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5.10 Mine Warfare Vessels

5.10.1 Summary

The used international market for mine warfare vessels (MWVs) should be considered lucrative for prospective recipient navies that are in the market for MWVs from 2004 through 2013. Currently, 47 navies operate some type of MWV with several new entrants developing a mine warfare capability in the next decade. Although there are a large number of operators, only around 20 navies will have a requirement for such vessels in the 2004 through 2013 time period.

The United States, United Kingdom, India, Germany, France and Belgium could offer the most vessels on the international market with a potential 74 hulls. The total market could offer a potential of up to 141 vessels of all types of MWVs for resale from 2004 through 2013. From the recipient standpoint, only around 20 navies will have requirements for up to 85 total hulls of all types allowing for better selection.

The following table depicts those nations that must be considered prospective suppliers and prospective recipients for used vessels from 2004 through 2013:

Prospective Suppliers of Used MWVs (2004-2013)		Prospective Recipients of Used MWVs (2004-2013)	
Australia	Italy	Algeria	Latvia
Belgium	Netherlands	Argentina	Libya
China	Norway	Bangladesh	Lithuania
Denmark	South Korea	Bulgaria	Oman
Finland	Sweden	Croatia	Philippines
France	United Kingdom	Egypt	Portugal
Germany	United States	Estonia	Romania
India		Greece	South Africa
		Indonesia	Taiwan
		Kuwait	Yemen

5.10.2 Navies With Mine Warfare Vessel (MWV) Requirements

Many nations in the world operate mine warfare vessels (MWVs), however; only a minority of these vessels are built indigenously. For the purposes of this report, the MWV category will include mine countermeasures vessels (MCMVs) such as coastal minehunters (MHCs), ocean minesweepers (MSOs), inshore mine sweepers (MSIs) and minesweeping drones (MSDs) as well vessels utilized offensively such as minelayers (MLs) and coastal minelayers (MLCs).



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Most MWVs considered as candidates for transfer are well along in their 30-year life cycle with some exceeding the 30-year life cycle. Although advanced in age, some of these classes are still considered to be attractive alternatives for nations wishing to acquire a mine warfare capability.

The navies of the world that currently operate MWVs include:

- Albania
- Argentina
- Australia
- Bangladesh
- Belgium
- Brazil
- Bulgaria
- Canada
- China
- Croatia
- Denmark
- Egypt
- Estonia
- Finland
- France
- Georgia
- Germany
- Greece
- India
- Indonesia
- Italy
- Japan
- Latvia
- Libya
- Lithuania
- Malaysia
- Myanmar
- Netherlands
- Nigeria
- Norway
- Poland
- Romania
- Russia
- Saudi Arabia
- Singapore
- South Africa
- South Korea
- Spain
- Sweden
- Taiwan
- Thailand
- Turkey
- Ukraine
- United Kingdom
- United States
- Vietnam
- Yemen

Additionally, there are a handful of nations that may acquire a new MWV capability in the next decade (2004-2013). However, funding is the most critical issue on whether these programs come to fruition or these countries have to explore other alternatives, including the used international market. These nations include:

- Kuwait
- Oman
- Philippines

5.10.3 Prospective Suppliers

Generally speaking, the only nations that will be mentioned in this report as prospective suppliers are those navies that will be decommissioning MWVs from 2004 through 2013 that are between 20 and 35 years of age. Even though some classes are well advanced in age, they have been well maintained and modernized during their life cycle and must still be considered candidates in this market.

Prospective suppliers that may make MWVs available to the international market from 2004 through 2013 include:

- Australia
- Belgium
- China
- Denmark
- Finland
- France
- Germany
- India
- Italy
- Korea, South
- Netherlands
- Norway
- Sweden
- United Kingdom
- United States



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The potential suppliers of used MCMVs can offer a variety of small and large countermeasures vessels (MSI, MCD, MSD, MHI, MHC, MSC) as well as several classes of offensive mining vessels including MLs and MLCs. A review of the ship classes suggests that the largest numbers of vessels will originate from Europe from nations such as Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden and the United Kingdom.

