, is this morally correct, especially when this concept is not granted when roles are in reverse? There must be more reciprocity approach (House et al., 2005) towards international maritime heritage. Does this seemly well meaning idea and set of values

transfer into reality when a country no longer values a part of its history and the archaeology connected to or its archaeology material from this period. Of course the victors in any conflict will more often than not look at this period in better light than the losers. If the country which a wreck originates from no longer values or in some cases shunned this part in its history and what will became of it, does the legislative and management body in charge of its present status have a moral or professional obligation to protect it?

The main tool of collecting raw data for this thesis paper is to develop an interview questionnaire to gauge opinions at grass-roots level. This interview process will focus on the chosen case study and in the context of the current legal and legislative framework that is in place. The chosen case study could be viewed as a microcosm to the present state of the Danish maritime cultural legislative system. This body of work will try to define the background of the caste study; the managerial and legislative factors which have lead to its current position in the archaeological record. These relatively recent uncovered wrecks discovered around Langeland that have posed a number of problems for the relevant heritage agencies who under the current legislation have been tasked with its protection and conservation. As a master student at the University of Southern Denmark my attention and interest in how the Danish legal systems performance and functions concerning wrecks under 100 years which could be classified as "Special Interest " in the context of how other frameworks operating in other countries have function and address these managerial issues. My thesis paper will explores the merit of a comparison with similar situations in some other countries and how their legislative systems have deal with these problems. This paper will suggest some ways of possible future methods and ways of mediating these problems on the basis of the comparative analysis and feedback that will be gathered through the process of interviewing individual stakeholders on a grass roots level. It must be made very clear that it is

not in the scope or the mandate of this paper to provide a tangible and definitive solution to any faults and failings that research conducted during the development of the paper has highlighted. It is hoped through the work carried out in this thesis paper that some indications on the basis of grass-roots feedback and comparison with the situation in some other countries could be used to address this problem. It may be possible that the results produced could be analysed to feed into any future policy development and help steer future thinking, debate and dialogue into forthcoming solutions to these problems. The methods and legal tools that are in place to address similar issue or case will be reviewed and comparisons drawn with ways of improving legislation in the Danish legal system to deal with submerged cultural heritage management. Dialogue and research is necessary to create a cohesive approach that is acceptable to all practitioners and stakeholders, in the hopes of moving away from the unstructured approach which is currently being using to manage Denmark's underwater cultural heritage**.** A consolidation of how maritime cultural is viewed and how the management section of the maritime archaeology spectrum will proceed in the coming years.

2. Background.

Historical sources uncovered by Lars-Erik S. Larsen a member of local recreational diving club who's research into the archives at Svendborg library, discovered that the four wrecks were from a group of eight torpedo boats lost in the area. Accounts given from "Sydfyns Social-Democrat" on 8th May 1945, recall locals telling of the night time development of 12 Schnellboote class ship on 8th May with a series of muffled detonations being heard and only four vessels turning to port (http://www.delfinen-svendborg.dk). All four of these wrecks are located within a small area (less than 1 square kilometre) in the sheltered bay area Lunkebugten on coastline of Fyn in a depth of about 9-12 meters. A fifth wreck site was

uncovered by local divers during the summer of 2011 in the same region, however the site has since being looted by divers before a management strategy could be put in place by cultural heritage agencies in charge of the wreck sites. The looting and intentional damage caused to this wreck site is an interesting case, highlighting the short comings of the Danish legal framework and mechanisms in dealing with maritime cultural and public perception of what it views as maritime cultural heritage and how this finite resource should be exploited or treated in the future. These wrecks are obviously at high risk due to their shallow depth, favourable diving conditions and historical context from which they stem.

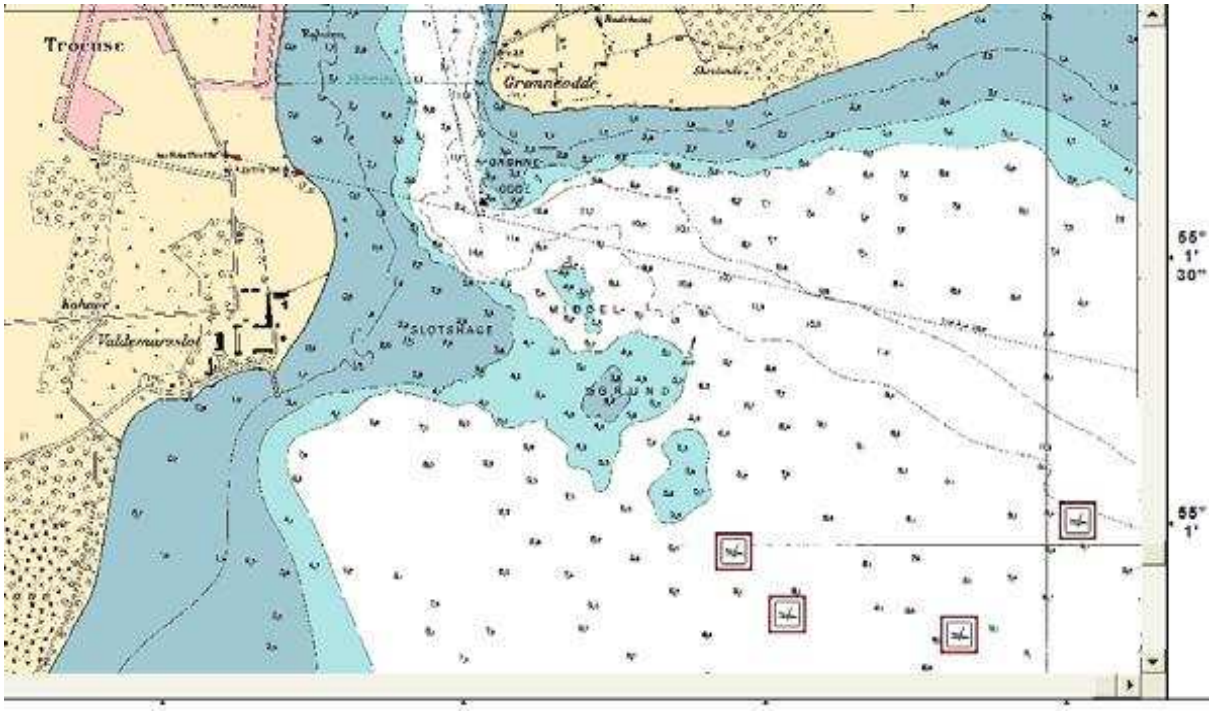

Figure .1 A map of the area around Langeland where the four original Schnellboote are located, Starting on the left MTB(Motortorpedobådene)-3, MTB-4 (Wheatcroft Schnellboote), MTB-1, MTB-2.

The protection of these wreck sites comes under the jurisdiction of the Consolidated Act on Museums 2002 in Danish law section 28 (a) which states that "(1) Finds of ancient relics or monuments, including shipwrecks, cargo or parts of such wrecks, which must be assumed lost more than 100 years ago, on the deep seabed belong to the Danish State unless other countries or private persons prove ownership". Subsection (6) further clarifies that the Kulturministeriet

(Minister of Culture) made the decision that ancient relics or monuments, including shipwrecks, cargo or parts of such wrecks which were lost less than 100 years ago, can be covered by the Danish law as submerged cultural heritage. Kulturministeriet is also the governmental agency which receives reports for new finds (28.a.3) (Consolidated Act on Museums 2002) and may make regulations on maritime cultural matters.

Any new finds which are found inside 24 nautical miles of Danish territorial waters must be reported to Kulturarvstyrelsen (Heritage Agency) advice body which is effectively in control of maritime cultural matters. The process and mandate of reporting finds to Kulturarvstyrelsen, Langeland/Øhavetmuset responsible for maritime archaeology at a local regional level, is one of the short falls in Danish maritime cultural framework. In the case of the fifth "Schnellboote" in the waters around Langeland this systems' short comings are demonstrated. The centralisation of responsibility and the moving of power away from the local museum concerning local maritime cultural issues resulted in the looting and exploitation of the high risk wreck. In this particular case the local museum was only informed of a problem after the looting had occurred, therefore any cultural management strategies dealing with these wrecks is only reactionary to problems which have occurred with the wreck site and not dealing with the issues concerning its conservation. The lack of an automatic, or 'blanket' protection in Danish legal framework which, if in place, would have given the government management agencies a say in the conservation of the wrecks at both regional and international level.

2.1. Aim and Objectives.

The first section of this thesis explores existing attitudes within the professional archaeology, legislative and recreational communities through the use of interviews. The interview questionaire was developed with the intent to qualitatively measure practitioners opinions, experiences and attitudes. An examination of the interview and method was used to

disseminate, collect information and the present analysis of the results. The process will explore what approach should be taken towards the diving community to ensure that the legislation does not adversely impact on their usage of underwater archaeological sites. Also, if a equilibrium can be reached between all parties of the maritime cultural spectrum to ensure the future protection of underwater cultural heritage. Interviews questions will appear in the appendices.

The second section of this thesis will present my area of study in the form of a case study. The case study which has been chosen is four Schnellboot between islands of Langeland and Fyn. These wrecks were chosen for case study because of a number of cultural and legislation factors, any wrecks sunk by acts of aggression during war time always have additional arguments for protection. This is related to war's emotional and political impact on a nations' psyche and their emotional driven attachment to these "war graves" (House et al., 2005). This section will also contain a detailed technical and constructive history of the design and development of the Schnellboote. The reasoning behind this is to showcase the large amount of information which still exists concerning these boats and their construction. With this in mind how do they fit into the context of underwater cultural heritage, do they have less value due fact we have sustainable data about their origins? or are they of less importance than vessel who's history is less well-known and more murky. Over the next 50 years due to the so-called rolling 100 year's protection of shipwrecks a large amount of very popular dive sites will now inhabit a more tightly controlled legal position. Does this concept of "Special Interest" wreck derive from changing perceptions of heritage in a changing world? Or is the legislation concerning these wrecks being stronger make them more important.? What is less obvious is whether sites outside the public sphere receive the same level of treatment.

The third section of this thesis uses a comparative review to explore current practices in different countries maritime cultural heritage legislation and how they deal with "Special

Interests Wrecks". The mandate for dealing with, reporting, investigating and protecting of these sites has been developed through interdisciplinary research and this concept of protection is apparent in the literature and legislation written to deal with this unique form of cultural heritage. Certain approaches have, however, gone far in mitigating these issues, and I will compare and contrast different legislation frameworks that are in place in other countries who have encountered these problems according to their interpretation of the United Nations Educational, Scientific and Cultural Organization (UNESCO) 2001 Convention on the Protection of the Underwater Cultural Heritage. How do these differ, can one country impose its idea of maritime heritage and how important its maritime heritage is stemming from its proud naval history on to other country. What empirical solutions have been created to address these issues and problems which are faced by legislation and management plans that exist inside the present legal framework? Also to be explored is the legislation process concerning these ships located in foreign territorial waters. Are there legal instruments which could be of greater interest if applicable to other countries laws and legislation dealing with maritime cultural heritage? Can any of these empirical solutions be adopted and implemented into the present Danish legislative framework to improve maritime cultural management strategies for maritime cultural heritage?

2.2. Definition of the problem

The position of Second World War wrecks in the public sphere and legal framework is a topic of some debate. Over the next 50 years due to the so-called rolling 100 year's protection of shipwrecks, a large amount of very popular dive sites will inhabit a stricter and more tightly controlled legal position. Does this concept of "Special Interest" wreck derive from changing perceptions of heritage in a changing world or does the legislation concerning these wrecks being stronger make them more important. Simple fact is that in many cases the protection and conservation of fragile wreck sites will only go as far the legislation concerning it requires. The

lack of definition concerning the position of wrecks under 100 years can lead to management and legislative issues. The issue is highlighted in the case of four German "Schnellboote" located inside Danish territorial waters between the areas of Fyn and Langeland. Motor torpedo boats or Schnellboote, the first three of which were found by the local dive club between 1995-98, with a further discovery of an additional Schnellboote by January 2004 (http://www.delfinen-svendborg.dk). The fifth Schnellboote was uncovered in 2011 and subsequently looted in the summer of 2012.

A similar scenario happened at the wreck site of the Queen of Nations off the southern coast North South Wales in Australian waters. When exposed by storms in shallow water in 1991 the site was egregiously looted within days (McIntyre-Tamwoy, 2009 pg.5). It was a example of where automatic or "blanket" protection was needed. The ability for this legislation already existed in Section 5 of the Historic Shipwrecks Act but required agreement by all State, Territory and national Delegates in order for it to be enacted. Commonwealth legislation was already in place to protect historic shipwrecks, but declaration was on a ship-by-ship basis. Until such a declaration was made, there was provision under the Act to prevent destructive interference with the wreck site. In order to protect the Queen of Nations, a submission needed to be prepared (Nutley,2006,pg.12) . On the positive side, the tragic experience of the Queen of Nations played an important role in the protection of Australia's underwater cultural heritage. The similar scenarios in both Queens of Nations and Schnellboote would indicate that a statutory protection of wreck sites from human interference from the moment they are found is of the utmost importance. It removes a window of opportunity for those bent on short term site exploitation and allows the immediate application of conservation principles that preserves long-term values of underwater cultural heritage as a source of information. But what does this protection actually entail for maritime cultural heritage in Danish territorial waters and who

exactly is responsible for their protection? In the case of looting of Schnellboote and the prosecution of looters, what governmental body has the responsibility of enforcing the law and does prosecution fall under the jurisdiction of Kulturarvsstyrelsen, local state subsided museums, Kulturministeriet or Danish police? What if any penalties and fines should be brought to bear on members of the public who break the law by the removal and damage to any historical or cultural resource? Would granting the governmental agency in charge of maritime cultural heritage powers to confiscate divers equipment and boat of diving organization found guilty of looting wreck site, as well as impose fines on guilty parties dissuade removal of finds from submerged cultural heritage sites?

The legal status of the other four "Schnellboote" wrecks is another problem, they are classified as "Special Interest Wrecks" as under 28. (a.) under subsection of Consolidated Act on Museums 2002. The policy drawn up to deal with "Special Interest wrecks" in Denmark is a list of about 20-50 wrecks with each of the five museums who are responsible for maritime archaeology. From a legal standpoint their inclusion does meet all legal requirements however there is no criteria or mandate concerning how these cultural maritime sites are to be protected. There is a policy of non interference in the wrecks sites but this is not a management strategy. There is no stipulation which states active conservation methods should be implemented on wrecks designated as "Special Inertest" in the Danish framework. Due to the location of the wrecks and their historical and archaeological context, the information gained from intrusive and destructive methods such as excavation in cases like "Schnellboote" do not warrant justification. These submerged cultural sites are prime examples for the usage of in situ management strategies, In situ preservation is based on the concept that certain environments naturally produce situations capable of slowing deterioration (Maarleveld,2009). In situ preservation must be viewed as an active tool, incorporating and monitoring pro-active

initiatives to slow deterioration. The point of this research paper is not however the pros and cons of in situ preservation or indeed my personal perceptions on the subject but in context of special interest wrecks under 100 years rule is a suitable approach for a management tool. In many cases the further back in history you go or reach the less secure our knowledge of past is thus a non intrusive management strategy would suit wrecks which already have undergone extensive excavation and accumulated a large amount of information. If a substantial database of information exists about specific wrecks there is little point in protecting such shipwrecks. The heritage value of shipwreck comes down to subjective observations from either the governmental managerial body or in-house archaeologist. Can lack of archaeological knowledge about a site and length of time period since its original deposition be the only measuring factors in gauging the significance of a wreck site? There is an understanding that decisions in relation to heritage are based not just on one dimension of significance but on a range of overlapping "values", ranging from sheer antiquity, through historic, artistic and remembrance values to utility values in the spheres of identify, ideology and otherwise (Maarleveld,2009).

In theory in situ would stop the recovery and excavation of ships like the Mary Rose or the Vasa then again if there is good archaeological reasons to do excavation work why not. But in the excavation of these ships we could be creating a never ending expenditure from which funds and resources will be continuously spent on. Since 2008 the Mary Rose Museum Project has raised £35 million to complete the conservation of the 19,000 artefacts found in its hull (http://www.maryrose.org/). Could this money be better utilized through active monitoring and preservation and how many wrecks could one preserve in this way with a budget of £35 million? Critics have pointed out that in situ is merely methodology that masks governmental heritage bodies managerial and budgetary failings (wreckwatch.com) by leave and memorise

approach as oppose to dive and study. In situ by its nature is low-cost longer term solution to dealing with maritime culture assemblage thus the large spectrum of wrecks can be properly surveyed and protected up to the highest archaeological standards. We cannot excavate everything we find but through in situ the largest amount of sites are protected economically with money retained for potential further discovery of a significant archaeology resource which we can exploit. Therefore, the utilisation of a management strategy which is tailored towards fiscal responsibility is" good practice" given economic conditions and monetary constraints. We have both archaeology and monetary responsibility in the decision we take and how the eventual cost of excavation, post-procession and conservation will impact budget conditions in the future.

The definition of a heritage is what a society chooses to protect by law and administration (Maarleveld, 2012), what it sees as valuable enough to warrant time, resources and funds. How an authority decides to protect a wreck is again open to interpretation and to certain extent budgetary and personal preferences. Set against the background of rule 1 of the UNESCO 2001 convention "in situ preservation shall be considered as the first option" (UNESCO 2001 Convention for the Protection of Underwater Cultural Heritage). The principle of this is that heritage as a finite resource and its preservation is based upon the premise that this will facilitate future or longer term research. Many maritime stakeholders would argue that in situ is just an easy excuse for government or authority body to do nothing; simply a ‘we will wait and see’ approach. The interests and opinions of stakeholders many feel are being ignored by decision-making government organisation. Is this "in situ preservation as a first option" (Maarveld, T.J., Guerin, U. and Egger, B. 2011,pg. 10) affecting the legislation framework and decision-making body in an adverse way? Of course any methodology can and has, however, been used as an excuse to do nothing and watch sites deteriorate. Many will claim

that archaeology at "this core is about finding things and that it would be therefore ludicrous to say things should to left in place" (ibid, pg.10,pg.11). Archaeology is, one could argue, a scientific research process and thus needs raw data for this research through comparative analysis of sites, so then we acquire more knowledge and further understanding of shipwrecks.

There is of course valid points to these arguments as no one wishes to see the needless degradation of any maritime heritage sites or mismanagement of their future existence. Vigilance against these actions is welcome in all forms from any resource, but there is a fundamental misunderstanding of both in situ preservation and Rule 1 of 2001 UNESCO convention. In situ preservation itself requires active intervention, only then does it become an active authentic management tool or is not by principle in situ preservation at all. The immediate exploitation of resources upon its discovery is not a very pragmatic approach to management of any resource. The site of historic event is authentic (ibid, pg.10) and is a one off cultural occurrence, its context defines its significance (ibid, pg.10). Each wreck site is a unique cultural assemblage that is preserved through in situ action, it is not put into a state of perpetual isolation. The type of in situ preservation which is best tailored to iron wrecks is the usage of sacrificial anodes that can create cathodic protection for iron artefacts site (MacLeod 1996, p. 111). A sacrificial anode comprised of a more easily corroding metal, often zinc, magnesium or aluminium, is placed in electrical contact with the object to be protected. The two form an electrochemical cell in which the anode, having a higher negative potential, actively corrodes, in preference to the cathode, which is in turn protected (MacLeod 1987, p. 51).

Western Australian Maritime Museum was one of the first governmental agencies to actively use sacrificial anodes as a protective method for iron hull wrecks, with a number of sites

currently protected in this fashion. Work carried out on several wrecks has been particularly important in experimenting with the use of sacrificial anodes on metals and reburial schemes (Godfrey et al. 2005; MacLeod 1998; MacLeod 1993; McCarthy 1987). The composition of the hull of the Schnellboote which is iron, that continues to corrode whilst on a shipwreck site meaning that the iron wrecks are in fact a rapidly diminishing and very fragile archaeological resources (MacLeod 1992 pg.15). Once they have concrete, that is, covered with a calcareous growth they will continue to corrode, albeit at a slower rate than that originally dictated by the deposition of the vessel in the benthic environment. Originally, MacLeod and North pioneered the use of anodes to stabilise metal objects such as engines, anchors and cannons prior to retrieval (MacLeod 1996, pg. 1; MacLeod 1993, pg. 223-224; MacLeod 1992, pg. 15; MacLeod 1987, pg. 50-51) while promising in terms of in situ developments, was originally intended to provide increased stability in conjunction with conventional forms of retrieval and treatment. Since then, anodes have been used to protect sites in situ where there has been no intention of retrieving remaining materials (MacLeod 1998g, p. 81; MacLeod 1995, p. 53; MacLeod et al. 2005, p. 53). This demonstrated that the use of sacrificial anodes on sites could not only slow deterioration and help preserve metal on the seabed, but also reduce conservation treatment times post-excavation. Sacrificial anodes require monitoring as the anodes have a limited working life and need to be replaced at regular intervals to ensure continued protection. Monitoring showed that active corrosion of the iron portions of the vessel had slowed after the attachment of the anodes. This method of in situ preservation would also be beneficial for public most obliviously the recreational diving community, as other methods such as reburial, sandbags and geotextiles would adversely affect visual accessibility. The management plans and strategies for World War II submerged cultural sites can be applied for the training of locals as site stewards and engaging with dive operators as these groups represent stakeholders in this finite resource. While this is one way of circumventing the lack of funding and

personnel, it does nothing to hold agencies accountable for the resources under their control. Involving the public in the management of their heritage is certainly a key to managing sites as well as lobbying agencies. What else beyond funding can be done to mobilise agencies is yet to be determined.

Public interest must also be a important factor to what comes into legal framework as under the state's protection, finding out what people are interested in is as much a part of heritage significant as pursuit of archaeological information. All this talk of protecting, conserving and recording heritage can also skip over a fundamental fact in heritage that we must protect what people are interested in. This is not to say that the wrecks of little public interest should be omitted from any present or future or how does one justify a large amount of expenditure on a site that will not generate a significant amount of public interest? By its location in the wider span of archaeology, each site is a piece of the puzzle, a small piece of the answer to the question that our collective history poses to us. Furthermore the general public wish to view or see a site preserved is not the only reason for conservation. Of course the disillusion of a disinterested berated public is not entirely down to a lack of awareness of heritage and its positive aspects to the community at large. The failure to increase public interest and promote heritage issues lies as much with archaeology or administrative government body who is in charge of cultural heritage management as it does with an uninterested public. The promotion and implication of fundraising, public education and media outreach programmes is as much a tool for modern archaeologist as GIS or total station. These are not new ideas in a sense of the word using the media as a medium to portray the story which we have uncovered through archaeological activities. But perhaps the adapting of media output and solutions from "treasure hunters" would go a long way to improving heritage managers media skills and our ability to portray the intricate and complex story that is heritage. Of course this section of the

maritime community has perhaps being accused of self promotion rather than the objective of increased public awareness about heritage, its protection and the ethical indecency of plundering a non renewable resource.

Second misunderstanding is the wording of Rule 1 of the 2001 UNESCO convention it clearly states "in situ preservation as a first option" the most important phase being "first option". This meaning other management options including excavation, recovery etc. are just as valid when implemented as management tools. The authorisation and purpose of intrusive action in a maritime heritage must be built on sound scientific reason and value. The decision to excavate must have the "purpose of making a significant contribution to protection or knowledge or enhancement of underwater cultural heritage" (Maarveld, T.J., Guerin, U. Egger, B. 2011,pg.10). If the decision to excavate is taken then the archaeological potential of a given site is to be fully recognized, documented and presented to the public. But a vital point is missing; the conservation of all materials recovered during excavation work carried out should always be central to any planning of excavation activities. Therefore when considering opinions of stakeholders in a wreck site one must take their view in context to their professional background and possibly agendas', obviously excavation or salvage company will not look kindly on implementation of a in situ.

3. Schnellboote.

3.1 Wreck.

The case study which is the scope of this thesis is four German "Schnellboote" located inside Danish territorial waters between the areas of Fyn and Langeland. Motor torpedo boats or Schnellboote, the first three of which were found by local dive club between 1995-98, with a further discovery of an additional Schnellboote by January 2009 (http://www.delfinen-svendborg.dk). Their original discovery was made by Lars-Erik S. Larsen a member of local

recreational diving club who's research into the archives at Svendborg library discovered that the four wrecks were from a group of eight torpedo boats lost in the area. Accounts given from "Sydfyns Social-Democrat" on 8th May 1945, recalls locals telling of the night time development of 12 Schnellboote class ship on 8th May with a series of muffled detonations being heard and only four vessel turning to port (http://www.delfinen-svendborg.dk).

