The Rise, Fall and Possible Rise of the Ukrainian Navy: A Brief Assessment 1992-2015

Introduction

Without delving into the *exceedingly* complex history of the land and peoples of Ukraine,[1] having been variously parcelled out to competing empires over the centuries, the cataclysmic events of the early to mid twentieth century brought about their complete submersion into the Soviet Union. Although Ukraine was said to have become 'second among equals'[2] in the relatively enlightened era under Nikita Kruschchev following Josef Stalin's death, this did not extinguish past nationalistic ideals. Consequently, under the reformist Mikhail Gorbachev, with the eventual disintegration of the Soviet Union that gathered pace in the late 1980s, following the failed Moscow *coup d'état* of autumn 1991 Ukraine voted for independence early that same December. Days later, through negotiation Russia, Belarus and Ukraine became the ill-defined and inherently fictional Commonwealth of Independent States.[3]

It should be pointed out that neither the land, nor the peoples of the newly independent state of Ukraine were homogeneous though. On one hand, the western and central regions had been, or remained, mostly Ukrainian-speaking and essentially agrarian in nature, albeit also with industrial areas. Regarding themselves as European, they tend to look westwards. On the other, the eastern and southern areas had been more 'Russified' and industrialised: but also productively agrarian. Perhaps unsurprisingly, a not insignificant element of the population of these areas has continued to want Russian links: although not necessarily to live under Russian rule. Of course, there was also another highly complicating factor: the Crimea. Given to the Ukrainian Soviet Socialist Republic in 1954, in a so-called act of friendship, this province had a distinctly different history and population. Already increasingly 'Russified', the Ukrainians were in a minority and this was compounded with the return of the expelled Tatars as the Soviet Union was imploding.[4]

As is the norm in the breakup of countries, there were many practical matters that were *far* from simple to deal with. In this case the Soviets' Black Sea Fleet and its primary naval bases at Sevastopol, in the Crimea, exercised political and martial minds. A short-term agreement on these was negotiated in 1992 and signed by Presidents Leonid Kravchuk for the Ukraine and Boris Yeltsin for Russia. Attaining little, this merely allowed for further talks over 'joint control' of Sevastopol. Under a new President, Leonid Kuchma, agreement was gained on the breaking up of the BSF five years later. Saliently, in this Russia would keep the bulk of the ships and a lease on Sevastopol for twenty years: with the possibility of a further five-year extension. Rent for the naval facilities was to be set off against debts to Russia.[5]

In the interim there had also been the Trilateral Statement, signed by Ukraine, Russia and the United States of America in 1994. This promised that the nuclear weapons on Ukrainian soil would be transferred to Russia, thereby meaning that Ukraine could abide by the Nuclear Non-Proliferation Treaty. There was also the Budapest Memorandum of later that year, signed by representatives of the governments of Ukraine, Russia, USA and UK. Ironically, within this was a promise that these powers would 'respect the independence and existing borders of Ukraine'.[6]

Although Kuchma is a Russian speaker and 'easterner' (but from the northern province of Chernihiv), as well as wanting a good but uncommitted relationship with the Russians, under his leadership his government also looked westwards: particularly to the US. In 1997 a Charter of 'Distinct Partnership' was signed between Ukraine and the North Atlantic Treaty Organisation. Five years later an 'Action Plan' was formulated that stated Ukraine's 'long-term goal of NATO membership'. The military doctrine of 2003 went further still, committing Ukraine to full membership both of NATO and the European Union. In good faith, this ex-Soviet satellite state began to provide troops for peacekeeping operations in Kosovo and Iraq.[7]

Unfortunately, this optimism was misplaced and by mid 2004 Kuchma's government was at least partly improving its relationship with Moscow and Vladimir Putin. A 'presidential decree' removed from the military doctrine the element regarding full membership of NATO, although it still wanted 'a substantial deepening of relations'. After initial success in reforming the economy, with increasing economic and political failures as well as corruption, general disillusion within the population set in. Later in 2004 the westerners' Orange Revolution brought Viktor Yuschenko to power as President and Yulia Tymoshenko as Prime Minister. Although western-orientated, seemingly as a sop to the Russians, in December 2008 the Ukrainian troops were withdrawn from the Multinational Force in Iraq.[8]

Even without other difficult factors, such as those arising out of gas supplies,[9] there were further complications. For a start, early on in his premiership Yuschenko had made it known that he favoured membership of NATO and the EU. The short Russian-Georgian War of August 2008 also made governmental relations between Kyiv and Moscow worse: as Yuschenko was *clearly* seen to support his Georgian neighbours. Of specific interest to this paper, the BSF took part in combat operations against the miniscule Georgian Navy. On his own initiative, Yuschenko issued decrees that (vainly) demanded that permission be gained from the Ukrainian government for the exit and entry of Sevastopol by Russian naval units. There was also a discernible martial shift towards the west at the end of this year. A 'Charter on Strategic Partnership' was signed between Ukraine and the US. Within expressions of mutual 'cooperation across a broad spectrum' was one that related to the former's 'territorial integrity'.[10]

The hopes of reform through the aftermath of the Orange Revolution having failed, there was another change of president. In 2010, under the Donetsk-born Viktor Yanukovych, his government made Ukraine 'non-aligned'. Also, seemingly under pressure from Moscow, this same year Yanukovych signed a further agreement that extended the BSF's stay at Sevastopol from 2017 to 2042. In return, there was to be a badly-needed deal on gas.[11]

With the Yanukovych government suspending the process of negotiation with the EU on an Association Agreement in November 2013 and wish to join Russia's Eurasian Customs Union instead brought about its demise. Russia's takeover and annexation of Crimea in February to March 2014, along with rebellion in the oblasts of Donetsk and Luhansk with significant ethnic Russian populations following on soon after, only hardened the western-leaning stances of the new government of Petro Porochenko. Consequently, in December 2014 Ukraine renounced its non-aligned status and has once again, stated that it would like to join NATO: even if received lukewarmly in the west.[12]

The Ukrainian Navy 1992 to spring 2014

In the first half of December 1991 Ukraine's highest political offices put in place the basic legislative framework for independent armed forces. This included a presidential decree of December 12th that required all military units on Ukrainian soil to 'pledge allegiance' until 20th January 1992. However, this was overwhelmingly ignored by the BSF that presumably took instructions from the Joint Armed Forces of the Commonwealth of Independent States, or, in other words, Moscow. On January 8th the BSF's command requested the governments of the CIS to recognise this fleet as an operational entity in its own right, rather than under the orders of Kyiv.[13]

Some naval aviators and elements in training establishments in Sevastopol began to swear the oath of allegiance to Ukraine in mid January though. Even with *severe* pressure from the Fleet's command, later in the month one 'brigade' of port defence vessels also pledged allegiance to Kyiv, as did one battalion of naval infantry* in February. The first ship to declare for the Ukrainians was the Petya-class frigate *SKR-112* that July. Having made for Odesa, *serious* efforts were made by the Russians to put down what they regarded as a mutiny. Making a successful escape, other warships and auxiliaries also went over to the Ukrainians shortly after.[14]

Amid political struggles relating to the ownership of Crimea that would continue interminably, in January Kyiv had begun the 'practical formation of its national armed forces'. Through an order by President Kravchuk, on 5th April 1992 the Ukrainian Navy formally came into existence. Unfortunately, as previously mentioned it was not until 1997 that the BSF was officially divided. This was after tactically truncated periods of negotiation, made all the more difficult by much ill-will on both sides that were not helped by occasional confrontations between the two navies.[15]

There were three main elements to the Black Sea Fleet Accord, the first of these being a theoretical equal split of the ships.[16] As it was acknowledged that Ukraine could not pay for the upkeep of their share, Russia would buy some of the 'more modern' vessels though. Secondly, the port of Sevastopol and its periphery would be leased by Russia for twenty years at $97.75 million per annum. Ukraine would also be credited with $526 million in return for 'the use of part of the fleet'; and a further $200 million would be paid to Ukraine for her past transfer of its nuclear assets to Russia. (All this money was to be set off against Ukraine's then $3 billion debt, apparently overwhelmingly accrued to Gazprom.[17]) Thirdly, Crimea (including the Russian-built city of Sevastopol), was to be 'legally and territorially a sovereign part of Ukraine'.[18]

Accurate information on ships transferred to the Ukrainian Navy, the state of these and even *when* is not easily obtainable, or entirely verifiable. For instance, there is the case of the Slava-class cruiser *Ukrayina*. She was originally in building for the Soviets, was turned over to the Ukrainians c.1993, but apparently remains uncompleted and in limbo.[19] Also, prior to 1997 apart from those that went over in 1991, it is known that four patrol-craft were taken over by the Ukrainian Navy as of 1996.[20] Nevertheless, one source has stated with the

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* I have deliberately used this term, rather than marines, as naval infantry is normally used in continental European sources

new additions in 1997, the Ukrainian Navy primarily consisted of 43 warships, 132 auxiliaries (including boats), 12 aircraft and 30 helicopters.[21] As for shore support, it is known that the Russians lost the use of 'several important facilities'. These included the 'Scientific simulator for shipborne aviation', at Saki and a base for Special Forces at Ochakiv.[22]

During the Soviet era, one of the BSF's primary rôles was thought to be offensively against Turkey[23] and obviously, this shaped its order of battle. Consequently, as well as a handful of corvettes for offshore work, along with smaller patrol and mine-warfare craft for coastal defence, the Ukrainians also retained an amphibious capability.[24]

Already adversely affected by the general run down in the Russian Navy in the 1990s, due to the disintegration of the Soviet Union, it is obvious that vessels acquired by the Ukrainian Navy were in need of maintenance. Nevertheless, with Ukraine's own financial problems, refits have taken an extraordinarily long time to be completed: if indeed they have been at all. A case in point has been in their submarine, *Zaporizya*: a Foxtrot-class boat. She may originally have been operational, but by 1999 it was known that she was deficient of her main battery. In 2003 a decision was taken to put her back into commission, but funds had not then been secured for her long-term maintenance. Having apparently eventually completed this refit, *Zaporizya* conducted 'first-stage sea trials including running submerged' during one day in July 2012. Interestingly, not only had her crew been trained by the Russians, they also seem to have provided the engineering oversight of her refit.[25]

