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Lerici Class

Outlook

- No new production seen at this time
- Several ships of class are still on active duty around the world
- Strong maintenance and support market
- Feasibility study underway for replacement vessels

Orientation

Description. A mine countermeasures vessel (MCMV).

Sponsor

Navy Chief of Staff
Piazza della Marina
I-00196 Rome
Italy

Ministry of Defense
Malaysian Navy
Logistics Division
Jalan Padang Tembak
50634 Kuala Lumpur
Malaysia
Tel: + 60 3 292 1333
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The National Defense Authority Council
c/o Ministry of Defense
Independence Bldg
Tafawa Balewa Sq
PO Box 12590
Lagos
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United States Navy
Naval Sea Systems Command (NAVSEA)
2531 Jefferson Davis Hwy
Arlington, VA 22242-5160
USA
Tel: + 1 (703) 602-6920

Application. The Lerici and Gaeta classes are intended to provide clearance capability against the most sophisticated moored and influence mines.

Status. In service.

Total Produced. An estimated 44 ships of the Lerici and Gaeta class are believed to have been completed, with approximately 38 ships still in active service.

Lerici Class

Pennant List

<u>Ship</u>	<u>Nation</u>	<u>Builder</u>	<u>Ordered</u>	<u>Commissioned</u>
M82 <i>Huon</i>	Australia	Intermarine/ADI	6/1994	5/1999
M83 <i>Hawkesbury</i>	Australia	ADI	6/1994	2/2000
M84 <i>Norman</i>	Australia	ADI	6/1994	8/2000
M85 <i>Gascoyne</i>	Australia	ADI	6/1994	6/2001
M86 <i>Diamantina</i>	Australia	ADI	6/1994	5/2002
M87 <i>Yarra</i>	Australia	ADI	6/1994	3/2003
40 <i>Katanpää</i>	Finland	Intermarine, Sarzana	11/2006	5/2012
41 <i>Purunpää</i>	Finland	Intermarine, Sarzana	11/2006	8/2013
42 <i>Vahterpää</i>	Finland	Intermarine, Sarzana	11/2006	11/2016
M5550 <i>Lerici</i>	Italy	Intermarine	1/1978	5/1985 (placed in reserve by 2012)
M5551 <i>Sapri</i>	Italy	Intermarine	1/1978	5/1985 (placed in reserve by 2012)
M5552 <i>Milazzo</i>	Italy	Intermarine	1/1978	8/1985
M5553 <i>Vieste</i>	Italy	Intermarine	1/1978	12/1985
M5554 <i>Gaeta</i>	Italy	Intermarine	4/1987	10/1993
M5555 <i>Termoli</i>	Italy	Intermarine	4/1987	5/1993
M5556 <i>Alghero</i>	Italy	Intermarine	4/1987	5/1993
M5557 <i>Numana</i>	Italy	Intermarine	4/1987	6/1994
M5558 <i>Crotone</i>	Italy	Intermarine	4/1987	6/1994
M5560 <i>Viareggio</i>	Italy	Intermarine	4/1987	10/1996
M5561 <i>Chioggia</i>	Italy	Intermarine	9/1992	10/1997
M5562 <i>Rimini</i>	Italy	Intermarine	9/1992	11/1998
M11 <i>Mahamiru</i>	Malaysia	Intermarine	2/1981	12/1985
M12 <i>Jerai</i>	Malaysia	Intermarine	2/1981	12/1985
M13 <i>Ledang</i>	Malaysia	Intermarine	2/1981	12/1985
M14 <i>Kinabalu</i>	Malaysia	Intermarine	2/1981	12/1985
M371 <i>Ohue</i>	Nigeria	Intermarine	4/1983	5/1987
M372 <i>Marabai*</i>	Nigeria	Intermarine	5/1984	2/1988
561 <i>Kang Keong</i>	South Korea	Kangnam	1983	12/1986
562 <i>Kang Jin</i>	South Korea	Kangnam	1987	5/1991
563 <i>Ko Ryeong</i>	South Korea	Kangnam	1987	11/1991
565 <i>Kim Po</i>	South Korea	Kangnam	1989	4/1993
566 <i>Ko Chang</i>	South Korea	Kangnam	1989	10/1993
567 <i>Kum Wha</i>	South Korea	Kangnam	1989	4/1994
633 <i>Lat Ya</i>	Thailand	Intermarine	9/1996	3/1999
634 <i>Tha Din Daeng</i>	Thailand	Intermarine	9/1996	1/2000

* Some sources list this ship's name as *Barama*.