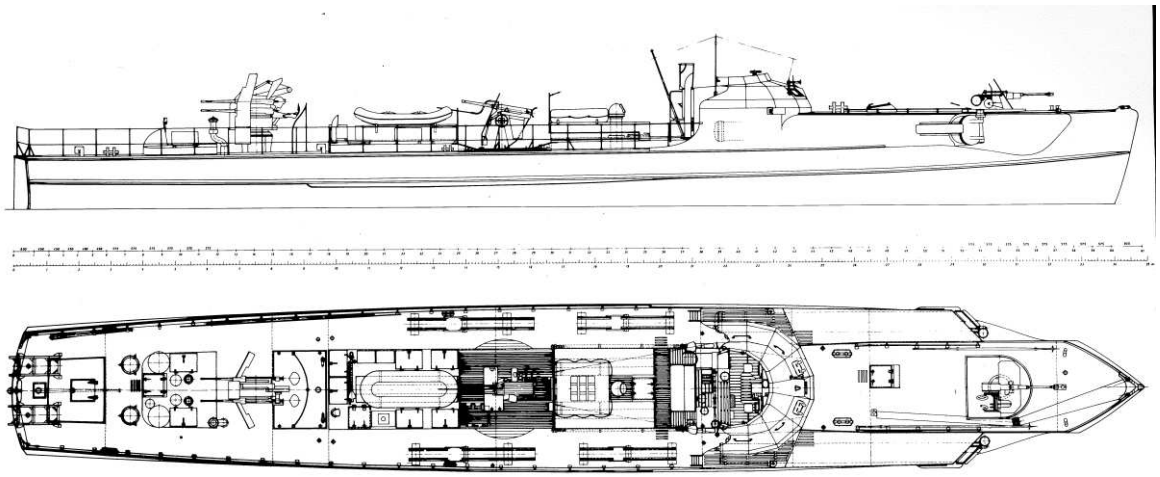

Figure .2 Type S-38/100 with armoured bridge, 6-20 mm cannon, 1-30 mm cannon (Source: (Fock, 2001) pg. 76)

The German "Schnellboote" of type "S 68" discover in the waters around Fyn were of the type "S 68". Due to seaworthiness and handling issues of S-boat in heavy seas, the forecastles were raised (Fock, 1978 pg. 187), (Williamson, 2002 pg. 13). The models from the beginning of Second World War which were of the evaluated forecastle design could be distinguished by a curve on the foredeck in forward of the bridge. The bridge /wheelhouse was still vulnerable to enemy fire due to its position and lack of adequate armour plating. These were eventually retrofitted with Armoured skull caps. Heavy flak gun consisting of 40mm Bofors, 3.7cm and quadruple 2 cm Flakvierlag were mounted on the deck, the stern of the boat had double depth charges with capacity of three depth charges (Williamson, 2002 pg.13). Increased in both size

and displacement from the previous variants, and were a large boat of the previous "S-38" type (Fock, 1978 pg.194) which in turn was a variant of the S-26, the template design for high forecastle model of the Schnellboote with a larger crew of 24 powered by 1800/2400 hp 20 cylinder Daimler Benz MB501 and was commissioned between September 1941 and May 1943(ibid, pg.194). All four of these wrecks are located within a small area (less than 1 square kilometre) in sheltered bay area Lunkebugten on coastline of Funen in a depth of about 9-12 meters. A fifth wreck site was uncovered by local divers during the summer of 2011in the same region.

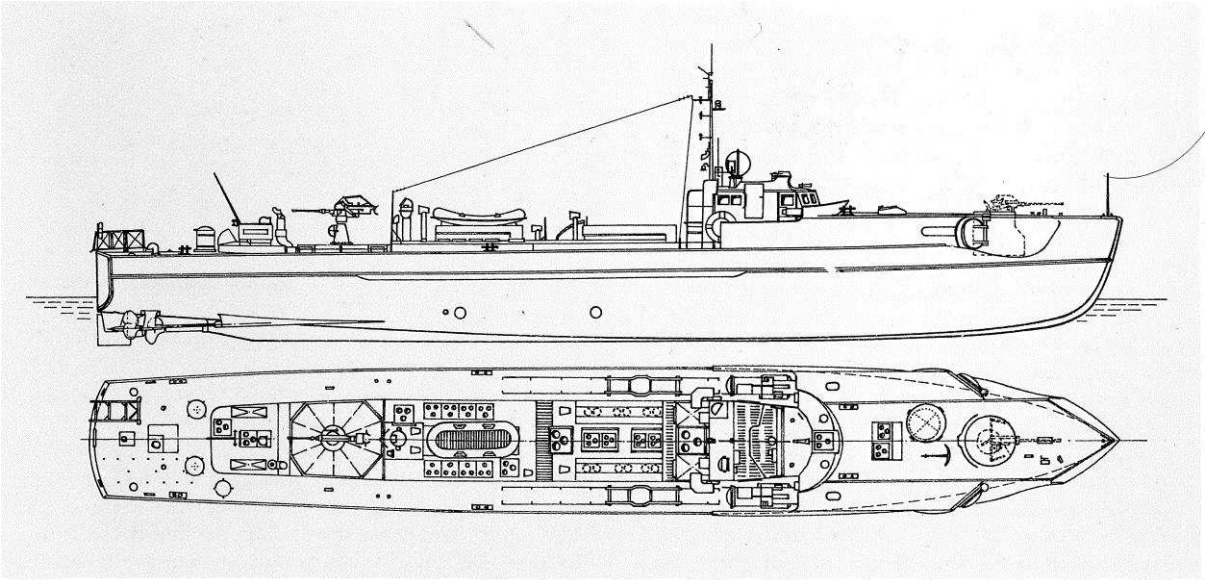

Figure .3 S-38 1941 a smaller model of the S-68 found at Langeland similar dimensions, with a conventional bridge and 2-20 m cannon (Source: (Fock, 1978) fig 107pg. 195).

3.2 Schnellboote.

The constructive and technical history of the S-Boat is prime example of the shift in German military doctrine and weapon design, due to restrictions put in the treaty of Versailles concerning German military activities and capabilities. In the period after the Versailles treaty of 1919 and beginning of the Second World War German engineers designed weapons which capitalized on new technologies and tactics that could enable a small, lightly equipped

nation to defeat a more heavy equipped enemy. The embargoes and restrictions placed on German military might have had a practical effect on German military thinking during this timeframe that stimulated German engineers into creating a modernistic arms development program. In the 1920's German Naval Command, Kriegsmarine once again found themselves in the position of a weak force anticipating battle with a much stronger one. Using considerable experience gained in Germany during the First World War, Kriegsmarine Naval Command began working on improving torpedoes and creating vessels to effectively deliver them.

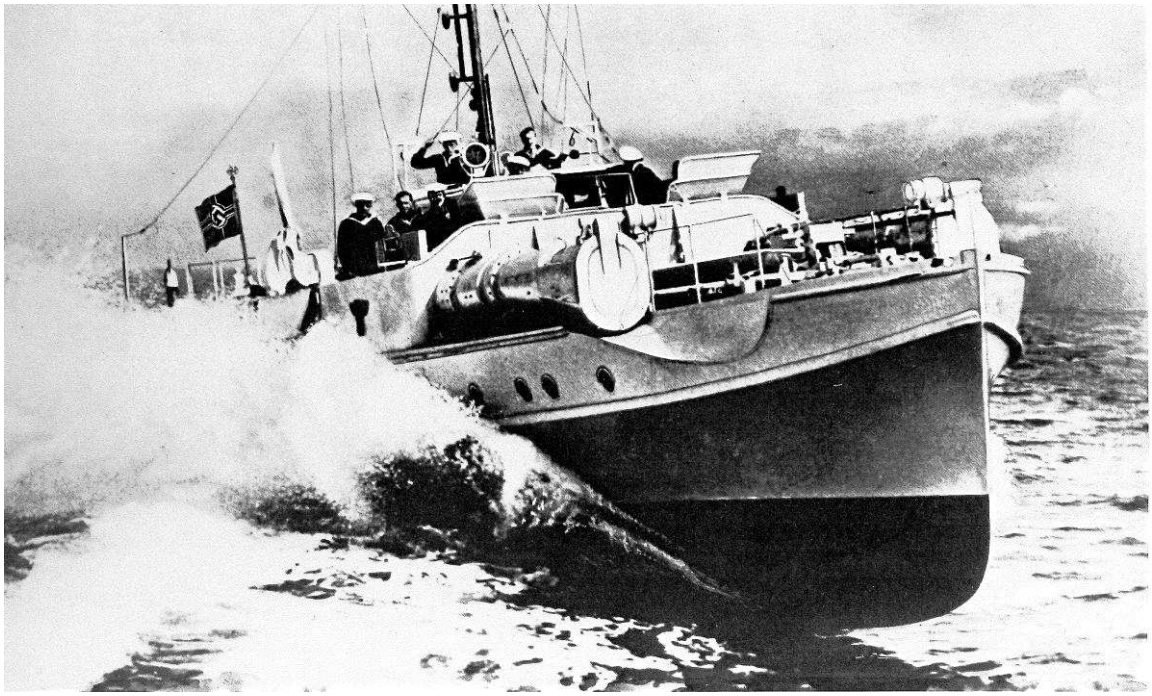

Figure .4 German Schnellboote a S-22 showing open bridge and covers over its torpedo tubes. (Source: (Fock, 1978) photo 82,pg. 119).

3.3 Organizations and Operational activates.

The S-boats had originally fallen under the command of Führer der Torpedoboote (F.d.T.) or Flag Officer Torpedo Boats. In 1942, the torpedo boats passed into the command Führer der Zerstörer (F.d.Z.), or Flag Officers destroyers, and the Navy S-boats forces came under the control of the newly appointed Flag Officer S-boats known as the Führer der Schnellboote

(F.d.S.). S-boats were organised into flotillas, of which there were eventually a total of 14, and which ultimately operated in four main theatres, the English Channel/North Sea, the Baltic/Far North, the Black Sea and the Mediterranean/Aegan. Some S-boats were committed to use in the Baltic during the invasion of Poland, The flotillas 1,2,3 and 5 serve in Baltic/North Sea, during the opening stages of the Second World War, 1 S-Bootsflotille was in Baltic water engaged in the stop and search patrols. 1 S-Bootsflotille main operational purpose was to be used in the campaign actions against the Polish Navy but Polish Navy was so quickly subdued that they saw little or no action. Given the minimal S/boats activity during the opening phases of the Polish campaign S-Bootsflotille operational in Baltic were moving during 1941 for the build up for Operation Barbarossa, the invasion of the Soviet Union. From late 1941 to early 1944, the Baltic was used as a fairly safe training area for the S/boat fleet, with little or no operational activities being undertaken in this area (Williamson, 2002 pg.37) . In September 1944, Finland concluded a peace treaty with the Soviet Union and the Baltic lost its rank and status as relatively safe haven for Schnellboote combat training. Very little in the way of significant action was seen by any S/boats in the Baltic operative of operations.

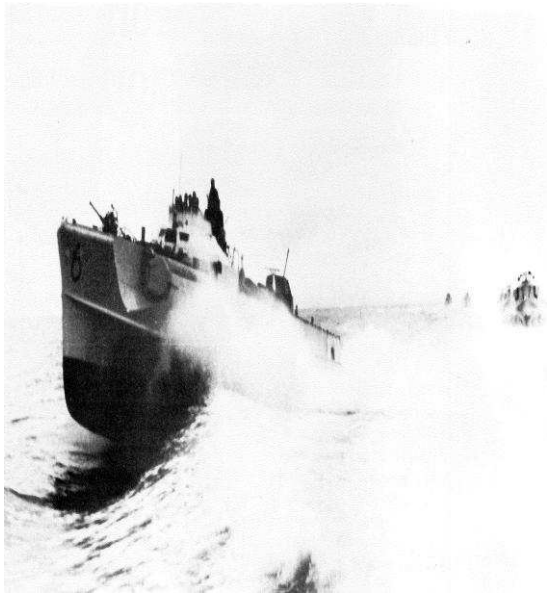

Figure 5,Figure 6 The Schnellbootelehrdivison on exercise in the Baltic in 1943. (Source (Whitley, 1992) pg. 82,83).

3.4 Design and Development.

3.4.1 Pre- World War I

The development of the small high speed fighting vessel that, were classified as Motor Torpedo Boat (MTB) or Fast Patrol Boat, stems largely from the self-propelled torpedo. The original design of the self-propelled torpedo was developed by Austrian officer Giovanni Lüppis (Fock, 1978 pg.11). The original torpedo was 3.53 metres long, weighted 136 kg and covered 200 metres at 6 knots in 1866 (ibid, pg.11). Next stage of torpedo development was improved by English engineer Robert Whitehead placing 30 kgs of explosion and increased range to 400-600 metres and top speed 24-28 knots. From the beginning torpedo boats had certain common characteristics due to the torpedo's limited range and slowness by comparison with artillery fire. The invention of reliable self-propelled internal combustion engine in early stages of the 20th century allowed for the building fast cheap and easy to build in large numbers, with low, flat silhouettes "without the tell-tale signs of black smoke" (Whitley, 1992 pg.8) that was vital for stealth and secrecy needed for a successful attack. Germany had a tradition of construction of fast motorboats before the end of the nineteenth century: these boats were built purely for speed and were far too fragile for combat use. In 1908, the first set of motorboats built by shipbuilding firm Lürssen for the Kaiserliche Marine (Imperial German Navy) could reach speeds of up to 50 knots, powered by Daimler engine (Williamson, 2002 pg. 3). The first motorboat Donnerwetter fitted with Daimler engine was similar to the engine placed in an earlier motorboat constructed in 1890 (Whitley, 1992 pg.8) which performed well in testing. In 1911, Lürssen-Daimler was constructed which reached new phenomenal speed of 50 knots with a 102 horsepower engine, In 1913, Boncourt another Lürssen product was next

stage of motorboat development (Whitley, 1992 pg. 9). Despite their speed and manoeuvrability these vessels were still unsuitable for offensive operations in theatre of war due to being too fragile. First motorboats lack the ability to launch torpedo attacks due to the general shortage of the torpedoes at the time and were not equipped with them, their main operation function instead was as "sub chaser" and spotters or U-boot Zerostörer (Williamson, 2002 pg.3).

3.4.2 During First World War.

At the start of the First World War, Kasierliche began building and experimenting with remote control explosive boats called Fernlenkboote or FL-boats, boats bows were packed with high explosive which is then intended to be steered directly at their targets. Their objective was to use remote control boats as counter measure to destroy or disrupt the British naval blockade of Germany during World War I. During 1915 the British Royal Navy installed mine net barrages off the coast of Belgian ports. These six-ton boat measured 40 feet long, top speed 30 knots and trailed a thin electric cable behind it back to the command and direction station onshore (Tent, 1996 pg.28). The FL-boat design had range of about 30 miles with radio signal, the German Naval Command was also being experimented with radio signal used to control the vessel or with seaplane overhead giving directions (ibid, 1996 pg.28). Original first true torpedo boat were LM-boats (Luftschiffmotorboote) name after the engine it used, it was same model as used in the famous Zeppelin airship (Williamson, 2002 pg.4). First four boats, LM-1 to LM-4 armed with one 3.7 cm. cannon, stern torpedo tube and a machine gun on forecastle (Williamson, 2002 pg.4) (Fock, 1978 pg.54). From LM-5 to LM-20 they were armed with single 45cm. bow torpedo tube and machine gun (Fock, 1978 pg.54) (Williamson, 2002 pg.4). The position of the torpedo tube on the stern was quickly replaced due to its tactical disadvantage. These stern torpedo tubes required the boat to turn 180 degrees away from its

intended target and launch its torpedoes payout. The new demand for bow torpedo tube inevitably caused the boats to be more forward heavy creating issues of accuracy of launching torpedo under speeds 20 knots. One of the main design features in future torpedo boats which was needed to be perfected was the position of the torpedo tube.

3.4.3 Development between First World War and Second World War.

From the very beginning of the torpedo boat program, German Naval Command required boats suited for combat in North Sea conditions. A series of trials with a broad variety of designs began in 1920 under cover of developing a fast "submarine chaser". The later Schnellboot original design and concept was based on S-boats private motor yacht—a 22-ton-displacement, 34-knot craft called Oheka II, which had been built by the German shipbuilding company Lürssen in 1927 for a wealthy financier and patron of the arts, Otto Kahn. In November 1929, Lürssen was given a contract to build a boat to the same basic design, but with two torpedo tubes on the forecastle, and a slightly improved top speed. It was to become S-1, the Kriegsmarine's first Schnellboot and the basis for the all other S-Boats built before and during World War 2. (http://www.prinzeugen.com/DesignManufacture.htm).

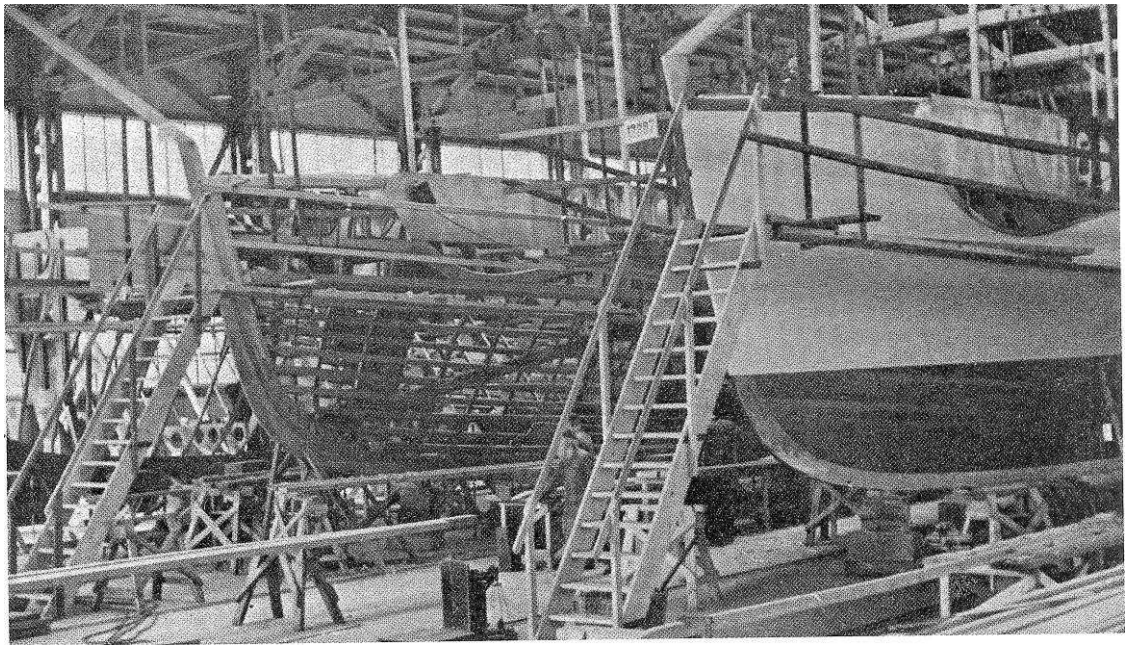

Figure .7 A Schnellboote under construction at Lürssen yard at Kiel (Source: (Fock, 1978) photo 135,pg. 191).

After experimenting with the S-1, the Germans made several improvements to the design. Small rudders added on either side of the main rudder could be angled outboard to 30 degrees, creating at high speed what is known as the "Lürssen Effect" (Saunders and (U.S.), 1957). This drew in an "air pocket slightly behind the three propellers, increasing their efficiency, reducing the stern wave and keeping the boat at a nearly horizontal attitude". This was an important innovation as the horizontal attitude lifted the stern somewhat, allowing even greater speed, and the reduced stern wave made S-boats harder to see, especially at night. (http://www.prinzeugen.com/DesignManufacture.htm). Due to the use of composite light alloy and wood construction and steel engine bearers, round-bilged displacement hull combined a vessel of high degree of seaworthiness with strong but light weight hull. Most initial programs concentrated on short planning hulls commonly used for speedboats. This surface skimming design is ideal for fast boats in calm waters but loses its chief advantage of efficiency when waves slam the flat hull bottom. This requirement for good performance in rough seas dictated the use of a round-bottomed displacement hull rather than the flat-bottomed planning hull that was more usual for small, high-speed boa.. The composite use of wood planks over alloy frames reduced weight. The inefficient tendency for round hulls to "squat" stern-down in the water at high speeds was counterbalanced by a hull form that flattened towards the stern, providing hydrodynamic lift where it was needed. S-1 was designed specifically for torpedo engagements and was of greater displacement and size then similar boats of its era. Hull shape along with the considerable output of its engine made the boat suitable for operations in coastal waters and able to operate in rough conditions in open heavy seas while maintain high speeds (Fock, 1978 pg.115). Important factor for continue development of this series of ships is that it not only meet tactical requirements of the Kriegsmarine but also meet the numerous

restrictions that the Versailles peace treaty inflected on German armament build up and capacity.

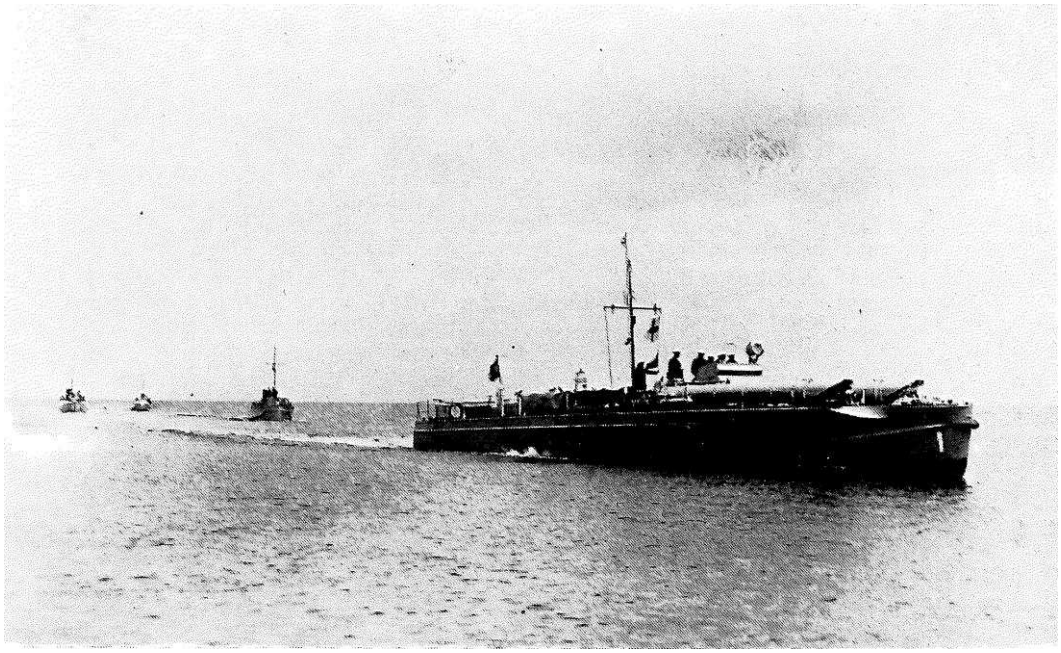

Figure .8 S-1 the first of a new class of torpedo boats and the basis for all future designs. (Source: (Fock, 1978) photo 78,pg.113).

Next series of Schnellboote S-2 to S-5 built in 1931 by Lürssen were based on and quite similar to their predecessor the prototype S-1in design. Length was increased by 1 metre and displacement to 46.5 to 58 tons for the improved and additional lay-out and equipment (ibid pg. 115). The output of the Daimler Benz BFz 12 petrol engines was both supercharge and size was increased from 800 bhp to 1100 bhp (ibid pg.115). Also the "Lürssen Effect" rudders used in these boats resulted in a slight reduction in speed despite the increase in the tonnage in displacement (ibid pg. 115). S-2 to S-5 were constructed without armour plating fitted, its armour protection took the form of easily removed sheets of metal (ibid pg.115). By 1933 the Kreigmarine was the only naval power in possession of reliable and adequate light weight diesel engine suitable for small swift craft. The lesser cost of fuel, the smaller specific fuel consumption with an increased range meant change from diesel to petrol combustion engines.

However there was some drawbacks with this over to petrol engines, the danger of fire and explosion was increased with petrol engine, in some cases during active action and combat association with petrol engine (Fock, 1978 pg. 118). S-6 was fitted with three 900/1320 hp MAN L7 Zu 19/30 7 cylinder four stroke diesel engine, although it increased the displacement and hull size (ibid pg. 118). Next fleet of Schnellboote S-7 to S-13 built in 1935 with similar dimensions to previous models fitted with heavier diesel engine, S-7 to S-9 were installed with 7 cylinder MAN engine from S-6, while the S-10 to S-13 had new supercharged 900/1320 hp Daimler Benz V 16 cylinder four stroke diesel MB 592. S-14 to S-17 fitted, three 1500/2050 hp MAN L11 Zu 11 cylinder four stroke diesel built in 1936. S-18 to S-25 had installed three 1500/2000 hp Daimler Benz MB 501 v 20 cylinder four stroke diesel built in 1938.