The one warship that has obviously been well maintained is the fleet flagship *Hetman Sagaidachny*: a Krivak III (Nerey) class corvette.* From her foreign deployments, it also looks as if she has maintained good operational efficiency. She was involved in various international 'Partnership for Peace' exercises in the 1990s (beginning in 1994) that have been conducted variously between NATO and eastern European countries (as NATO or bilateral exercises). These particular ones were in the Black Sea, Mediterranean and western Atlantic: not infrequently with naval infantry onboard. Later, after a refit, in 2008, she was in Operation 'Active Endeavour', a NATO enterprise aimed at preventing the movement of terrorists and/or weapons of mass destruction by sea. With the changed political situation, as of 2010 exercises with the Russian BSF were resumed, with this corvette taking part. In 2012 these two navies again cooperated, in an amphibious landing exercise. Since then she has once again also operated with NATO forces though. This was in 2013, as part of the United Nations' inspired 'Ocean Shield': anti-piracy operations in the Gulf of Aden.[26]

Other warships have also been involved in training with western navies. For instance, also in the 'Partnership for Peace' serials of autumn 1994, was the newly-commissioned Grisha V class corvette *Lutsk*. Later that same year the Bambuk-class auxiliary command ship *Slavutich* was in 'Maritime Partner 94'. Two years later, the Grisha II class corvette *Vinnitsa* and Natya I class minesweeper *Chernigiv* participated in 'Classica 96'. Also, along with *Hetman Sagaidachny*, either in 1995 or 1996, the Ropucha I class tank landing ship *Konstantine Olshanksy* with naval infantry embarked, exercised with American forces off the

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* Although designated as frigates in the West, the Ukrainians regard these as corvettes and so, out of respect for my Ukrainian sources, Krivak and Grisha-class vessels will be shown as such

US west coast. Although there had also been exercises with the Russians' BSF in the 1990s, the United States had held 'Sea Breeze' annually in the Crimea from 1997 with Ukrainian and other naval forces. Anti-western protests ensued, in time becoming violent, but they continued until 2008 almost without a break. (Due to harassment of US Marines by protestors, it was cancelled in 2006.[27]) However, due to Ukraine not gaining a Membership Action Plan for NATO, the Ukrainian Navy did not take part in 'Sea Breeze' in 2009.[28]

The last paragraph is not a comprehensive list of exercises conducted with foreign navies. Nevertheless, with the possible exception of 'Sea Breeze' that has certainly had a significant showing from the Ukrainian Navy in two recent years, it can be determined that the majority of this force has not been subjected to large-scale and prolonged high-intensity evolutions at sea.[29]

2004 Kyiv's Defence White Paper planned on getting rid of twenty-four older 'ships and small boats' (the latter presumably patrol-craft); reducing the number of naval aircraft; commissioning twelve 'new ships and boats'; and refitting a further five. This was to be done by 2015. Unfortunately, this did not come to pass due to financial problems. Even so, in late 2008 there were high-level negotiations with the US over the sale of between one and three elderly frigates of the Oliver Hazard Perry class: due to concerns over Russia's harsh treatment of the diminutive Georgia. Seemingly not wishing to create anti-Russian feeling over Crimea and maintaining that one frigate would not materially change the balance of power anyway, Kyiv's plea came to nothing.[30]

This rebuff (that probably took the form of strung out and inconclusive diplomatic telegrams[31]) and a need to replace their old Krivak III may well, therefore, have made the planned exclusively Ukrainian-designed corvette all the more urgent. Identified as Project 58250, the criteria is for a modern, heavily-armed, general purpose vessel, with good speed and range for operating in the Black and Mediterranean Seas. Weapon systems, sensors and other systems sought were intended to be western, or home-produced and fully compatible with NATO. Originally envisaged between 2002 and 2004, the first designs had apparently been drawn up by 2006. These have been said to have been completed in late 2009 and ten corvettes were planned for. Unfortunately, shortages of funds cut this programme to four and there have been investigations into using Russian equipment. Also, although construction of the first (named as *Volodymyr Velyky*) began in May 2010, there have been various delays, culminating in what was said to be a temporary halt as of July 2014. It has also been reported that she was 43 per cent complete later in the year. Nevertheless, it would appear that work has not *yet* resumed on her construction.[32]

Another domestic construction programme was also agreed upon. At the opposite end of the scale, this was for nine Gurza-M class patrol-craft, for eventual deployment in the Danube River Basin and the Sea of Azov. Utilising US funding, two of these had already been produced for the Uzbek Border Guard in 2004. This project was halted in December 2013, but apparently re-started in mid 2014 and the expected completion date for the first two is in autumn 2015. The currently stated intention is now for twenty of these craft.[33]

A well-placed Ukrainian naval officer, Captain Andriy Ryzhenko, has put the strength of his navy immediately prior to the Crimean Crisis at '26 warships and 18 boats of various types' in commission.[34] It can be determined, mostly but not exclusively, from an open source[35] that the combatant elements were as follows:-

Name	Class	Type
Zaporizya	Foxtrot	Diesel-powered submarine (SSK)
Hetman Sagaidachny	Krivak III (Nerey)	Missile-armed, helicopter carrying corvette (FFHM)
Lutsk	Grisha V	Missile-armed corvette (FFLM)
Vinnitsa	Grisha II	
Ternopil	Grisha V	
Priluki	Matka (Vehkr)	Missile-armed fast-attack hydrofoil (PGGK)
Kahovka		
Khmelnitsky	Pauk I (Molyna)	Missile-armed patrol craft (PCM)
Uzhogorod		
Pridneprovye	Tarantul II (Molyna)	Missile-armed corvette (FSGM)
Kremenchuk		
Skadovsk	Zhuk (Grif)	Patrol boat (PB)
Donetsk	Pormornik (Zubr)	Missile-armed, general-purpose landing-craft hovercraft (ACV/LCUJM)
Kirovograd	Polnochny C	Medium-sized Landing Ship (LSM)
Konstantine Olshansky	Ropucha I	Tank Landing Ship (LST)
Svatove[36]	Ondatra	Landing craft (LC)
Chernigiv	Natya I	Ocean-going Minesweeper (MSO)
Cherkasy		
Melitopol[37]	Sonya (Yakhont)	Coastal Minehunter/Sweeper (MHSC)
Mariupol		
Genichesk	Yevgenya (Korond)	Coastal Minehunter (MHC)

plus four gunboats[38] and although technically an auxiliary, since armed and apparently used operationally

Name	Class	Type
Slavutich	Bambuk	Auxiliary Command Ship (AGFHM)

Support vessels were also regarded as an integral part and one source has stated that they then numbered 50.* While this cannot be *entirely* confirmed, this figure may well have been accurate.[39]

These were based mostly in Crimea at Sevastopol, but also Chornomors'ke, Novoozerne in the Donuzlav Lake, Feodosiia, Kerch and Yevpatoriia. On the Ukrainian mainland, there was the main western base at Odesa, as well as other facilities at Ochakiv.[40]

Mainstream sources giving detail on Ukraine's naval aviation do not concur. Information in *IHS Jane's*, however, virtually tallies with the overall number of 30 aircraft mentioned in an online source for 2013. Therefore, accordingly these were stated as twelve Kamov Ka-29 assault helicopters; five Kamov Ka-27 anti-submarine (ASW) helicopters; five Mil Mi-14 ASW helicopters; four Mil Mi-8 transport helicopters; one Antonov An-12 transport aircraft; and three Beriev Be-12 Chayka flying boats.[41] The International Institute for Strategic Studies gave an almost entirely different line up though. This was shown for 2014 as ten Beriev Be-12 ASW flying boats; twenty-eight Kamov Ka-25 ASW helicopters; two Kamov Ka-27E ASW helicopters; forty-two Mil Mi-14 ASW helicopters; five Antonov An-12 transport aircraft; one Antonov An-24 transport aircraft; eight Antonov An-26 transport aircraft; one Tupolev Tu-134; one Ilyushin Il-18; and five Mil Mi-6 helicopters. It should be mentioned that this stated that only 10 aircraft were 'combat capable'.[42]

There were also troops, designated as naval infantry. Although there had been a two battalion brigade previously, between 2003 and 2004 this was reduced to the 1st Separate Battalion of Naval Infantry that was based in Feodosiia. It should be noted that this unit was qualified to NATO standards. In December 2013 a decision was taken to also reorganise mechanised troops as the 501st Naval Infantry Battalion at Kerch.[43]

Crimea Overrun 2014

During the Crimean crisis Ukraine's acting Defence Minister, Ihor Tenyukh, reported on the state of the armed forces in mid March 2014. In doing so this retired admiral reflected on recent exercises that showed a 'dismal degree of preparedness' in salient respects. According to this, at the beginning of the month the Ukrainian Navy only had four warships that were 'battle ready'. These were the corvette *Hetman Sagaidachny*, corvette *Ternopil*, tank landing ship *Konstantine Olshansky* and auxiliary command ship *Slavutich*. Nevertheless, Tenyukh's statement of dire unpreparedness has been challenged. Not only has one source maintained that at least ten ships were in a good state, it was Tenyukh's own indecision that meant that they could not be deployed rapidly as the emergency began.[44]

While measures of some kind from Moscow in reaction to the fall of the Yanukovych government were to be expected, the speed of the takeover of Crimea might not have been. The timescale from the former to the latter was almost instantaneous, in that among actions Crimea's autonomous parliament in Simferopol was seized during the morning of February 27th, by supposedly pro-Russian militiamen that styled themselves as 'self-defence forces': but that were actually Russian Special Forces. With a response perfectly predictable by authoritarian regimes, on March 1st Russia's parliament approved a request from Putin to

