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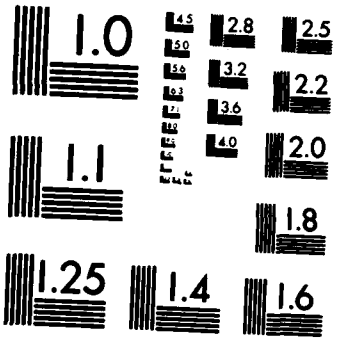

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TITLE: THE MATKA CLASS
NEW ORIENTATION IN SOVIET MISSILE BOAT DEVELOPMENT

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THE MATKA CLASS

NEW ORIENTATION IN SOVIET MISSILE BOAT DEVELOPMENT

[Breyer, S.; Die Matka Klasse: Neuorientierung in der Sowjetischen FK-Schnellboot-Entwicklung; Soldat und Technik, No. 1, 1983, pp. 32-35; German]

Twenty-one years ago the Soviet Navy presented, on the annual "Navy Day" at Leningrad, a new type of combatant: antiship-missile craft the size of PT boats, represented by units of the KOMAR and OSA Classes. This scenario resembled a sort of world premiere: there was actually nothing comparable up to that time. That was the introduction of missiles into the coastal forces. The Soviets could be justifiably proud that they had succeeded in developing before any other technologically advanced nation an antiship-missile weapon system and, in addition, putting it aboard units which were previously considered far too small. The fast boat therefore experienced a re-evaluation seldom recorded in the development of types of combatants. It became obvious that it could now take on larger opponents--like destroyers--in combat without getting within range of their guns. This development begun by the Soviet Union can be explained by the special geographical conditions with which her navy has to deal. The essential correctness of this route was proven in October 1967, when a Soviet KOMAR-Class boat belonging to the Egyptian Navy hit and sank the Israeli destroyer EILAT with SS-N-2 missiles. /32*

Meanwhile, the KOMAR-Class units have been long since retired (only a few examples can still be found in some navies which the Soviet Union supplies with ships). On the other hand, two variants evolved early on from the OSA Class, namely the original with the SS-N-2A surface-to-surface missile system and another boat equipped with the improved SS-N-2B, for which reason NATO has distinguished since then between OSA I and OSA II. Both are the same in design, including external dimensions, form factors, and secondary armament; nevertheless, the OSA II Class weighs an additional 40/35 t (relating to standard/operational displacement). But it is difficult to determine what is responsible for the extra weight, especially if one starts with the assumption, based on the unaltered external dimensions, that no additional space is available for new, weight-increasing equipment, such as additional electronics or larger diesel fuel reserves to extend the range. The improved SS-N-2B missile system might be a little heavier than its predecessor, although the launch weight of the SS-N-2A and SS-N-2B appears to be equal. Only the propulsion plant remains, therefore, as a possible explanation. Her performance output of 2,200 kW (3,000 hp) is greater than that of the OSA I. Compared to OSA-I boats equipped with three M 504 diesels with a combined output of 8,800 kW (12,000 hp), the OSA-II boats have the same number of engines of the improved model 503A with a combined output of 11,000 kW (15,000 hp). It appears that the Soviets were less concerned with increasing the absolute top speed than enhancing the maximum cruising speed. /33

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*Numbers in right margin indicate pagination in original text.

The external distinguishing feature between OSA I and OSA II is the shape of the missile launch tube. The former have a form stressing its width with a somewhat flat-elliptical cross-section covering its supports. These launch tubes appear smaller on the OSA II Class because they are cylindrical and their supports are outside of the housing. The cylindrical shape is modified by a guide slot for tilting the launch tube up. The controls for the vertical stabilizer of the missile at launch are in this slot. The 15 strengthening ribs around this launch tube are also a special characteristic. That it was possible to size these containers--it was initially and erroneously suspected that they could be lowered until they were flat on the deck--considerably smaller (especially in their estimated inner diameter of about 1.75 m compared to about 2.60 m for the OSA I) was made possible by equipping the SS-N-2B missiles with stub wings which assume flight position immediately after being launched from the launch tube, probably activated by an appropriate spring system.