Figure .9 Armoured flaps on the bridges vision MTB-4

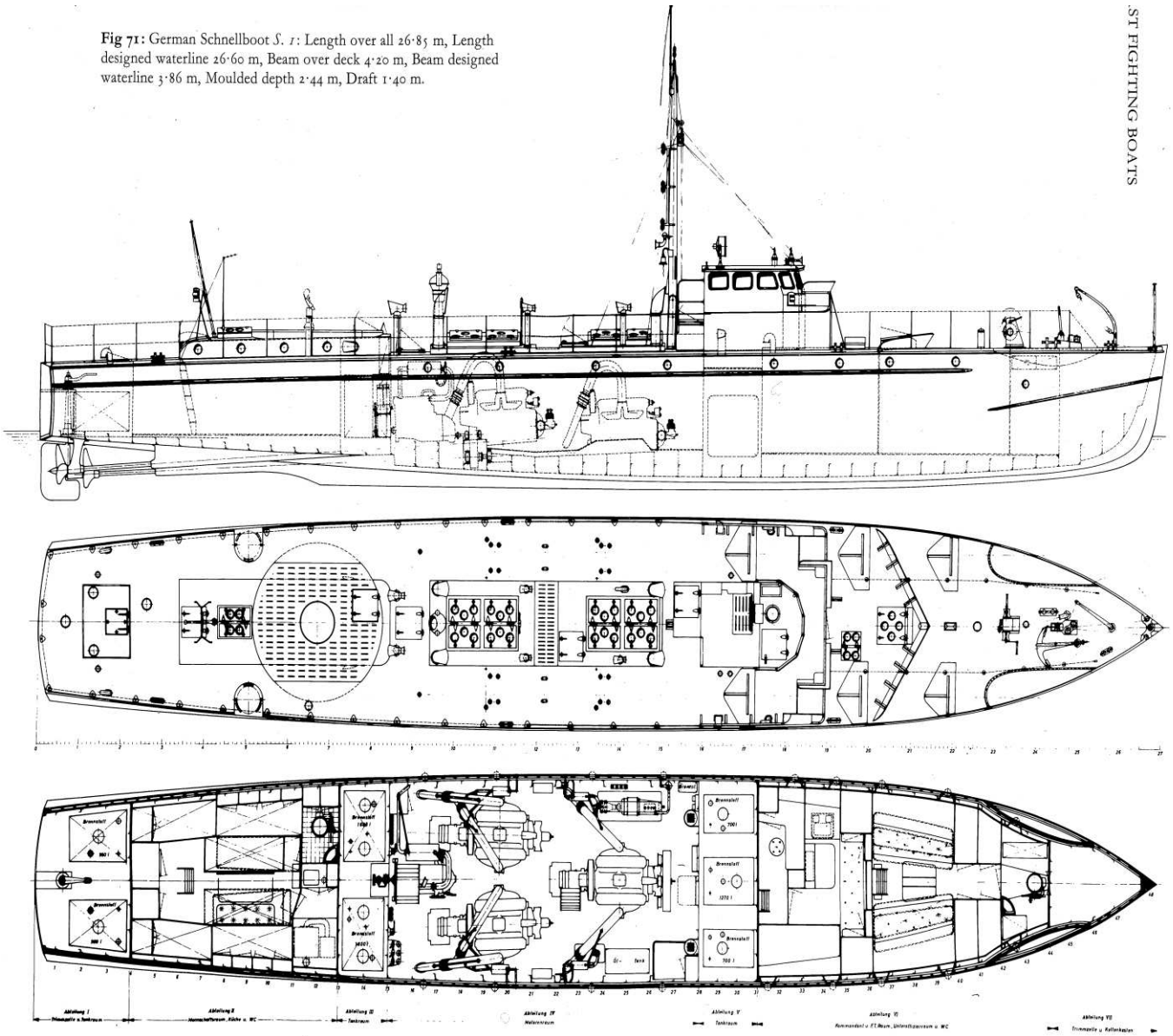

Figure .10 S-1 Blue print drawing, first design of the Schnellboote series (Source: (Fock, 1978) fig 71, pg.114)

3.4.4 Development during the Second World War.

The S-26 class (1940) instituted a 34.9m hull and several design changes. The torpedo tubes were enclosed in a decked-over forecastle, increasing interior space and reserve buoyancy. A cockpit was set into the wheelhouse roof, placing the commander in a centralized position with better visibility and shelter. From there, he could speak through portholes directly to the wheelhouse forward and navigator aft. His "instrument panel" consisted of glass windows through which he could observe a compass and the wheelhouse interior. (Note that there was no steering wheel in the cockpit.) Starting with S-30 (1939) several boats were built with a slightly smaller hull, 32.7m, and with the old style wheelhouse. The S-38 class was a continuation of the S-26 class with simplified ventilators and other minor changes. Due to the weakness of bridge plating Kreigsmarine sought to increase armour protection, this better protection did present problems as curves in the shape of the hull lines made it difficult to secure protective plating to hull (Whitley, 1992 pg. 29). Increase corrosion and rot problems occurred between steel and wood interfaces, along with this distribution of hull weight was unbalance and dramatically increased (ibid ,pg. 29). Schnellboote constructed in latter stages of the war had "Skullcaps" installed which reinforced bridge armour (http://www.prinzeugen.com/DesignManufacture), these were also retrofitted to the majority of earlier Schnellboote still in active service.

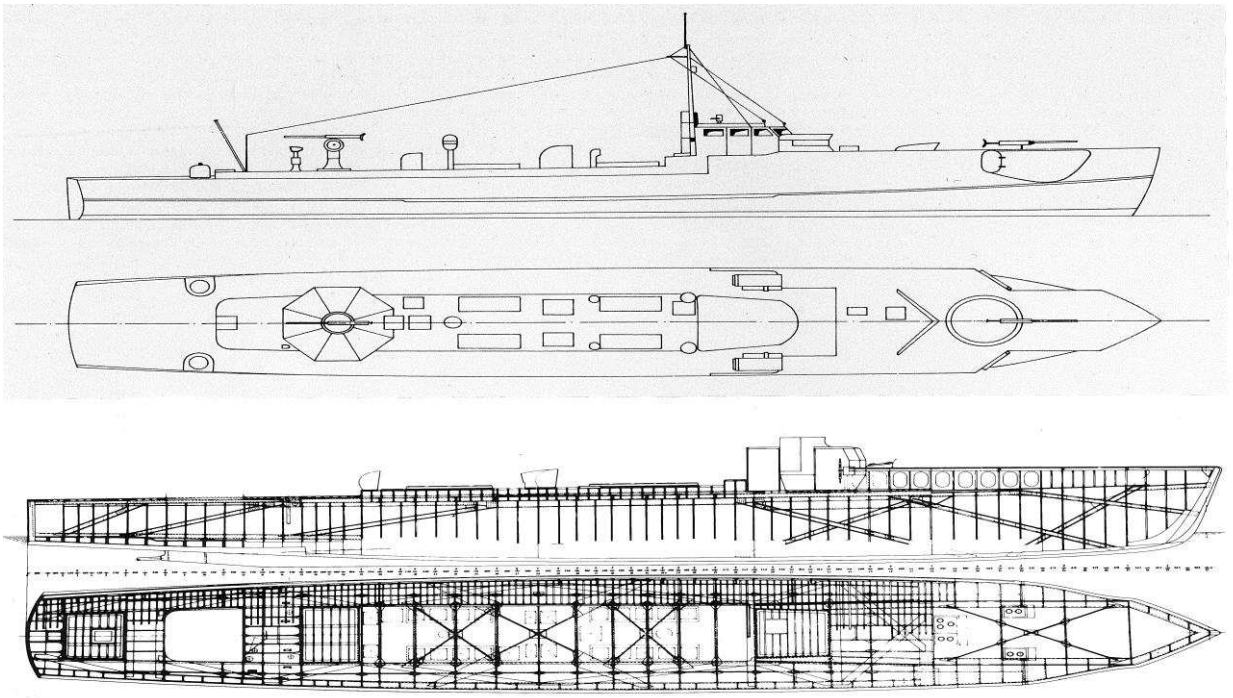

Figure .11 S-26 Blueprint plan, the basic design for the S-68 Schnellboote the variation found at Langerland. (Source: (Fock, 1978) pg. 188,189).

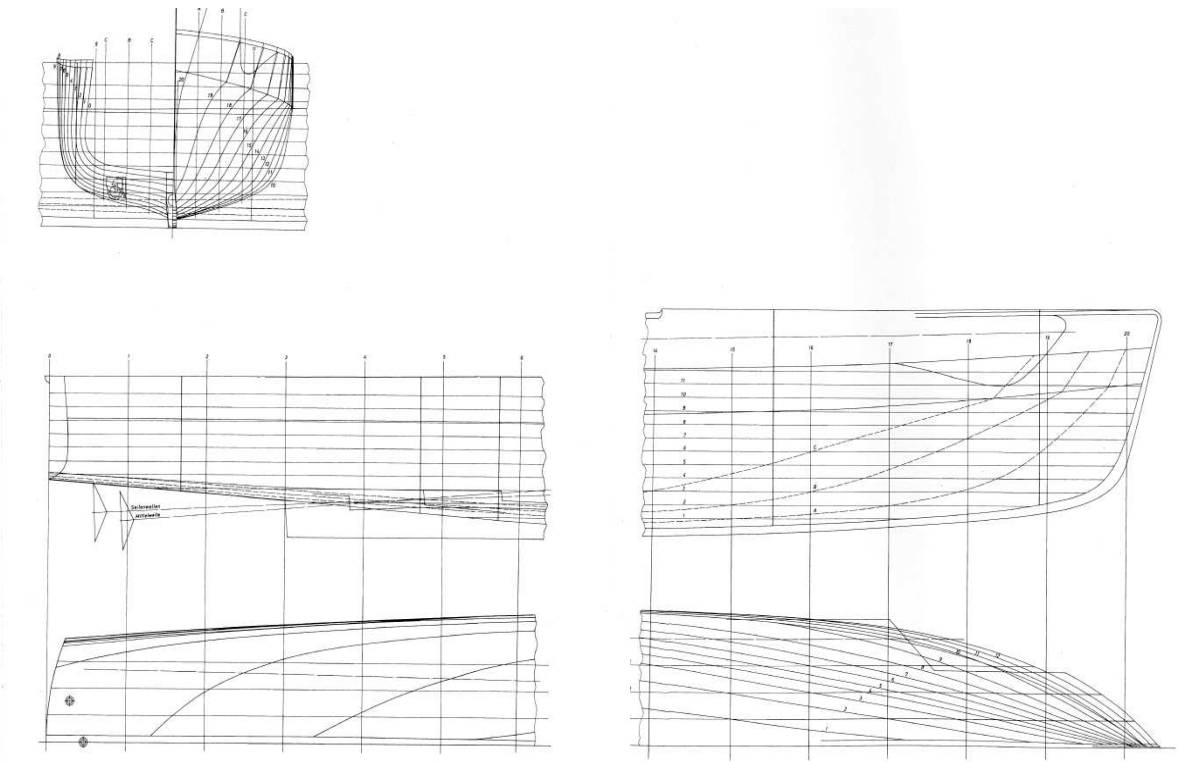

Figure .12 S - 26 lines drawing (Source (Fock, 2001) pg. 37,38).

3.5. General descriptions.

3.5.1 Hull

Schnellboote had generally same hull design and structure, with very small boats of wooden construction, medium sized boat of composite construction with mix wood and metal, large boats were of all metal construction. The Schnellboote were of mixed wooden/ metal construction, with the keel, longitudinal and deck beams in wood and the frames and diagonal stringers in light metal alloys (Williamson, 2002 pg.11). The deck superstructure was also of light metal alloys. The bulkheads were in 4mm thick steel below the water line and of slightly thinner light metal alloy above (Williamson, 2002 pg. 13).

3.5.2 Below decks.

Layout of the inside hull consisted of at the bow of boat toilet and the washroom for the crew, with the next area past first bulkhead contained petty's officers quarters with accommodation for up to five men (Williamson, 2002 pg.12). Through the second bulkhead on the starboard side of the vessel is the captain's cabin, on the port side was the radio room. Down aft of the vessel next compartment held two large fuels cells with the capacity up to 6,000 litres of fuel. The central compartment contained two diesel engines that powered outer port and starboard shafts, centrally mounted diesel engine that drives the middle shaft in the next compartment with walkways on both sides.

3.5.3 Above decks.

There were three basic types of configuration covering most of the S-boat design. The earliest models had a low forecastle, throughout the war the design evolved to a high forecastle, by the end of the war layout of the Schnellboote later types was a high forecastle and new armoured reinforced bridge.

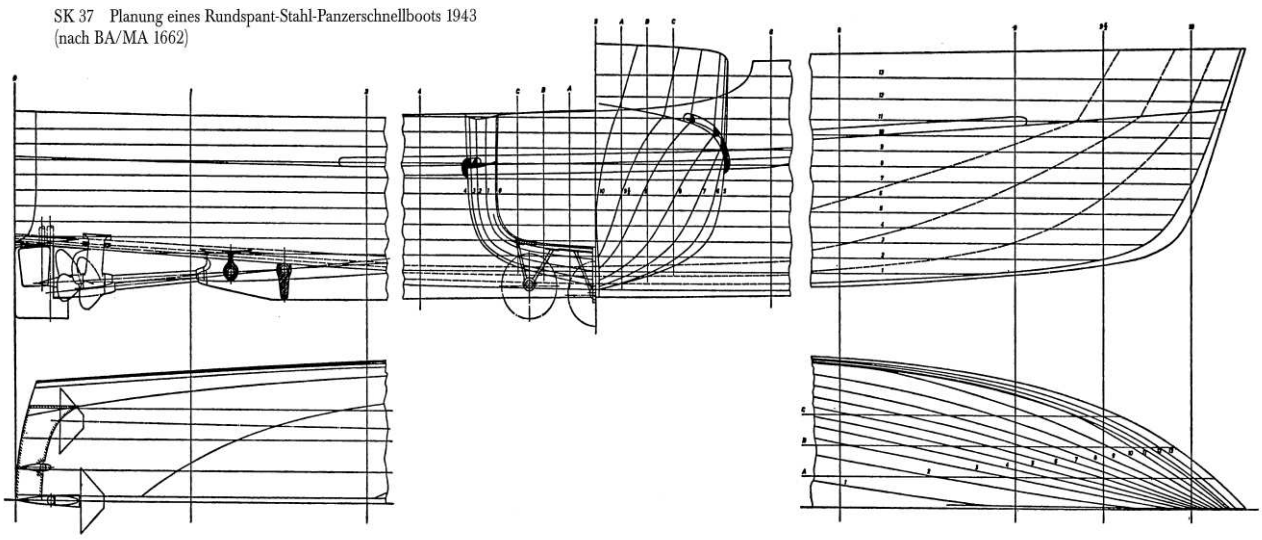

Figure .13 Lines drawing of rounded bilge steel armoured schnellboote 1943 (Source: (Fock, 2001) pg. 78).

3.6. Armament.

3.6.1 Machine guns.

Later boats beginning with the S-38 class mounted a specialized 2cm gun turret on the bows, between the torpedo tubes. On early low forecastle versions of the Schnellboote, the machine was fitted to a pedestal mount on the deck between the two bow torpedo tubes. The torpedo tube structure gave a gunner some degree of protection from enemy fire from the flanks, but the position was totally exposed from the bow (Williamson, 2002 pg.14). On high forecastle version of S-boat from the later years of the Second World War the forward gunner was placed in tub sunken into the foredeck (ibid, pg. 15). The position gave the gunner a good field of fire, and some protection. The first type of bow gun was a simple Scarff ring, with ammunition passed from below decks through a hatch inside the tub. Later an experimental Luftwaffe turret design was adapted for S-Boot use wascalled the "Drehkranzlafette 41". It could deliver fire in a hemispherical arc, from 0 to 90 degrees of elevation, and 360 degrees of traverse. It had a whole 360 gun sight that enabled the gunner to fire upwards at aircraft without crouching

(http://www.prinzeugen.com/Weapons.htm). The gun was stowed by swinging the mount downwards into the tub on a hinged pivot and removing the barrel, which was stowed separately. A cover was manually fixed over the turret, protecting it from salt water spray. Several different ammunition stowage arrangements were used, with clips stowed for ready use on the deck

3.6.2 Flak guns.

Early boats carried 2cm MG C/30 flak gun on a pedestal mount sited on a rotating platform amidship (Williamson, 2002 pg. 15) over the engine room similar to flak guns fitted on most U-boats in the start of the war. During the course of the war MG C/30 was replaced by MG C/38 due to its better rate of fire than its predecessor, this was followed by fitting a twin 2cm on a aft flak platform (Williamson, 2002 pg.15). By the end of 1944 this was standard armament of S-boats along with a 4cm flak mount towards the stern. some variants of this armament lay out included quadruple 2 cm Flakvierling gun location fitted near stern of the vessel. Despite this armament fitted S-boat were easy prey to aircraft attack due to the light and fast build making unstable gun platform.

3.6.3 Mines.

A number of variants of Scnellboote carried mines as part of armament, the torpedo tube type TBM was employed in the LS class minesweepers. The LMB acoustic type and LMF magnetic type mine were used to good effect Schnellboote.

3.6.4 Torpedoes.

The Schnellboot was essentially a torpedo delivery system. Its basic function was to bring a torpedo within firing range of an enemy vessel, aim, and shoot. All S-boats carried two bow tubes, with two spare torpedoes stack on racks on deck for quick and efficient reload. In practice, reload torpedoes were infrequently carried, as their weight adversely affected boat

performance, and the hit-and-run tactics used by the boats rarely allowed time for reloading. (http://www.prinzeugen.com/Weapons.htm).

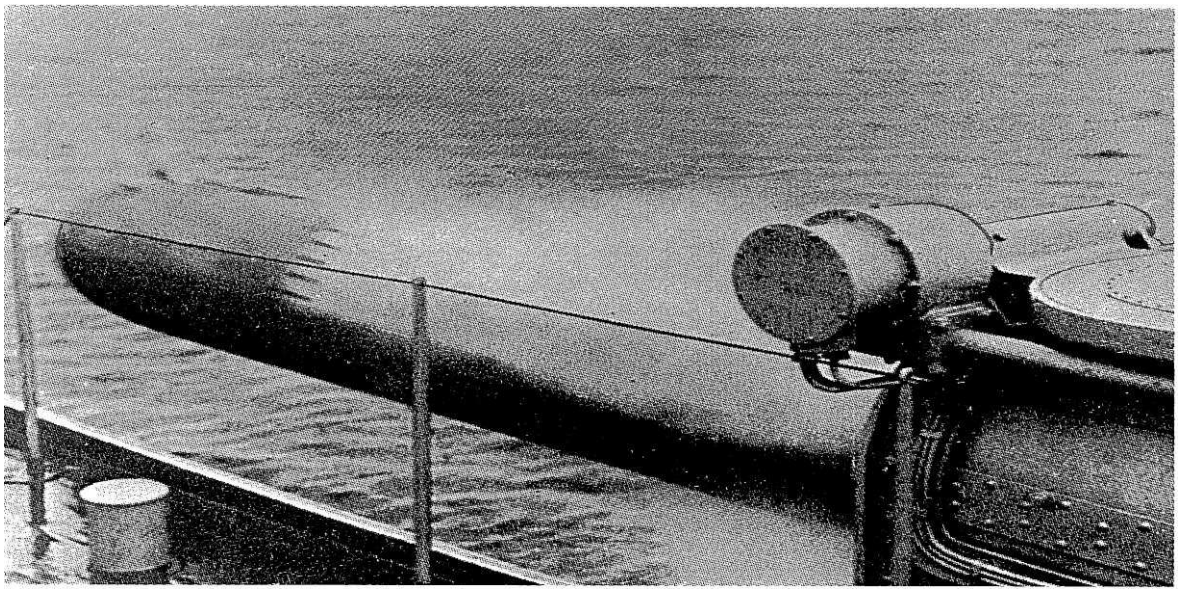

Figure .14 Torpedo is fitted to fire straight ahead (Source: (Fock, 1978) photo 79,pg.113).

S-boat combat trails showed that the most effective way to accomplish this task was to operate in small groups under the cover of darkness. Boats might lie in wait at a particular spot where a convoy was expected. If it was sighted the S-Boats would approach, fire and flee under a smokescreen. The Schnellboot main armament that it carried was 53.3 cm torpedoes G7a, standard issue Kreigsmarine type torpedo during Second World War (Whitley, 1992 pg.35). The torpedo was 7.2 metre in length, weighting 1,530 kilos and was steam propelled, a single propeller with a maximum speed of 44 knots and a maximum range of 6,000 metres (Williamson, 2002 pg.16). Propeller also acted as the timing mechanism for the setting of the 280 kg of explosive located in the nose of the torpedo. Charge was set to achieve after distance of 30 metres, the propeller would spin in the water as the torpedo sped towards its intended target, this method of charging the detonator insure that a premature explosion would not damage the boat (Williamson, 2002 pg.16). The detonator itself would by trigging when it

came into physical contact with its intended target. The electrically driven G7e, which were standard on U-boat were not armed on S-boat. More advanced long range torpedo T3d saw some limited use on S-boat, with a range of 57,000 metres, top speed of just 9 knots, this range allowed S-boat to fire torpedoes from safe distance (ibid, pg.16).

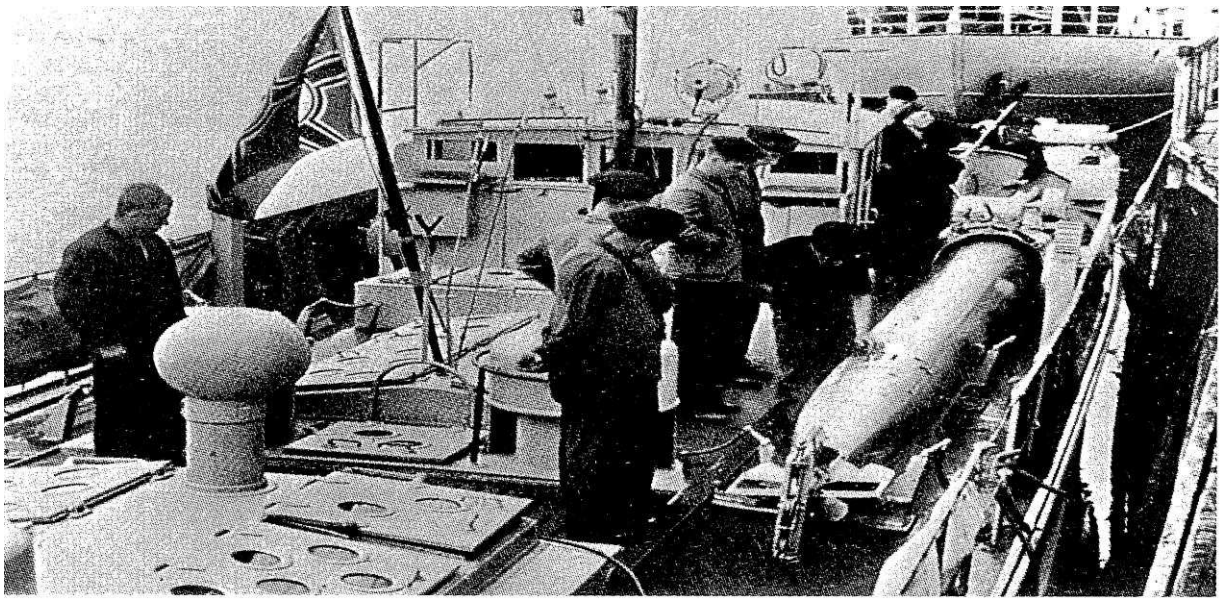

Figure .15 Loading of the reserve torpedo for firing (Source: (Fock, 1978) photo 78,pg.113).

3.7 Engines.

The earliest Schnellboote were powered by a experimental new diesel engine produced by the Maschinenfabrik Augsburg- Nürnberg (MAN) (ibid, pg.17). First type built and designated was L7 Zn 19/30, this diesel seven cylinder two stroke engine had 1,200 bhp at 1,000 rpm was original installed in S-6 to S-9 (Whitley, 1992 pg.30). This engine design however performed poorly in testing and was unreliable although its one redeeming feature was easy access for repair and maintenance allowing for repairs to be done at sea during action instead of having to return to port. A larger 11 cylinder MAN engine was developed the Zn 19/301 (Williamson, 2002 pg. 17) but engine this suffered a number of drawbacks and design faults with overheats and excessive vibrations commonplace. The MAN engines were eventually dropped in favour

of the diesel engine constructed by a Daimler Benz company. The MB502 was a four-stroke, 16-cylinder engine with a output of 1,200 bhp but at a faster engine speed of 1,550 rpm (ibid, pg.17). This design proved more better service record and performance during operations than its predecessor, it had one major drawback as for any major repairs it required removal from the superstructure of the ship. Daimler Benz also developed a larger , 20-cylinder engine, the MB501, that was powered by over 2,000 bhp. . However the lack of materials during the wartime lead to demand overtaking supply. Both the MB501 and MB502 engines were also produced in a supercharged version, classified as the MB511 and MB512.