In Europe, Germany has been the largest supplier in recent times with several classes of MHCs and MSIs passed along to nations such as Estonia and Latvia. Germany has the potential to decommission up to 14 additional vessels through 2020. The United Kingdom currently operates 22 vessels of the Hunt and Sandown classes and is likely to begin decommissioning some of these vessels as it continues to downsize the Royal Navy (RN). France may also offer some of its Eridan class MHCs and Vulcan class MCDs beginning around the end of the decade.

Finland looms large in the small MCMV category with up to thirteen potential MSIs that could be resold from 2004 through the next decade. Additionally, Finland has one Pohjamma class ML for offensive mining that could also be resold. Denmark has two Lindorman class MLCs that could be decommissioned and resold at any time.

Belgium with its eight Flower class MHCs, the Netherlands with its three Alkmaar class MHCs, Sweden with its myriad of MLs, and the recent announcement that Norway may be decommissioning two of its 1996-built Alta class MSCs round out the potential suppliers for the European continent.

Asia will also have several classes to offer including the South Korean Swallow class MHC that could become available from 2011 through 2013 with China potentially offering up to seventeen vessels of the T-43 and Wosao classes. However, the potential for the Chinese vessels to find a new home is unlikely.

The United States is probably the biggest unknown with twelve Osprey class MHCs and fourteen Avenger class MSOs. The United States Navy is currently involved in several programs that may alleviate the sea service from needing mission specific

MCMVs. The Littoral Combat Ship (LCS) Program, which is expected to commission its first unit by 2007, has a requirement for an MCM mission module enabling the vessel to be utilized as an MCMV. In addition, the sea service is also considering the prospect of developing an organic MCM capability for all surface vessels in order to reduce dependence on mission specific MCMVs. If both of these programs come to fruition, the US Navy will be in a position to decommission at least one class.

Australia currently has two Bay class MSIs that have already decommissioned and could potentially be used resold on the used international market. Further, in the last review conducted two recently built Huon class MCMVs may also be decommissioned. Japan, although an operator and possessor of MCMVs, by policy, does not export military equipment, but within the decade may become a factor in the used ship market.

Nations that currently operate MWVs that may be candidates for transfer to a recipient nation over the next decade (2004-2013) are listed as follows with the prospective decommissioning date, vessel class, number available and country:

Projected Years of Decommissioning	Class	Number Available	Country
Already Decommissioned	Bay MHI	2	Australia
2005-2006	Huon Class	2	Australia
2010-2015	Flower MHC	8	Belgium
2009-2014	T-43 MSO	9	China
2013-2018	Wosao MSC	7	China
Anytime	Lindorman MLC	2	Denmark
Anytime	Pohjanmaa ML	1	Finland
Anytime	Kuha MSI	6	Finland
2009-2014	Eridan MHC	13	France
2012-2016	Vulcain MCD	4	France
Already Decommissioned	Frauenlob MSI	4	Germany
2014-2020	Kulmbach MHC	5	Germany
2014-2020	Ensdorf MHC	5	Germany
2010-2015	Pondicherry MSO	12	India
2008-2012	Mahe MSI	5	India
2010-2014	Lerici MHC	4	Italy
Anytime	Alkmaar MHC	5	Netherlands
Anytime	Vidar ML	1	Norway
Anytime	Tyr ML	1	Norway
2004-2006	Alta MSC	2	Norway
2011-2015	Swallow MHC	6	South Korea
2012	Carlskrona ML	1	Sweden
2013	Furusund MLC	1	Sweden
2010-2016	Hunt MHC	11	United Kingdom
2010-2015	Osprey MHC	12	United States
2010-2015	Avenger MSO	14	United States

5.10.4 Prospective Recipients

As evidenced by the list of nations that have a MWV fleet, mine warfare is considered a real and important threat. However, if a country doesn't consider that it will need to ever set mines along its coastline as a defensive measure and that its contribution to a United Nation's coalition operation need not include laying or clearing mines, it may well be that most nations will continue to defer investments in a MWV fleet and in fact mothball their existing fleet.