Several years ago the OSA II Class was upgraded and an unknown number of boats have been rearmed with a SAM weapon system. This weapon system is a naval version of the one-man weapon used by the Army under the Soviet designation STRELA.* A mount has been developed expressly for its use /34

*For the Army, NATO designates the system SA-7 and the missile itself GRAIL; the naval version is SA-N-5. According to Jane's Weapon Systems 1981-82, they have a range of 9,000 to 10,000 m.

aboard small naval units, which seems to consist of a 360° swivel base with a movable double pair of forks, into which four ready-to-fire STRELAs can be latched. These missiles are only 1.29 m long and weigh under 20 kg. It wasn't easy to find a suitable position for them: the superstructure deck behind the deckhouse with the DRUM TILT AA fire-control radar was extended in a semicircle and the quad launcher was installed on it. It can fairly certainly be assumed that several STRELA reloads are aboard. Either the previously-mentioned deckhouse or special boxes on the backside of the superstructure deck could be used as a magazine. Boats armed in this manner might have real survivability vis-à-vis low-flying, slow aircraft and helicopters, and this makes them especially suitable for operations in sea areas with a strong air defense.

Currently there are 65 OSA Is and 40 OSA IIs in active service; it can be assumed that the oldest OSA I units have completed more than 20 years of active service and are therefore approaching the end of their service life. Their decommissioning in the '80s should therefore by all means be taken into account. This does not yet apply to the OSA II Class, for it is assumed that the majority of the boats are "middle-aged". Nevertheless, there is already a question about their replacement. This is to be seen in the newly-developed hydrofoil boat whose NATO designation is MATKA.* Such a boat was

*The SARANCHA Class is disregarded here, because it was a single unit which did not go into series production, and therefore must be regarded as an experimental type.

observed for the first time in the spring of 1978 in the eastern Baltic by aircraft of the Swedish Air Force, and apparently she was the first unit of this new class during a trial run, because important elements of her electronic equipment were still missing.

This boat might have been begun about 1976/77; the builder is the Izhora Yard in Leningrad, which seems to have specialized in hydrofoils. Eight boats were finished by the spring of 1982, according to the latest naval handbooks; this would indicate a building rate of about one boat per year. It can't be considered a series production in the usual sense yet, especially since the capacity of this yard doubtless permits a higher building rate. One explanation for that would be that the gradually-decommissioned OSA-I boats are merely being replaced by the MATKAs for the present and the building rate has been adjusted to the requirements. For the future, this would mean a long-term coexistence of OSA-II and MATKA units. Logistically, but also concerning training and tactics, this presents no problems, especially since the main weapon systems and propulsion plants on both classes appear to be largely identical.

Structurally, the MATKA Class is related to the TURYA Class, which is another derivation of the OSA Class.* The hydrofoil system is the same

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*The OSA Class is, so to speak, the progenitor of a whole generation of Soviet combatants: SHERSHEN (torpedo-boat), STENKA (ASW), OSA F (command boat), OSA-T (target boat), SLEPEN (experimental boat), and TURYA (torpedo boat).

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on both classes: a solid construction about 15 m wide, semicircular, supported in several places against the half-submerged forward hull, control flaps aft. In places the upper deck is widened like a platform, more so in the area by the hydrofoils, and less so by the missile launch tubes. It is primarily to deflect water thrown up at higher speeds by the extended hydrofoils away from the hull; loss of speed from water coming over is apparently avoided in this manner.

The compact superstructure deck has a length of about 22 m and the forward half is 6 m wide; the aft half tapers from a width of 4 m to 2 m because the outline of this deck follows the missile launch tubes, which diverge from the longitudinal axis of the boat--therefore tapering aft. Forward is the extensively-closed pilot house, on which the fire control and other electronics are located. Behind the pilot house is a multibase lattice mast with a lattice topmast. This mast has a somewhat original shape, inasmuch as it has a gantry-shaped base, on the middle of which the forward vertical leg is erected. Supposedly an unimpeded access to the base was desired thereby, where a box-shaped structure of unknown function is located. /35
There is a trough ventilator to the engine rooms in front of and behind the mast, and behind that is a lightly-built tripod radio mast.