Application. Locating and neutralizing mines with the help of sonar and remotely controlled underwater vehicles, mainly in littoral waters and harbors.

Price Range. A sail-away price of about \$122.66 million was quoted for the Australian *Huon* versions in June 1994. Adjusted for inflation, this price would be \$255.61 million in January 2024.

Lerici Class**Contractors****Prime**

Rodriguez Cantieri Navali	http://www.intermarine.it/it/home , Via San Raieri 22, Messina, Italy, Tel: + 39 090 77651, Prime
Kangnam Corporation	http://www.kangnamship.co.kr , 71 Gupyeon-Ro 16 Beon-Gil, Sahu-Ku, Busan, Korea, South, Licensee
Thales Australia, Armaments & Ammunition	http://www.thalesgroup.com , 7 Murray Rose Ave, Sydney Olympic Park, New South Wales, Australia, Tel: + 61 2 9562 3333, Email: communications@thalesgroup.com , Licensee

Subcontractor

GMT, Grandi Motori Trieste (GMT) Wartsila	http://www.wartsila.com/ita/en/about , PO Box 497, Trieste, Italy (GMT Diesel Propulsion System)
Rheinmetall	http://www.rheinmetall.com/en , Rheinmetall Platz 1, Düsseldorf, Germany, Tel: + 49 211 473 01, Fax: + 49 211 473 4727, Email: info@rheinmetall-defence.com (7.62mm MG3 Machine Gun)
Rheinmetall Italia SpA	http://www.rheinmetall-defence.com , Via Affile 102, Rome, Italy, Tel: + 39 06 43611, Fax: + 39 06 4130830, Email: info@rheinmetall.it (20mm Cannon)
Rolls-Royce Power Systems AG	http://www.mtu-solutions.com , Maybachplatz 1, Postfach 2040, Friedrichshafen, Germany, Tel: + 49 7541 90 91, Fax: + 49 7541 90 5000, Email: info@mtu-online.com (Diesel Propulsion System)
Thales Underwater Systems	http://www.thalesgroup.com , 525 Route des Dolines, BP 157, Sophia Antipolis, France, Tel: + 33 4 92 96 30 00, Fax: + 33 4 92 96 41 24, Email: tus@thales-underwater.com (IBIS III (TSM 2021) Sonar)

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

Technical Data

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length	50 m (Gaeta 52.5 m)	164 ft (172.1 ft)
Beam	9.9 m	32.5 ft
Draft	2.6 m	8.6 ft
Displacement		
Standard		488 tons
Full load		520 tons
Performance		
Speed		
– Maximum	26 km/h	14 kt
– Hunting	11 km/h	6 kt
Range		
– Standard	2,800 km at 26 kmph	1,500 nm/14 kt
– With extra tanks	Up to 7,400 km/22 kmph	Up to 4,000 nm/12 kt
Crew	4 officers, 36 enlisted, 7 divers	

Lerici Class

	<u>Type</u>	<u>Quantity</u>
Armament		
Guns	20mm Oerlikon 7.62mm machine gun	1; Gaeta series onward, 2 2 (not on all)
Electronics		
Navigation radar	SMA SPN 728V(3)	1
Search radar	Datamat SMA SSN-714V(2)	1
Sonar	FIAR SQQ-14(IT) VDS	1
Machinery		
Diesels	Fincantieri GMT BL 230.8M	1x 1,985 hp
Secondary engines (hunting)	Isotta Fraschini ID 36 SS 6V (1,481 hp)	3x 480 hp
Propulsion	Controllable-pitch propeller, 1 shaft	1
Thrust props	1 forward, 2 aft	3
Thrusters	Riva Calzoni (hydraulic, 360-deg rotating)	3x 168 hp

Design Features. The hull was designed with excellent seagoing characteristics in mind and for optimum performance under sudden shock loadings. It was also designed for very low acoustic and magnetic signatures. The shock criteria require exceptionally high longitudinal strength to withstand the whipping resulting from undersea explosions. The hull is a single-skin monocoque structure with no longitudinal or transverse reinforcement other than the main bulkhead.