There are strong indications that there will be many excellent classes available on the used ship market in the next ten years as evidenced by the above listing. This glut on the market may encourage some navies to consider to acquire a MWV fleet or at least renew their own.

Nations that have historically procured MWVs from the used international market and will continue to do so include:

- Argentina
- Bangladesh
- Bulgaria
- Egypt
- Estonia
- Indonesia
- Latvia
- Libya
- Lithuania
- South Africa
- Taiwan
- Yemen

In addition to the nations listed above, there are a growing number of nations that currently have new MWV programs planned, have had indigenous program in the past, or are planning indigenous programs. However, funding issues could eventually lead to a used ship solution. Navies that may need to utilize the used international market as an alternative to a new construction include:

- Algeria
- Croatia
- Greece
- Kuwait
- Oman
- Philippines
- Portugal
- Romania

5.10.5 Situational Assessment of Potential Recipient Navies

Algeria

The Algerian Navy is currently planning for a two-ship MCM force and is expected to order two new vessels by 2004 or 2005. In the event the Algerian Navy does not receive funding for the two new vessels, it could enter the international market for several used MCMVs.



Although the Algerian Navy has historically relied on the former Soviet Union/Russia for its naval requirements, a new MCMV could be Western supplied. Some of the candidates in the near-term could include the French Eridan class MHC, the Netherlands Alkmaar class MHC, or the United Kingdom Hunt class MHC in the near term. In the long-term several other options may emerge including the German Kulmbach and Ensdorf class MHCs, the Belgian Flower class MHC, and the Italian Lerici class MHC.

Argentina

The Argentine Navy currently operates two Neuquen (Ton) class MHCs (originally four) that were procured from the United Kingdom in 1967. These vessels are well beyond their effective service lives with the first two units decommissioning in 1997. According to Argentine Navy plans through 2010, the sea service plans to upgrade its MCM capability. However, funding limitations will force the Argentine Navy into a modernization program for the two existing Neuquen class MHCs or to the international market until a new MCMV can be acquired later in the next decade (around 2015).

Used vessel candidates from the international market may include the French Eridan class MHC or the Netherlands Alkmaar class MHC. In the long-term several other options may emerge including the German Kulmbach and Ensdorf class MHCs, the Belgian Flower class MHC, and the Italian Lerici class MHC.

Bangladesh

The Bangladeshi Navy currently operates four Shapla class MHCs built in 1985 as well as one Chinese-built T-43 class MSO. The Chinese T-43 was originally intended to be a class of four units, but funding restrictions by the Bangladeshi Navy has possibly terminated the procurement of new units.

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However, Bangladesh may be able to satisfy this requirement with the acquisition of used T-43s that have begun to enter the reserve status in the Chinese Navy. Due to Bangladesh severe funding limitations, the Chinese T-43 is probably its only option with the exception of Chinese Wosao class MSCs, which could be available beginning around 2013.

Bulgaria

Bulgaria is currently in the midst of transitioning from a former Warsaw Pact country to a North Atlantic Treaty Organization (NATO) member. As part of the transition, Bulgaria is also expected to transition its navy from former Soviet built naval vessels to those that are more interoperable with the new Western alliance. Although Bulgaria has plans for new corvettes, FAC, mine warfare and auxiliary vessels, an extremely small procurement budget for the rest of the decade suggests that the Bulgarian Navy may have to take interim steps to integrate with NATO.

Those interim steps probably include the acquisition of used vessels including MCMVs from the international market. In order to replace its Soviet era Briz (Sonya), Iscar and Yevgenya class MSCs, the Bulgarian Navy may attempt to acquire several types of MSCs as well as several MLs for offensive operations.

MCMV candidates could include the French Eridan class MHC, the Netherlands Alkmaar class MHC, or the United Kingdom Hunt class MHC in the near term.