The armament consists of two SS-N-2B surface-to-surface missiles in two launch tubes; these are at about 5° from the longitudinal axis of the boat and tilted up about 6° forward. Blast shields are not necessary, because there are no installations aft of the launch tubes requiring protection from

the launch blast. Thus the offensive potential has been cut in half compared to the OSA Class, but the increase in modern, effective guns appears to justify this step, and is moreover up-to-date--after being undervalued for years, light- and medium-caliber guns have regained their original significance. Positioned forward is one of the new 76.2-mm guns, with a firing rate of 120 rounds/min and an effective range of 6,000 to 7,000 m, and positioned aft is an ADMG 630 automatic AA weapons.* Both

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*ADMG is an acronym for "Air Defense Machine Gun". The number 630 indicates six barrels of 30-mm caliber in a Gatling configuration.

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are directed by the fire-control radar located on the pilot house. In practice, this seems to mean that only one target at a time can be taken under fire. It might be that the aforementioned new 76.2-mm gun can be controlled from the turret (which, in view of the absence of indications, is improbable) and/or there is a supplementary optical gunsight available. What is to be seen directly behind the light tripod mast looks more like a mount base for four SA-N-5 SAMs than a gunsight. This statement contains a certain logic: if it was worth rearming the OSA II Class with the SA-N-5 weapon system, then this applies equally well to the essentially newer MATKA, and therefore it might also have such a system.

The electronics are to a large extent new. They consist of a PLANK SHAVE target designator radar on the mast head, a CHEESE CAKE radome for sea surveillance on the starboard side of the pilot house, a BASS TILT AA fire-control radar, one HIGH POLE B and one SQUARE HEAD antenna each for IFF, and a CAGE BARE for radio communication. There are also two 16-celled chaff launchers near the aft mast, and each diverges from the longitudinal axis of the boat and has a built-in elevation angle. With the exception of SLEPEN (see footnote 3), the MATKA Class represents the first small combatant of the Soviet Navy to be equipped with this chaff system. It might be concluded that this promises to prove itself on such small units.

In conclusion, the following can be stated from what is currently known about this new missile boat class:

1. The renunciation of half of the offensive potential of the OSA Class and the considerable upgrading of the guns make the MATKA Class a more balanced combatant than embodied in the OSA Class. In contrast to OSAs, MATKAs are better able to withstand combat situations in which the employment of missiles is not contemplated for any reason and in which the guns only would be used, or used at first.

2. The possibility cannot be discounted that the MATKA Class will be reamred at a later date with the improved SS-N-2C surface-to-surface missile system, whose range is greater than that of its predecessors.

3. The hydrofoil system might make the MATKA Class a somewhat more stable weapon platform, even though, on the other hand, it follows that sea conditions limit the utilization of this type of construction.