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* The Sea Guard of the State Border Guard is not included in this peacetime order of battle

'protect' Russian interests in Crimea - using force. Only fifteen days later, a flawed plebiscite had been held, with a claimed 97 per cent vote for joining Russia. Subsequently, on March 18th Crimea was annexed by the Russian state and anti-Ukrainian actions in the Donetsk and Luhansk oblasts followed the next week. On April 15th Ukraine's acting President, Olexander Turchynov, announced Anti-Terrorist Operations in what became these rebel areas.[45]

One aspect that caused *real* confusion within the Ukrainian Navy in the early days was the behaviour of the Commander-in-Chief of Naval Forces: Rear-Admiral Denys Berezovsky. A protégé of Ihor Tenyukh and only appointed on March 1st, on giving orders for the Ukrainian Navy not to resist, he was dismissed the following morning and went over to the rebels. Rear-Admiral Serhiy Hayduk was immediately appointed to the same post in an acting capacity.[46]

More optimistically and contrary to Russian *maskirovka*, by March 3rd it had become publically known that the corvette *Hetman Sagaidachny* remained loyal to Kyiv and arrived in Odesa on the 5th. She had been on another foreign deployment and engaged on anti-piracy operations in the Gulf of Aden, as part of the EU's Operation 'Atalanta' as the crisis began.[47] All the same, the news from elsewhere was ominous. On March 3rd four vessels of the BSF blocked the exit for the corvette *Ternopil* and auxiliary command ship *Slavutych* at Sevastopol. As well as calling for the surrender of the two ships' companies, it would appear that there was a limited attack made on the command ship. And, the narrow channel linking the Donuzlav Lake to the Black Sea had been temporarily blocked by elements of the BSF. However, they were removed late on March 5th, only to be immediately replaced by an old Kara-class cruiser that was sunk there instead.[48]

At least some of the 10th Saki Naval Air Brigade, based at Novofedorivka, had managed to get away on March 5th though. Known assets that were saved were 'one Kamov Ka-27PL and three Mil Mi-14PL maritime helicopters, one Beriev Be-12 amphibian and two Antonov An-26 transports'.[49]

Standoffs were maintained while negotiations were conducted by Rear-Admiral Hayduk and representatives of the Russian Ministry of Defence and the BSF. It appeared that there had been agreement on March 16th for the Russians to withdraw their blockading vessels and furthermore, for the Russians to take no further actions until the 21st. At that time it was still apparently thought by some in the Kyiv government that the Ukrainians could continue using Sevastopol as a naval base.[50] This is said to have occurred through a misunderstanding, by Ihor Tenyukh, in a telephone conversation with Rear-Admiral Hayduk and subsequently relayed to the media.[51]

Unfortunately, any such confidence was misplaced. With the annexation of Crimea on March 18th, the following day the Ukrainian government stated that it was planning to evacuate all its military personnel and their families. Some hours before, however, 'self-defence forces' and members of Russia's armed forces had forced entry into the Ukrainian naval headquarters in Sevastopol. Rear-Admiral Hayduk had been taken prisoner by Russian Special Forces, but ejected from the territory on the 20th.[52]

As significant Russian armed force was massing on Ukraine's border, explained away by Moscow as merely there for exercises, the bulk of Ukrainian Navy's ships seem to have been taken over. In the face of their seemingly impossible position, it looks as if a fair proportion put up no physical resistance, such as in the case of the submarine *Zaporizya*. Her

ship's company split up, half opting for return to the Ukrainian mainland, but the other going over to the Russians. On March 20th in Sevastopol the corvette *Ternopil* was taken by force though.[53]

Ashore, the 750 members of the 1st Separate Battalion of Naval Infantry at Feodosiia had also been under siege. Although apparently part of their base had already been taken over and there was agreement to turn the rest over to the Russians, this ended theatrically. With air support from two Mil Mi-24 helicopter gunships, before daylight on the 24th two Mil Mi-8 transport helicopters landed in the vicinity of the base, where BTR vehicles and assault troops were disembarked. An attack was then conducted, using the BTRs and stun grenades. Even although the naval infantry were essentially unable to put up resistance, for a number of reasons, some were wounded and anything up to 80 were taken prisoner. Within hours the rest began evacuating their base in buses: minus their equipment.[54]

By around March 24th it is thought that although the base ashore at Novoozerne had fallen, the tank landing ship *Konstantine Olshansky* was still holding out. Nevertheless, the last to succumb to Russian threats and assaults was the ocean-going minesweeper *Cherkasy*. She had earlier attempted to shift a blockship on March 21st, tried to escape three days later and had sustained attacks from Russian forces. Under her commander, Yury Fedash, one final futile attempt was made to break out into the Black Sea from the Donuzlav Lake. Although defending themselves with non-lethal force, *Cherkasy* was finally boarded by Special Forces, during the evening of the 25th. This was only after her steering gear (and possibly engine) had become damaged though. The forces ranged against the minesweeper then included two helicopters, three patrol-boats and a tug. Even then, her commanding officer still managed to negotiate an honourable surrender.[55]

The corvette *Hetman Sagaidachny* had also acquitted herself well. At sea between March 14th and 21st, she had identified four warships of the BSF, along with two Mil Mi-35 attack helicopters that were attempting to enter Ukrainian waters. They were deterred.[56]

In the closing days of the month the Kyiv government was negotiating the release of military and civilian hostages, including some of high rank and status. It might also be mentioned that Russian troops continued to be massed on Ukraine's border.[57]

The immediate aftermath

March 2014 had been utterly disastrous for Ukraine in general and its naval forces came off particularly badly. The only warship of any real capability was the efficient, but elderly Krivak III (Nerey) class corvette *Hetman Sagaidachny*. And, the only other vessel that could be described as combatant that the Ukrainian Navy then had was the Zhuk-class fast-attack patrol-boat *Skadovsk*. Reports differ as to the rest, but a list constructed by Dmytro Tymchuk on March 26th would seem to be accurate. According to this the other eight vessels remaining in the control of the Ukrainians were a Moma-class auxiliary intelligence gatherer, *Pereyaslav*; a Yelva-class diving support ship, *Netishin*; the Ondatra-class landing craft, *Svatove*; and five miscellaneous boats.[58]

Talks were conducted on the release of the Ukrainian vessels that cannot have been helped by an incident at Novofedorivka, whereby a naval officer was killed: apparently by a Russian soldier.[59] Nevertheless, on April 10th one Matka (Vehkr) class fast attack hydrofoil,

Priluki and a small tanker, *Fastiv*, were the first to leave Sevastopol for Odesa. One of these apparently sailed under her own power, while the other was towed. On the 14th, the degaussing ship *Balta* was also towed out of Russian-occupied territory. By the 22nd it would appear that another eleven vessels had been shifted by 'Russian' tugs.[60] More are known to have been returned to Kyiv's control through to May. Reports differ as to the numbers that may have been between twenty-eight and thirty-three. It would seem that latterly one was the coastal mine-hunter *Genischesk*, along with a cutter and two tugs.[61] All gear onboard these was said to have been destroyed in the interim.[62]

Some aircraft had also been returned by mid April. An unstated number of Beriev Be-12 ASW aircraft were flown from their late base of Novofedorivka, to Mykolaiv. Two Kamov Ka-27 helicopters had already been despatched there, dissembled on railway trailers. The return of another helicopter had also been promised.[63]

As of July 5th this process was stopped by Moscow though - supposedly because of Kyiv's unwillingness to renew its own unilateral ceasefire in the Donbas.[64] It might be noted that not only had there already been a lull in these returns in June, among those that were still being held were the most capable and well-maintained.

As previously mentioned, the majority of the Ukrainian Navy's shore facilities had been located on Crimea. Apart from its headquarters and dockyard at Sevastopol, there were also all the establishments responsible for training and logistics that are now denied to it. One particularly important example of the latter that will have had operational consequences was the main arsenal that was underground in the Inkermann Valley.[65]

There was also the loss of personnel that would seem to have begun soon after the Sevastopol headquarters were overrun on March 18th. From available sources, it cannot be determined if there was any meaningful cooperation from the Russians in the evacuation of Ukrainian officers, servicemen and their families. Some began arriving at Odesa on, or about, April 10th though. In groups, they had travelled by road: approximately eighty service personnel with an unstated number of their families. Others were said to be still settling their affairs. By the 25th when the evacuation was overwhelmingly complete, the official number of Ukrainian Naval personnel that had gone to the mainland was 2,682: plus their families.[66]

Even with no verifiable accurate total numbers of personnel, those evacuated to the Ukrainian mainland can still be seen as a small percentage. The total including naval infantry and aviation components would seem to have been between 13,950 and 14,800. The total might have been higher, as it has been reported that 14,450 had been based on Crimea and that 12,000 remained there.[67]

From lists of naval 'deserters' and 'traitors' published by Kyiv this covered all arms and all levels. As might be expected Rear-Admiral Berezovsky headed these. Other high-ranking officers included Rear-Admiral Dmytro Shakuro, another First Deputy Commander was another that may have had a particularly deleterious effect, as he was also the Chief of Staff of the Ukrainian Navy. He was subsequently appointed the Deputy Commander of the Russians' Caspian Sea Squadron. And, Vice-Admiral Serhiy Yeliseyev, yet another First Deputy Commander, went on to be the Deputy Commander of the Russian Baltic Fleet.[68] These lists also show a *serious* loss of specialist expertise as well. For instance, one list named individuals involved in communications and signals intelligence. So, it was not just these shore facilities that were denied to the Ukrainians after the Crimean takeover.[69]

The reasons for these large-scale defections were perfectly understandable. Saliently, the Ukrainian armed forces had been engaged in conversion from recruitment through mass conscription to a volunteer basis. The navy had been at the forefront of this process and naturally, mariners have tended to be drawn from coastal areas and their immediate hinterlands. In this case the majority of those then in the Ukrainian Navy that had 'contracts'