The main bulkheads are thin and tapered to flex under shock loadings. The machinery is mounted on cradles suspended from deckheads and bulkheads. The fuel and water tanks are installed clear of the hull and between the watertight bulkheads. When an undersea explosion occurs, the shock causes the hull to flex, but the isolated tanks and equipment remain clear and unaffected.

The ships are constructed of 140mm-thick glassfiber-reinforced plastic (GRP) using monocoque construction. This material offers a combination of shock resistance, rot resistance, and low magnetic signature. As with most minehunters, the armament is light. The first Lericis were equipped with only a single 20mm L70 Oerlikon gun; from the Gaeta series onward, the boats had two. For deployments, two more 20mm guns can be fitted.

The primary detection tool is the FIAR SQQ-14 sonar. This two-frequency variable-depth unit can be lowered from a well just forward of the superstructure to a depth of 45 meters (150 ft). It has two modes: Search, with a range of 915 meters (3,000 ft); and Classify, which enables the operator to classify any object that is detected.

An integrated ship system uses multifunction common consoles, allowing any console operator to access any of the combat and platform systems. The system integrates the tactical data system with the major platform and operational systems and includes the following features:

- Integrated control of the main and auxiliary propulsion systems. The integrated control system interfaces with the platform control and monitoring system
- Integrated control of all internal and external communications, including the transfer of messages and mine countermeasures data from the tactical consoles
- Multiple window displays on the tactical consoles presenting data from several sources simultaneously, which enables control by a single operator. Color coding of tactical data on the displays provides emphasis and warnings

The multifunction common console is installed on the bridge, together with the command presentation system and integrated control system, to monitor the tactical situation and ship movement when in automatic control and to enable the officer to take manual control when required.

The main elements of the integrated ship system, including the tactical data system, the combat system, the integrated control system, and the control and monitoring system, are interfaced, but they also function independently to minimize the risk of failure. The system allows the management of all the mine countermeasures activities, including mission planning, minehunting operations, mine disposal, and post-mission analysis.

Operational Characteristics. The minehunting operation requires accurate positioning and maneuvering in order to follow a predetermined track in the search phase and also to maintain position relative to a mine located on, or tethered to, the seabed.

The ships carry two Mine Identification and Neutralization (MIN) 77s – remotely controlled underwater vehicles that employ a closed-circuit TV

Lerici Class

camera and a variety of payloads, including a 90.9-kilogram (200-lb) explosive charge, explosive cutters, or a combination of the two. The MIN 77 can operate at a distance of up to some 250 meters (800 ft) from the mother ship and down to about 150 meters (500 ft) in the water. It uses a hydraulic motor, as opposed to the electric battery propulsion of the PAP 104.

Two cathode ray tubes in the mother ship's operations room allow the ship's personnel to control the MIN 77 and view its environment. Additionally, the ships are equipped with Oropesa Mk 4 mechanical sweep gear.

An interface with the Datamat SMA SSN-714 integrated navigation and tracking system generates a continuous plot of the ship's position and the position and track of surface and submerged targets. It also provides surface and underwater guidance for the minehunter and its remotely controlled submersibles. In addition, it interacts with the Motorola Mini Ranger III navigation system.

The minehunting sonar on the Huon class typically uses frequencies of 30 to 100 kHz for detection and 300 to 500 kHz for classification. The system achieves a

detection range greater than 1,000 meters and a classification range greater than 200 meters.

In the deployed mode, both frequencies of the search sonar operate simultaneously: the lower frequency covers mid-water to surface depths, and in the higher frequency, shorter wavelengths cover the seabed. The lower-frequency sonar provides image discrimination at a safe standoff range. The high-frequency and shorter wavelength sonar provides good discrimination and imaging even in conditions of high ambient reverberation.

The variable-depth sonar provides effective minehunting over a range of seabed types and depths, from shallow confined waters to deeper offshore areas. The beam of the variable-depth sonar is positioned at a very low grazing angle, giving an enhanced capability to detect mines that are partly buried in the seabed. The sonar is ideally suited for operation in tropical waters, where it can be lowered beneath the sea's thermal inversion layer to achieve the best coverage. A minehunting performance prediction system is incorporated into the sonar to optimize coverage in the most demanding sound velocity profile environments.