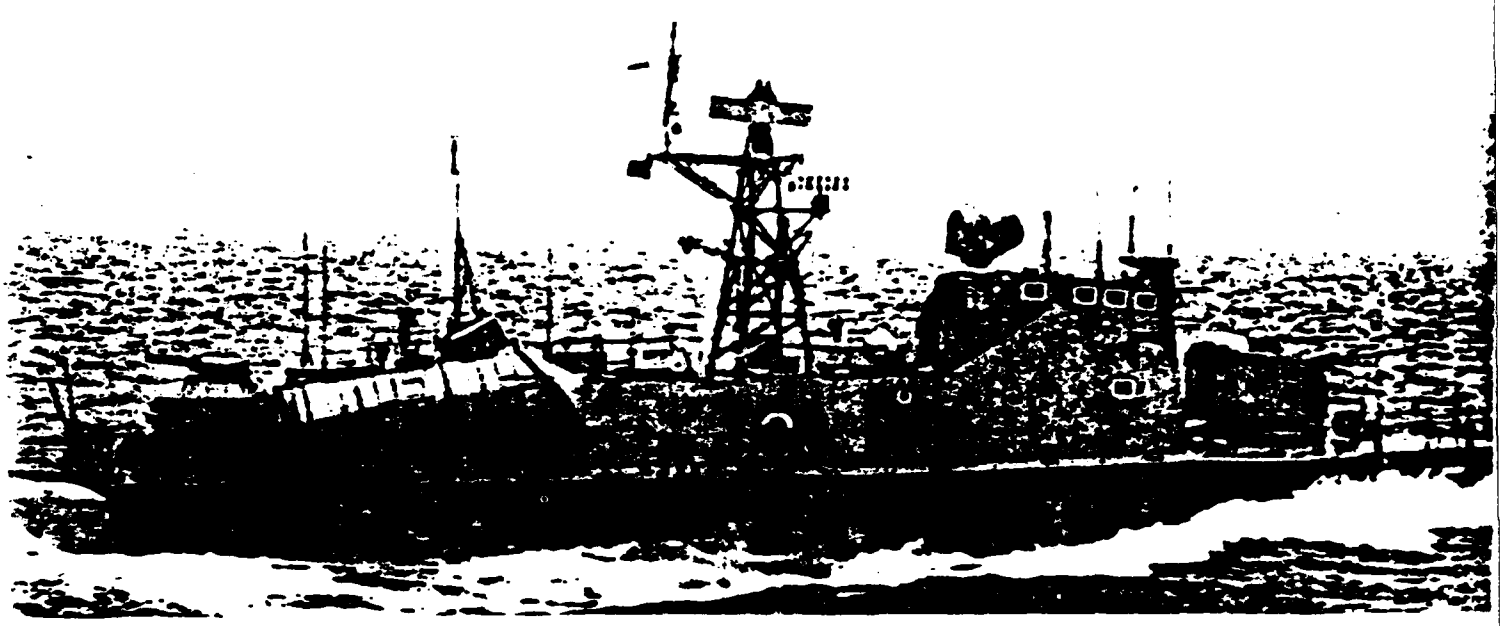
4. The speed of this new class is significantly higher, thanks to the hydrofoil system, resulting in the possibility of tactical advantages.