(engagements of continuous service) were from Crimea. There will, of course, have been other reasons, but that it may well have been that many only did this through feeling trapped.[70] Incidentally, one source has indicated that the recruitment of the naval infantry was not localised to Crimea and few went over to the Russians.[71]

Although substantially diminished, a sea presence was still maintained. Later in April the corvette *Hetman Sagaidachny* had been back at sea, on exercise. This training included serials relating to defence against air, surface and sub-surface threats, as well as damage control and communications exercises. Having received a new ship's company, in early May the fast attack hydrofoil *Priluky* returned to sea, seemingly primarily testing systems before working up. It also looks as if the medium landing ship *Kirovograd* began working up days later. Three small craft (the patrol boat *Skadovsk*, and two river patrol-craft possibly transferred from the Sea Guard[72]) were also similarly engaged in serials in the first half of May.[73]

At least some elements of the Ukrainian Navy are known to have also been involved in the Anti-Terrorist Operations. Consequently, in the outskirts of Donetsk the first fatal casualty occurred in August 2014. He was the commander of the '73rd Centre' Naval Special Operations Brigade.[74]

Also, although the Sea Guard is not part of the Ukrainian Navy (but under naval control in wartime), casualties taken by this service might be mentioned. Apparently coming under attack as of the month before, in late August 2014 two patrol-craft operating from Mariupol were shelled off Bezimenne by unidentified artillery, while engaged in joint operations with naval forces. During this incident one Sea Guard Zhuk-class patrol-boat was sunk and casualties wounded and possibly killed were incurred.[75]

Assessment of the Ukrainian Navy post spring 2014

There is a list of rolês for the Ukrainian Navy online that is said to be current. This might be described as requiring 'full spectrum' capabilities, but in reality, is merely a leftover from the Soviet era.[76] Nevertheless, this allows for assessment of the threats to Ukraine from Russian naval forces.

With the Russian aggression of early 2014, an immediate threat from the BSF arose in amphibious landings along the long mainland coastline. This has been intensified in two ways. Firstly, the Russian blockade of the narrow Kerch Strait has denied the Ukrainians entry to the Sea of Azov by sea. The implication is that the defence of this long coastline has had to be maintained overwhelmingly by land forces and the light-craft of the Sea Guard only. Secondly, the BSF has been reinforced with amphibious units.[77] Although a *major* Russian land offensive southwards from the Donetsk oblast to Mariupol (and westwards along the coast to Moldova) did not materialise earlier in 2015, this must remain in the minds of the Ukrainian tacticians.[78]

Unsurprisingly, there was and remains a second immediate threat in the form of Russian naval Special Forces. These were significantly reinforced and are said to be used in a 'very intensive way'.[79]

If that was not bad enough, the BSF reinforcement has also included a stronger aviation group that in Russian doctrine also forms an important element of amphibious operations. Apart from this, the latest variants of the Iskander tactical and Bastion coastal defence missiles have also been deployed on Crimea that could be used in support of amphibious assaults. These *and* Sukhoi Su-24 aircraft that are known to operate from Crimea are capable of delivering weapons with nuclear warheads.[80]

There is also the matter of the partial replacement of the BSF's general purpose surface vessels with their new Admiral Grigorovich class frigates. Based on the Talwar-class, built for the Indian Navy, all six of these were to be based in the Black Sea, although the last three *may* be sold abroad: due to a lack of Ukrainian turbines. The first two, *Admiral Grigorovich* and *Admiral Essen*, were on sea-trials in October 2015 and certainly the first, was also due for deployment with the BSF in November.[81]

And, the first of the six new Kilo-class (Type 636.3) diesel submarines, *Novorossiysk*, has already joined the BSF: in September 2015. Interestingly, another, *Rostov na Donu*, had apparently been on transit from the Baltic to the Black Sea in October 2015, but had to return to port due to technical snags. Glitches aside, as well as being armed with torpedoes and/or mines, they also have SA-N-5/8 surface-to-air missiles and are apparently capable of carrying SS-N-27 Club-S land attack cruise missiles as well.[82]

With these grim possibilities for the Ukrainians to contend with a situation report on their navy would not go amiss. Therefore, since May 2014 from open source material and additional information from an informed Ukrainian source the only warships* that it has been able to muster are as follows:-

Name	Class	Type
Hetman Sagaidachny	Krivak III (Nerey)	Missile-armed, helicopter carrying corvette (FFHM)
Vinnitsa	Grisha II	Missile-armed corvette (FFLM)
Priluki	Matka (Vehkr)	Missile-armed fast-attack hydrofoil (PGGK)
Svatove[83]	Ondatra	Landing craft (LC)
Skadovsk	Zhuk (Grif)	Patrol boat (PB)
Kirovograd	Polnochny C	Medium-sized Landing Ship (LSM)
Genichesk	Yevgenya (Korond)	Coastal Minehunter (MHC)

plus the four other gunboats. It should also be mentioned that some of the auxiliaries are armed with machine-guns and/or fitted for minelaying.[84]

While the total number of warships is not unimportant by any means, as admitted in mid 2015 by Captain Andriy Ryzhenko, the Deputy Chief of Staff of the Ukrainian Navy, the design life of *all* of these will be over by 2018.[85] This concept is not a minor irritation, to be dealt with through administrative extension of ships' service. Although good design and construction practice can produce strong hulls, they have to contend with severe stresses.[86] Bad weather and combat can and does create faults in hulls that may well prove permanent. And, while refits may extend life in general maintenance, repair of damage and upgrades of weapons and other systems, in time hulls and equipment wear out. So, even although Krivak-

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* Excluding the Sea Guard

class corvettes were once regarded as 'relatively versatile', they have had their day and so too have all the others.[87]

Of course, there are vessels still held by the Russians, including the once well-kept corvette *Ternopil*, tank landing ship *Konstantine Olshansky* and auxiliary command ship *Slavutich*. As recently as July 2015 Moscow has stated that it wishes to return about twenty to Kyiv, on 'peace' being 'established'. Not only can this hardly be regarded as imminent, some have already been acquired by the Crimean authorities. Also, those that have not been taken over by the Russians have not received *any* maintenance.[88]

For the warships and auxiliaries currently under the flag of Ukraine, there are substantial dockyard facilities at Mykolaiv, with a workforce with all the skills to deal with larger surface warships. Even so, Captain Ryzhenko mentioned that with so many differing types of vessel there have been difficulties in getting spare parts.[89] Ammunition may also be a concern in this respect, particularly the older missile types from Soviet times: unless the old production lines have been maintained, or re-started.

As for other shore facilities, Odesa has become the main base. Work on a new one at Ochakiv has also apparently begun and others, at Illichivs'k and Pivdennyi are being considered.[90]

Despite the bravado in the press releases in March 2014, even with so few warships in commission, unless those that remained had all the pertinent skills and in the correct numbers (with reserves for rotation between sea and shore), manning cannot have been easy. It may be that there is already a shortage of technical rates.[91] These may increase as specialists (such as submariners and aircrew) are not suitably employed and leave the Service for other employment. The training of naval officers, however, is in hand. Presently located at the National Maritime Academy in Odesa, courses are being conducted for cadets and staff officers, until a Naval Academy in this same city is built.[92]

Similarly, ongoing recruitment and retention may be highly problematical. In all volunteer forces pay and conditions tend to be important factors. Unfortunately, pay rates have been *very* low indeed. Even before the 2014 crisis, Russian petty officers were apparently paid more than Ukrainian captains! Also, the infrastructure is said to be in a poor state and so, it is not unlikely that at least the older barracks ashore are less than comfortable.[93]

Prospects for the Future

The development of the Ukrainian Navy will depend on a number of interlinked factors. These are not only military in nature.

As always in martial spheres, geography is a salient factor that should be taken into consideration when forming strategy and hence, tactics and operations.* Ukraine has a long coastline, now complicated by the annexed territory of Crimea. As previously mentioned, with the control of the Kerch Strait, the Sea of Azov has largely been militarily lost to Ukraine. Put another way, the Russians essentially have command of the sea,[94] with the Ukrainians presently only able to dispute this in a very minor way through the Sea Guard. Therefore, at the moment it can be argued that there is only one Ukrainian option - the defence of its coastline and hinterland by military (as opposed to naval) means. And, without the return of Crimea to Ukrainian sovereignty, this situation must be regarded as permanent.