In the event that the requirement is delayed and the final solution is a used vessel vice a new build program, options may include the German Kulmbach and Ensford class MHCs, the Belgian Flower class MHC, and the Italian Lerici class MHC.

To fulfill its ML requirements, the Bulgarian Navy could procure one of several units if available including the Danish Lindorman MLC, the Finnish Pohjanmaa ML, the Norwegian Vidar or Tyr ML, and the Swedish Carlskrona ML or Furusund MLC.

Croatia

Croatia currently has a requirement for a force of MCMVs to protect its coastal waterways. The Croatian Navy began an MCMV program in 1995 when it started the MPMB MHI program.



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However, a shortage of funds cancelled the program in 1999 as the sea service attempted to finish other higher priority programs such as new fast attack craft and mine layers.

With an extremely small naval budget, the Croatian Navy may investigate the used international market if it intends to realize an MCM force. Some of the candidates in the near-term include the Australian Bay class MHI, Finnish Kuha MSI, or the German Frauenlob MSI, or the Netherlands Alkmaar class.

Egypt

The Egyptian Navy is currently operating three Swiftships MHCs built by the US in 1997. In addition, the Egyptian Navy is operating four Yurka class and six T 43 class MSOs built by the former Soviet Union in the late 1960s and early 1970s. In order to better protect the strategic waterway of the Suez Canal, the Egyptian Navy wishes to replace the Soviet-era Yurka and T 43 classes by Western-built MCMVs similar to the three Swiftships MHCs in 1997.

However, funding limitations associated with the Foreign Military Assistance (FMA) programs offered by the US will probably prevent Egypt from procuring a new MCMV in the near term. These financial restrictions may force the Egyptian Navy to procure used vessels until a new

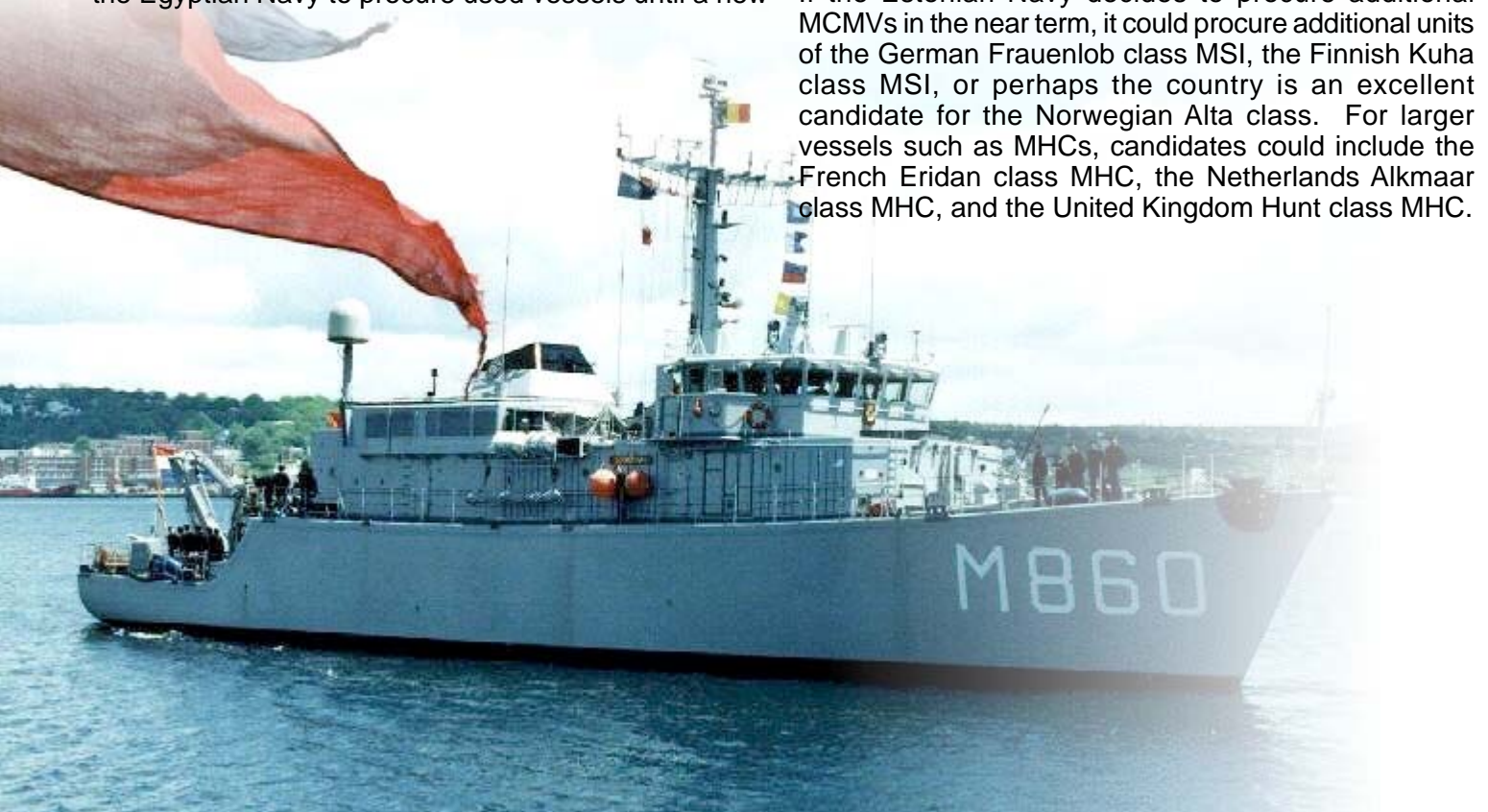
MCMV program can get started around 2012. Some of the candidates may include the French Eridan class MHC, the Netherlands Alkmaar class MHC, and the United Kingdom Hunt class MHC if any are decommissioned early. However, if the US decommissions any Osprey or Avenger class MCMVs early, Egypt would certainly be an excellent candidate to take advantage of their early decommissioning under an FMA program.