5. Finally, there is improved survivability deriving from the availability of more effective AA defensive systems.

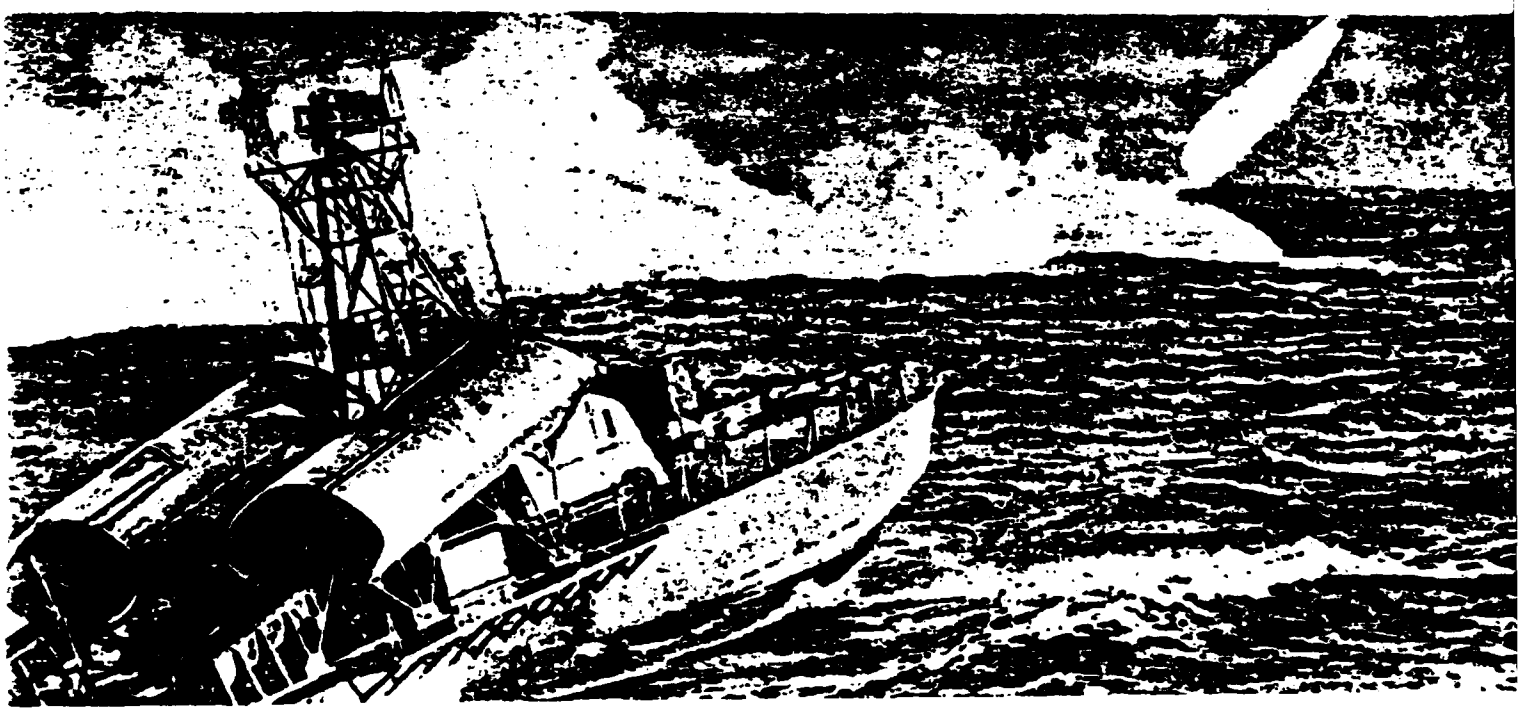
If one attempts to summarize this well-known new orientation of Soviet missile-boat development, the possibility clearly emerges that another standard type of the Soviet Navy is developing in this MATKA Class as the second generation of its species. The development of further small missile boats like the TARANTUL Class will have to be closely observed.

Military-Technical Data on the MATKA Class

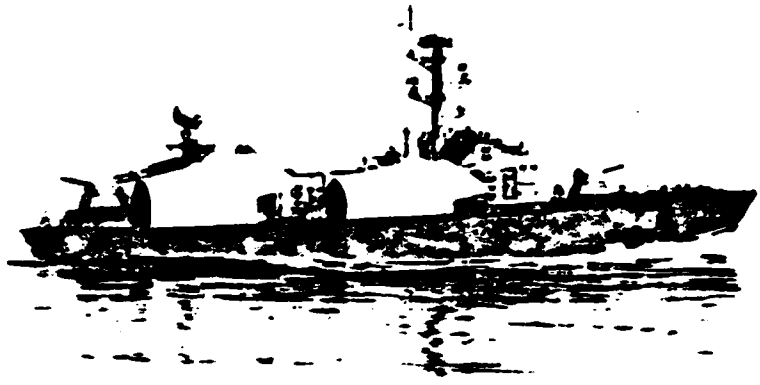
Standard displacement		225 t
Full-load displacement		260 t
Length on waterline		36.0 m
Length overall		39.0 m
Beam over upper deck		8.0 m
Waterline beam		7.5 m
Draft (hull)		1.8 m
Beam over the hydrofoil		15.0 m
Hydrofoil draft		4.0 m
Propulsion		3 M 504 diesels
Output		3 x 3,700 kW = 11,100 kW (3 x 5,000 hp = 15,000 hp)
Number of shafts		3
Speed		ca. 40 kn
Range		400 nm/36 kn 650 nm/20 kn
Complement		30
Armament		2 x 1 SS-N-2B (2 launchers) 1 x 1 76.2-mm gun 1 x 6 30-mm AA 1 x 4 SA-N-5 (?)
Electronics:	target designator radar	1 x PLANK SHAVE
	search radar	1 x CHEESE CAKE
	IFF	1 x HIGH POLE B 1 x SQUARE HEAD
	fire-control radar	1 x BASS TILT
	communications	1 x CAGE BARE
	radar deception system	2 x 16 chaff launchers
Construction yard		Izhora Yard, Leningrad
Construction period		from 1976/77 to 1978
Total up to spring 1982		8