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* I have intentionally mentioned tactics and operations, employing the Soviet adaptation of Clausewitzian theory

Nevertheless, increased coastal defence *can* be gained through the construction and deployment of numerous small craft with differing capabilities: in an 'asymmetric' rôle.[95]

This still leaves the coastline west of Crimea that is exceedingly important. As articulated by Captain Ryzhenko, the defence of this is currently the Ukrainian Navy's 'main task'. Apart from denying enemy amphibious landings and hence, land occupation, this coastline contains Ukraine's commercial ports: the largest that are centred around Odesa. These economic assets and links to the wider world, therefore, require defence, both coastwise and out as far as the Bosphorus. Also, as well as further mercantile and fishing development there is also the highly problematical matter of extraction of oil and gas offshore in the Gulf of Odesa.[96]

It has been argued that the Russian annexation of Crimea was, apart from putting political pressure on the Ukrainians, due primarily to a fear of losing the BSF bases through Ukraine joining NATO.[97] These were, of course, clearly stated by Putin in a speech to the Duma on 18th March 2014.[98] While undoubtedly the military aspects must have been considerations, on their own they do not make any realistic sense. After all, not only had a past Ukrainian attempt to take entire control of Russian military and naval assets on Crimea in 1991 failed miserably, there was no real reason to think that Ukraine was any nearer to being accepted into NATO than before.[99]

However, there is another possibility. In 2013 August Kyiv had announced an energy diversification strategy that set out to slowly reduce Ukraine's dependence on Russia for gas and expand its own extraction, marketing and distribution. With the ousting of the pro-Moscow Yanukovych in February 2014 and formation of a new provisional western-looking regime in Kyiv, it may well have been decided that instead of allowing the Ukrainians increasing energy freedom, this was to be wrested away. Immediately after Crimea's annexation by Russia Crimea's government not only 'nationalised' the Ukrainian gas transmission network there, but also declared its own Exclusive Economic Zone. These actions must have, naturally, had *significantly* detrimental effects on Ukraine.[100]

As well as potential threats to commercial assets generally from the BSF (and other Russian forces), there are also others. As previously mentioned, apart from the possibility of land offensives south to Mariupol and then westwards, there is still danger of Russian major amphibious landings and in all likelihood, will remain while relations between the two countries are poor. Although neither of the new Mistral-class amphibious warfare ships were subsequently deployed to the BSF (being sold to Egypt[101]), unless the Russian adventure in Syria requires *far* more attention, there will still be enough of the older classes based at Sevastopol to fulfil amphibious operations (backed by the new frigates, submarines etc.) with comparative ease for the foreseeable future.[102]

Having outlined the ongoing seaborne threats, ways of countering these should be considered. In the opinion of Ihor Kabanenko, a Deputy Minister of Defence and retired admiral, he would like to see Ukraine 'develop an asymmetric, focused strategy'.[103] From comments made by Captain Ryzhenko it would appear that this is indeed intended, even if officially, the 'development and adoption' of a 'maritime doctrine' is only half-completed.[104]

The current highest priority would seem to be in coastal defence, in regards to pure 'survival'. Apart from enhanced shore defences, this is to be provided, overwhelmingly, by

the new Gurza-M patrol-craft. Lightly-armed and with limited range, these would seem to be handy for operations in the shallow waters surrounding western Ukraine. Concern might be raised variously, especially in regards to air and mine defence though.[105]

Falling into both categories of 'survival' and 'containment', there is also an intention of gaining meaningful submarine capabilities. Apart from reconnaissance, their main purpose will be in preventing enemy surface formations from getting into coastal waters in the first place: by operating in the deep waters nearer Crimea.[106] In doing so and providing deterrence (using modern diesel powered submarines with Air Independent Propulsion systems) against both naval and commercial blockade, it stands to reason that an element of this rôle will also be in ASW.

A third strategic category was mentioned in this interview with the naval Deputy Chief of Staff: 'Sea power'.[107] In all likelihood this partly referred to Ukraine's past record in fulfilling her part in maintaining international maritime security, outwith the Black Sea. Returning to these worthy commitments (other than for very short periods) will require spare capacity at the top end. In other words, in order to ensure even *one* corvette regularly at sea off the coast of Ukraine, three will be required: with two in commission at any one time. As *Hetman Sagaidachny* and *Vinnitsa* will have to be paid off for disposal in the not too distant future, replacement Project 58250 corvettes (or others bought from abroad) will have to come on stream.

According to Captain Ryzhenko, in mid 2015 the Ukrainian Navy had ten surface ships in commission, with 33 auxiliaries. Other sources, including a public statement by the Commander-in-Chief of the Ukrainian Navy, Vice-Admiral Hayduk, show that delivery of the first of the new Gurza-M patrol-craft is anticipated later in 2015 and that 'further sea trials' and crew training were expected to begin in September. Anyway, it is publically intended for the Ukrainian Navy to have 30 surface warships by 2020.[108]

Submarine development is not as advanced though. Preliminary studies of European nations' submarine services, especially around the Baltic Sea, have already been undertaken. These were selected not only because some are in not dissimilar political circumstances, but also their boats have to operate in environments with similar geological profiles. In explanation of the latter and mentioned earlier in passing, the waters around western Ukraine are considerably shallower than around Crimea. This presents tactical challenges. Unlike with other types of warship, the Ukrainians have no previous experience in submarine construction and so, are looking to other nations, at least to build the first, of *four*. German type 212 and 214 submarines have been mentioned, although there are other suitable boats on the market.[109]

Incidentally, foreign expertise will also be required in the future construction of mine countermeasures vessels. Once again, it is hoped that the first will be foreign-built, with subsequent ones home-built and under foreign supervision. In this way, as has been done in other countries, Ukrainians will learn the specialist skills for these types of warship.[110]

The need for non-Ukrainian inputs for the production of the Project 58250 corvettes need not necessarily be *so* acute though. After all, Mykolaiv yards were responsible for building many of the larger Soviet warships and although recently under-employed, there should be residual skills in hull and other construction.[111] There is also expertise in various

military technologies, including in missile design and production and it would seem that Captain Ryzhenko's statement that domestic missile systems for naval uses are advanced is accurate.[112] Even so, as these corvettes are to be NATO compatible, all sorts of other modern systems will have to be provided by western companies.

Of course, this relies on providing adequate budgets for naval construction. Reporting on a meeting of the National Security and Defence Council of Ukraine in March 2015, Admiral Kabanenko has stated that these are *not* currently forthcoming. Additionally, instead of the construction of new warships, he has said that the navy's higher organs have lobbied for the refit and re-commissioning of one that is almost forty years old.[113]

This retired admiral has also written of *numerous* serious managerial weaknesses that could be characterised as fundamental. In doing so he mentioned a lack of naval access to the highest political levels. This has seemingly resulted in an ignorance of strategic maritime dangers within the government and its civilian ministries. Similarly, Ukraine's Ministry of Defence needs structural reorganisation: as does the Fleet. Also, some senior martial appointments are said to be held by officers without relevant experience and there is now a lack of co-ordinated contact with NATO. If this is not bad enough, there are also other inter-service problems. As an example, a lack of understanding by the air force's General Staff means that tactical and operational plans for a coherent defence of Ukraine's southern flanks are all the more difficult to formulate. And, the navy does not even have control over the maintenance of its own warships either: this being shared between the armed forces' General Staff in Kyiv and the naval headquarters in Odesa. He is also critical of the underlying ethos of the officer corps that remains wedded to traditional Soviet systems of command and control: not valuing the inputs of younger officers that have received training in western countries.[114]

All these require time to be dealt with (assuming that the will is there) and this is something that most of the one-time Soviet and now independent states that have been in conflict with Russia need. Georgia is another that certainly does. And, although not identical by any means, they all also share inherent problems in their economies. Shifting away from a communist command model to modern free market economies was always going to be difficult. However, with Russian governments unwilling to allow once constituent republics and satellite states to draw away and make their own choices, this has been made worse. (Even early in the Yeltsin era, it was Russian government policy to 'support' its Diaspora in neighbouring countries.[115]) With much of the old Soviet internal economy remaining, as there has been nothing to replace it, Russian near monopoly in energy production and distribution has proved a *highly* effective tool in the coercion of Russia's 'Near Abroad'. Possibly the worst aspect of all, has been 'market reform', both in Russia and on its periphery that has led to corruption on a truly massive scale all across this gigantic region.[116]

Although there are recent signs of *some* recovery in the Ukrainian economy, unfortunately, there is a perception within Ukraine that defence is not regarded as a particularly high priority.[117] Also, any such economic improvement can only be on the back of severe financial problems that are made all the more worse by Russia's continual belligerence. It remains to be seen how long western institutions, such as the International Monetary Fund, will continue to support Ukraine though.[118] And, even with some success in fighting corruption,[119] unless it is possible to make *substantial* inroads into this disease, the

situation looks bleak for the country generally. The Ukrainian Navy cannot be divorced from all this, especially in matters relating to procurement.[120] Therefore, its rebuilding depends on an economic recovery and this can only happen with corruption largely rooted out, as well as expertly managed political-military relations with Russia *and* the West.

[1] For a highly-readable account of the present situation giving readily understood historical background, see Rajan Menon and Eugene Rumer: *Conflict in Ukraine: The Unwinding of the Post-Cold War Order* (Cambridge, Massachusetts and London: The Massachusetts Institute of Technology Press, 2015). Far greater detail can be found in Orest Subtelny: *Ukraine: A History* (Toronto & London: University of Toronto Press in association with the Canadian Institute of Ukrainian Studies, 1994) Second Edition. Incidentally, the latter is an update of the original edition, published in 1988 and is highly relevant to the Soviet era. I was unable to find a copy of the 2000 edition.) Also, in another account there is useful post-Soviet statistical data, such as of poles. See Paul Kubicek: *The History of the Ukraine* (Westport, Connecticut & London: Greenwood Press, 2008)

[2] Subtelny: *Ukraine* p.499

[3] Menon and Rumer: *Conflict in Ukraine* pp.12-17 & pp.20-22

[4] Ibid. p.14 & pp.22-24; Subtelny: *Ukraine* pp.499-500; and additional perspectives from an informed Ukrainian source
N.B. There had also been other minorities, such as Greeks, Germans and Jews, in this general region for many centuries. See Subtelny: *Ukraine* pp.12-15, p.187 & pp.276-278

[5] Menon and Rumer: *Conflict in Ukraine* p.25 & pp.27-28; and an informed Ukrainian source

[6] Ibid. p.25; Trilateral Agreement - https://disarmament-library.un.org/UNODA/Library.nsf/939721e5b418c27085257631004e4fbf/943f3b2034dc129a852576890070a7c0/$FILE/A-49-66-S-1994-91_Russia-Ukraine-US%2014%20Jan%2094%20trilateral%20stmt.pdf; NPT - https://www.iaea.org/sites/default/files/publications/documents/infcircs/1970/infcirc140.pdf; and the Budapest Memorandum - http://www.larouchepub.com/eiw/public/2014/eirv41n08-20140221/34-35_4108.pdf
N.B. For further analysis on the Trilateral Process, see http://www.brookings.edu/research/papers/2011/05/trilateral-process-pifer