Estonia

The Estonian Navy is currently operating two Lindau class MHCs and two Frauenlob class MSIs that were built in the 1950s and 1960s. These vessels were transferred to the Estonian Navy by Germany from the late 1990s through 2000. These vessels were transferred to Estonia as a way to modernize its naval force following the nation's independence after the breakup of the Soviet Union in 1991.

Realizing that the major threat to the Baltic region is probably sea mines left over from World War II, Estonia will continue to maintain a strong interest in an MCMV force. With very little procurement funding over the next several decades, the Estonian Navy will maintain its MCMV force through the used international market.

If the Estonian Navy decides to procure additional MCMVs in the near term, it could procure additional units of the German Frauenlob class MSI, the Finnish Kuha class MSI, or perhaps the country is an excellent candidate for the Norwegian Alta class. For larger vessels such as MHCs, candidates could include the French Eridan class MHC, the Netherlands Alkmaar class MHC, and the United Kingdom Hunt class MHC.



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Greece

The Hellenic Navy currently operates a fleet of aging MCMVs including three Adjutant and eight Alkyon class MSCs built in the 1950s and 1960s. As an interim measure to a new MCMV program that continues to be delayed, the Hellenic Navy procured two United Kingdom Hunt class MHCs in 2000 and 2001. The Hellenic Navy continues to delay the MCMV program due to other high priority programs such as the new frigate.

As no shipbuilder in Greece has experience in building MCMVs and there is not a great export potential should they invest in the GRP facilities to build them, AMI considers that the Hellenic Navy will continue to satisfy its MCMV requirement from the used ship market. A confirmation of this reasoning can be seen in that the Navy is already discussing the potential acquisition of five Tripartite MHCs from the Dutch Navy. Should this transfer be approved it would still leave the fleet with three old vessels should they stick to their goal of a fleet of ten MCMVs. This requirement could easily be fulfilled on the used ship market and with the same design by seeking the French Eridan class or by returning to the Royal Navy for additional Hunt class MHCs.