HMAS Hawkesbury

Source: Royal Australian Navy

Variants/Upgrades

Gaeta Class. Italy made significant changes to the Gaeta class ships. The overall length was increased to 52.5 meters and the tonnage was increased to 697 tonnes full load. Their minehunting sonar system was improved from the version offered on the Lericis, and was backfitted on those ships in 1991. The Gaeta class ships also have a third hydraulic system,

improved electrical generators, and the Gaymarine Pluto remotely controlled mine disposal unit, whose endurance and equipment have been upgraded from the earlier version. A new type of decompression chamber was built for the divers, and the magnetic signature was further reduced. The ships also have the MM/SSN-714 command and control system.

Lerici Class

Gaeta Plus. A new design is being studied, based largely on the existing Gaeta class, with modular units that can be added or deleted depending on the mission at hand. It is possible that this eventual follow-on to the Gaeta class will be different enough to justify its treatment as a separate class.

MCMV-2010. A further development of the Gaeta Plus design using the hull, machinery, and sensors of Gaeta Plus combined with a new superstructure that contains the minesweeping command and control system and the unmanned submersible control section. Illustrations of these ships indicate they may be armed with a 40mm or 57mm gun.

MITO. Finnish version of MCMV-2010.

Lerici Upgrade. Despite many proposals, the only change to the Italian ships has been the replacement of 20mm guns with 25mm weapons.

Huon Class. These ships differ from the Gaeta class in that their mine warfare operations are built around a Thales Underwater Systems integrated MCM combat suite, including the Type 2093 VD sonar (also from Thales) and a five-console Nautis-IIM tactical data system that is interoperable with BAE Australia's PRISM electronic support measures (ESM) system. The ships carry a version of the Swedish SUTEC Double Eagle submersible mine-disposal vehicle. An ADI mechanical sweep is provided for minesweeping missions, but provision exists for the Mini-Dyad influence sweep. An MSI Defence DS-30B 30mm gun is provided for self-defense, along with the PRISM ESM set and two Super Barricade chaff/infrared decoy launchers by ML Aviation. A rigid-hull inflatable boat, an inflatable diving boat, and a decompression chamber are provided for a diving team of six.

Thales has developed a new high-resolution mine-imaging sonar for the Huon class. This incorporates the ultrasonic system on the remotely operated vehicles. The system reportedly produces three-dimensional, video-quality images of mines and other objects on the seabed at ranges up to 10 meters (33 ft). The resolution capability is said to be extremely high, showing even the individual screws on a mine.

Lat Ya. The Thai Lerici class ships are equipped with the STN-Atlas Elektronik DSQS-11M. The command system for MCM missions is the MWS-80, also from STN, and the communications suite comes from Rohde & Schwarz. The ships use two Idrobotica Pluto Plus mine-disposal vehicles each and are armed with an MSI Defence 30mm gun. The Royal Thai Navy specified a sweep speed of 10 knots for the vessels; hunting speed is 6 knots.

Lerici II Class. Alternate designation for the Gaeta class.

Mahamiru. The propulsion systems, armament, radar and sonar systems on the Malaysian versions differ from Italy's original Lerici design. For propulsion, the ships have two MTU 12V396 TC82 (DB512) diesel engines providing 2,394 hp to two controllable-pitch propellers for a top speed of 16 knots and a maximum range of 1,400 nautical miles at 14 knots. The ships have a 40mm/70 AA gun in place of the 20mm gun, a Decca 1226 radar, and a Thomson TSM-2022 sonar. The length is 51 meters (167.3 ft) and the displacement 610 tonnes – basically the same as the specifications for the Gaeta and later ships. In 1994, the Royal Malaysian Navy was considering upgrading the hunters with significant improvements to the tactical data and communications systems. This upgrade was completed in 2001.

Ohue. Nigeria changed the armament, propulsion, radar, and sonar systems of this class while still basing it on the Lerici design. In addition to the standard dual 30mm Emerlec AA gun, the Ohue ships carry two Oerlikon 20mm guns. The propulsion system consists of two MTU 12V396 TC83 diesels powering two waterjets. However, on the Italian and Malaysian versions, no separate hydraulic minehunting propulsion system (bowthruster) is provided. The radar is an ST7/DG and the sonar is a minehunting TSM-1022 unit.