[7] Menon and Rumer: *Conflict in Ukraine* p.28; Charter of Distinct Partnership - http://www.nato.int/cps/en/natohq/official_texts_25457.htm; and Action Plan - http://www.nato.int/docu/basictxt/b030324e.pdf
N.B. For more on the Ukrainian situation in 2003 see http://www.globalsecurity.org/military/library/report/2003/G121.pdf; and http://www.nato.int/docu/comm/2004/06-istanbul/press-kit/010.pdf

[8] Menon and Rumer: *Conflict in Ukraine* p.29-32, pp.34-35 & p.39; and https://en.wikipedia.org/wiki/Multi-National_Force_%E2%80%93_Iraq
N.B. Victor Yuschenko is ethnically Ukrainian, born in the province of Sumy in the north; and Yulia Tymoshenko was born in Dnipropetrovsk. See Menon and Rumer: *Conflict in Ukraine* p.34; and https://en.wikipedia.org/wiki/Yulia_Tymoshenko

[9] Menon and Rumer: *Conflict in Ukraine* pp.43-44

[10] Ibid. p.39; and www.gwu.edu/~ieresgwu/assets/docs/pepm_048.pdf
N.B. Aircraft flights were also covered in the decree relating to BSF movements. See http://www.globalsecurity.org/military/world/ukraine/vms-hist.htm

[11] Menon and Rumer: *Conflict in Ukraine* p.45, pp.49-51 & p.61

[12] Ibid. pp.69-86; http://www.bbc.co.uk/news/world-europe-30587924; and http://www.reuters.com/article/2014/12/23/us-ukraine-crisis-nato-idUSKBN0K10OS20141223

[13] https://en.wikipedia.org/wiki/Ukrainian_Navy

[14] Ibid; and http://www.globalsecurity.org/military/world/ukraine/vms-hist.htm
N.B. Events were *far* more complicated though. For instance, prior to *SKR-112* fleeing westwards in July there had been an incident ashore in Sevastopol, where Ukrainian sailors had grabbed a garrison. Mid month Russians took it back. See dtic.mil/dtic/tr/fulltext/u2/a360381.pdf p.6

[15] https://en.wikipedia.org/wiki/Ukrainian_Navy; and dtic.mil/dtic/tr/fulltext/u2/a360381.pdf pp.6-21
N.B. The date of the formation of the Ukrainian Navy is as advised by an informed Ukrainian source

[16] The Georgians also received a tiny number of vessels, but this aspect will not be discussed in this paper

[17] This, of course, leads into the subject of corruption. For an introduction into how this operates see Edward Lucas: *The New Cold War: How the Kremlin Menaces both Russia and the West* (London: Bloomsbury, 2008)

[18] dtic.mil/dtic/tr/fulltext/u2/a360381.pdf p.1, p.2 & p.13

[19] https://en.wikipedia.org/wiki/Ukrainian_cruiser_Ukrayina; and http://www.globalsecurity.org/military/world/ukraine/vms-hist.htm

[20] dtic.mil/dtic/tr/fulltext/u2/a360381.pdf p.19

N.B. These can be identified as probably two Matka (Vikhr) class and two Pauk I (Molyna) class boats. See Richard Sharpe (Editor): *Jane's Fighting Ships 1997-98* (Coulsdon, Surrey: Jane's Information Group Ltd., 1997) p.745; and Richard Sharpe (Editor): *Jane's Fighting Ships 1998-99* (Coulsdon, Surrey: Jane's Information Group Ltd., 1998) p.740

[21] http://www.globalsecurity.org/military/world/ukraine/vms.htm

N.B. *Jane's Fighting Ships* is the most accurate source found, but either it took some years for all these vessels to be transferred, or 'Jane's' did not have sufficient relevant sources to give accurate assessments

[22] https://en.wikipedia.org/wiki/Ukrainian_Navy

[23] Norman Polmar: *The Naval Institute Guide to the Soviet Navy* (Annapolis, Maryland: United States Naval Institute, 1991) p.18

[24] In the early years there were quite a few more Krivak-class and Grisha-class frigates, but these seem to have been gradually paid off, or sold to the Russians. See Richard Sharpe (Editor): *Jane's Fighting Ships 1996-97* (Coulsdon, Surrey: Jane's Information Group Ltd., 1996) pp.747-479; Sharpe: *Jane's Fighting Ships 1997-98* pp.744-746; Sharpe: *Jane's Fighting Ships 1998-99* pp.737-741; Richard Sharpe (Editor): *Jane's Fighting Ships 1999-2000* (Coulsdon, Surrey: Jane's Information Group Ltd., 1999) pp.740-744; and Richard Sharpe (Editor): *Jane's Fighting Ships 2000-2001* (Coulsdon, Surrey: Jane's Information Group Ltd., 2001) pp.733-736

[25] Sharpe: *Jane's Fighting Ships 1998-99* p.737; Sharpe: *Jane's Fighting Ships 1999-2000;* and p.739 http://www.globalsecurity.org/military/world/ukraine/vms-modernization.htm

N.B. 'Jane's' (see above) had thought that one Tango and three Foxtrot-class boats that were transferred in 1997. However, an informed Ukrainian source pointed this out as erroneous. Also, it would appear that in 2011 five vessels completed refits. Others continued in 2012 and 2013. It should be pointed out that while most were combatant vessels, these included one tug and a coastal survey ship. See http://www.globalsecurity.org/military/world/ukraine/vms-modernization.htm. And, there is a photograph of *Zaporizya*, identifiable as in Ukrainian service on the surface. See http://korrespondent.net/ukraine/politics/3401903-korrespondent-na-malenkom-flotu-na-chto-seichas-sposobny-ostatky-ukraynskoho-flota

[26] http://www.globalsecurity.org/military/world/ukraine/vms-exercises.htm; https://en.wikipedia.org/wiki/Ukrainian_Navy; https://en.wikipedia.org/wiki/Ukrainian_frigate_Hetman_Sahaydachniy_(U130); https://www.legistorm.com/stormfeed/view_rss/588158/organization/31751.html; https://en.wikipedia.org/wiki/Operation_Active_Endeavour; and http://www.mc.nato.int/about/Pages/OperationOcean%20Shield.aspx

[27] https://en.wikipedia.org/wiki/2006_anti-NATO_protests_in_Feodosia

[28] http://www.globalsecurity.org/military/world/ukraine/vms-exercises.htm; http://www.themoscowtimes.com/sitemap/free/1994/10/article/us-joins-exercise/346907.html; https://en.wikipedia.org/wiki/Ukrainian_corvette_Vinnytsia; and http://sputniknews.com/world/20090622/155320500.html

N.B. For an in-depth study of aspects of Exercise 'Sea Breeze' see Alisa Moldavanova: *Public Perception of the Sea Breeze Exercises and Ukraine's Prospects in the Black Sea Region* (Kansas & Fort Levenworth: Center for Russian, East European and Eurasian Studies and the US Foreign Military Studies Office, 2012-13) http://fmso.leavenworth.army.mil/Collaboration/international/Ukraine/Sea-Breeze-exercise.pdf

[29] No official British files have apparently been released for public scrutiny yet and the identities of Ukrainian naval ships have only been found in open source material for two years, 2010 and 2015. See http://turkishnavy.net/2010/07/22/order-of-battle-for-exercise-sea-breeze-2010/; and http://turkishnavy.net/2015/09/12/sea-breeze-2015-naval-exercise-concludes-in-ukraine/

[30] http://www.globalsecurity.org/military/world/ukraine/vms-modernization.htm; https://en.wikipedia.org/wiki/Ukrainian_Navy; and http://news.usni.org/2014/04/11/ukraines-last-ship

N.B. Although in building for 14 or 15 years, the Grisha V class frigate *Ternopil* was commissioned in 2005, or 2006. See http://www.globalsecurity.org/military/world/ukraine/vms-modernization.htm; and Commodore Stephen Saunders: *IHS Jane's Fighting Ships 2015-16* (IHS Global Ltd., 2015) p.873

[31] Personal opinion based on experience within the FCO in the 1980s and subsequently, as a researcher

[32] http://www.globalsecurity.org/military/world/ukraine/project-58250.htm; http://www.globalsecurity.org/military/world/ukraine/vms-modernization.htm; https://en.wikipedia.org/wiki/Ukrainian_Navy; Saunders: *IHS Jane's Fighting Ships 2015-16* p.871; http://m.day.kiev.ua/ru/article/tema-dnya-podrobnosti/pyat-aspektov; and additional information on the original intentions of this programme from an informed Ukrainian source
N.B. There was also an intention to improve Ukraine's Special Operations Forces in 2008. See, http://www.globalsecurity.org/military/ukraine/vms.htm

[33] https://en.wikipedia.org/wiki/Gurza-class_boat; and Commodore Stephen Saunders: *IHS Jane's Fighting Ships 2015-16* p.873

[34] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html

[35] Commodore Stephen Saunders: *IHS Jane's Fighting Ships 2013-14* (IHS Global Ltd., 2013) pp.860-864

[36] Informed Ukrainian source; and also http://russianships.info/eng/warships/project_1176.htm

[37] In October 2013 *Melitopol* was the only one combatant vessel of nine named for disposal. See http://www.globalsecurity.org/military/world/ukraine/vms-modernization.htm

[38] Informed Ukrainian source

[39] http://www.globalsecurity.org/military/ukraine/vms.htm; Saunders: *IHS Jane's Fighting Ships 2013-14* pp.865-867; and Saunders: *IHS Jane's Fighting Ships 2014-15* pp.880-882
N.B. 'Jane's' states that apart from five miscellaneous landing craft not used in combat rôles, there were two survey ships; three training ships; one support vessel (depot ship); one water tanker; one degaussing vessel (also with a NBC citadel); one heavy lift ship; two fire-fighting craft; one diving tender; thirteen harbour craft (in various rôles); one general purpose craft; and six tugs. Additionally, there may have been two or three transports, two tankers; one more survey ship; one trials craft; and two further craft in rôles unknown. Whether any of these were regarded as combatant, or not, if lightly armed, has not been confirmed.