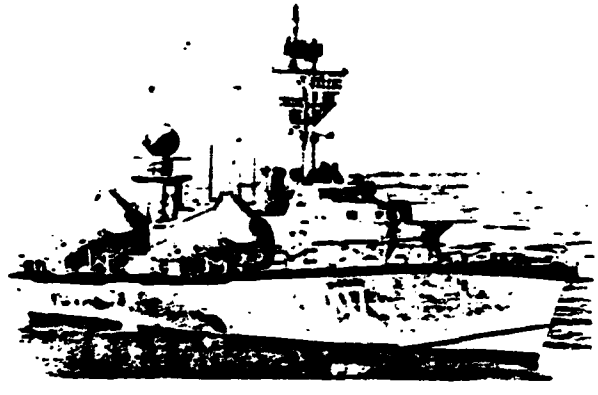
Missile boat of the MATKA Class



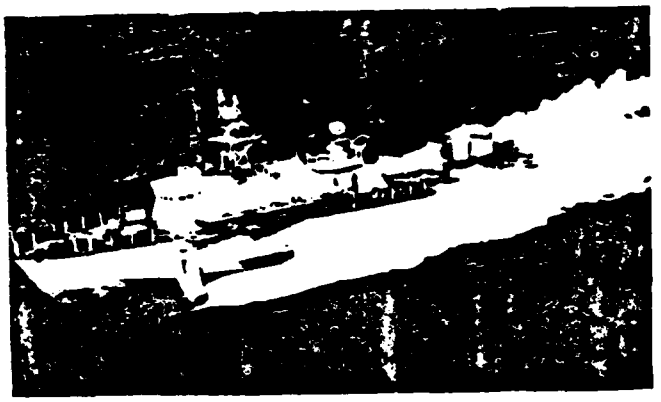
KOMAR-Class missile boat in a missile firing. These boats were only an interim solution and were soon decommissioned.



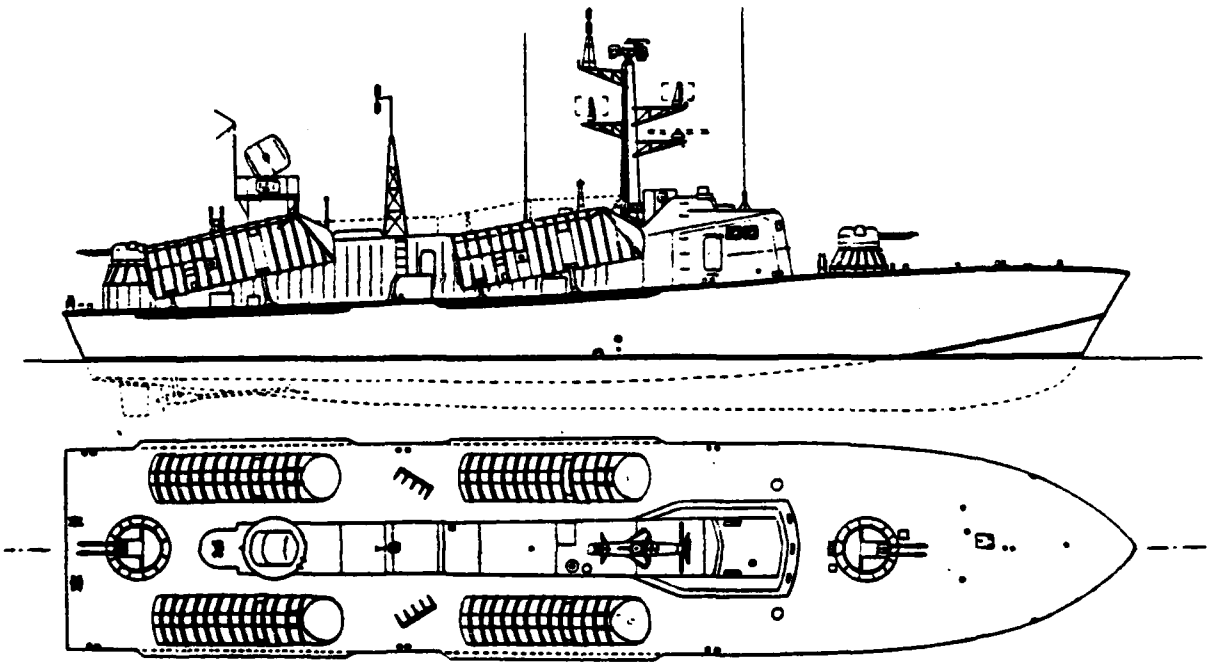
Missile boats of the OSA-I Class were planned from the beginning as such, unlike the KOMAR Class, which was developed from P-6-Class torpedo boat hulls.