Indonesia

Indonesia currently operates a fleet of six Kondor II class MSCs built in the 1970s and two Pulau Rengat class (Tripartite) class MHCs built in the 1980s. Current planning by the Indonesian Navy includes considerable increases in vessels of all types including submarines, corvettes, as well as amphibious and MCMVs.

However, funding is very limited with most funding tied up in the acquisition of new corvettes from the Netherlands and plans for the acquisition of two submarines from South Korea. These two programs alone will utilize the majority of the sea services budget for the next five years.

Due to the need for increased numbers of hulls of MCMVs, the Indonesian Navy will probably enter the used international market for new MCMVs over the next several years. Candidates could include any used vessels on the market that are in good material condition and the price and financing structure is within Indonesia's means. Some of the contenders may be the French Eridan class MHC, the Netherlands Alkmaar class MHC, and the South Korean Swallow MHC.

A major point that must be considered by Indonesia is the market itself, which will be restricted due to the international political climate, associated with the internal political situation, including East Timor, upheaval in the Aceh Province and most recently the foreign perception that Indonesia has not been completely forthcoming in its International War on Terrorism. These events will probably continue to plague Indonesia for the foreseeable future, restricting the market in which Indonesia can do business.

Kuwait

Kuwait continues planning for the introduction of an MCM capability in order to better protect its coastal waters from a mining threat. Although realizing that mining is considered a serious threat, other higher naval priorities continue to delay a new MCMV program, now believed to be delayed until around 2009.



If Kuwait desires to acquire an MCM capability before next decade (around 2015), it may utilize the used international market. Some of the candidates for the Kuwaiti Navy may include the French Eridan class MHC, the Netherlands Alkmaar class MHC, and the United Kingdom Hunt class MHC in the near term.

In the event that the requirement is delayed and the final solution is a used vessel vice a new build program, other options may include the German Kulmbach and Ensdorf class MHCs, the Belgian Flower class MHC, the Italian Lerici class MHC, the United Kingdom Hunt class MHC, and possibly the US Osprey class in 2006 and Avenger classes when if available later in the decade.

Latvia

The Latvian Navy is currently operating one Lindau class MHC and two Kondor II class MSCs that were built in the 1960s and 1970s as an interim measure until new vessels can be acquired by around 2012. These vessels were transferred to the Estonian Navy by Germany from 1993 through 2001. These vessels were transferred to Latvia as a way to modernize its naval force following the nation's independence following the breakup of the Soviet Union in 1991.

Realizing that the major threat to the Baltic region is probably sea mines left over from the Second World War II, Latvia is planning to maintain an MCMV force. With very little procurement funding over the next several decades except to conduct some modernization efforts, the Latvian Navy will probably satisfy its new MCMV requirement with used vessels from the international market.

If the Latvian Navy decides to procure additional MCMVs in the near term, it could procure additional units of the German Frauenlob class MSI and the Finnish Kuha class MSI. For larger vessels such as MHCs, candidates could include French Eridan class MHC, the Netherlands Alkmaar class MHC, the United Kingdom Hunt class MHC and the Norwegian Alta class.

Libya

Libya, being released from United Nations' sponsored international sanctions in late 2003, will begin to enter the naval market over the next several years. The Libyan Navy currently operates five ex-Soviet Natya class MSOs built in the 1970s with a further five units in reserve. These vessels were transferred from Russia between 1981 and 1986. Like most Soviet era equipment, these vessels are considered obsolete by

most modern naval standards and will need to be replaced.

Currently, Libya is planning for a modern Coast Guard with new coastal patrol vessel programs starting in the next several years. Following the formation of the Coast Guard, Libya will begin a modernization effort of its naval force. The Libyan Navy could begin looking for a replacement for the Natya class MSOs that have been largely non-operational since the late 1980s. With other priorities such as the Coast Guard and possibly the corvettes, the Libyan Navy may find it difficult to procure MCMVs in the near-term probably resulting in a used ship procurement.