3.8. Developmental Details, Variants and Classes.

3.8.1 Low forecastle types.

Low forecastle design of the Schnellboote had exposed torpedo tubes on the bow with pedestal mounted machine gun, Towards aft of the first bulkhead was cabin like bridge / wheelhouse with a mast mounted to its rear. Two spare torpedoes were stored on the deck of the vessel placed on special cranes (Williamson, 2002 pg.12). The deck superstructure amid ship was over the engine compartment, and was liberally covered with ventilators and skylights. Two 2cm flak guns mounted on circular platform which mounted on a pedestal, on the upper deck were fitted depth charge racks (Williamson, 2002 pg.12).

3.8.2 S-1

Built by the Lürssen ship building firm, a 52 ton vessel with a length of 26.9 metres and a beam of 4.37 metres. Three Daimler Benz 800bhp V12 diesels with a 100bhp Maybach engine (ibid, pg.7) central propeller shaft could be used to manoeuvring and function at low speed. The top speed was 34 knots and had a crew of 12.

3.8.3 S-2 to S-5

Next model was powered with same three Daimler Benz 800 bhp V12 diesel engine and Maybach engine layout. Engine capacity of 7,500 litres, top speed of 32 knots its operational range of 350 miles. The boats were of composite construction with a oak keel and frame, the superstructure of the vessel was spilt into eight watertight compartments (ibid, pg.7).

3.8.4 S-6

Faulty design was built as a one off concept and never moved into mass productions. New engine installed three lightweight MAN L7 two stroke diesels that didn't perform well in combat trials and in choppy seas. Larger than previous models with a tonnage displacement of 82, Length of 34.2 metres and beam of 5.1 metres.

3.8.5 S-7 to S-13

Military thinking inside the Kreigsmarine was focused on increased tensions with France and need for vessels who could be threat to French ports. Due to the short range of the existing Schnellboote design that were not able to be upgraded without adversely effecting the power/weight ratio layout of vessel. Bigger vessel constructed with a displacement 86-ton measured length of 32.4 metres and beam of 5.1 metres. S-7 to S-9 were powered by MAN

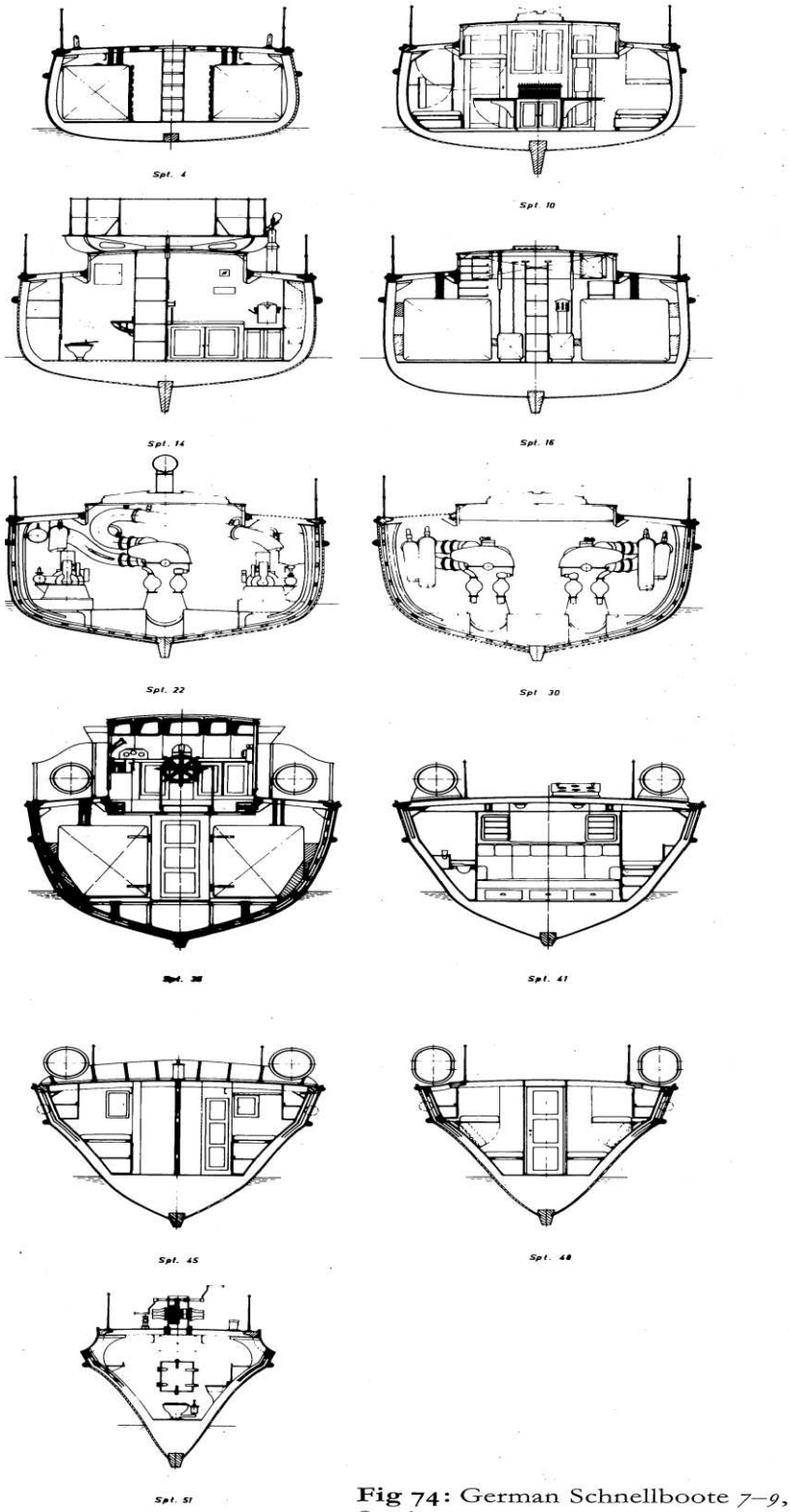

Fig 74: German Schnellboote *7–9*, Sections.

Figure .16 Schnellboote S-7 to S-9 Sections plan (Sources: (Fock, 1978) fig. 74, pg. 117).

diesel engines used in S-6, S-10 S-13 designs were fitted with more powerful and reliable Daimler Benz engines used in the older models (ibid, pg.8).

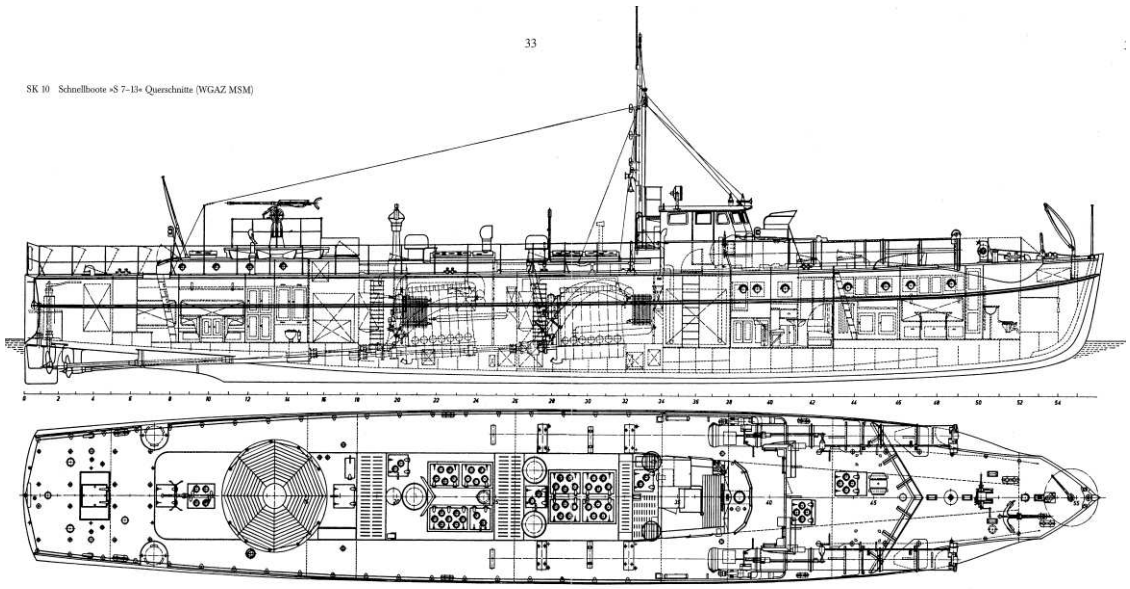

Figure .17 S 7-13 blueprint plan (Source: (Fock, 2001) pg. 39).

3.8.6 S-14 to S-17

These types were larger with length 34.6 metres and beam of 5.3 metres with crew of 18 as a standard. Displacement varied between models S-14 and S-15, 93 tons with the heavier classes S-16, S-17 displacing 100 tons (ibid, pg.8). The MAN 11 cylinder two stroke diesel engine was fitted for propulsion which again failed to live up to expectations of the Kreigsmarine despites its drawbacks when installed in Schnellboote it did have a excellent service record in U-bootwaffe .

3.8.7 S-18 to S- 25

Variant of previous S-14 class with identical schematics but was fitted with Daimler Benz MB501 four stroke diesel engine (Williamson, 2002 pg.8) instead of the unreliable MAN.

3.9. High forecastle.

Due to seaworthiness and handling issues of S-boat in heavy seas, the forecastles were raised to counter this (Fock, 1978 pg. 187), (Williamson, 2002 pg. 13). The models from the beginning of Second World War which were of the evaluated forecastle design could be distinguished by curve on the foredeck in front of the bridge. The bridge /wheelhouse was still vulnerable to enemy fire due to its position and lack of adequate armour plating. Heavy flak gun consisting of 40mm Bofors, 3.7cm and quadruple 2 cm Flakvierlag were mounted on the deck, the stern of the boat had double depth charges with capacity of three depth charges (ibid, pg.13).

3.9.1 S-26 to 29, S-38 to 53, 62 to 133, 159 to 166

Increased in both size and displacement, larger crew of 24 powered by new 20 cylinder Daimler Benz MB501.

3.9.2 S-30 to 37, S-54 to 61

Constructed by Lürssen similar to S-26 class but smaller in design, length of 32.8 metres and beam of 5.1 metres, displacing of 100 tons. Engine size was also decreased to Daimler Benz MB502 16 cylinders (ibid, pg.8).

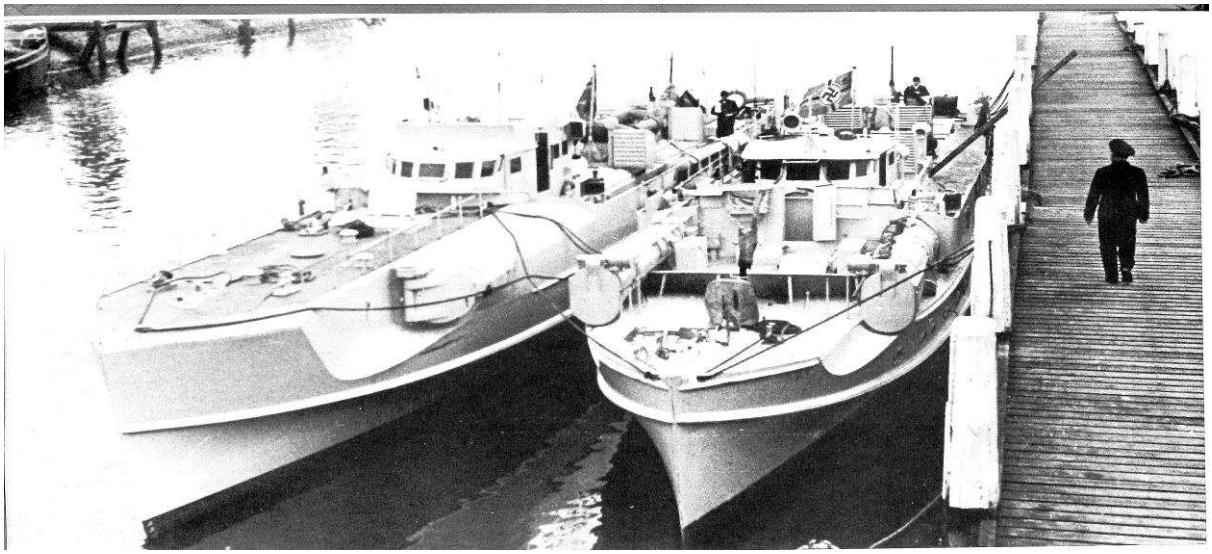

Figure .18 A contrast in lines between an early type S-boat with the low forecastle and bridge forward of the wheelhouse and the later type with raised forecastle and bridge above the wheelhouse. (Source: (Whitley, 1992) pg.19).

3.10. Later war High forecastle models.

The design of later high forecastle models was drastically changed both in appearance and layout of the vessel. The forward gun was replaced with a 2cm cannon (Williamson, 2002 pg.13) and now put into a less exposed "sunken tab or pit" given the gunner more protection. Over the boat's engine room a twin 2cm flak gun was fitted and heavy gun was mounted at the forward end of the aft superstructure. The largest structural change from earlier designs was the type of bridge rather than the enclosed bridge later models had an open bridge above the wheelhouse.

Figure 19 Kalottenbrucke ("Skullcap"), was introduced and armour progressively fitted (Source: (Whitley, 1992) pg.29).

3.11. High forecastle armoured bridge.

Schnellboote constructed in latter stages of the war had "Skullcaps" installed which reinforced bridge armour (http://www.prinzeugen.com/DesignManufacture), these were also retrofitted to the majority of earlier Schnellboote still in active service. The profile of the bridge was lowered, armoured flap were put in place which could be closed over vision ports. A 2cm flak gun with armoured shield positioned was placed in a gun tub on the forecastle, beside the torpedo hatch doors. A second twin 2 cm with armoured shield was mounted on a circular platform which could rotated to the rear near of the superstructure of the vessel (Williamson, 2002 pg.14). In the area between midship and aft part of the superstructure was positioned another armament 2cm Flakvierling. As with earlier models depth charge racks were near the stern of the vessel, hatchway into the interior of the ship located midship with ammunitions lockers and smoke discharges pots (ibid, pg.14).

3.11.1 S-139 to 150, S-167 to 169, S-171 to 227, S-229 to 260

Length was increased by one metre with new bridge design visually similar to S-26 type. Supercharged Daimler Benz MB511 (ibid, pg.9) was fitted, armoured bridge layout was installed from S-67 onwards. It was standard feature in S-39 and S-170 types.

3.11.2 S-170 to 228, S-301 to 425, S-701 to 825

The S-170 design was the biggest of Scnellboote boats. Displacement of 121 tons, length of 35 metres and beam of 5.3 metres. S-701 up to S-825 had new engine installed the supercharged MB511.

3.12. Miscellaneous.

3.12.1 S-501 to 507, S- 510, S-512 to 513

Former ex-Italian Navy purchase by Kreigsmarine, Twin propeller shafts that could reach top speed of 44 knots. Armed with twin torpedo tubes and single 2 cm Breda machine gun. Small vessel had a displacement of 29.4 metres, a length of 18.7 metres, beam of 4.7 metres and crew capacity of 13 men.

3.12.2 S-601 to 604

Ex-Yugoslav navy boats similar in dimensions and displacement to German Schnellboote, theses vessel were driven by much smaller 100bhp three propeller engines but used petrol instead of diesel. Boats had twin torpedo tubes and two 2cm guns.

3.12.3 S-612 to 630

Another Italian constructed boat, this type had a displacement of 70 tons, was 28 metres in length and beam of 4.3 metres. Similar three propeller petrol engine fitted on S-601 to S-604

classes drove these design. Armament consisted of twin torpedo tubes and 2 cm Breda machine guns.

3.13. Smaller boats.

3.13.1 LS-boats

The original concept was for small fast torpedo boats which could be carried and launched from auxiliary cruiser for suitable use in open ocean (Whitley, 1992 pg.26), although this proposal was scrapped during the 1930's in favour of Schnellboote. Some were utilised and carried aboard type III U-boats (Whitley, 1992 pg.26), by 1940 LS-2 and LS-3 entered service as minelayers with three TMB mines. LS-4 to LS-6 received twin torpedo tubes and one 2cm gun, in 1942 two torpedo tubes were equipped and refitted and used only as anti-submarine for the Mediterranean theatre of operations (Williamson, 2002 pg.10),(Whitley, 1992 pg.26). LS-7 to LS-14 were powered by two Daimler Benz MB507 diesel engines and had crew of seven men. These boats displaced tonnage of 13 tons and had a length 12. metres, beam 3.5 metres but failed to met standard requirements of Kreigsmarine due to unreliable machinery and light metal weaken hulls (Whitley, 1992 pg.26).

3.13.2 Küstenminenleger (KM-boats)

The second type of small craft Küstenminenleger or coastal minelayer, whose function was to lay mines offensively in enemy coastal waters or at the entrance of harbours. Lürssen built vessel was designed employing off-cuts from normal S-boat production, with a double diagonal hard-chine hull (Whitley, 1992 pg.27). These ships displaced BMW petrol motors with top speed of 24 knots when fully kitted. Four type B torpedo TMB mines were located aboard along with light depth charges to fend off attackers (Fock, 1978 pg.235), the only other armament on ship was two 15 mm machine guns (Whitley, 1992 pg.27). As with LS-boats they

suffered from the same mechanical problems and fragile, light hull restricted its usefulness and theatres of operations which it could be deployed.

3.14. River Schnellboote.

These very flat-bottomed hard-chine hull vessels were planned to be part of the Danube flotillas, classified as PM (Panzer motor boat) or FS (Fluss/river motor) boats. The 39 metre long and 6.66 metres beam vessel were propelled by a 800/950 Daimler Benz MB diesel engine modified to run in shallow waters (Fock, 1978 pg. 250). Armament aboard consisted of two 37 mm AA guns mounted on armoured rotating turret both fore and aft plus two AA guns on the control tower, boats were also equipped with a payload of river mines (Fock, 1978 pg.250). The vessel could be crew up to 28 men and 1 officer, contact given to Lürssen in 1939 for six boats was cancelled due to the acquisition of the Austrian and Czechoslovakia at outbreak of the war.The second variant of River Schnellboote was Lürssen constructed vessel 24.6 metres from stem to stern, 4.39 metres beam over the decks. The boat was armed with one 20 mm quadruple gun in a armoured turret above the bridge and two diesel engines, there is no record of these vessel seeing action during Second World War.

4. Interview Methodology.

A interview strategy is used in this research paper to gauge stakeholders' opinions and explore if they are in balance with existing legislation and what they consider as important heritage. The mandate of this exercise is ultimately the results which this interview process will produce. These reliable results will be focused on the feedback which can be generated at grass-roots level from interviewing individual stakeholders in the context of the chosen case study. This interview questionnaire was not undertaken to provide a full solution to the problems and faults that are facing the underwater cultural heritage protection in Denmark, rather its aim is to

open up dialogue and debate around faults and failings in the present legal framework, that have become apparent or exposed by the "perfect example" of the Schnellboote case. The interview questionnaire will explore if there is imbalance with existing legislation and what they consider as important heritage, what grass roots stakeholders have experience with and discussion primarily focused on the feedback their answers will generate. However the feedback and results produced by the series of interview questionnaires maybe used as a basis for future research or work done in this field. If this body of work was used as a template to gauge opinions from a boarder spectrum of the archaeological, managerial and recreational sections of the maritime community, its application to a wider group of respondents would ultimately provide more reliable and tangible results that could be analysed to feed into policy development, but in the present context, the aim is restricted to the exercise of developing and testing an interview strategy that answers to the requirements set out and the limited scope of this interview questionnaire.

The aim of this paper is to critically analyse the legislation which is in place concerning these wrecks under 100 years and special interest through the usage of a case study and set out guidelines on how their continued protection can be improved by using a integrated approach which could be utilized in the management plan of a wreck. The decision to choose these wrecks for a case study, was for a number of cultural and legislation factors, any wrecks sunk from acts of aggression during war time there is always additional arguments for protection. To address the problem that has been identified in the scope of this paper, three mechanisms will be used to attempt to address this problem. First mechanism will present a constructive and technical history of the Schnellboote development since its initial conception and its design features. The reasoning for this is to consider and question if these boats have less value due to the fact that we have sustainable data about their origins and construction details. A wealth of

information is documented in historical archives on Schnellboote and their development throughout the first and second world war. How do such wreck sites fit into the context of underwater cultural heritage existing legislation? Also should ships who's history and constructive design are less documented possess strong "heritage values" (Maarleveld, 2009 pg.2). Given the ever changing attitudes towards certain "heritage values" and the importance that a society under certain set of circumstances places on a particular value, which may evolve in the future. This makes the protection and discuss of wrecks sites that may become of greater heritage importance to society in the near future of paramount important.

The second tool explores the implications of the Special Interest Wrecks and their status, a comparative study is performed of other countries' legal mandate and attitudes towards such wrecks by combining and analysing the results in order to underline current trends and patterns. Identification of possible future changes in the legal framework and system will be based on the analysis of the hopefully tangible results and comparative study. The review will compare and contrast different legislation frameworks that are in place in other countries that have dealt with these problems according to their interpretation of the United Nations Educational, Scientific and Cultural Organization (UNESCO) 2001 Convention on the Protection of the Underwater Cultural Heritage. From a purely cultural management standpoint the discussion and critic of legislation and practices regarding management of shipwrecks will be set against the background of the guidelines and standard procedures outline in the 2001 UNESCO-Convention on the Protection of the Underwater Cultural Heritage. This will be because the UNESCO is now the standard bearer for the protection and conservation of underwater cultural heritage and thus the template to which legislative and management strategies dealing with this issue should be judged.

The review will consist of four different countries with differing statutory and non-statutory criteria for classifying an underwater cultural maritime site that qualify for "Special Interest Wrecks" status. The four countries were chosen because of their distinctive interpretation of what should be considered heritage and thus worthy of their legislative systems full protection. The countries dealt with in thesis comparative analysis are as follows:

- Denmark given the scope of the thesis is focus on Danish legal framework and that our case study is located in Danish territorial waters.
- United Kingdom due to its proud naval history and perceived public interest or media coverage influence policy towards ships that have entered the archaeological record during 20th century. Also its attitude and the importance it places on ships lost during war times and war graves in particular.
- Australia for its strong legislative framework and forward thinking concerning underwater cultural heritage. Along with this its consideration for the views and wishes of a wreck sites county of origin.
- United States given the strong stakeholder input the salvage company and recreational diving community section of the maritime cultural spectrum has in the decision making process in dealing with maritime cultural.

The goal of this body of work is to find a holistic approach concerning the legal implication of the status of Special Interest wrecks. In addition to this a review and evaluation of the methods used to gather raw data from a primary on the ground source that could also advance new hypotheses for further improvement of legislation concerning maritime cultural heritage in Danish territory waters.

Through the medium of interviewing individual stakeholders in the chosen case study, it is hoped to gauge their opinions and explore if it is in balance with existing legislation and what they consider as important heritage. A mixed-methods research design was developed that

allowed for the literature to inform a mainly quantitative approach to collecting information about attitudes through a questionnaire interview. There are two broad categories of research data primary data and secondary data. Data is regarded as primary when they are collected for a specific purpose or inquiry (Alreck and Settle, 1985, pg. 5). Data is regarded as secondary when they already exist and has been gathered for a different purpose (ibid, 1985 pg.6) or to tackle an problem which has arisen in the past. With an interview survey, the interview plays an important role, but it isn't the key element. Instead, the interviews are the communication media between media and researcher and the respondent (ibid, pg. 213).

Central to this decision to use a interview questionnaire as a tool of collecting both primary and secondary data, was the issue of interdependence: the question of practitioners‘ attitudes was dependent on a qualitative reading of the literature (Creswell & Plano Clark 2007, p. 34) and positions either inside the legal system or outside. When a self administered survey will be conducted, the interview is the media through which the researcher holds a "conversation" with respondents. Surveys designed to assess attitudes investigate how existing knowledge affects actions (Alreck & Settle 1985, pp. 13-14). Measuring the action component usually requires asking how they have acted towards the objects of the attitude in the past, what their current practices or habits towards the objects are, what they except or extend to do in the future (Alreck and Settle, 1985 pg.15). Measuring these three components are essential to the scope of this thesis paper, how practitioners view and acted towards the five Schnellboote at Langeland, what is their current attitudes towards its position and state, what do they expect or hope will happen to the wreck site and the legislative framework concerning maritime cultural heritage. The instructions for recording such data should be listed clearly and prominently at the end of the interview process. The interview will be recorded using Free Sound Recorder 9.4.1. Software, it will be paramount to further analysis of the practitioners interviews.