Osprey. The U.S. Navy has made the most drastic changes in the design, making these ships a class of their own. The specifications are provided in an archived report, "MHC-51 Osprey Class," available on request to subscribers of this forecast, and in the *Warships Forecast* Archives at: <http://www.forecastinternational.com>

Swallow (Kang Keong). South Korea has built six ships of its version of the Lerici, designated the Swallow class, presumably independently of Intermarine (now Rodriquez Cantieri Navali). The 520-tonne Korean ships are powered by two MTU diesels producing either 1,600 or 2,040 hp (depending on the source), while the two Z-drive bowthrusters are propelled by a 102-hp engine.

The sonar is a Plessey 193M Mod 1 or Mod 3 minehunting system, and the armament consists of an Oerlikon 20mm AA gun plus two 7.62mm machine guns.

A contract for the supply of eight ships of this class to the Indian Navy had been signed but was subsequently canceled in December 2014, amid allegations of contractual irregularities.

Lerici Class**Program Review**

Background. The Italian Naval Law of 1975 authorized a modern force of 10 minehunters. Design competitions were held in 1976 and 1977, and the Italian Navy chose a design from Intermarine. Four ships were ordered in April 1978. After some unusual problems, *Lerici* was completed in 1983 and went to sea for trials. She commissioned in March 1985, and by the end of that year, the remaining three Italian ships were all in service. In the meantime, other navies expressed an interest in the Lerici class. In February 1981, Malaysia ordered four ships.

The Nigerian Navy ordered one in April 1983 and another in May 1985. The first Nigerian ship, the *Ohue*, was commissioned in May 1987, and the *Marabai* was commissioned in February 1988. The ships were non-operational in 1996, but were refitted in time to undertake operations off the coast of Liberia in 1999. They have subsequently been refitted again.

Improving the Design

In 1983, the Italian Navy decided to end the Lerici class at four ships and move on to an improved vessel, the Gaeta class. Italy decided to build six ships to this new design. The new ships were to be longer than the Lericis, with more advanced minehunting and destruction equipment and a slightly longer operating range. The Italian Navy planned to order the Gaetas in 1984. Cost overruns in other programs, however, delayed procurement. In 1986, the Italians announced that the newer design would comprise eight ships, but no orders were placed until 1987.

Meanwhile, in 1983, the U.S. Navy held a design competition to determine the builder of its new MSH-1 minesweeper/hunter class. After problems surfaced with the winning design, Congress directed the Navy to use Marinette Marine's design, with the first ship to be built in the United States using Italian plans. The result was the launch of the Navy's MHC-51 Osprey class coastal minehunter program.

Several other navies began negotiations with Italy in 1986 and 1987 for either licensed production or procurement of the Lerici design. Italy and the Republic of Korea began exploratory talks, but these were broken off later. In 1988, the South Korean Navy accepted its first SK 5000 Swallow class minehunter for sea trials. Little has been reported about the program, but the South Koreans are believed to have built the ships without the cooperation of, or a licensing agreement from, Intermarine. The initial program was terminated at six ships. Currently, the design is offered

for export by Kangnam Corporation, but the extent to which it derives from the original design is unclear.

In April 1987, three Lerici class minehunters were sent to the Persian Gulf as part of an Italian task force taking part in international naval operations in the region. The Italian Navy ordered six Gaeta class minehunters in April 1987. Shortly afterward, two more Gaeta class ships were ordered from the builder, but were canceled in July 1992. They were re-ordered in 1993, however, and the first of the pair was launched in May 1994 and commissioned two years later.

Australians Pick Gaeta

Following a Force Structure Review in 1991, the Royal Australian Navy selected the Huon class for its future minehunter. The ship is based on the Gaeta design. The minehunters were built by ADI at its minehunter construction facility in Newcastle, Australia, under a \$717 million contract awarded in August 1994. Total cost for the program, including initial spare parts inventory and crew training, was pegged at about \$900 million. The hull for the first ship of the series was built by Intermarine SpA at its Sarzana shipyard in Italy and carried on board a freighter to ADI in the summer of 1995. Technically, Intermarine is the principal subcontractor and design partner for the Huon program. ADI built the remaining five hulls in Australia under a technology transfer agreement. Local (Australian) content for the ships is estimated to be 70 percent, thus exceeding the original target of 60 percent.

The first ship was officially launched on July 25, 1997, and began sea trials in June 1998. Week-long harbor trials were completed at the beginning of November.