If the Libyan Navy moves forward with the procurement of a Western MCMV, candidates will probably be of the larger MHCs on the market including the French Eridan class MHC, the Netherlands Alkmaar class MHC, the United Kingdom Hunt class MHC, or perhaps most likely the Italian Lerici class.

Lithuania

The Lithuanian Navy is currently operating two Lindau class MHCs that were built in the 1950s. These vessels were transferred to the Lithuanian Navy by Germany in 1999 and 2001. These vessels were transferred to Lithuania as a way to modernize its naval force following the nation's independence following the dissolving of the Soviet Union in 1991.

Realizing that the major threat to the Baltic region is probably sea mines left over from World War II, Lithuania will probably maintain an MCMV force. With very little procurement funding over the next several decades, the Lithuanian Navy will probably maintain its MCMV force through the used international market.



If the Lithuanian Navy decides to procure additional MCMVs in the near term, it could procure vessels such as those from Finland or two of the Norwegian Alta class.

In the event that the requirement is delayed through the end of the decade (2010), options may include the German Kulmbach and Ensndorf class MHCs or the Belgian Flower class MHC.

Oman

Oman continues planning for the introduction of an MCM capability in order to better protect the strategic waterway of the Strait of Hormuz. Although realizing that mining is considered a serious threat, other higher naval priorities continue to delay a new MCMV program, now believed to be around 2012.

If Oman desires to acquire an MCM capability before the middle of the next decade (around 2015), it may utilize the used international market. Some of the candidates for the Omani Navy may include the French Eridan class MHC, the Netherlands Alkmaar class MHC, and the United Kingdom Hunt class MHC in the near term.

In the event that the requirement is delayed by another decade and the final solution is a used vessel vice a new build program, options may include the German Kulmbach and Ensndorf class MHCs, the Belgian Flower class MHC, the Italian Lerici class MHC, and possibly the United Kingdom Hunt class MHC.

Philippines

The Republic of the Philippines is currently planning for up to six MCMVs under the Armed Forces of the Philippines Modernization Program (AFPMP) that began in 2000. However, insufficient funding since the AFPMP began has led to the delays of almost every naval program including the MCMVs. Although the AFPMP stipulates that no used military hardware can be acquired under the modernization program, the Philippine Navy may have no choice.

Funding is so restricted in the Philippines that a new MCMV cannot be considered realistic. If the Philippine Navy intends to acquire MCMVs, it will more than likely have to enter the used international market under the auspices of another program rather than the AFPMP. The Philippine Navy could begin looking for used MCMVs at anytime.

Candidates could include any used vessels on the market that are in good material condition and the price

and financing structure is within the Philippines means. Some of the available vessels from 2004 through 2013 include the already available Australian Bay class MHI, the South Korean Swallow class and perhaps some US Osprey class when decommissioned.

Portugal

The Portuguese Navy continues to plan for new MCMVs to replace its MCM force that was decommissioned in the 1970s. Although Portugal has a requirement for an MCM capability, limited procurement budgets have forced any MCM program to the bottom of the list. Submarines and OPVs are the top two priorities for the Portuguese Navy forcing a new MCMV well into the next decade. Even then funding will be extremely limited more than likely forcing the Portuguese Navy into the used international market.

Portugal, since it has no current MCM capability, could enter the market at anytime in order to capitalize on a good offer. Some of the candidates may include the French Eridan class MHC, the Netherlands Alkmaar class MHC, the United Kingdom Hunt class MHC, the US Osprey class in 2006 or the Avenger class if they become available by the end of the decade. If the requirement is delayed by at least another decade, additional options may include the German Kulmbach and Ensndorf class MHCs, the Belgian Flower class MHC, the Italian Lerici class MHC, and possibly the United Kingdom Hunt class MHC.