The interviewer should be perceived as part of the measurement process with the potential to create error and bias. The interviewer should attempt to reduce potential interviewing error by having a clear set of interview questions, this however shouldn't make the interview process inflexible and direction of questions in the interview can be dictated by what the practitioner wishes to talk about. Instruction, interrogation, responses, scaling, recording, and interpretation should be considered as possible sources of error (Alreck and Settle, 1985 pg. 241). Control interviewing and response bias should also be avoided. Check each element of the interview and the process for each of the major sources of bias. Compose the greeting, qualification and the quota criteria, interview instructions and interview format to avoid error and bias.

4.1. Developing the Interview.

A series of interview surveys were developed to evaluate attitudes towards Special Interest Wrecks and their status inside Danish legal and jurisdiction framework. In order to investigate current practitioners‘ attitudes towards Special Interest Wrecks and their status in a cohesive manner, a suitable approach was needed to determine what types of influences would be acting on practitioners. The questions that reach respondents through interviews always vary to some degree, both from one interview to the other and from one interview to the next. This creates several major problems for those conducting surveys (ibid, pg.213). The consistency of the language and vocabulary used will determine the reliability and validity of the research. The more variation there is the greater the chance of introduction of random error, the interviewer must strive for consistency and control of the interview process in order to obtain reliable, tangible results. This is particularly relevant given that there will be two different sets of questions: one tailored for recreational diving club members and another for employees of relevant heritage agencies. The decision to have a slightly different set of interview questions

was weighted against the obvious introduction of randomness and error and against the central issue of different interpretation. The question of practitioners‘ attitudes was dependent on a qualitative reading of literature (Ortmann, 2009), dealing with these issues and knowledge of the existing legislative framework and process. By getting a viewpoint of both outside and inside the legal framework it is hoped that the interview process will better gauge existing attitudes from more than one source.

Effective survey questions have three important attributes: focus, brevity, and clarity (Alreck and Settle, 1985 pg.89) these questions should be focused directly on the issue or topic specified to the information the interviewer wishes to learn . They should be as short or brief as possible while still conveying the meaning. The question should be expressed as simply and clearly as they can be. Every question in the interview should be directly focused on a single, specific issue or topic. The best way to be sure that a question is focused directly on the issue or the information which the interviewer wants to know, is to format and ask the question as precisely as possible. The question must be short and brief, the longer the questions the more difficult the interviewees task of response will be. The questions themselves must also be of analytical value, to seek out information relative to the scope of this paper. The interviewer must insure that the questions do not look for information readily available from another sources, as these interviews are a unique opportunity to address a certain subject or topic i.e. the opinions of the relevant heritage agency and recreational diving club in a context of the case study and five wreck sites and their correlating opinions towards each other. The exception to this is if the question is useful in setting up the proceeding question to maximise the chance of getting the best answer out of the following question. This technique of questioning is best shown in Question 1 in the museums practitioners question; "What is the current legal mandate from dealing with wrecks under 100 years or non statuary significant

guidelines," followed by Question 2; " How are wrecks of Special Interest Wrecks currently deal with in Danish legislative system i.e. "the list system". Information on both topics are readily available from other sources. This question leads however onto the topic which the interviewer wants raw data from. This unique source can be followed in the frame of Question 3; "Do you see any faults with this framework in its present form". Also it would be helpful for the success of the interview questionnaire if the question process was gradual to relax the practitioners, this will also be a method to reduce resistance and preventing the generation of a elicit respondent cooperation to the most sensitive and threatening questions (ibid, p.g 46). Instead of asking difficult and perhaps awkward questions first off that the practitioners may be uncomfortable about answering in a clear and definite way.

Long questions tend to lack focus and clarity (ibid, pg.90), they are also more prone and subject to error both on part of the interviewer and interviewee. This does pose a problem as the interview's main purpose is to extract information that is needed to answer the issue which the thesis is addressing. The meaning of each of the questions should also be completely clear to the interviewee. Clarity demands that virtually everyone interprets the questions in exactly the same way (Alreck and Settle, 1985 pg.91), when constructing questions one must ensure that it is precisely focussed on the issue that it is addressing. Does the question portray the central issue which it seeks to address in shortest possible way that is completely clear to the interviewee? Every effort was made to keep the majority of the questions to one sentence. Also the outlay of interview was arranged in such way as to mention first case study or subject and then limit to a particular related topic followed by similar questions on topics related to the subject in hope of gauging the interviewee opinion. For example Question. 1 states "What is the current legal mandate from dealing with wrecks under 100 years", followed by relative questions follow up question of this subject i.e. " How are wrecks of Special Interest Wrecks

currently deal with in Danish legislative system" or " Do you see any faults with this framework in its present form". It was hoped this would create an easy flow to the interview process and not have the interviewer jumping back to a subject previously covered in the interview.

The wording of the questions must be combined and arranged in a way that is appropriate, both grammar and vocabulary are important in interview survey questions (Alreck and Settle, 1985 pg.92). It is vital that the vocabulary implemented in the formatting of the questions is understood by all of the respondents who are participating in the interview process. To minimize error or bias occurring in the data that is collected, interviewee should have a core vocabulary of the wording been used. This may cause some issues given the different nature of individual interviewees' background and knowledge of archaeological techniques and perception of the topic that the question is dealing with. The choice of both vocabulary and grammar for expressing the survey question should be based on what the respondent with the least knowledge of archaeological terminology and techniques will understand and be able to produce usable responses. The question shouldn't become too specific either; over specificity of interview questions could mean respondents who lack knowledge of archaeological methods and techniques are unable to give useful and precise answers.

If the wording of a question is overemphatic, it's likely to introduce bias by calling for a particular type of response (ibid, pg.98). When it's necessary to describe some conditions in the question, it's advisable to use words that lean toward understanding, rather than overstating (ibid, pg.98). Each question must be worded carefully to avoid wording that overemphasises or overstates the particular part of the question. This is especially true given the scope of this thesis is the concept of heritage and how to measure and calculate what of our past deserves to

be preserved and protected. A number of questions will be double barrel questions (Alreck and Settle, 1985 pg.99), meaning they contained two separate enquires for information. To obtain the research data required, interviewer should ask the interviewee what action or response they would take in certain situations. The second part of the question will contain an example and what the interviewer feels should be an adequate response or action to solve this issue or problem.

Bias can be introduced into the interview processes when the question contains an example. An example of this would be in Question .20 that states "Would you be in favour of encouraging and support the diving organisations' current educational campaign, and in particular, their Code of Practice and "Respect a Wreck "initiatives;". Since the example provided is the answer the interviewer would have provided if asked the question it does automatically inject bias in the interview process, this however is done to control the interview to maximise the best quality tangle primary raw data. The usage of double barrel is also used in the form of the interviewer opinions towards a subject which is put before the example provided in the question. This occurs in Question .7 and Question .14 in the museum question this will again introduce bias and error into the results and responds, but the example provided in the format of the question is done so to gauge how each respondent will reach to when giving the "correct" responds and if they agree or disagree with this line of questioning. There is a danger that the language of the question will lead the respondent to a particular answer. This may create a strong bias towards a preferred direction of answers and "skewing" of the research data and results. The most obvious example of this is in Question 3 and 4 from the questions put to the recreational diving club both of which deals with the issue of wrecks from a specific time period which possess certain heritage values and qualities.

4.2. Delivering the Interview.

The way questions are expressed can all too often introduce systemic bias, random error, or both. Even questions expressed with focus, brevity and clarity may jeopardize reliability or validity. Use of proper vocabulary and grammar doesn't completely cancel out any bias or error. The number and complexity of branching and modifying the flow of the questions based on responses to earlier questions is of no consequence and lacks direct control and leads to uncertain quality assurance. Ordinarily, interview questionnaires are read and handled only by the interviewers, and so need not be especially attractive to the eye. On the other hand, they have to be constructed in a format that makes them easy to use. If the interviewer must take time to study the questionnaire or hunt for the next item while conducting the interview, this may jeopardize the success of the interview questions. The questions as set out in the Appendix were used as a set of guidelines for the interview questionnaire. The exact language and sequence of questions in the Appendix is not how the interview process was conducted. They were used as a guideline on how the interviewer wanted the direction of the interview to evolve and an effective way of controlling the interview itself. During the interview it was felt that it would be best to let the flow of the interview to go on its own course by allowing the practitioners talk without much interference. This was especially the case for the recreational dive club interview, the format of the interviewer questionnaire should be flexible to the information which the practitioner wishes to communicate. The interviewer should focus directly on the issue or topic in the statement of information needs. They should be as short or brief as possible while still conveying the meaning. The questions should be expressed as simply and clearly as they can be (Alreck and Settle, 1985 pg. 89). Interviewer must record data that he observes, he must be given firm criteria by which to classify and categorise the observational data. The same requirements for consistency and accuracy apply to these observations as to the qualifications criteria noted earlier. When recording responses from the

interviewees, it's advisable to compose the interview in such a way that items need only be checked or circled or a number recorded, whenever possible. Usually, the interviewer must also record the time and location of the interview and provide an indication to identify themselves as the interviewer. The interviewer will be taking notes with the permission of the practitioners during the interview, these notes will be the main points which the interviewer feels are relative to the information or topic each question addresses. The interviews will be recorded as mentioned above using Free Sound Recorder 9.4.1. Software, this will be paramount to the post processing stage of the analysis of the results of the interviews. The other issue will be the language barrier as the practitioners primary language is Danish and the interview questionnaire will be conducted in English. Fortunately as the interviewer spoken Danish is of limited range, the level of English possessed by the practitioners is sufficient to remove the danger of error during the interview process.

5. Collected data and opinions.

5.1. Interview questionnaire and Stakeholders opinions.

This chapter will present the qualitative analysis of the administered interview questionnaire and deal with the tangible results it has produced. The main method of collecting raw data for this thesis is a series of interview questionnaires; the practitioners who are participating in the interview process are the stakeholders who have an interest at grass roots level in the case study. In this section, the issues facing stakeholders and the practical, academic and emotional reasoning that is currently informing practitioners‘ attitudes will be the focus of the interview survey. The difficulties faced by practitioners in terms of financial, political and legislative concerns continue the discussion of how practitioners approach the management of underwater cultural heritage. The decision was taken to limit the scope of this thesis to focus on a grass roots level of the legislative framework. While this may be considered a weakness for the analysis of the interview questionnaire, as it would have been more inclusive if the

practitioners had included a wider range from the archaeological, legislative and recreational spectrum. The Kulturarvstyrelsen or Heritage Agency of Culture wasn't included in the respondents contact for the interviews, while their opinions towards the legal framework concerning maritime cultural heritage would have been of analytical value. The problem as defined in the scope of this thesis was to review the Danish legal framework at a local grass roots level and to specifically highlight the chosen case study and the mechanism to deal with its conservation and protection. Therefore the inclusion of views from a representative of a national heritage authority such as the Kulturarvstyrelsen, would be outside of the problem which this paper wishes to address. However, this is not to dismiss the opinions of the Kulturarvstyrelsen as irrelevant to the creation of an empirical solution to this problem in the wider context of Danish policy towards maritime cultural heritage. This paper focussed on how the five wreck site was dealt with at a grass roots level both from a legislative and public sphere of interest. The inclusion of the national authority agency that creates and controls the legislative framework which this paper is critically analysing would extend beyond the mandate of this thesis paper.

The other parties which could have been included at a grass roots level as practitioners in the interview process are the members of the recreational diving community who allegedly engaged in illegal activities such as looting on underwater cultural sites, particularly the alleged group who had engaged in destructive action on the maritime cultural sites incorporated in the case study presented in this thesis paper. Enquires were made as to the possibility of setting up such a meeting but these interviews are done as an act of goodwill on the part of the practitioners and no response was received. This in itself could be an indicator of the opinion of this part of the diving community towards the cultural management strategy and the attitude to how finite resources like underwater cultural heritage are managed. Their

lack of interest to communicate their opinions on this subject is a stumbling block in setting up of interview. Also, the fear of being prosecuted would also jeopardise any chance of contact or correspondence. This is not however to suggest a dismissal of their input, the opinions of these stakeholders would be of great analytical value if another future research paper was to deal with this issue in the broad context of the national authorities and in conjunction the Danish government overall policy towards cultural heritage sites in maritime field.

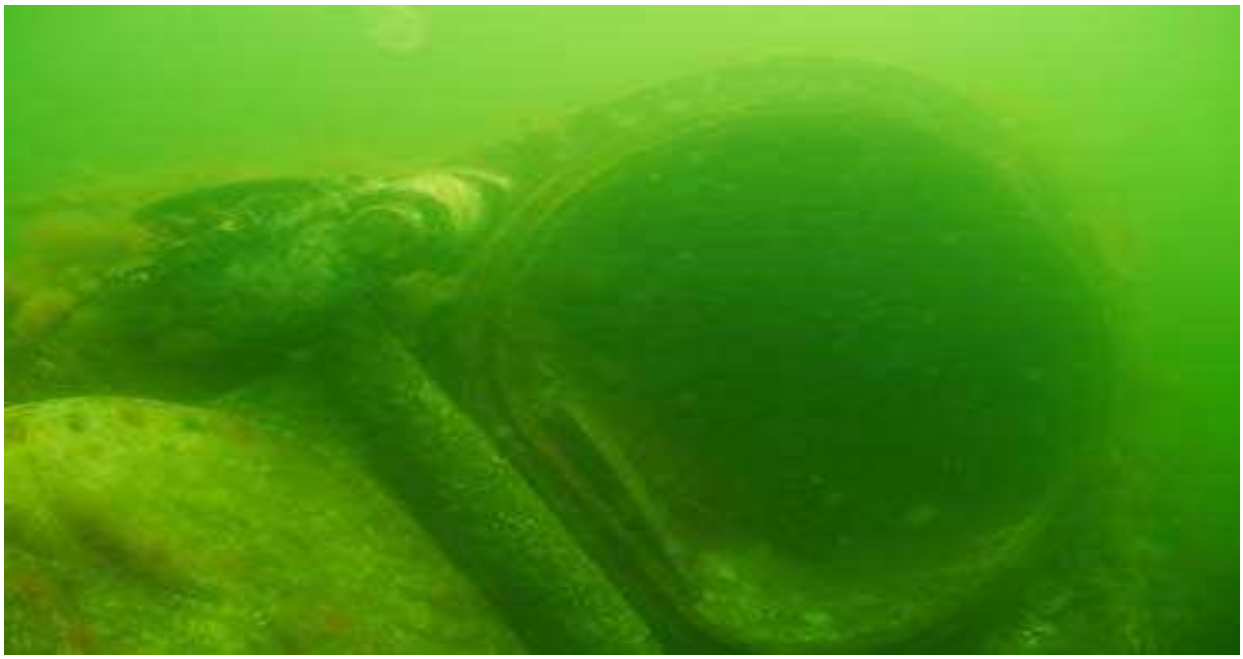

Figure .20 Torpedo tube front with closing mechanism on MTB-3.

5.2. Exploring Stakeholders and Attitudes.

5.3. Svendborg museum.

The Svendborg museum is currently the heritage agency that has the juristicial and legislative responsibility over the area which the Schnellboote are located. Despite this burden of responsibility the museum is starved of both power to implement the laws they have been tasked with upholding and the funds, resources or personnel to do so. Over the past few years,

the Danish legislative system concerning underwater cultural heritage applied a policy of decentralisation of power and responsibility to the museum designated to carry out and protect work of the sites of interest. This policy of redistribution of power was in conjunction with the Consolidated Act on Museums 2002 and in theory would authorise a museum on a regional level to act and deal with issue of concern for underwater heritage sites directly in their jurisdiction. But in reality this trickling down of power has failed to materialize, as it currently stands any wrecks that were lost under 100 years ago which the Ministry of Culture feels warrants Special Interest status can be designated as such under section 29g (3) (2) of the Consolidated Act on Museums 2002 and therefore is given its full protection. Once an underwater heritage sites obtains a "Special Interest" status, it is entered into a list that each museum composes for wrecks with similar heritage values. But what constitutes a submerged cultural site for consideration for "Special Interest Status" and why have the museums not being issued guidelines or criteria to which classify sites? Despite the request from the museum for a non-statutory criteria for the definition of significant for Special Interest Wrecks guidelines have yet to be published. The reasoning behind this is puzzling, from the museum point of view it puts them in a difficult situation, despite having the responsibility they lack the backing from the national heritage agency. The Kulturarvstyrelsen has not released any remarks for section 29g (3), and have a reluctance to do so. Legal advice sought by national heritage agency from its legal council has advise that criteria from significant would not work in reality (O. Christian Uldum, C Thomsen, December 14th, 2012). There is a perceived lack of trust and faith in the current legal framework by the Kulturarvstyrelsen, with a policy of not implementing or invoking any cultural management strategy which cannot be backed up on legal grounds. This attitude of "better safe than sorry" (O. Christian Uldum, C Thomsen, December 14th, 2012) towards maritime cultural sites is frustrating for local museum who are tasking with the protecting underwater cultural sites. From their view point if a problem was

recognised and articles drawn up to deal with issues regards this problem under law, with legal mechanism in place to address this problems why has no action or enforcement being taken? (O. Christian Uldum, C Thomsen, December 14th, 2012)

Figure .21 Torpedo firing mechanism (Boat unknown)

The List system was introduced after objections from museums about the lack of any standardised method of dealing with wrecks, a system of named wrecks that are placed on Special Interest Wreck list. Confusion surrounds what extra protection inclusion in the list actually gives submerged cultural sites. Since this is a non statutory legislative tool, no guidelines or remark have being publish or issued to the museum about what "treatment" these "list" wreck sites should receive. No management strategy is in place for the Special Interest Wrecks once they have been placed on the list, no policy of in situ preservation or non interference is applied. This list of Special Interest Wrecks is also restricted for the public to view which is in conflict to both the wishes of the museum (O. Christian Uldum, C Thomsen, December 14th, 2012) and the section 2 (1) (iv) of the Consolidation Act on Museums 2002 states that " make the collections and documentation accessible to the general public,". For the

museum it is a case of the framework existing but not the will to force it, the regional agency would very much like to see more cooperation with the Kulturarvstyrelsen in the near future as they feel left out of the decision making process for strategies to deal with underwater heritage sites (O. Christian Uldum, C Thomsen, December 14th, 2012). The clear example of this was the decision making process concerning the awarding of salvaging rights on a fourth Schnellboote to salvage company employed by the "Wheatcroft Foundation". The issue only came to the attention of the local museum authority when contact was made by local media outlet for an explanation and clarification on the situation (O. Christian Uldum, C Thomsen, December 14th, 2012). This lack of communication and cooperation between the Kulturarvstyrelsen and the local regional museum has lead to a defensive position, and outlook towards underwater cultural sites access granted to the general public and a uncoordinated strategic for this finite resources protection and conservation (O. Christian Uldum, C Thomsen, December 14th, 2012)).

The lack of coordination between different heritage agencies leaves the museum both removed from the decision making process and in a weakened position (O. Christian Uldum, C Thomsen, December 14th, 2012) to deal with problems on a grassroots level. This weakened position and lack of resources leads to a lack of presence in the local diving community. This perceived lack of creditably within the diving community has lead to local museum becoming isolated from the wider community, with no representative building relationship and links with the local diving community, and a lack of coordination and guidance for the national heritage agency leaves the museum in a "bubble" (O. Christian Uldum, C Thomsen, December 14th, 2012) unable to influence either the legal framework it operates in or the wider public sphere in which it is located. Again this "bubble" state became apparent when discussion concerning the fifth Schnellboote that was first reported to the Kulturarvstyrelsen by the local diving club at

Bagenkop. The events surrounding the wrecks sites reporting, treatments and eventually looting showcase the faults that appeared in the legal framework which were again highlighted in the appearance of the fifth Schnellboote. A lack of input leave the local museum out of the loop in matters concerning their own jurisdiction, to the museum frustrated and annoyance with no lessons learned from the previous event (O. Christian Uldum, C Thomsen, December 14th, 2012).

5.4. Dive Club.

The diving club around Bagenkop were the party who had found and reported the fifth Schnellboote to the Kulturarvstyrelsen during the summer of 2012. They were also the only local stakeholder who monitored the state of the fifth Schnellboote and observe its state of preservation before and after the looting activates had occurred (J. Theilgård, S Lindblerg, December 18th, 2012). But what are their opinions on the recent looting of the Schnellboote wrecks and what are their opinions as stakeholders outside of the legislative framework? By their own admission the diving club at Bagenkop would not be the norm among the diving community in their thinking towards underwater cultural heritage and how they should be treated. It is clear however that the practitioner have a model attitude towards maritime heritage and should be applauded for such a mentality and approach. As with the interview conducted at the Svendborg museum again the issue of a lack of presence which the local authority have at a grass roots level in the recreational diving community was discussed, with both sides recognising that this is a major issue and potential stumbling block in any future cultural management policy regarding maritime cultural heritage. As the only members of the public who view the underwater cultural sites in its in situ state of preservation, these wrecks sites continued conservation and protection is of greater interest to recreational diving community than the wider general public.

When questioned about how divers view the managerial and archaeological side of the maritime spectrum is one of indifference. In terms of the diving community attitude towards underwater cultural heritage, the support for looting against conservation is about 50/50 (J. Theilgård, S Lindblerg, December 18th, 2012), the general consensus among divers who are of a pro stance concerning looting is an attitude of "if I don't take it. it will be gone in 15 years or so" (J. Theilgård, S Lindblerg, December 18th, 2012), a better place for this heritage would be on their fireplace instead of in situ decaying, can this attitude be changed and how? When questioned about this the diving club was in favour of a more proactive approach by the local cultural managerial authority both on a national and grass roots level, this is more or less in line with the response provided by the Svendborg museum when a similar line of questioning was put to them during that interview. From the diving club perception they have suggested a mobilising of grass roots outreach programs which could utilise the local diving clubs as a low cost source of monitoring sites. Possibly future programs and initiatives of this type could certainly start the building of trust and strengthen the links between the diving community and the governmental authorities. The dive club have expressed interest in taking on some of the field work and a part of the responsibility in the preliminary investigation duties into possibly wreck sites in the surrounding area. A willingness to participate in programs involving the monitoring of at risk sites was also suggested as a solution to any financial or personal restrictions which local heritage agencies face. A changing or adaption of the current cultural management strategy to tackle the lack of manpower or resources allocated to underwater cultural heritage would certainly be a method of implementing this initiative, but also could be a way of forging strong links at a grass roots level between both organisations through interaction. The greater the presence in the community which the local heritage agency has, the more of a deterrent it will be to the members of the diving community who would partake in looting activates on wreck sites. This lack of a voice or presence in the diving spectrum

prevents the museums from influencing the majority of recreational divers' attitudes towards how underwater cultural sites are viewed and should be treated in accordance with the law. How can the recreational diving clubs interact and communicate with the museum was also an issue that appeared during the interview with the Svendborg museum. It can be difficult to influence and change these attitudes given the lack of inclusion in the decision making process or cooperation between local diving community and museum. In the opinion of the local diving club at Bagenkop the reasoning behind looting is what they would classify as the culture of trophy gathering which exists within the diving community. What is more troubling in terms of the future preservation of submerged cultural sites is the knowing destruction and disturbance of wreck sites for the monetary gain. From these looting operations artefacts that are taken from their in situ state are sold on the black market for a profit (J. Theilgård, S Lindblerg, December 18th, 2012). Would a strategy of targeting this section which is commercial exploiting underwater cultural heritage have an effect on the majority of the diving community? When questioned about this the diving club proposed a educational approach towards the diving community to inform them about underwater cultural heritage. Such initiatives could reach the majority of divers in a hope of positively influencing them but maintain that the hard core element section of the diving community will always be pro looting and would be unreceptive or negative to any advice or guidelines given or provided from the cultural managerial agencies. However, these few do not have be the most prominent voice or most activity part of the diving community. A soft approach to this issue was suggested and could be employed when first contact was first made as a way of building connections as more damage could be done in the long term if a hard nose line was taken from the start.