The second ship was launched in April 1998, at which point the hull of the third of the series had already been built. The fourth ship's keel was laid down in September 1997 and the fifth's in August 1998. The last of the series, HMAS *Yarra*, was completed on schedule in September 2002.

The Royal Thai Navy lodged Invitations to Tender bids for coastal minehunter/sweepers on April 3, 1996. An order was placed on September 19 for an initial two ships valued at about \$120 million. The ships are slightly heavier than Italy's Gaetas – 697 tonnes full load. The first ship was launched on March 30 and the second on October 31, 1998. The first ship, the *Lat Ya*, was commissioned in March 1999, and the second was in service by January 2001. A projected third ship of

Lerici Class

this class was never ordered, due to the Asian economic crisis.

The four Malaysian Navy Lerici class minehunters took part in the five-nation Exercise Starfish, winning substantial praise for the effectiveness of their mine clearance operations. Shortly afterward, the Malaysian Navy announced that it would upgrade the ships with a new tactical data-handling system and would be seeking bids for four new coastal minehunters to enter service between 2001 and 2006. The proposed upgrade took place and was completed by mid-2001, but plans for future construction appear to have been abandoned.

Order from Finland

In November 2006, the Finnish Navy selected a variant of the Italian Gaeta class minehunter to satisfy its requirement for three new mine countermeasures vessels. The construction of the first vessel began in July 2007 with the "start of lamination" ceremony, which, for vessels built of composite materials, equals the "first steel cut" ceremony. Construction of the second vessel was started in March 2009 and the third, February 2009.

The construction of the first vessel was delayed by one year after the shipyard was devastated by a flood in early 2009. A second flood occurred in late 2009, but the damage was not as extensive. The first vessel began sea trials in March 2011, but these revealed problems that delayed delivery until mid-2012. The second and third vessels were to be delivered later in 2012. All three Finnish MCMVs were delayed a further year by unspecified problems with their onboard systems, and the last of the three entered service in 2014. The ships are expected to remain in service until 2040-2042.

Two years later, the Indian Navy issued a Request for Proposals (RFP) for eight oceangoing MCMVs, with the order having a total value of \$1.4 billion. The RFP was issued to DCNS, Fincantieri, Navantia, Kangnam, and Northrop Grumman. The first two ships would be built at the winning company's home yard, while the remaining six would be built at India's Goa Shipyard.

In March 2011, the Indian Navy selected the South Korean Kangnam Corporation as the preferred supplier of these eight mine countermeasures vessels. Two MCMVs were to have been built in South Korea, while the remaining six would have been built by Goa Shipyard Ltd under license. Kangnam Corp was to deliver the first two MCMVs by 2016, after which user trials and acceptance would take place. Italy's Rodriguez Cantieri Navali, which was also part of the technically qualified shortlist, was beaten by Kangnam on price when the commercial bids were opened.

By late 2014, the contract for these minehunters still had not been signed and allegations of corruption were beginning to swirl around the negotiations. In fairness, in Indian terms "corruption" can frequently be read as "politically inconvenient." The Indian Navy strongly opposed any cancellation of the contract, stating that the minehunters were desperately needed and acquiring them was a top priority. Despite these pleas, the Indian MoD was understood to be favoring the cancellation of this contract and replacing it with an indigenous design to be built at Goa. The cancellation was officially announced in December 2014.

Trouble in Taiwan

An unexpected development was a decision by the Taiwanese government to order six Lerici II class minehunters from the Intermarine yard in La Spezia. The first ship would be built by Intermarine and sailed to the Kaohsiung yard operated by Ching Fu Shipbuilding. There, it would be fitted with minehunting and command systems by Lockheed Martin Mission Systems. These systems would include an Atlas Elektronik remote sweeping system and a Thales mine detection sonar. The remaining five ships would be assembled at the Kaohsiung yard. This program has been designated Project 242 in Taiwan.

Throughout 2017 and 2018 there were allegations of irregularities in the execution of the Lerici contract. These led to government action against the company management and a takeover by creditor banks of the financial management of Ching Fu Shipbuilding. As a result of these developments, the Ministry of National Defense (MND) terminated the multibillion-dollar contract to build the minesweepers because the company breached the contractual terms of the order.