[40] www.globalsecurity.org/military/world/ukraine/navy-bases.htm with names translated into Ukrainian

[41] Saunders: *IHS Jane's Fighting Ships 2013-14* p.862; Saunders: *IHS Jane's Fighting Ships 2014-15* p.877; and http://www.globalsecurity.org/military/ukraine/vms.htm
N.B. Although IHS Jane's stated that these aircraft were based at Sevastopol, an informed Ukrainian source has corrected this to Saki, 60 km from Sevastopol

[42] *The Military Balance 2014* (London: Routledge for the International Institute for Strategic Studies, 2014) p.196

[43] https://en.wikipedia.org/wiki/Ukrainian_Naval_Infantry; and www.globalsecurity.org/military/world/ukraine/vms-naval-infantry.htm
N.B. Information given by the IISS is once again, significantly different. See *The Military Balance 2014* (London: Routledge for the IISS, 2014) p.196

[44] http://www.globalsecurity.org/military/ukraine/vms.htm; https://en.wikipedia.org/wiki/Ihor_Tenyukh; and informed Ukrainian source
N.B. From photographs taken of *Ternopil* and *Slavutich* shortly before they were taken over, it can be seen that both seemed to be in a good state, including their paintwork. See http://intercepts.defensenews.com/2014/

[45] http://www.bbc.co.uk/news/world-middle-east-26248275; http://www.bbc.co.uk/news/world-europe-26400035; http://ukrainianpolicy.com/russian-invasion-of-ukraine/; http://www.eastwest.ngo/idea/updates-and-analysis-ukraine-crisis-april-7-2014; and specifically to the takeover of the Crimean Parliament, an informed Ukrainian source

[46] http://www.bbc.co.uk/news/world-europe-2641043; https://en.wikipedia.org/wiki/Denis_Berezovsky; http://www.theguardian.com/world/2014/mar/03/ukraine-navy-officers-defect-russian-crimea-berezovsky; and https://en.wikipedia.org/wiki/Serhiy_Hayduk

[47] https://www.rt.com/news/ukraine-navy-flaghsip-protest-389/; http://navaltoday.com/2014/03/04/hetman-sahaydachny-remains-loyal-to-ukraine/; and http://navaltoday.com/2014/03/07/ukrainian-frigate-on-home-land/

[48] http://navaltoday.com/2014/03/04/ukrainian-warship-thwarts-attack-in-sevastopol/; and http://navaltoday.com/2014/03/06/russia-sinks-ship-to-block-ukrainian-navy-ships/

N.B. It would appear that a second vessel was also later sunk in this channel. See http://www.wsj.com/articles/SB10001424052702303949704579461513462696086

[49] https://wdsi.wordpress.com/2014/03/30/ukrainian-navy-decimated-by-russian-move-into-crimea/

[50] http://navaltoday.com/2014/03/17/russia-ukraine-agree-on-unblocking-military-units-in-crimea/; and http://navaltoday.com/2014/03/18/ukrainian-navy-will-remain-headqurtered-in-sevastopol

[51] Informed Ukrainian source

[52] http://www.nytimes.com/2014/03/20/world/europe/crimea.html?_r=0; http://news.usni.org/2014/04/11/ukraines-last-ship; and http://navaltoday.com/2014/03/20/ukrainian-navy-commander-released-from-http://navaltoday.com/captivity/

[53] http://navaltoday.com/2014/03/21/russian-troops-along-border-with-ukraine-solely-there-for-exercises-shoygu/; http://www.forbes.com/sites/kenrapoza/2014/03/22/russian-navy-takes-over-ukrainian-sub-in-crimea/; http://intercepts.defensenews.com/2014/03/pictures-russian-black-sea-fleet-commander-boards-ukrainian-navy-ship/; and http://intercepts.defensenews.com/2014/03/pictures-russian-black-sea-fleet-commander-boards-ukrainian-navy-ship/

[54] http://www.reuters.com/article/2014/03/23/us-ukraine-crisis-withdrawal-idUSBREA2M0KM20140323; http://www.reuters.com/article/2014/03/24/us-ukraine-crisis-crimea-base-idUSBREA2N09J20140324; http://navaltoday.com/2014/03/24/russian-troops-capture-up-to-80-ukrainian-personnel-in-feodosia-attack/; http://www.reuters.com/article/2014/03/24/us-ukraine-crisis-crimea-base-idUSBREA2N09J20140324; and http://www.cbc.ca/m/touch/news/story/1.2585426

[55] https://wdsi.wordpress.com/2014/03/30/ukrainian-navy-decimated-by-russian-move-into-crimea/; http://navaltoday.com/2014/03/25/ukrainian-minesweeper-fends-off-hijacking-attack/; and http://www.wsj.com/articles/SB10001424052702303949704579461513462696086

[56] http://navaltoday.com/2014/03/21/ukrainian-frigate-returns-to-odesa-port/

[57] http://navaltoday.com/2014/03/27/ukrainian-navy-military-hostages-in-crimea-freed/; and http://navaltoday.com/2014/03/31/ukrainian-servicemen-put-on-full-alert-amid-russian-border-exercises/

[58] http://www.ukinform.net/rubric-politics/1638186-10_ships_remain_within_ukraines_naval_forces_319162.html; http://www.liquisearch.com/list_of_ships_of_the_ukrainian_navy/amphibious_assault_ships; and Saunders: *IHS Jane's Fighting Ships 2014-15* pp.875-880
N.B. UKINFORM showed *Svatove* as a transport barge. Also, there were other lists with other vessels. For instance, see http://www.matthewaid.com/post/81289403296/what-is-left-of-the-ukrainian-navy

[59] http://www.euronews.com/2014/04/07/russian-soldier-kills-ukraine-navy-officer-in-crimea/

[60] http://navaltoday.com/2014/04/14/first-ukrainian-navy-ships-sail-out-of-crimea/; http://navaltoday.com/2014/04/15/ukrainian-navy-ships-pryluky-and-fastiv-redeploy-to-odesa/; http://navaltoday.com/2014/04/15/ukrainian-navy-moves-third-ship-to-odesa/; and http://navaltoday.com/2014/04/22/about-60-ukrainian-ships-remain-in-crimea/

[61] http://navaltoday.com/2014/05/08/russia-returns-five-more-ships-to-ukraine/; and http://navaltoday.com/2014/05/21/more-ukrainian-ships-pull-out-from-crimea

[62] http://uatoday.tv/politics/ukrainian-navy-day-celebrated-in-odesa-for-first-time-since-russia-s-seizure-of-crimea-451056.html

[63] http://navaltoday.com/2014/04/14/first-ukrainian-navy-ships-sail-out-of-crimea/; and http://navaltoday.com/2014/04/15/ukrainian-navy-ships-pryluky-and-fastiv-redeploy-to-odesa/

[64] http://korrespondent.net/ukraine/politics/3401903-korrespondent-na-malenkom-flotu-na-chto-seichas-sposobny-ostatky-ukraynskoho-flota

[65] https://wdsi.wordpress.com/2014/03/30/ukrainian-navy-decimated-by-russian-move-into-crimea/

[66] http://www.nytimes.com/2014/03/20/world/europe/crimea.html?_r=0; http://navaltoday.com/2014/04/14/first-ukrainian-navy-ships-sail-out-of-crimea/; and http://www.globalsecurity.org/military/ukraine/vms.htm

[67] *The Military Balance 2014* p.195; Saunders: *IHS Jane's Fighting Ships 2014-15* p.874; and https://wdsi.wordpress.com/2014/03/30/ukrainian-navy-decimated-by-russian-move-into-crimea/

[68] https://web.archive.org/web/20150804125959/http://vmsu.org/dniki/komanduvannya-vms-zs-ukraini/; Shakuro - http://en.glavnoe.ua/news/n226185; and Yeleseyev - http://www.kommersant.ru/doc/2525842
N.B. I am indebted to one of the informed Ukrainian sources in providing me with a posting of Yeleseyev's *correct* subsequent appointment

69 http://vmsu.org/zradniki/vijskova-chastina-a4368/; and https://wdsi.wordpress.com/2014/03/30/ukrainian-navy-decimated-by-russian-move-into-crimea/

70 http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html; and http://www.globalsecurity.org/military/ukraine/vms.htm

71 Informed Ukrainian source

72 Named as *AK-1* and *AK-2* in the immediate above editorial, through their pendant numbers (U172 and U173), their identity as Smel class river patrol craft was made and hence, the fact that they had been with the Border Patrol. See http://ukraineinvestigation.com/russians-captured-51-ukrainian-ship/; and Saunders: *IHS Jane's Fighting Ships 2014-15* p.883

73 http://navaltoday.com/2014/04/24/ukrainian-frigate-completes-drills/; http://navaltoday.com/2014/05/08/ukrainian-missile-cutter-pryluky-finishes-first-sailing-after-redeployment/; and http://navaltoday.com/2014/05/13/ukrainian-navy-ships-boats-complete-drills/

74 https://en.wikipedia.org/wiki/Ukrainian_Navy; and http://tsn.ua/ukrayina/pid-doneckom-geroyichno-zaginuv-hkomandir-ochakivskih-morskih-pihotinciv-363596.html; and an informed Ukrainian source
N.B. It would seem that it is only the naval infantry's special operations teams that have been used in the Anti Terrorist Operations. Instead, the bulk of the naval infantry, 150 in number, have been deployed as police in the Mykoliav area. See http://korrespondent.net/ukraine/politics/3401903-korrespondent-na-malenkom-flotu-na-chto-seichas-sposobny-ostatky-ukraynskoho-flota