The issue of reporting of wrecks is a topic of interest that came up during the interview process particularly the events surrounding the fifth Schnellboote. The diving club had been in contact

and started correspondent with Kulturarvstyrelsen about the looting and removal of artefacts from the site. The dive club had noted the large amount of intact artefacts that were originally deposited at the fifth Schnellboote which included boots, clothes, ammunitions, torpedoes, handguns, kitchen, equipment, and helmets (O. Christian Uldum, C Thomsen, December 14th, 2012). The cut down of the vessel from approximately 3 metres to 1.5 metres and the removal of three propellers that were originally present on the wreck. These actions were not carried out by" normal weekend divers" (O. Christian Uldum, C Thomsen, December 14th, 2012). but by members of the diving community vastly better equipped that the local heritage agencies and with some form of commercial diving experience. This type operation would taking an amount of front thinking and logistical planning due to the high powered tools, man power and a vessel sufficiently equipped to raise and transport a fully equipped dive team and capable of raising anything retrieved from the sea bed. This was not a easy task to perform simply for the trophies earned by looting the wreck site therefore it would not be a mistake given the information provided by the diving club members that the looting of the fifth Schnellboote was done purely for monetary gain. While the diving club had used the proper channels which exist in the current legislative framework in reporting the looting of the fifth Schnellboote, the lack of activity on the part of the Kulturarvstyrelsen had been of particular frustration. From the first hand reports given by the diving club about the Schnellboote, it was in an excellent state of preservation when it was discovered. As shown in the case of the fifth Schnellboote there is a difficulty and therefore reluctance in the building of a case against members of the public who have persistently taken part in the looting activates on submerged cultural heritage sites. The difficultly of prosecuting perpetrators with lack evidence of wrong doing or being caught in the act of looting, given the direction and way events had taken place, their attitude would be for the foreseeable future one of reluctance in reporting newly discovered wreck to the Kulturarvstyrelsen.

5.5. Discussion.

When reviewing the statements made by practitioners, three main themes emerge;

- the faults that exist in the current Danish legislative framework something that was of concern to both sets of practitioner's,
- the lack of any form of criteria and guidelines to date for the designation of significant for wrecks of "Special Interest",
- the lack of presence which the local heritage agencies have within the diving community is affecting the attitudes and behaviour of the majority of the diving community.

Lack of funding, professional personnel and volunteers, not surprisingly, are the issues most affecting how sites are investigated, preserved and managed at a grass roots level. But the faults which occurred in the legal framework were sighted as issues of concern especially by the representative interviewed from the Svendborg museum. The management of underwater cultural heritage in Denmark was likened "to nothing but an illusion" (O. Christian Uldum, C Thomsen, December 14th, 2012) in its current format. The failure to implement the policy of decentralisation of power and responsibility to regional heritage agencies has left local museums in reality, lacking in any real ability to influence or properly achieve its current mandate to properly protect Denmark cultural heritage inside its territorial waters. The absent of any real backing from the Kulturarvstyrelsen has meant that the museum must take a defensive position in management of underwater cultural heritage rather than its preferred pro active approach. From the museum point of view it has the adequate legislative framework necessary to fulfil its mandate but must simply "leave the tools in the box" (O. Christian Uldum, C Thomsen, December 14th, 2012). Governments in particular are known to cut funding to culture, especially in difficult economic times. Those responsible for ensuring their

spending does not exceed their budget will be hard pressed to understand the implications for heritage that cannot be readily seen or accessed. "Out of sight, out of mind remains a continued issue in submerged cultural resource management" (Ortmann,2010). The mechanism in place now to tackle Special Interest wrecks has also been substantial point of negative feedback, the "List" system has been cited in the museum words as a "barrier" (O. Christian Uldum, C Thomsen, December 14th, 2012) to proper protection of this wreck sites. An ill conceived and static solution to an ever changing and fluid problem, the museum is of the opinion that the national heritage authority does too little and has no cultural management strategy in place to deal with wrecks that don't meet the 100 years criteria for automatic blanket protection. Given the managerial failings which have appeared in the case of the "U 59", a German U-boat who's lay tower was salvage in a joined operation between JD-Contractors and Strandingmuset in Thorsminde to recover the tower in 2002 (Jacobsen,2012). However, when the tower was discovered to be from a British submarine and therefore inference with was a breach of the sovereign immunity enjoyed by all British war craft with "Military Grave Status".

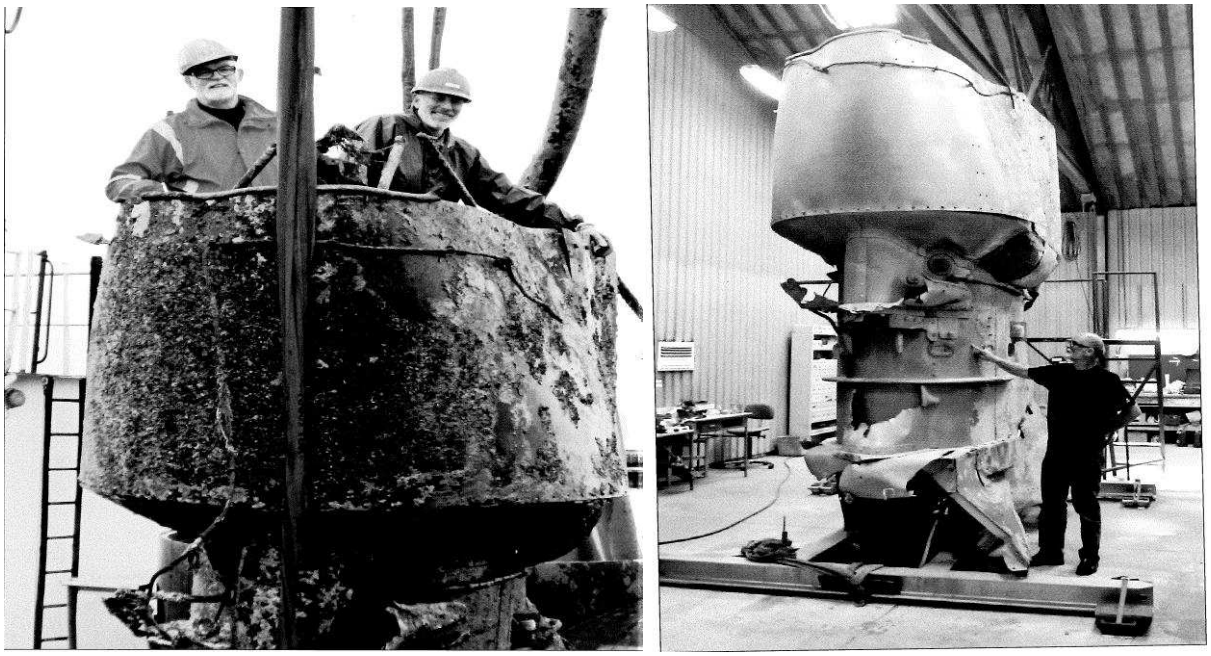

Figure .22 The U-59 lay tower brought up in the summer of 2002 which on later investigation turned out to by E-50 British submarine (Jacobsen,2012).

As the warning signs should have appeared as early as 2002, the lack of any adaption or solution to the faults in the system has been a source of frustration for the museums. The handling of the four Schnellboote and the looting of the fifth wreck site has been cited as a "perfect example" of what could go wrong and did go wrong (O. Christian Uldum, C Thomsen, December 14th, 2012). Furthermore, no lesson having been learnt or solutions adopted since these events to indicate things will play out differently in the future should a problem like this reoccur (O. Christian Uldum, C Thomsen, December 14th, 2012). The window of opportunity to correct the failings in the legislative system which were clearly present and flagged during the Wheatcroft incident was lost, the disruption of the balance and equilibrium that had occurred due to the interest media and public outcry, had subsided and had returned by the looting and lack of action against the parties responsible on the fifth Schnellboote. A state of lurching from one disaster to another now exists in the legal framework, it has become common practice to complain about shrinking budgets. It is true that both budgets that are dependent on local, regional or national politics and budgets that are dependent on private or institutional sponsors are always under strain. Some practitioners find it disconcerting that the potential may exist for bureaucrats intent on protecting the financial bottom line to adopt the do-nothing attitude and label it in situ preservation. These responses point to a need to educate policy makers and management above the level of practitioners. The lack of flexibility which the current management tool for the designation of "Special Interest Wrecks" gives the museums is an issue that is felt and should be immediately addressed. Any newly discovered wreck sites are at great risk given the lack of ability to have a rapid fire response or immediate blanket protection on a submerged cultural site, without lengthening the bureaucratically process that leaves them at risk site of falling victim to looters as seen with the fifth Schnellboote before a cultural management plan can be formulated and put in place.

Policy and administration of programs to protect underwater cultural heritage should specify significant guidelines or criteria for defining what should be defined, designated and considered for "Special Interest Status". The creation of criteria and remarks or guidelines should be established to determine the significance of a submerged heritage site to expand on section 29g (3) of the Consolidated Act on Museums 2002. Reassessment of criteria to assess shipwrecks (cultural heritage sites) in the future in accordance with the changes in cultural values that may affect their significance. Changes in cultural values, unavoidable attrition of our cultural heritage and increased knowledge and experience alter our perceptions of relative importance. Benchmarking these parameters in a formal way may help convince agencies to become more active in managing sites.

The lack of presence which the local heritage agencies have within the diving community was the final theme which appeared frequently during both sets of interviews. The willingness is apparent on both sides to participate in a scheme but the lack of funding prevents this connection building. Given the obvious looting or "trophy hunting" of wreck sites in Danish territorial waters the need for outreach programs into the wider Danish community has become more clear. As shown in the case of the fifth Schnellboote the lack of will to prosecute those who have impeded the law leads to the concept that, prevention is invariably more effective and cheaper than enforcement and recovery as part of a conservation management plan. Educating those who are members of the diving community and stakeholders is an important aspect of changing attitudes towards same. The finding out who is doing this type of behaviour and why it's happening is key to changing the public attitude towards maritime archaeology. The hoarding of information which is now against the wishes of both practitioners of these interviews and the issue of public access to knowledge about culture and natural heritage must be addressed. Many members of the public simply want to enjoy cultural heritage through

historic trails and museums, this is also the case with the majority of the diving community but a negative attitude towards maritime heritage management which is now the general consensus will lead to unwarranted destruction on the sites which divers wish to dive on.

6. Comparative Analysis

6.1. A Comparative Review.

The majority of legislation dealing with maritime archaeology has guidelines and procedures specific to deal with wrecks which fall under 100 years' timeframe and protection. Evaluation of blanket protection of "Special Interest Wrecks" comes under the idea that certain ships or objects may acquire significance over time, due to emerging knowledge or associations, or changes in circumstances. Special Interest Wrecks is a statutory instrument that identifies the location of the site or wreck and its surrounding environment and context but also defines the extent of the restricted area around it to ensure the protection of the site. Therefore this buffer zone is a restricted area and any activities conducted inside its range is now demit, a criminal offence without a licence or permission. The main focus of this legislation is on the increase of human pressures on these sites particularly threats posed by maritime related activities of fishing, dredging, coastal development and salvage. It removes a window of opportunity for those bent on short term site exploitation and allows the immediate application of conservation principles that preserve long-term values of underwater cultural heritage as a source of information and as a truly international heritage resource (Nutley, 2006 pg. 13) and attempts to promote cohesive and organised strategy of protection, conservation, management of these resources. This change over to a new set of protective rules and regulations from the traditional application of salvage law to sites of "cultural, historical or archaeology character" (UNESCO 2001) will undoubtedly create some dissension within a few sections of the maritime community. Salvage law in the maritime context is applied to contemporary situations and was never intended to cover archaeological sites or historic wrecks. Traditionally, salvage relates to

recovery of goods at sea that are considered "at peril"—usually in danger of being lost by sinking. Those who rescue lost property while it is sinking, or after it has sunk, thereby returning it to the stream of commerce, are entitled to a salvage award. In contemporary treasure salvage, this maritime principle is applied to ancient shipwrecks and property, which is inherently considered "at risk" (http://www.indiana.edu/~arch/saa/matrix/ael/ael_mod12.htm).

The monitoring and protection of wrecks under the mandatory legal requirements is set out on UNSECO Convention of rolling 100 years. This stipulation in legal framework is tailored directly at the salvage or plundering of historical valuable sites and to hamper the activities of the treasure hunter part of the maritime archaeology spectrum. This instrument is seen by many in the diving community as intrusive but is simply a tool which can help protect vulnerable sites. Several treasure-hunting organizations have formed to lobby for the interests of commercial salvors and to oppose the UNESCO Convention on the Protection of the Underwater Cultural Heritage Associations. The Professional Shipwreck Explorers Association or ProSEA code of ethics argues that Members ". . . acknowledge that the public has a right to access the cultural, historical, and archaeological knowledge derived from any shipwreck" (http://www.indiana.edu/~arch/saa/matrix/ael/ael_mod12.htm). It is the responsibility of the member who supervises the exploration of any shipwreck to ensure that the activity is undertaken in such a way that as much scientific, historical and archaeological data as practically possible is gleaned from the site"[2] (http://www.prosea.org/about/codeethics.html). The UNESCO Convention does acknowledge the need for increased public awareness of the value of underwater cultural heritage in Article 20, and specifies in the Annex of Rules which states that " Public access to in situ underwater cultural heritage shall be promoted, except where such access is incompatible with protection

[2]. Note that the professional community of archaeologists and heritage managers as represented by the global organisation ICOMOS considers both 'Wreckwatch' and 'Prosea' as umbrella organisations for one and the same operator on the treasure hunting scene.

and management" (UNESCO Convention on the protection of the Underwater Cultural Heritage 2001, Annex Rule 7) .There is the broader issue of the ethical frameworks underlying historic site management, certain approaches have gone far in mitigating these issues. This thesis will compare and contrast different legislation frameworks that are in place in other countries that have deal with these problems to see which empirical solutions they have chosen to implement.

6.2 Cultural Resource Management.

Different approaches have been applied to managing shipwrecks sites throughout the world. These approaches are partly derived from the value assigned to the resources by the society in general. These include treasure hunting and salvage on the one extreme through recreation and tourism to mitigation, archaeology and cultural recourse management (CRM) on the other. CRM is concerned with the identification, assessment and management of shipwrecks. Assessment includes an evaluation of significance, research potential and protection strategies for potential impacts on sites. CRM also explores short and long term possibilities for establishing and maintaining site protection. This thesis will analyse and critique the management approaches that four different countries have chosen to implement. This section will focus of legal frame work set up in countries dealing with maritime archaeology that will include United Kingdom, Denmark, Australia and United States of America. While none of these countries have so far ratified the UNESCO Convention on the protection of the Underwater Cultural Heritage 2001 they do use its main principles as a bench mark for their own protection, management and conservations policies.

6.3 Australia

Australia has six federal and 16 State/Territory Laws and Acts that apply to sites and objects that could fall under the jurisdiction of the UNESCO Convention. Each one of these Acts also

has the same amount of National, State and Territory program that indicate how a legislation is administrated and which "encompass their own strategies, goals, objectives and activities (Jeffery 2002 pg. 80). There is a standard national program; National Historic Shipwrecks Program with aims and objectives concerning maritime archaeology, different State and Territory having two different agencies that have individual mandates. Museum agencies deal with collections their storage, conservation and artefacts assemblages and general upkeep. Cultural Heritage Management (CRM) agencies' goals and responsibilities encompass on site management and in situ interpretation of shipwrecks. The vast majority of the coastal waters come under the jurisdiction of the Commonwealth government and Federal authorities, the States are given powers to make legislations to apply to certain activities inside three nautical miles making this zone water within limits of the state" and therefore under its control. The most active "underwater cultural heritage act" in the Australian legislation framework is the Historic Shipwrecks act 1976 and its associated programs (Corell, 2000). The local governments of the Australian States, Norfolk Island and the Northern Territory also have individual legislation in accordance with the Historic Shipwrecks Act to fully implement its provisions throughout the continent. A adequate description of the original purpose and agenda can be found in the statement given by Senator R.G Withers during the Bill introduction by Australian Senate in 1976 (Jeffery, 2002, pg. 80) " A principal purpose of the bill is to provide for the continuance on the sound legal basis of the existing high level of co-operation between Commonwealth agencies and such State institutions as the Western Australian Museum.....These include provisions enabling the Minister to delegate his powers for these and other purposes.... enable the States to continue and expand their effort to preserve Australia's maritime heritage under secure national legislation...the Commonwealth will be able to act in the national interest, when this becomes necessary...."

The Historic Shipwrecks Act protects the "remains of a ship" that are situated in Australian territorial and internal waters; the Act also protects associated relics that were associated with ships. The Acts definition of the ship is "a vessel that is used in navigation by water" although the existing programs don't have a specific mandate to protect all underwater heritage sites, wording focuses on and is limited to just "shipwrecks". The major provisions of Historic Shipwrecks Act 1976 is its mechanism to tackle the issue of blanket protection of Special Interest Wrecks. The Act provides blanket protection of all shipwrecks older than 75 years, although the Minister for the environment, heritage and the arts has the option to extend coverage to historic shipwrecks and relics less than 75 years old if significance can be proven and declare Protected Zones (up to 200 Ha) around wreck sites. The tracking, buying and selling of artefacts is under the permit system along with financial assistance and rewarding for reported sites that are then protected; this is however not in accordance with UNESCO Convention that would see both of these policies as possibly commercial exploitation of underwater cultural heritage site. Some of these issues come into direct conflict against its mandate and one of its main principles of Convention is that prohibits any Commercial Exploitation of Underwater Cultural Heritage for trade or speculation.

Australian Law also has agreed criteria that provide a mechanism for assessing and describing the significance of shipwrecks Guidelines for management of Australia's Shipwrecks (AIMA-ACDO 1994). The act has eight principles for evaluation which each criterion given specific guidelines on the grounds of what would warrant inclusion and exclusion. The attributes have been split into two groups of significant Group A and Group B (see below); Group A describe the nature of significance and the criteria in Group B describe degree of significance which is possesses. A condition of inclusion or exclusion of a shipwreck site should be that it is of significance in terms of one or more of the attributes listed in Group A and one or more of the

criteria in Group B (AIMA-ACDO pg. 18 6. Evaluation of Shipwrecks 1994). These are stated in the Guidelines as follows (AIMA-ACDO 1994):

The Nature of Significance: Group A:

- Historic (concerned with the range of context)
- Technical (concerned with technical or creative accomplishment)
- Social (concerned with community regard or esteem)
- Archaeological (concerned with the research potential of material remains)
- Scientific (concerned with research potential through repeatable measured tests)
- Interpretive (concerned with public education values)

The Degree of Significance: Group B:

- Rare (concerned with the uncommon or exceptional)
- Representative (concerned with the typical or characteristic)

At present however, there is no agreed criteria to determine the significance of a shipwreck that happens to be less than prescribed date. The criteria outlined in the 2009 publication Significance 2.0: A Guide to Assessing the Significance of Collections can offer some guidance to Minster in charge of declaring a site of history significance. Unfortunately this is derived to assess significant mainly from the field of built heritage but could be applied to the assessment of sites of underwater cultural heritage. The current legal framework dealing with assessment of shipwreck sites is far from ideal, the need for the inclusion of a similar criteria in

the Historic Shipwreck Act to strengthen the decision making process has been identified but not yet tackled and address. With regards to salvage laws, the Navigations Act 1912 is the related act in the legal framework; it includes articles that prohibit the removal and selling of shipwrecks for the purposes of saving human life, securing safe navigation or any emergency to the environment The principles of the Convention are consistent with the way that Australia currently protects and manages its historic shipwrecks. Despite the 2009 review and advice, the Commonwealth Government has made no progress or changes to the Act and, thus, towards ratifying the Convention. Since 2009, it has only been a 'consideration'.

6.4 United Kingdom.

The jurisdiction reasonability for underwater cultural heritage in British territorial waters falls to the Department for Culture, Media and Sport: The Secretary of State for Culture, Olympics, Media and Sport (DCMS). English Heritage is an executive non-departmental public body that acts as expert advisors to the Secretary of State, and will commission individual assessments for wreck sites and make recommendations to the DCMS. The administration and implementation of the 1973 Act, and the associated licensing scheme, is the responsibility of English Heritage Cadw (Welsh Heritage agency), Northern Ireland Environment Agency and Historic Scotland respectively (English Heritage 2010) under section 1 of the act in their designated regions. There are two principal characteristics that determine from a legal standpoint the structure for maritime archaeology in England. The first is the continued reliance on the law of salvage to govern the recovery of wreck from the sea, irrespective of its antiquity. The linchpin of this structure is the law of salvage, with its associated legislation, principally the Merchant Shipping Act 1995, which incorporates the International Convention on Salvage 1989 into United Kingdom law (Marine Archaeology Legislation Project, English Heritage, ,2006, pg.5). The definition of a salvage operation in the Merchant Shipping Act 1995 as is stated in Article 1(a).... "any act or activity undertaken to assist a vessel or any other

property in danger". This party who conducts this operation can be eligible for a salvage reward in the case that a "useful result" (Article 12, Merchant Shipping Act 1995) is concluded (Marine Archaeology Legislation Project, English Heritage, 2006, pg.6). The term ‘property’ in the legal context of Merchant Shipping Act 1995 is very vague, "but legal opinion is that, at its widest, it only encompasses maritime property, meaning wreck sites" (ibid,2006, pg.5), as there is no application to maritime cultural material that comes from submerged landscapes. A service of 'Voluntary' salvage can be conducted without a contract agreement being entered by the legal owners of the "property" under Article 19 of Merchant Shipping Act 1995. Under this act 'Voluntary' salvage thereby has given a license for anybody to salvage a maritime cultural resources legally. The idea behind this concept is the safe and untimely "returning endangered property to the main stream of commerce in society, thereby minimising society's economic dislocation" (Marine Archaeology Legislation Project, English Heritage, 2006, pg.7 See footnotes, Article 19, Merchant Shipping Act 1995). The process of measuring the value of the reward is also without clear definition or non statutory criteria, the market value of the salvaged material means that little or no salvage reward is forthcoming where the material has a low salved value. Thus the reward doesn't take into account the value of the material to society as a whole. This system of "pecuniary value" (Marine Archaeology Legislation Project, English Heritage, 2006, pg.7), may lead to cases of archaeological material of high cultural value but low monetary valued being left behind or not conserved. The interpretation of what in a legal context could be considered "danger" under Merchant Shipping Act 1995 is also open to misuse and misrepresentation. The classification of what is consideration "dangerous" under this act is not specifically restricted to "physical peril but encompasses situations, where the property is physically secure but economically unusable or simply out of the control or possession of its owner" (Marine Archaeology Legislation Project, English Heritage,2006, pg.7). This interpretation of "danger" possessed by wreck sites differs considerably,

archaeologist would definite that in "underwater sites the remains reach a state of equilibrium or near equilibrium with their surroundings and this is characterised by low or even zero rates of degradation" (‘Archaeology Underwater The NAS Guide to Principles and Practice’ Dean (et al.))Nautical archaeology Society (1992): London pp.51-52). Salvors are well within their legal justification and are permitted to make recoveries, irrespective of the physical nature of the site within the terms of salvage law.

The main legislative tools in the jurisdictional framework for the protection of maritime archaeology is Protection of Wrecks Act 1973, Section 1 of the Protection of Wrecks Act 1973 allows the Secretary of State to designate, by order, a wreck site of "historical, archaeological or artistic merit" to be under its protection to prevent uncontrolled disturbance. "Designation and licensing are the chosen mechanisms of control" under Protection of Wrecks Act 1973 (Marine Archaeology Legislation Project, English Heritage,2006, pg.15). The designation of what is considered heritage and is protected under the Protection of Wrecks Act 1973 is managed by relevant heritage agency including English Heritage and Historic Wrecks Panel. Each designated wreck has an exclusion zone around it and it is an offence to tamper with, damage or remove any objects or part of the vessel, or to carry out any unauthorised activities within this restricted area (English Heritage, 2010). It is a criminal offence to interfere with a wreck designated under section 1 of the Protection of the Wrecks Act 1973 without a licence. The Secretary of State will receive advice from the Historic Wrecks Panel and the relevant heritage agency (English Heritage, 2006, pg.15), regarding the granting of licence for diving activities on wreck sites. A licence is required to dive the wreck site. Separate licences are required for any disturbance, such as recovery of artefacts, surface recovery and underwater **excavation**. The Act is potentially restricted in its application due to lack of a definition of submerged cultural sites, the usage of term "vessel" as is defined as "... including any ship or

boat or any other description of vessel used in navigation" under section 255 (1) of Merchant Shipping Act 1995. The Act fails to clear set out its position on what should be considered submerged maritime heritage, its approach is very limited in scope and providing adequate protection to maritime archaeology when compared to current accepted international standard as outlined in the provisions of UNESCO convention of 2001. This conservative approach to the legal regime for maritime archaeology has generated controversy and numerous documents have drawn attention to the alleged inadequacies of the present framework (Willams,2006, pg.6).

The mandate and criteria for designated wrecks that can be classified as heritage and therefore warrant converse and protection is outlined in guidelines established by English Heritage. Such significance may be assessed on the basis of the following non-statutory guidance has been issued which contribute to a wider judgement based on the individual circumstances (English Heritage, 2010) :

- Period: In identifying sites to be protected, regard will be had to the currency of any particular wreck/vessel type and its representativeness.
- Rarity: There are some wreck are so scarce that all surviving examples which still retain some archaeological potential should be preserved.
- Documentation: The significance of a wreck may be enhanced by close historic association with documented important historical events or people, or by the supporting evidence of contemporary records or representations.