There is no information on how these problems affect the single ship being built in Italy, and this ship is not mentioned in current company material. Photographs of the dockyard taken in March 2020 show that the ship remained unlaunched on its slipway. Usually in such cases, the shipyard sells the hull to another user at a highly discounted rate.

There have been rumors in the naval industry that Intermarine received another order for MCMVs shortly after Taiwan announced its selection of the Intermarine product. There has been no confirmation of this and the alleged customer has not been identified, although Indonesia is known to be interested in replacing its two MCMVs.

Lerici Class***Taiwan Shipbuilder Sentenced to 25 years in Navy Minesweeper Scandal***

In September 2019 it was reported in *Taiwan News* that the owner of one of Taiwan's main shipbuilding companies had been sentenced to 25 years in prison for fraudulently obtaining loans from banks to invest in China instead of building minesweepers for the Navy. The verdict included a fine of \$3.38 million for Ching Fu Shipbuilding Company Chairman Chen Ching-nan, a fine of \$9 million for the company, an 18-month jail sentence for Chen's wife, and a sentence of six months

for a former executive director. One company adviser was found not guilty. The Kaohsiung District Court took more than a year to reach the verdicts.

Italian Navy Looks to Replace Current Minehunters

In February 2021, Intermarine announced it had signed a contract to look into a new minehunter for the Italian Navy. The study will look into the feasibility of constructing 12 new minehunters to replace the Italian Navy's current four Lerici class (two are in reserve) and eight Gaeta class minehunters.

Funding

This program is funded by the navy of each country that procures the class.

Contracts/Orders & Options

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
ADI	736.0	Jun 1994 – Australian MoD order for six ships to be equipped with the Type 2093 sonar and Nautis-M mine warfare system.
SUTEC	N/A	Feb 1995 – Royal Australian Navy contract for 12 Double Eagle mine disposal vehicles.
Isotta Fraschini	8.96	Feb 1995 – ADI contract for 18 diesel engines for Australia's Huon class minehunters.
Intermarine	120.0	Sep 19, 1996 – Order from the Royal Thai Navy for two Gaetas for delivery in 1998 and 1999.
SMA (Scientific Management Associates Pty)	3.0	Summer 1997 – Contract for 41 PC-based simulation packages using Rapid, an object-based simulation tool developed by Emultek of the United States. Used for initial training in Newcastle and at MWS in Sydney.
EUROATLAS	N/A	Summer 1997 – Electrical conversion equipment for the two Thai ships.
BAE Systems	4.93	Jun 2000 – Combat system equipment and software support.
Thales	N/A	Jan 2006 – Supply of TSM-2022 Mk III systems as retrofit for Malaysian Lerici class.
Kongsberg	29.4	Apr 2006 – Supply of Hugin autonomous underwater vehicles for MCMV-2010.
Fincantieri	N/A	Nov 2006 – MCMV-2010 ships for Finland.
L-3 Klein	N/A	Aug 2007 – Klein 5000 sidescan sonars for Finnish MCMV-2010 class.
Saab	11.4	Sep 2007 – Supply of Double Eagle UUVs for MCMV-2010s.

N/A = Not Available

Lerici Class

Worldwide Distribution/Inventories

Below is a list of ships believed to be in active service:

Algeria	3 El-Kasseh
Australia	6 Huon (two held in reserve)
Finland	3 Katanpää in service
Italy	2 Lerici 2 Lerici in reserve 8 Gaeta
Malaysia	4 Mahamiru
Nigeria	2 Ohue
South Korea	6 Swallow/Kang Keong/Ganggyeong
Thailand	2 Lat Ya

Forecast Rationale

The Gaeta version of the Lerici class minehunters is the last survivor of the wide range of ships in this class that went on offer in the late 1970s and early 1980s. At that time, the search, classification, and disposal technologies used by mine countermeasures vessels (MCMV) were determined by the need to counter the most advanced naval mines available and took note of the possibility that those mines might have a nuclear payload. The technologies used on these ships have now been replaced by standoff minehunting using remotely navigated vehicles. This means that the ships

assigned to mine clearance no longer have to move into uncleared areas to dispose of mines. As a result, the elaborate and expensive construction techniques needed to suppress MCMV signatures are no longer necessary.

Although ships of the Lerici class are no longer being built (any current variants are so far from the original design that they have been designated as a separate class), a number of them are in active service with several world navies, which lends itself to a strong operation and support market.