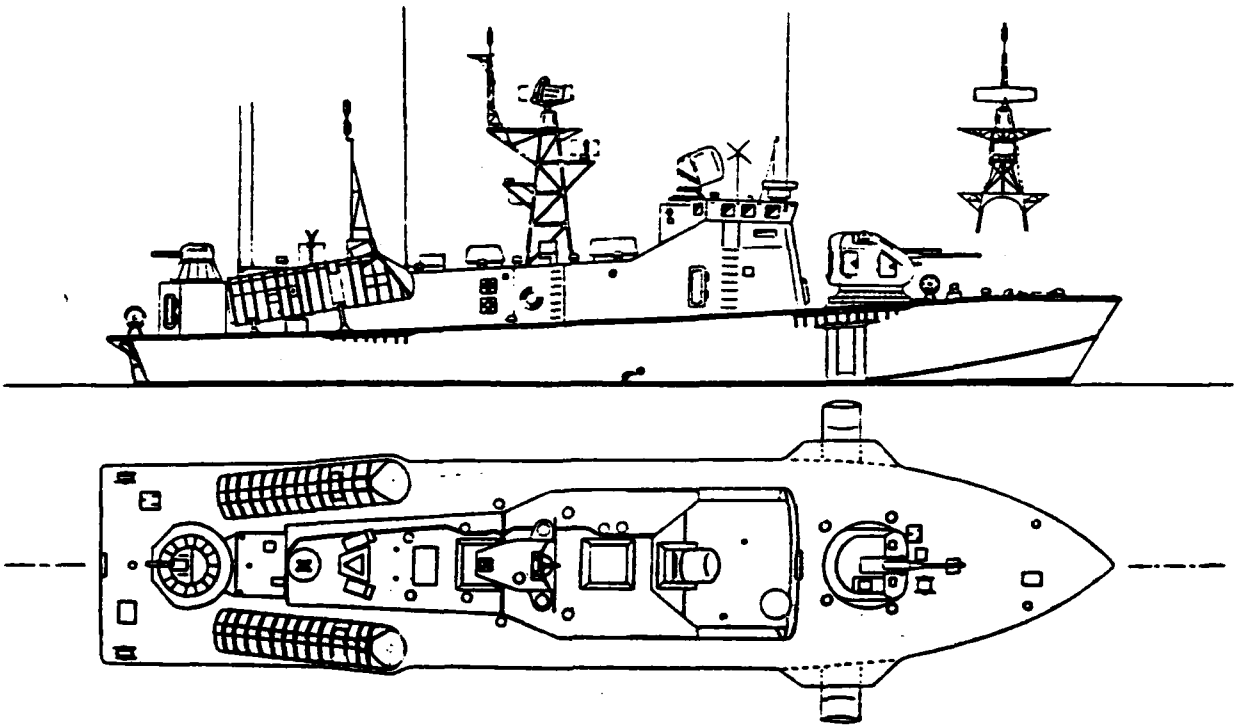
An OSA-II missile boat. The different shape of the missile launchers becomes clear when compared to the photo of the OSA-I boat.