- Group value: The value of a single wreck may be greatly enhanced by its co-location with other similar vessels (for example at the site of a battle) or by its association with other contemporary features such as port facilities or defensive sites.

- Survival / Condition: Assessments of survival should consider the degree of intactness of a wreck, the state of preservation, the current condition of the remains.

- Fragility / Vulnerability: Some vessel types are likely to be more fragile than others and the presence of commercially valuable objects within a wreck may make it particularly vulnerable.

- Diversity: Consideration should be given both to the diversity of forms in which a particular vessel type may survive and to the diversity of surviving features.

- Potential: On occasion, the nature of archaeological remains cannot be specified precisely but it still may be possible to document reasons anticipating their existence

Accompanying this board's sweeping criteria is an additional set of guidelines as indications in helping to define wrecks site of significance. There are no specific parameters to deal with wrecks of special interest or wrecks less than 100 years old. It states "A strong case will need to be made for boats and ships lost after 1945 to have special interest approaches to designating certain types of vessel. A strong case will need to be made for boats and ships lost after 1945 to have special interest" (English Heritage, 2010 pg.2). In principle, the Ancient Monuments & Archaeological Areas Act 1979 or AMAAA can be applied to maritime cultural heritage landscape despite that the original purpose and mandate was for the protection of terrestrial archaeology only. The Act works by the "scheduling of monuments" (Section.56 , AMAAA). The definition of a 'Monument' (Section.61(7), AMAAA) encompasses, inter alia, buildings, structures or work, cave or excavation, vehicle, vessel, aircraft or other movable structure

(Section.62(7), AMAAA). The main purpose of the Act is to schedule significant sites, rather than simply to protect significant objects themselves, scheduled, the monument must be of 'national importance' (English Heritage,2006, pg.19) by virtue of its historic, architectural, traditional, artistic or archaeological interest (Paul Roberts and Stephen Trow, 2002,pg.13). In the case that the site has been designated under the Protection of Wrecks Act 1973, it thus fore cannot come under the power and jurisdiction of the Ancient Monuments & Archaeological Areas Act 1979. Once a site qualified as having national importance (English Heritage,2006, pg.19) and has been declared a "monument" under the statutory criteria outline in section.61(7) of Ancient Monuments & Archaeological Areas Act, it is now illegal to demolish, destroy, alter or repair a monument without 'scheduled monument consent' (English Heritage,2006, pg.19) from the relevant heritage authority. It is the practice of the heritage agencies to pursue a policy of in situ preservation, much in according with the provisions of UNESCO 2001 convention. The consent it rarely granted with the except of rescue excavations. The Act however lacks the mechanism for the designation of area or buffer zone that may have maritime cultural value. The issue has been migrated in some way under Part II of the Act to designate Areas of Archaeological Importance (Section. 33 (1), AMAAA), although this provision has never been utilised or applied for areas of archaeological potential.

In respect of 20th century wrecks the question of access and disturbance is considerably more sensitive, since the loss may well be within 'living memory (Williams, 2005 pg.6). Greater significance is to given to vessels which have met a violent end specifically ships lost during war times; arguments for protection relate to the war's emotional and political impact (Maarleveld, 2006). Since 1986 the Protection of Military Remains Act had provided a mechanism for protecting such wrecks and all crashed military aircraft, both in UK territorial waters and waters outside the 12 nautical mile limit of other coastal States (Williams, 2006

pg.6). The jurisdictional reasonability and enforcement of this Act comes under the administered by the Ministry of Defence. Under the Protection of Military Remains Act 1986 war graves are more correctly known as Military Maritime Graves. The Ministry of Defence has outlined criteria for the designation of wreck sites as Military Maritime Graves. Thus this mandate will determine requests and candidates for designation under the Protection of Military Remains Act, based on the individual circumstances of each case. In determining whether or not a particular vessel or site should be designated, the matters to which consideration is given include the following (MoD, 2001, 10.1, pg. 13):

- whether or not human remains are known or likely to be present;
- whether or not there is evidence of sustained disturbance and looting (and the strength of such evidence).
- the vessel is of historical significant.
- whether or not designation is likely to curb or put a stop to such disturbance and looting.
- whether or not diving on the vessel or site attracts sustained and significant public criticism or approval.

Historically, the UK has been very protective of its wrecks, wherever located, a number of scandals in the past concerning acts of unauthorized interference on British war ships sunken in both the UK and other countries territorial waters have shown this. The idea of a vessel lost during war times has greater significant in the heritage spectrum and action taken on such wrecks is measured by "significant public criticism or approval". UK Government stance could be seen as slightly hypocritical and has come under much criticism given the UK rejection of

the UNESCO 2001 convention blanket protection approach and definition of underwater cultural heritage as "... ..all traces of human existence having a cultural, historical or archaeological character..." (Article 1). "The UK cannot expect other coastal States to do more in their adjacent waters for heritage with a British link than it is itself prepared to do for any heritage in waters adjacent to its own territorial sea" (Maarleveld, 2009). From the UK perspective the definition from the United Nations Convention on the Law of the Sea 1982 (UNCLOS) which in Article 29 states that "... foreign warships are not subject to the jurisdiction of a coastal State whose territorial waters they enter, nor are they subject to salvage assistance without the express consent of their flag State..." is the preferred criteria to rule by. The British Government has also used the different legal mechanism to uphold what it views as a State owned vessel and their immunities and privileges. This entitlement is commonly referred to as 'Sovereign Immunity'. Sovereign Immunity is a traditional legal concept. It originates in the principle that sovereigns and their property cannot be the subject of a legal suit. Unless this immunity is waived (Williams, 2006 pg.4). State owned vessels are ships which are used for non-commercial purposes; they are granted certain legal status and rights. The most common example of a State owned vessel, used for non-commercial purpose and consequently entitled to Sovereign immunity is that of a commissioned warship. The legal status of Sovereign Immunity as defined in Article 29 of UNCLOS means UK government can restrict any activities in respect of designated sunken military vessels in international waters. In the implications of this policy of asserting the sovereign immunity of wrecks which are viewed as property of the State regardless of their located outside of British territorial waters has been a subject of much strife. The position of the United Kingdom government and its opposition to the" 2001 Convention in respect of its provisions relating to sovereign immune wrecks are twofold. The first reason lies in the contemporary sensitivity surrounding 20th century war losses and the second in geo-political reality" (Williams, 2006 pg.4). The approach adopted by

the UK government towards "Special Interest Wrecks" seems to be driven by both emotional impact and historic context. Vessels which certain heritage values specifically wreck sites that could contain war causalities who can generate the most amount of public interest are given the greater significance. Given this approach the continued rejection of the UNESCO 2001 Convention is all the more puzzling in comparison to the preferred legal framework of UNCLOS 1982. The preferred equilibrium of UNCLOS 1982 as a "constitution for the oceans" (Anderson,1998 pg.557) and UK government position of exclusive jurisdiction of the flag State over sovereign immune wrecks in the Exclusive Economic Zone or on the Continental Shelf has being defined by UNCLOS 1982 as the definitive solution. This stance can be best summed up by the state of..." "[T]he differences between flag States and jurisdictional claims of coastal States have not been resolved. The United Kingdom considers that the current text erodes the fundamental principle of customary international law, codified in UNCLOS ... of Sovereign Immunity. The text (UNESCO 2001) purports to alter the fine balance between ... the rights of coastal and flag States, carefully negotiated in UNCLOS, in a way unacceptable to the United Kingdom.' (Williams,2006 pg.6).

The legislation concerning management of marine archaeological remains and the dispersal of portable antiquities originating from wreck sites is quite established. The management of marine archaeological remains and the dispersal of portable antiquities takes place within a wholly different legislative framework to that within which terrestrial remains and artefacts are managed. (Taking to the Water: English Heritage's Initial Policy for The Management of Maritime Archaeology in England,3.4,pg 5) Under the Dealing in Cultural Objects (Offences) Act 2003 it is an offence of 'dealing in tainted cultural objects' and the scope of this offence is remarkably broad (Dromgoole,2006,pg.39) .

6.5 United States.

The United States has done little to protect cultural resources beyond the territorial sea, and treasure salvage occurs regularly despite fact that it has a strong history of combating treasure hunting activities inside its territorial waters. United States has a contiguous zone originally 3 miles but was extending to 12 miles, then to 24 miles, the United States has declared jurisdiction over the continental shelf and an EEZ extending out 200 miles from the coast. Until 1988, admiralty law handled any legislative or legal issues dealing with maritime cultural sites and their exploration. Up until this point, "Salvors had the legal right to requested title to the wreck site under the law of finds, or an award for their salvage operations under the law of salvage" (McGill,2005,pg.106). The laws of salvage and finds provides two distinctive legislative mechanism towards the migrating the issue of rewarding those who set out to recover shipwrecks. The decision of what scenarios or cases these instruments can be applied to is open to interpretation, given the ambiguities in the U.S legislative framework dealing with underwater cultural heritage. As interpreted by U.S. federal courts, multiple parties may assert ownership (Curfman,2008,pg.183) claims on a shipwreck site. "The first finder may assert claims against subsequent finders; the previous owner may assert a claim against the finder; and, depending upon the location and nation of origin of the wreck, national or state governments may assert ownership claims" (ibid,pg.183). The decision of when the application can be used rests on when the original owners forfeited ownership of said property. The legal definition of abandonment under admiralty law is "... requires the act of leaving property without the hope or intention of ever recovering it." (McGill,2005,pg.107). But this alone doesn't meet the criteria need for a ship to be classified as abandoned each individual case is judged on its own merits, unfortunately the legal test for abandonment, in the context of shipwreck discoveries is ambiguous and open to interpretation (Curfman,2008,pg.188). This means that the application of the law of salvage or the law of finds in the legal framework is

inconsistent. If a salvor is successful is getting the law of finds to be implemented on a wreck site, they can be entitled to the title of the found property. The application of the law of finds in the context of shipwrecks states that three parameters should be present (R.M.S. Titanic, Inc. v. The Wrecked and Abandoned Vessel, 435 F.3d 521, 528-529, Curfman,2008,pg.190):

- intent to reduce property to possession.
- actual possession.
- the meeting of the criteria for a shipwreck being classified as abandonment.

The determining requirement in whether the law of salvage or the law of finds can be implemented is the interpretation of the abandonment of the vessel as under the maritime law of finds, the courts considers abandoned property to have been returned to a state of nature. The first party to lawfully establish possession over abandoned property maybe granted legal title (McGill,2005,pg.107).The thinking behind this legal concept is that property that is subject to the law of finds is, by definition, abandoned and lost to a certain extent to society, due to its abandonment. Thus, it can be reasonably assumed that the original owner will not search for the property and has relinquished possession of said property. The law of finds tries to create an incentive to find the property, that might never be recovered and be put to use (Curfman,2008,pg.190). By contrast, the law of salvage is aimed at creating incentives for salvors to recover wrecks. The concept of salvage was created for ships that would stop and assisted stricken vessel at sea, and be compensated for both their time and effort for aid they have provided. Salvage law “gives potential salvors incentives to render voluntary and effective aid to people and property in distress at sea"(R.M.S. Titanic, Inc. v. The Wrecked and Abandoned Vessel, 435 F.3d 521, 528-529, Curfman,2008,pg.188). This mandate can be applied to underwater cultural heritage sites, in the hope of returning this material to society as a whole, abetted the reasoning behind this is from economical line of thinking. "The courts

may reward a salvor's successful efforts by authorizing a salvage award to be drawn from the proceeds of the sale of the salvaged property" (Curfman,2008,pg.188). In order to apply the law of salvage, three elements must be present (ibid,pg.189):

- marine peril.
- voluntary service.
- successful recovery.

The definition of "marine peril" is somewhat ambiguous in United States legal system. By definition, any vessel that finds itself in a state of shipwreck is in a state of marine peril or past the point of technically immediate stress. Nevertheless, this marine "peril" can still exist because "[m]arine peril includes more than the threat of storm, fire, or piracy to a vessel in navigation." (ibid,pg.189). Once a shipwreck is found, the risk of being lost again is threatening enough to constitute (Varmer,1999,pg.280-281) and therefore be designed as under a constant state or threat of a marine peril. Voluntary' salvage is where the salvor does not act under a contractual obligation with the legal owner of the property in question in this case most likely a vessel in a state of shipwreck. Successful recovery would go some way to insuring a timely and orderly fashion of the recovery of the property in an intact condition.

The usage of two commercially driven doctrines and concepts in dealing with underwater cultural heritage is far from the ideal scenario. In the majority of cases, salvors prevailed in obtaining ownership under the law of finds or salvage. To tackle this problem the US Congress passed the Abandoned Shipwreck Act (ASA). This was hoped to "...fill in gaps created by the patchwork of applicable federal legislation" (McGill,2005,pg.111) concerning underwater maritime heritage. On 28 April 1988, President Reagan signed into law the Abandoned

Shipwreck Act (43 U.S.C. 2101). Section 2106(a) of the Act states: “The law of salvage and the law of finds shall not apply to abandoned shipwrecks to which section 2105 of this title applies.” 43 U.S.C. § 2106(a). The purpose of ASA is to give title to certain abandoned shipwrecks that are located in state waters to the respective states, in practice this means the federal government of the United States automatically acquires the title to any abandoned shipwrecks found in its territory (43 U.S.C. § 2105(a)) and it immediately transfers the responsibly for its management and protection to corresponding state. The state is still excepted “.... to provide for state regulation of shipwrecks found within state coastal waters, while allowing access to historians and sport divers.” (see footnote 108, Curfman,2008,pg.195). In essence, the Abandoned Shipwrecks Act removes the legality of the implementation of either law of finds or law of salvage in any case of underwater cultural heritage. There are a number of faults however in Abandoned Shipwrecks Act 1987; its jurisdiction could only be apply to the 3-mile territorial sea. Second, the statute applies only to shipwrecks (including their cargo and contents); other categories of cultural heritage, such as submerged buildings, ports, or prehistoric terrestrial sites, are not included (J. Elia,2000,pg.46). The law also is restricted to three specific categories of abandoned shipwreck (ibid,pg.36):

- those embedded in submerged state lands;
- those embedded in coralline formations controlled by a state;
- those located on state submerged lands and are either included in or determined eligible for inclusion in the National Register of Historic Places

The definition of the term "abandoned shipwreck" "means any shipwreck to which title voluntarily has been given up by the owner with the intent of never claiming a right or interest in the future and without vesting ownership in any other person" (Abandoned Shipwreck Act

Guidelines,1990). In spite of its shortcomings, the ASA also provides a number of benefits in the realm of preservation. Use of the ASA, as opposed to the law of finds, can prevent valuable historic objects from being reduced "to the personal property of private collectors." (Curfman,2008,pg.196). The implementation in reality has also being problematic, as ASA recognizes treasure salvors as a legitimate interest group, thereby elevating to the status of 'stake- holder' a group that would normally be regarded as 'looters' on land sites (J. Elia,2000,pg.46).

The Sunken Military Craft Act 2004 (SMCA) scope is broad in protecting sunken US craft wherever located as well as foreign craft in US waters defined to include the internal waters, territorial sea and contiguous zone (Varmer,2006,pg.24). The intent to increase the legislative powers at the disposal of the U.S federal government was first issued in the Statement on the United States Policy for the Protection of Sunken Warships published in 2001. This paper states that ``[t]hose who would engage in unauthorized activities directed at sunken State craft, that disturbance or recovery of such craft should not occur without the express permission of the sovereign" nation. After some consolation and communication with the respective governments of France, Germany, Japan, Russian Federation, Spain and the United Kingdom, the Title XIV of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 pertaining to "Sunken Military Craft" (SMCA) and providing for their protection was passed into law on October 8, 2004, and entered into the legal framework (R.Pixa,2009). In summary, this allows the U.S federal government to maintain ownership of its sunken State craft wherever located unless expressly abandoned. The law of finds doesn't apply and no salvage is authorized on wrecks that quality for sovereign impunity i.e. non-commercial State vessels, without the government's consent. In 2004, the US Congress enacted the Sunken Military Craft Act (SMCA) which codified this policy, including the ban on the

“law of finds” and requiring the consent of the appropriate government prior to any salvage. It protects US sunken military craft wherever located and foreign craft within the 24 nautical mile contiguous zone (Varmer,2010,pg.133). The SMCA clarifies that sunken military vessels and aircraft both US and foreign located in US waters, which would have been entitled to sovereign immunity at the time they sank, remain the property of their flag States unless expressly abandoned; title is not lost through the passage of time (SMCA, sect. 1401). This act clearly argues for the protection of foreign nations State craft in US waters, "the SMCA encourages reciprocal treatment by foreign sovereigns foreign State craft in US waters, provides for the respectful treatment of the ‘‘remains and personal affects’’ of military personnel" (Varmer,2010,pg.135). The Sunken Military Craft Act also removes the legal mandate from the application of the law of finds to any non-commercial State craft in U.S territorial waters. The Sunken Military Craft Act 2004 states that the law of finds shall not apply to (Section. 1406 (c)):

- any United Sates sunken military craft, wherever located.
- any foreign sunken military craft located in United States waters.

The SMCA goes on to say "No salvage rights or awards shall be granted with respect to:

- any United States sunken military craft without the express permission of the United States;
- any foreign sunken military craft located in United States waters without the express permission of the relevant foreign state." Sec. 1407 (d)

The protection the SMCA provides to foreign State craft in US waters, and its respectful treatment of the ‘‘remains and personal affects’’ of military personnel (SMCA, sects. 1403(a), 1408). This is built on the principle that the same approach will be awarded to U.S vessels

under sovereign impunity in foreign territorial waters. Protection of underwater cultural heritage connected to non commercial State shipwreck beyond the reach of national jurisdiction is a problem understood by U.S government, they have tried to migrate this problem by the introduction of the RMS Titanic Maritime Memorial Act. The Sunken Military Craft Act does not expressly codify the US policy on respectful treatment of wrecks as gravesites. The only U.S federal underwater maritime cultural law that does expressly recognize the need for the treatment of certain underwater cultural heritage as gravesites is the 1986 Act regarding RMS Titanic. (Varmer, 2010,pg.135). The 1985 discovery of the site by a US/French expedition that found the wreck site of the RMS Titanic was the catalyst for the beginning the process of negotiating an international agreement with the U.K., Canada, France and any other interested nations to designate the wreck as maritime memorial and protect it from looting and unwanted salvage (ibid,pg.136). The Act suggested that the wreck site be treated as a maritime memorial, encouraging the negotiation of an international agreement (Section 450,4,), with the National Oceanic and Atmospheric Administration(NOAA) to cooperate with respective nations for the development of international guidelines " for the exploration, research and, if determined appropriate, the possible salvage of artefacts" (Varmer, 2010,pg.136). The NOAA Guidelines are based on the International Council of Monuments and Sites (ICOMOS) Charter as well as standards and requirements in the U.S. Federal Archaeological Program developed by the Department of Interior, National Park Service (Varmer,2006,pg.16). The NOAA Guidelines and the Rules annexed to the Agreement on Titanic are similar to the provision for the management of underwater cultural heritage as outline in the UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001). The NOAA Guidelines, the Agreement and the Rules incorporate the policy that in situ preservation of the wreck site be considered as the first management option (Varmer,2006,pg.16). There are also a number of law mechanism which were designed and

developed for archaeology heritage on terrestrial land sites but which also apply to UCH in certain circumstances including the National Historic Preservation Act, and the Archaeological Resources Protection Act (Varmer,2006,pg.27).

The National Marine Sanctuaries Act 1992 (NMSA) was passed into law, "this extended the jurisdiction of the law to include both the 12-mile territorial sea was declared by U.S federal government and the exclusive economic zone. Covering out to 200 miles from the coastline, this provision gives the NMSA the most extensive reach of any US cultural heritage law (J. Elia,2000,pg.48). National Marine Sanctuaries Act (NMSA) is similar to the United Nations Convention on the Law of the Sea, its main purpose is to address the primary concerns of looting and unwanted salvage. The National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), to set aside discrete marine areas of special national, and sometimes international significance (NMSA) (Varmer,2010,pg.137). The Archaeological Resources Protection Act enacted by Congress in 1979 also applies to 'maritime heritage of at least 100 years of age located in national parks, national wildlife refuges and other national public lands. The Act requires a permit for any excavation, removal, or alteration of archaeological resources. The Act has the mandate for punishment of individuals who knowingly loot or vandalize archaeological sites by imposing stiff fines, imprisonment, and confiscation of artifacts as well as tools and vehicles used in the violation.

6.6 Denmark.

The legislative mechanism that safeguards Denmark's cultural and natural heritage is called the Consolidated Act on Museums. The law was first introduced into law in 2002 by the Minister of Culture. The law has several purposes (Consolidated Act on Museums, Part 1(1)).

- purpose of this Act shall be to promote the activities and cooperation of museums with a view to safeguarding Denmark’s cultural and natural heritage and ensuring access to and knowledge about this heritage and its interaction with the world around us.

- purpose of this Act shall be to ensure performance of tasks relating to walls of stone and earth as well as ancient relics or monuments

- the provisions of this Act shall apply to museums owned by the state under the Ministry of Culture and to museums receiving state subsidies pursuant to the Act.

Foremost of purpose concerning to protect Denmark’s underwater cultural heritage under" the purpose of ensure performance on monuments". This ensures that there is public access to knowledge about culture and natural heritage. Also it should ensure more consideration to the cultural heritage in the planning processes. Last it's made to change the principles of who should finance the archaeological excavations. The change should be in such a way that private organisations pay a larger share. The Kulturminister or Minister of Culture has the juristically responsibility for the Consolidated Act on Museums. However the minister of cultural may decide that the supervision is performed by another authority or seek advisement from another heritage authority. So in reality is the Kulturarvstyrelsen or Heritage Agency of Culture who has administrative and legislative control and responsibility for the enforcement of the Consolidated Act on Museums, 2002. The Agency can provide professional and expert advice on maritime cultural issues. Furthermore they cooperate with the state subsidised archaeological museums in Denmark. The museums can use private organisations or archaeological students to excavate if needed. There are a total of 43 archaeological state subsided museums in Denmark. It's written in the Consolidated Act on Museums paragraph 14, that the staff must have professional qualifications according to their main area of

responsibility. Furthermore the museums have to follow a certain standard set of rules to get state subsidies. With maritime archaeology the structure is the same. The underwater cultural heritage is also safeguarded by the Consolidated Act on Museums. There is only five state subsidised museums responsible for maritime archaeology. The sea and lakes is divided into five areas each with a museum responsible for archaeological excavations The most important maritime museum is the Viking Ships Museum at Roskilde. It's by far the largest one. They have so called maritime readiness. This means that they are responsible for excavations if no other maritime museum is nearby. What is defined as maritime under Consolidated Act on Museums is as follows (28 - (1)) "....an ancient relic or monument, including shipwrecks, cargo or parts of such wrecks, which must be assumed lost more than 100 years ago, in watercourses, in lakes, in territorial waters or on the continental shelf, but not beyond 24 nautical miles from the base lines from which the width of outer territorial waters is measured", Any person who finds any underwater cultural sites are under a legal obligation to immediately notify the Minister for Culture under section 28 (1) of the under Consolidated Act on Museums. It is up to the "...Minister for Culture to decide on archaeological investigations of objects belonging to the state" (Section 28 (3)). Under section 28 (4) in cases of special circumstances, "the Minister for Culture may disregard the age criterion in subsection (1) in connection with archaeological investigations pursuant to subsection (3)" meaning the Kulturminister can designate underwater cultural sites under 100 years as "Special Interest Sites". Concerning salvage the Act states that provisions in the legislation on stranding of wreckage relating to the salvaging of wreckage or other objects from the seabed shall apply (ibid, S. 28 (6)):

- i) the provisions concerning persons entitled to recover objects, including the provisions relating to prior permission,
- ii) the provisions concerning reporting of recovered objects, and

- iii) the provisions concerning summoning of the owner of the recovered object

The act continues with "finds of ancient relics or monuments, including shipwrecks, cargo or parts of such wrecks, which must be assumed lost more than 100 years ago, on the deep seabed, cf. subsection (2), by Danish citizens or by a vessel registered in Denmark belong to the Danish State unless other countries or private persons prove ownership" (ibid, S. 28 (a)):meaning that any underwater sites of archaeology and cultural value belong solely to the Danish State but a ".... person who has recovered the object cannot claim salvage money, but the Minister for Culture may pay a reward to the person concerned" (ibid, S. 28 (5)).