Romania

Romania is currently in the midst of procuring two Broadsword (Type 22 Batch 2) class frigates from the United Kingdom under a Romania/United Kingdom government-to-government agreement. Romania is taking delivery of used naval vessels from Western Europe in an attempt to update its naval forces along western lines since the nation was invited to join the North Atlantic Treaty Organization in 2002.

Romania will probably also begin looking to the used international market in order to replace its aging Democratia (M40) class MSCs that were built in the 1950s, and the Musca class in the 1980s. The Romanian Navy has been self sufficient in its production of mine warfare vessels, with construction of both classes, however, they are based on old former Soviet Union designs. As Romania is now a full member of NATO, like the acquisition of the Broadsword class frigates from the United Kingdom, it will probably attempt to acquire used MCMVs in the near-term until newer units can be procured well into the next decade.

Some of the candidates may include the French Eridan class MHC, the United Kingdom Hunt class MHC, the Netherlands Alkmaar class MHC, the US Osprey class in 2006 or the Avenger class if they become available by the end of the decade.

South Africa

The South African Navy currently operates four aging River class MHCs commissioned in the 1980s and two Lindau class MHCs commissioned in the 1950s. The latest procurement was for six Lindau class MHCs of which four are in reserve. The Lindau procurement was meant as an interim replacement for the two Ton class that were decommissioned in 2002.

The South African Navy is currently planning for up to ten multi-purpose Offshore Patrol Vessels (OPVs) with an MCM capability that will begin entering service after 2015. Due to the relative age of its current MCM force, the South African Navy may procure additional MCMVs from the used international market as another interim measure until the new OPVs enter service.

If the South African Navy should procure additional used vessels, candidates will probably include several units from the European continent, where the South African Armed Forces acquires the majority of its military equipment. South Africa would probably need these MCMVs in the near-term with the French Eridan class MHC, the Netherlands Alkmaar class MHC and the United Kingdom Hunt class MHC being the primary candidates.

Traditionally, South Africa has favored Germany in its naval procurements; however, additional modern MCMVs such as the Kulmbach and Ensdorf class MHCs may not become available until around 2014 unless the German Navy decommissions them early.

Taiwan

The Taiwanese Navy currently operates an aging force of Aggressive class MSOs and Adjutant class MSCs built in the US in the 1950s. In 1991, four units of the Yung Feng class were delivered from Germany as oil rig support ships and later converted to MHCs.

Taiwan, with its unique mine threat imposed by the Peoples Republic of China has a requirement for up to ten modern MCMVs, however, it has generally been low on the list of naval priorities. A new MCMV program will probably not start until around the end of the decade, however, if used vessels become available, the Taiwanese Navy would procure them.

Taiwan is probably watching developments in the US as the US Navy is currently developing the Littoral Combat Ship (LCS) that is expected to have inherent MCM capabilities. Additionally, the US Navy is also considering the prospect of developing an organic MCM capability for all surface vessels. These two programs could virtually alleviate any need by the US Navy for MCMVs in inventory freeing up the Osprey MHCs and Avenger MSOs. The Taiwanese Navy would probably consider these vessels as a first choice from the used international market as most other nations will not sell military armaments to Taiwan.

Yemen

The Yemeni Navy (YN) currently operates an aging force of Natya class MSOs and Yevgenya class MHCs built in the 1970s. Most of these vessels are non-operational due to limited funding for repairs. Yemen, however, has a requirement for an MCMV force for the protection of the strategic waterway of the Bab el Mandeb Strait.

The YN is currently in the process of procuring new patrol boats to modernize its patrol forces and will not have funding for new MCMVs for at least a decade. The YN will probably end up fulfilling this requirement from the used international market. Due to the importance of the Bab el Mandeb Strait, if the situation arises where the YN can take possession of used MCMVs at a much earlier date, it will probably do so if the terms and conditions are ideal.

Some of the candidates may be prospective classes that could be decommissioned at anytime including the Australian Bay class MHI, Finnish Kuha MSI, or the German Frauenlob class MSI.

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