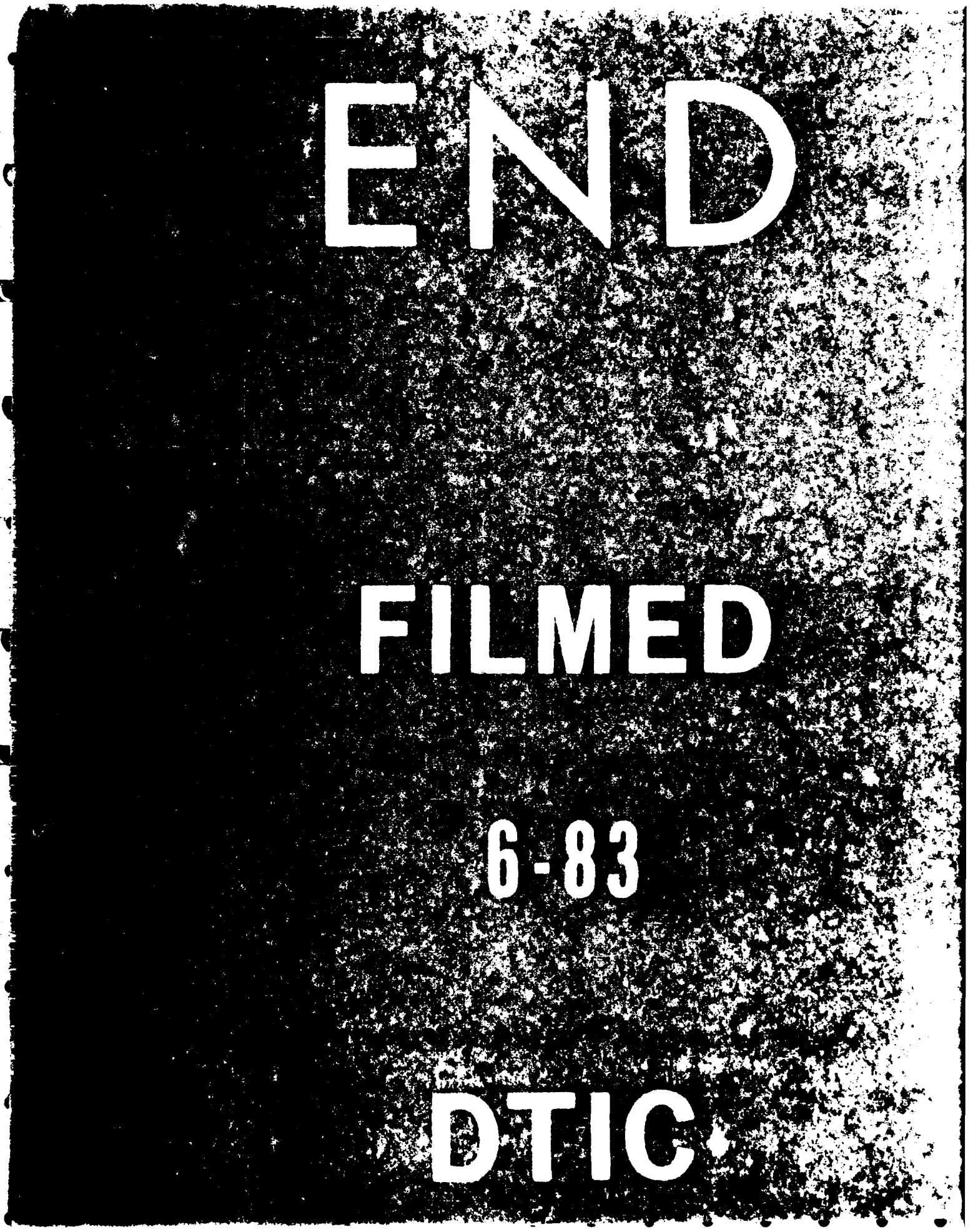
The MATKA Class and the TURYA Class share the same hull configuration and hydrofoil system. Here is a TURYA-Class boat at high speed.



. SA- -Class missile boat



MATKA Class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