The legal mandate for dealing with underwater cultural heritage that could qualified for "Special Interest Wrecks" is outline in section 28 (6), "The Minister for Culture may decide that ancient relics or monuments, including shipwrecks, cargo or parts of such wrecks which were lost less than 100 years ago, shall be covered by the provision in subsection (1)". In reality this means that there are no statutory or non statutory criteria to be used as a guideline in what can be established as underwater cultural heritage. The act also "...prohibited to alter the state of ancient relics or monuments on the seabed or the state of wrecks of ships or cargo which must be assumed lost more than 100 years ago, if they are located in territorial waters or on the continental shelf, but not beyond 24 nautical miles from the base lines from which the width of the outer territorial waters is measured. Prohibited to alter the state of wrecks of ships or cargo which must be assumed lost more than 100 years ago (S.29g, (1)), if they are located in the areas referred to in subsection (1) or in watercourses or lakes (ibid (2)). The Consolidated Act on Museums section 29g (3) gives the Kulturmininster the power to make decision on wrecks outside of the standard criteria and blanket protection for wrecks over 100 years, "The Minister for Culture may determine that wrecks of ships or other vessels lost less than 100 years ago shall be subject to the provision in subsection (2). (4) In connection with

construction work or an activity on the seabed the Minister for Culture may demand that the person responsible for the construction work or activity conduct a marine archaeological preliminary investigation. The Act also give the power to the Kulturminister to halt any construction work if"... traces of ancient relics or monuments or wrecks subject to Section 29g (1) are found during construction work or an activity on the seabed (S.29h, (1)). Furthermore within a timeframe of four weeks of the notification, the Minister for Culture can make a decision on "...whether the work is to continue or to be suspended until a marine archaeological investigation has taken place. A marine archaeological investigation shall be conducted as soon as possible" (ibid,S.29h,(2)). The expenditure of this archaeology survey and assessment is passed on to "the person responsible for the construction work or activity" (ibid,S.29,(3)). Access however to underwater cultural sites is the mandate and responsibility of the Danish Maritime Safety Administration, Farvandsvæsenet, who in theory are obligated to liaise with other relevant government heritage agency in coordinating management, have the power to issue permits for access to these sites.

6.7 Discussion.

Legislation is only as good as the administration systems established to deal with the public education and enforcement issues that arise from that legislation (Staniforth, 2009). Different approaches have been applied to managing shipwrecks sites throughout the world. These approaches are partly derived from the value assigned to the resources by the society in general. This review has summarised the legislative framework and legal process for dealing with underwater cultural heritage of four different countries, along with the differing statutory and non-statutory criteria for classifying an underwater cultural maritime site that qualifies for "Special Interest Wrecks" status. The four countries were chosen because of their distinctive interpretation of what should be considered heritage and thus worthy of their legislative systems full protection. The countries dealt with in this thesis comparative analysis were

chosen for a number of different elements, Denmark, given the fact that the scope of the thesis is focussed on the Danish legal framework and that our case study is located in Danish territorial waters. United Kingdom was chosen because of its proud naval history and perceived public interest or media coverage influence policy towards ships that have entered the archaeological record during 20th century. Also its attitude and the importance it places on ships lost during war times and war graves. Australia was selected for its historical strong legislative framework and forward thinking concerning underwater cultural heritage. Along with this its consideration for the views and wishes of a wreck sites county of origin. United States was included given the strong stakeholder input the salvage company and recreational diving community section of the maritime cultural spectrum has in the decision making process in dealing with maritime cultural heritage. Along with this none of these countries have fully ratified the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage. They have however adopted or modified the legislative framework to coincide with the provisions of the UNESCO 2001 convention. There are a number of reasons each specific to the different countries on why they have not ratified the 2001 convention yet, but all the relevant heritage authorises approve of virtually all of the Conventions provisions and Annex's. The adoption of the UNESCO 2001 as the template for the treatment of maritime heritage and guidelines for actives concerning this sites can only be seen in a positive light The raising of the bar of what constitutes acceptable maritime archaeology work practices and methods will be one of the legacies of this convention. For example, Australia's grounds for non ratification is one of compatibility despite majority of both its legislative framework and the provisions of the 2001 convention being compatible, there are more legislative issue that need to be ironed out, i.e the coverage of all underwater heritage sites over the threshold 75 years as opposite to 100 years in UNESCO 2001. But there have been major concerns about the requirement for authorization of all activities directed at underwater archaeological sites, regardless of their

importance and the issue of significance particularly in United Kingdom and the U.S. On the topic of significance is where both of these countries' ideas and interpretations differ from the UNESCO 2001. The greater significance is given to wrecks that certain heritage values, these elements being State owned non-commercial craft sunk during war times. This stance is of particular interest given the scope of this thesis as a large amount of ships that have entered the archaeological record during 20th century or less than 100 years ago fit these parameters. This perceived policy of public interest or media coverage influence approach towards underwater cultural heritage stems from a proud navy history, which in turn is reflected in each respective countries' present legislative framework. While it is true that the application of the 2001 Convention is not dependent upon significance, i.e. it applies to all marine heritage assets that come within the definition of underwater cultural heritage in Article 1 of UNESCO 2001, the Convention is principally concerned only with activities directed at the submerged cultural sites. Furthermore, it is not prescriptive in that it is for each State to determine how preservation of the underwater cultural heritage within its jurisdiction is to be achieved. The measures to be taken for this preservation are to be 'appropriate' and ' ... the best practicable means at [the State's] disposal and in accordance with [the State's] capabilities.'(UNESCO 2001 Article 2(4)). Clearly, a State's obligations under the 2001 Convention are not absolute but proportional to its capabilities and appropriate to the circumstances. (Williams, 2006 pg. 8). The concept of significance is thus central to the United Kingdom's and U.S approach and a very restrictive interpretation has been taken in assessing this significance, as the 2001 Convention requires it to protect all submerged underwater cultural sites to the same degree irrespective of significance. In statements by the US delegation heads, it was noted that the US believed that the Preamble, Annex Rules, and general principles of historic preservation of the 2001 UNESCO Convention reflected substantial progress in the protection of UCH (Blumberg 2001; Wanner 2001). Both the US and United Kingdom's legislative framework and laws are

consistent with the UNESCO 2001 Convention Annexed Rules and other provisions codifying the general principles of historic preservation including the general ban against the application of the law of salvage and finds to UCH. However, the US, UK and other nations have not supported the Convention as a whole because its treatment of foreign state owned UCH within territorial sea appears to dilute the important principle of sovereign immunity and the regime for UCH located in the EEZ/continental shelf appears to extend coastal State jurisdiction and sovereign rights beyond that authorized under the LOSC (Varmer,2006 pg.28). Despite the fact that sovereign immunity is not effected under UNESCO 2001 as per Article 13 of the act. The differing ideals of how and what to define as underwater cultural heritage and therefore warranting protection comes down to blanket protection vs. selection resource driven approach. Countries like Denmark and Australia who policy towards underwater cultural heritage is one of blanket protection compared to U.K and U.S. policy of selection significant. This policy of "better focus its efforts and resources on … the most important & unique examples" (Williams 2007,pg.8) should be applauded on its merit given the fact that there is not a infinite amount of resources available to deal with underwater cultural issue, it is a fault as such, a standard of protection should be applied to all submerged sites, given that such protection to a specific type of site could be interpreted as hypocritical. Towards a view of guilty of heritage and therefore significant until proven innocent would be the best course of action for the Danish legislative system as is consistent with the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage and the present legal framework in place

6.8 Empirical Solutions.

The character of maritime archaeological resource is far more complex and diverse than terrestrial archaeology and therefore should at this core have a completely different legislative framework to govern this future protection and conservation. A relevant heritage authority, for example Kulturarvstyrelsen in the Danish framework, should be in charge of all matters

relating to maritime archaeology including the reasonability of access and issue of permits, sometime which is not the case under the present system. There is also a need for both a more defined definition of what elements are needed for a wreck sunk less than a 100 years ago to become of special interest. The ambiguities that exist in the present legislative material about what is classified as Special Interest wreck should be addressed. This could be achieved by outlining of non-statuary criteria that specify under what elements significance is measured. Also an agreed evaluation criteria would be useful to provide a mechanism for assessing and describing the significance of shipwrecks Guidelines for management. This could be similar to the Guidelines for management of Australia's Shipwrecks (AIMA-ACDO 1994). Australia's version has eight principles for evaluation, each criterion give specific guidelines on the grounds of what would warrant inclusion and exclusion. The main reason behind this suggestion is not only the introduction of guidelines but that they are done in a non-statuary format. The thinking behind this is to give the guidelines as essence of flexibility while being rigid enough to be usage in practice, in this way any criteria can be inclusive to any heritage value who's significant might increase over time and the discovery of new wrecks which also can come under the of a mandate for the protection of wrecks of special interest under 100 years.

The core dilemma that Danish system faces concerning its management strategies towards wrecks of special interest under 100 years, is the perception of a reactionary policy instead of action. This can be best summed up by the attempted recovery of one of the Schnellboote near Langeland in 2008. The Danish Maritime Safety Administration, Farvandsvæsenet issued a permit for its removal, it was well aware of heritage regulations and even though Danish heritage legislation has a 100-year cut-off date, they informed the heritage authority before they issued the permit. The heritage authority, Kulturarvstyrelsen, for their part took the

information for granted. They did not realize that it would be ‘good practice’ to inform and solicit opinions from the local museum entrusted with the deployment of heritage policies in the particular waters around Langeland and the German authorities alike (Maarleveld,2009). The reason for this activity was for an organisation called the British Wheatcroft Foundation to extend their collection of German ’Schnellboote’ and spare-parts. This was the reason for assigning the ‘salvage’ operation in Danish waters. The inevitable public and media outcry particularly from the local museums about not being informed of these activities stopped the work from continuing. Although in this case the "salvaging" was ceased, a fault in the system had been exposed, which again became apparent with the more recently looting of the newly discovered Schnellboote by recreational divers during the summer. This event meant both a failure to deal with the issue that had result in the Wheatcroft incident and the appearance of a separate issue which was lack of a rapid response order to protect newly discovered underwater cultural sites. The Wheatcroft incident had exposed failings in the system and upset the equilibrium that has existed before. The looting of the fifth Schnellboote showcase that the legislation concerning underwater cultural in Denmark had returned to a flaw balance without addressing the failing in the framework. The policy particularly towards wrecks of special interest under 100 years and what to do with them is at its core a reaction approach rather than an action based initiative.

An adoption of a rapid response automatic, or ‘blanket’ protection on newly discovered sites could be implemented, This could be similar to the mechanism in the Australia legislative framework Section 5 of the Historic Shipwrecks Act of 1976. The reasoning for this is the experience with the Queen of Nations which was stripped two week after its discovery (Nutley, 2006 pg. 13). Although this mechanism existed beforehand, its state at the time required an archaeological assessment to implement it. The Queen of Nations incident highlighted the need

for a quick response. An adoption of this policy along with a more active cultural management strategy than the current non interference policy towards wreck defined as Special Interest Wreck. This approach is consistent with the provisions of the UNESCO convention of in situ preservation of sites has remained the fundamental objective and would go some way to migrating the issue facing treatment of Special Interest Sites inside the Danish legal framework.

7. Conclusion and Outlook.

7.1 Conclusion.

The main aim of this work was to assess and explore the perceptions and attitudes of the local and national maritime community towards "Special Interest Wrecks" and the legal framework surrounding it. With this paper an attempt was made to mediate this difficult problem for both the management section of the maritime archaeology spectrum as they have a legal and moral responsibility, and the local dive clubs, who have a recreational interest in these sites. It was the intent of this thesis to demonstrate if current attitudes will allow practitioners to engage in meaningful dialogue. While a full solution to tackle this problem was not found, some steps towards migration on the basis of grass-roots feedback and comparison with the situation in some other countries were taken. This dialogue will help steer research not only towards developing improved methods from the scientific point of view, but also understanding the ethical issues of preserving submerged cultural heritage, implementing sustainable management programmes and continuing to gather the types of data integral to archaeological investigations. It is hoped that the resulting thesis could be viewed as a potential future resource in terms of understanding current practices, directing future research and continuing the discussion of how practitioners approach the management of underwater cultural heritage. The results created from this body of work provide a solid basis from which to expand as it was composed of current practitioners in the recreational, archaeological and heritage

conservation and management communities. In addition to this discussion with individuals in these communities known to the researcher, the explanatory approach was used to explore the event, in this case, current practitioners‘ attitudes. In terms of developed measures, no research into attitudes and behaviours of practitioners in this area has been previously conducted in this field of research. It was not surprising that no such measures existed given the issues which the heritage management community have faced in recent years. A policy of ignorance or hushing up of problems which have arisen concerning these relatively recent wrecks around Langeland has lead to a culture of denial of how the current legislative system functions in the real world. The idea that the mere existence of strong laws and legislative framework is enough to warrant in reality a powerful legal basis for the protection of maritime cultural heritage, without the proper infrastructure and expertise in place to implement these management strategies. Along with this must exist the will in the various government entities and organizations to enforce and utilize the laws governing this area of the legal system.

The first aim of this paper was in the context of the chosen case study, it was hoped to gauge opinions at grass roots level of individual stakeholders of what they consider as important heritage and explore if it is in balance with existing legislation using an interview questionnaire format. Ultimately the purpose of this interview strategy was to generate feedback at grass-roots level that could be analysed to provided for consideration for future policy development. The process also provided discussion of the faults and failings of the present Danish legal framework that have become apparent or exposed by the "perfect example" (O. Christian Uldum, C Thomsen, December 14th, 2012) of the Schnellboote sites. Namely, there is a need for a more integrated approach to be utilized in the management plan of underwater cultural sites, the Danish legal framework needs to expanded to include clearly set out remarks for quantifying significant sites with well defined guidelines on how their continued stable

protection can be achieved, It must be stressed that this interview questionnaire did not provide a full solution to the problems and faults that are facing the Danish policy makers for underwater cultural heritage protection. The interview questionaire is slightly flawed in its application as wider pool of respondents could have been of greater analytical value. Nevertheless, the results provide some indications to a way of migrating the issues which have been encountered by heritage agencies in the present context of the Danish legal framework.

A second aim of the thesis was to present the constructive and technical history of the Schnellboote development since its initial conception and its design features. This was hoped to first provide basis knowledge of the construction methods and operational history of the Schnellboote but also showcase that this body of data is readily available. A wealth of information is documented in historical archives on Schnellboote and their development throughout the first and second world war. On examination of the Schnellboote archives available, the following theories were addressed. Given that we have sustainable data about the origins of this vessel, it was worth considering if these submerged cultural heritage sites possess less "heritage values" than a site whose position in the archaeological spectrum is somewhat murkier. In this context, should the sole purpose for the protection of underwater cultural heritage be the pursuit of knowledge concerning the ships constructive characteristics. Alternatively, is what we consider heritage and therefore worthy of our protection restricted to underwater cultural heritage that we would know little or nothing about. Also, how do such wreck sites fit into the context of underwater cultural heritage existing legislation? It was concluded that the reasoning for broadening of "heritage values" or parameters of what we as a society value as our heritage and are willing to allocate funds to for their future preservation and conservation. The collection of data cannot be the overriding heritage value in the decision-making process in how we define what is the most valuable heritage characteristics,

the benefit to society in general of keeping the original sites must also come into the decision making process and the interest a site generates should also be considered as important "heritage values". There is a predicament; how we treat different parts of our cultural heritage, how we as a society view heritage and what such classification says about what kind of the society we live in. Do submerged sites that have being extensively documented in the archaeological record warrant less level of protection and status. The mechanism of Special Interest Wrecks go some way to bridge this significance question, the purpose of Special Interest Wrecks is to allow relevant heritage agencies to classify wrecks that possess enough different sets of overlapping heritage values to warrant a strong level of protection and are important to the cultural health of our society. But this falls short of the classic view of what heritage characteristics a underwater cultural site should possess as viewed both by the general public and the from a legal standpoint. The age of an underwater cultural heritage site is not the only element that will create interest in the general public, with the implication of "Special Interest Status" sites that do not meet the traditional requirements for heritages sites can now get the protection they deserve and their importance and worth to society will be highlighted and conserved for future generations.

The third aim of the thesis was to conduct a comparative analysis of other countries' legal mandate and attitudes towards such wrecks in order to underline current international trends and patterns. The goal of this body of work was to find a holistic approach concerning the legal implication of the status of Special Interest wrecks with input from comparison with the situation in some other countries. Different ideas and viewpoints exist in each country's legislation, understanding and definition of what is important heritage and therefore protected heritage. As well as a public's perceptions and changing attitudes towards maritime culture the interpretation of what is heritage and thus in need of documentation and protection is an ever

changing difficult term to define. The comparative review consisted of four different countries with differing statutory and non-statutory criteria for classifying an underwater cultural maritime site that qualify for "Special Interest Wrecks" status. The four countries were chosen because of their distinctive interpretation of what should be considered heritage and thus worthy of their legislative systems fully protection. The countries that were discussed in the comparative analysis were chosen for a number of different elements, Denmark, given the fact that the scope of the thesis is focussed on the Danish legal framework and that our case study is located in Danish territorial waters. United Kingdom was chosen because of its proud naval history and perceived public interest or media coverage influenced policy towards ships that have entered the archaeological record during 20th century. Also its attitude and the importance it places on ships lost during war times and war graves. Australia was selected for its historical strong legislative framework and forward thinking concerning underwater cultural heritage. Along with this its consideration for the views and wishes of a wreck sites county of origin. United States was included given the strong stakeholder input the salvage company and recreational diving community section of the maritime cultural spectrum has in the decision making process in dealing with maritime cultural heritage. The adoption of the lessons and analyzing of mistakes which have occurred in the other countries legislative system would be beneficial to Denmark. The usage and outlining of non-statuary criteria that specify under what elements significance is measured is also worthy of note. Also an agreed evaluation criteria would be useful to provide a mechanism for assessing and describing the significance of shipwrecks Guidelines for management. This could be similar to the Guidelines for management of Australia's Shipwrecks and could be one component that Danish legal framework learned from international comparison. Along with the strong and independent national heritage agency who can advise the relevant minister on issue of management of submerged cultural heritage, the national heritage agency should be the driving force behind any policy decision or

development as to avoid the situation of a non heritage organization making the vast amount of decisions about heritage matter due to socio-political reasons (i.e. the Minister of Defence in British legislative framework).

6.2. Outlook.

Maritime archaeology is an entirely different element than its terrestrial archaeology counterpart, so should the legislation be treated as such? Given the cross juridical nature of maritime archaeology a different legal premises must be adopted in any strategy or approach to the management. Maritime archaeology at its core principle is different than terrestrial archaeology, simply because of the medium of the ocean; which transports a large amount of archaeology material across vast distances and through multi-juridical borders. Considering these large distances, a nations cultural heritage can be transported across oceans and in some cases the short time period from a wrecks original deposition, emotions connected to wrecks can still be very raw making their conservation a complex management issue. The deposition or sinking of a vessel is a traumatic event and at times fatal unlike deposition of material to the archaeological record in terrestrial archaeology, which again adds to the complexity to the issues concerning submerged cultural heritage. The vastly more complex and different factors leading to deposition of archaeology material in situ, usually in high quantity of material (i.e. cargo) possess a different set of problems for a cultural management strategy for dealing with maritime cultural heritage. While the adoption or superimposing of the high morals and standards of terrestrial archaeology would be a perfect response and a noble pursuit, in reality is simple unfeasible. Maritime archaeology could be viewed as a "democracy" as a consensus is needed through multinational treaties for what countries can consider as heritage inside their own legal framework. The decisions about activity outside territorial sea zones are ultimately a matter of law, not ethics, and archaeologists are as bound by the law as anyone else (Flataman,2012). Different interpretations of what should be heritage will always be a

compromise between different legal frameworks and the countries they operate in. Respective nationalities should be prevented from participating in illegal excavations or salvage in other counties. The nature of historic exploration and cultural heritage means that shipwrecks, relics and other objects in the seas and oceans are essentially international in nature (Staniforth, 2009). If by its nature maritime archaeology is essentially international, its management will prove difficult at regional grass roots level, the heritage value of the sites is not (in this case the German Schnellboote in Danish territorial waters) clearly defined by any objective criteria that exist in the Danish legal system. It is, however, by the very fact that the concerned parties are interested because of heritage values in the first place (Maarleveld,2009) that has given this submerged site its value and significance and equally and the site is at greater risk of being looted. The main problem is not their interest, but the dilemma of retrieval in one country for (heritage) benefits of another country, (Maarleveld,2009). For heritage management, be this superficial or intensive, something else is needed: to warrant a balanced view and to warrant public interests for the benefit of stakeholders either local or non-local stakeholder groups alike, and not least to warrant reciprocity through serving the interest of international stakeholders and international verifiable links as well (Maarleveld, 2009). The dual benefits of preserving history of other nation's maritime cultural heritage should be a policy that all respective nations adopt, a policy of sites being "guilty of heritage until proven innocent". This approach of granting all sites some form of protection and management will be beneficial for all heritage. Shaping arguments to suit different audiences and possible counter arguments it is ethical practice to insure protection of wrecks. There is a need to increase public awareness about the ethical indecency of plundering wrecks. Ultimately, the creation of public education and media outreach programs is paramount for the future protection of underwater cultural heritage. The ship, in other words, needs a 'curator' to take charge. (Maarleveld, 2009)

Appendix.

The following is the two different sets of interview questionnaire that were development for the collection of raw data and opinions from individual stakeholders in the chosen case study of relativity newly discovered wrecks of German Second World War Schnellboote around Langeland, Denmark.

Museum Question.

Question. 1

What is the current legal mandate from dealing with wrecks under 100 years or non statuary significant guidelines.

Question .2

How are wrecks of Special Interest Wrecks currently deal with in Danish legislative system i.e "the list system".

Question. 3

Do you see any faults with this framework in its present form.

Question .4

Do you feel that Special Interest Wreck value is measured by historical context or public Interest driven. Wheatcroft incident.

Question .5

What is your current attitude towards the legal framework in place now.

Question .6

What management strategy would or have you employ in protection of four Schnellboot located off coast of Langerland i.e non inference or in situ, continued monitoring.

Question .7

In your experience has "Special Interest Wrecks" list being used to cover up or patch over managerial and budgetary failings.

Question . 8

Do you feel that this vessels deserve protection and why?

Question .9

what new issues have arisen since summer concerning the fifth schnellboot found in the area. Was there a gap in time between discovery and classification for new wreck site leaving them vulnerable to exploitation.

Question .10

Was fifth Schnellboote discover off Langerland considered for Special Interest Status list.

Question .11

How do you feel that this failing in the legal framework could be prevented in the future.

Question .12

Do you feel that the current preservation methods are ideal. Repeat

Question .13

What is the current plan to deal with the fifth wreck given its now fragmented state of conservation

Question .14

If more Schnellbootes are discovered what is the plan to deal with them, is a continued policy of no inference going to be enforced.

Question . 15

Has there been any public outcry or substantial media covering of the looting of recently discovered Schnellbooote compared to previous incident.

Question .16

If this isn't is the case why in your personal opinion is the disturbances of German warships compared to British vessel more accepted.

Question .17

What legislation issues do you feel have arisen since the new discovery of these wrecks.

Question .18

How inclusive are you of local recreational diving clubs in the area in the decision process concerning these wrecks.

Question .19

What do you feel is the current general attitude around the local dive community concerning the events surrounding the recent looting of the fifth Schnellboote.

Question .20

Would you be in favour of encouraging and support the diving organisations' current educational campaign, and in particular, their Code of Practice and "Respect a Wreck "initiatives;

Question . 21

Do you have any additional comments you feel are important which concern this subject or opinions you would like to voice.

Diving Club Question:

Question .1

What was your involvement in the original four Schnellboote discovery near Langerland.

Question .2

Would you consider these wreck sites heritage?

Question .3

Do you feel a greater attraction to ships of German origin specifically from the Second World War, why is this?

Question.4

is there more stigma involved in the looting British vessel compared with German Second World War vessel, if so why is this. Is it due to the extra protection British ships are given?

Question .5

What is your feeling towards the events concerning the fifth Schnellboote during the summer.

Question .6

In your opinion what is the in the general consensus towards wreck sites in the wider recreational community.

Question .7

Do people general see diving as a hobby and archaeologist as taking the fun out of it, Majority consensus?

Question .8

How would you describe the presence of the local authorises in the local diving community.

Question .9

Do you feel a greater presence is need by the local museums, a isolationist policy, stuck in a bubble having no influence on a grass roots level.

Question .10

How inclusive do you feel the local authorities are of local stakeholders in the in the area in the decision process concerning these wrecks.

Question .11

Would you support any local initiatives that would meant your dive club took a more active role in the conversation and protection of underwater cultural heritage sites.

Question .12

If you found wreck tomorrow how would you go about reporting it? to local museum or the relevant national heritage agency.

Question .13

How you feel about the Committee of archaeology from the sports dykkerforbund?

Question .14

What is there influence at a grass roots level?

Question .15

Would you be in favour of encouraging and support the diving organisations' current educational campaign, and in particular, their Code of Practice and "Respect a Wreck "initiatives;

Question . 16

Do you have any additional comments you feel are important which concern this subject or opinions you would like to voice.

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