75 https://en.wikipedia.org/wiki/State_Border_Guard_Service_of_Ukraine; https://en.wikipedia.org/wiki/Ukrainian_Sea_Guard; http://korrespondent.net/ukraine/politics/3401903-korrespondent-na-malenkom-flotu-na-chto-seichas-sposobny-ostatky-ukraynskoho-flota; http://news.usni.org/2014/09/02/two-ukrainian-patrol-boats-shelled-artillery-one-sunk; and http://www.itnsource.com/en/shotlist/RTV/2014/03/26/RTV260314030/
N.B. Two short pieces of film footage appeared on You-Tube on 31ˢᵗ August 2014, described as an air attack. This may well have been the same incident. See http://beforeitsnews.com/alternative/2014/08/huge-ww3-update-russian-air-force-bombs-ukrainian-navy-huge-escalation-video-3020918.html

76 https://en.wikipedia.org/wiki/Ukrainian_Navy

77 http://www.jamestown.org/single/?tx_ttnews%5Btt_news%5D=42791&no_cache=1#.VjNL8NLhAW0; and http://www.reuters.com/article/2014/03/04/ukraine-crisis-strait-idUSL6N0M13N220140304

78 http://www.janes.com/article/50071/kiev-s-forces-ill-set-if-ceasefire-gives-way-to-russian-backed-offensive?elq=<span%20class=eloquaemail>recipientid&utm_campaign=PC6110_E15%20DF%20NL%20Security%2003_24_15&utm_medium=email&utm_source=Eloqua; http://europe.newsweek.com/putin-ramping-pressure-ukraine-border-prompting-fears-new-offensive-324863; and http://www.newsweek.com/ukraine-battle-mariupol-heats-319063

79 Informed Ukrainian source

80 http://m.day.kiev.ua/ru/article/tema-dnya-podrobnosti/pyat-aspektov; https://en.wikipedia.org/wiki/9K720_Iskander; https://en.wikipedia.org/wiki/K-300P_Bastion-P; https://en.wikipedia.org/wiki/Sukhoi_Su-24; and http://theaviationist.com/2015/06/01/video-su-24-near-uss-ross/

81 http://m.day.kiev.ua/ru/article/tema-dnya-podrobnosti/pyat-aspektov; https://en.wikipedia.org/wiki/Admiral_Grigorovich-class_frigate; http://blogs.plymouth.ac.uk/dcss/tag/admiral-essen-frigate/; http://tass.ru/en/russia/758678; and http://www.janes.com/article/55284/russia-hoping-to-export-three-sanction-hit-admiral-grigorovich-class-frigates
N.B. The Talwar-class frigates were in turn based on Krivak III designs. However, the Admiral Grigorovich-class include modern developments such as stealth technology. For film footage of the first of this class conducting missile a firing and gunnery shoot, see https://www.youtube.com/watch?v=KF2cGujIITs

82 http://m.day.kiev.ua/ru/article/tema-dnya-podrobnosti/pyat-aspektov; https://en.wikipedia.org/wiki/Kilo-class_submarine; http://turkishnavy.net/2015/09/17/russian-submarine-novorossiysk-passed-through-bosphorus/; http://sputniknews.com/military/20150917/1027136975/novorossiysk-subs.html; http://en.news-4-u.ru/media-reported-about-the-failure-of-the-latest-submarine-rostov-on-don-and-interrupted-transition-the-official-structures-do-not-confirm.html; http://defense-update.com/20120817_improved_kilo.html#.Vls13NLhAW0; and Saunders: *IHS Jane's Fighting Ships 2015-16* pp.686-687
N.B. A third, *Stary Oskol*, was accepted by the Russian Navy in late July 2015 and engaged in weapon testing

in the Baltic in late October. See http://www.naval-technology.com/news/newsrussian-navy-receives-new-diesel-electric-submarine-stary-oskol-4633108; and http://sputniknews.com/russia/20151016/1028640362/russia-stealth-submarine.html. And, the fourth, *Krasnodar*, was said to be entering service (for trials and work up) in early November 2015. See http://sputniknews.com/military/20151102/1029482402/submarine-krasnodar-navy.html

[83] Informed Ukrainian source

[84] Informed Ukrainian source

N.B. I have drawn on the information from more than one individual

[85] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html

[86] For an introduction into this exceedingly complex subject see the Admiralty's *Manual of Seamanship* (London: HMSO, 1951) volume I p.63-70; and *Manual of Seamanship* (London: HMSO, 1951) volume III pp.301-339

N.B. Some doubt might be expressed in relation to Soviet construction. From a distance their surface ships often looked impressive. Nevertheless, from personal experience visiting a Soviet Kashin class destroyer in Portsmouth in June 1976, up close this vessel was of crude and doubtful construction. For instance one had to step *over* welds on her forecastle that were many inches wide!

[87] Polmar: *The Naval Institute Guide to the Soviet Navy* p.179

[88] http://russia-insider.com/en/politics/russia-wants-return-warships-captured-crimea-ukraine-navy/ri8480; and http://en.interfax.com.ua/news/general/276053.html

N.B. On a visit to Sevastopol in September 2015 a colleague (Andrew Breer) photographed the mast of a small auxiliary vessel alongside. She was flying the national flag of Ukraine

[89] https://en.wikipedia.org/wiki/Black_Sea_Shipyard; and http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html

[90] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html

[91] http://korrespondent.net/ukraine/politics/3401903-korrespondent-na-malenkom-flotu-na-chto-seichas-sposobny-ostatky-ukraynskoho-flota

N.B. With the breakup of the Indian sub-continent in 1947and hence the Royal Indian Navy, while allocations of ships and small craft were seemingly unproblematic, this was not the case for personnel. Due to the way they were recruited the RIN became short of senior rates, while the new Royal Pakistan Navy must have had problems getting sufficient junior rates. See http://www.barnettmaritime.co.uk/mainbombay.htm

[92] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html

N.B. Mariners seeking employment abroad is not a recent problem either. As early as 2002 there was an assessment of approximately 100,000 Ukrainians applying annually for foreign work afloat. As can be seen from online sources, these are not infrequently in the world's trouble spots, as can be seen from a recent incident. See http://www.day.kiev.ua/en/article/society/about-100000-ukrainian-sailors-annually-apply-jobs-foreign-ships; and http://themaritimehub.org/pirates-release-four-solarte-crew-members/

[93] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html; http://www.globalsecurity.org/military/ukraine/vms.htm; http://korrespondent.net/ukraine/politics/3401903-korrespondent-na-malenkom-flotu-na-chto-seichas-sposobny-ostatky-ukraynskoho-flota; and in relation to the army http://www.unian.info/society/1153872-creating-new-ukrainian-army.html

N.B. From personal experience especially in the old stables at *Dolphin* (the Royal Navy's submarine school and base in Gosport, Hampshire) in the 1970s, poor living conditions can be detrimental to morale

[94] These terms, although not in current vogue are perfectly viable, as articulated in Julian S. Corbett: *Some Principles of Maritime Strategy* (London: Longmans, Green and Co., 1911)

[95] Outlined by an informed Ukrainian source, this has shades of the 19th century *Jeune Ecole*

[96] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html; http://atlas.media.mit.edu/en/profile/country/ukr/; http://www.worldfishing.net/news101/regional-focus/development-plans-for-ukranian-fisheries; http://oilprice.com/Energy/Energy-General/Russia-Claims-Ukraines-Black-Sea-Oil-And-Gas-Bounty.html;

http://www.geoexpro.com/articles/2014/07/ukraine-s-gas-fuelled-crisis; and http://www.oilgas-events.com/market-insights/georgia-romania-russia-turkey/black-sea-offshore-production-in-2015-a-route-to-energy-independence-/801781383

N.B. The export of liquefied natural gas may well also come to pass and if so, LNG tankers might also need to be defended. In doing so, as well as requiring surface units, Ukrainian submarines may well need to also maintain a presence off the Bosphorus

[97] *The Military Balance 2015* (London: Routledge for the IISS, 2015) p.169; Odin: 'Sevastopol Power Play Lays Down Putin's 'New World Order'' in *Warships International Fleet Review* April 2014 p.5

[98] http://en.kremlin.ru/events/president/news/20603

[99] This attitude has seemingly not altered since either. See Donald. N. Jensen: 'NATO Fumbles Ukraine' in *The IMR Review* Issue No. 3 September 2014

[100] http://www.nato.int/docu/review/2014/nato-energy-security-running-on-empty/Ukraine-energy-independence-gas-dependence-on-Russia/EN/index.htm; http://oilprice.com/Energy/Energy-General/Russia-Claims-Ukraines-Black-Sea-Oil-And-Gas-Bounty.html; and http://ellisoncenter.washington.edu/faculty-spotlight/reshaping-the-sea-ukraines-dismal-future-in-black-sea-basin/

N.B. For more in depth analysis on the Yanukovych era gas strategy, see Arkadiusz Sarna: 'Kyiv's gas strategy: closer cooperation with Gazprom or a genuine diversification' in *OSW Commentary* Number 110 16th July 2013 - mercury.ethz.ch/serviceengine/ Files/ISN/.../commentary_110.pdf

[101] http://news.usni.org/2015/09/23/france-to-sell-mistral-amphibs-to-egypt?utm_source=USNI+News&utm_campaign=916f4e19c2-USNI_NEWS_WEEKLY&utm_medium=email&utm_term=0_0d4a1450b-916f4e19c2-230936853&mc_cid=916f4e19c2&mc_eid=5cce7efa1c

[102] http://www.jamestown.org/single/?tx_ttnews%5Btt_news%5D=42791&no_cache=1#.VjNL8NLhAW0; and Dmitry Gorenburg: *The Russian Black Sea Fleet after the Georgia War* - www.gwu.edu/~ieresgwu/assets/docs/pepm_048.pdf

N.B. Notwithstanding Russia's new naval doctrines that are vastly expansionist, study shows that even if all goes to plan, they will be concentrating on submarine building for many years, before getting down to any significant surface shipbuilding. For an introduction to the most recent see http://www.themoscowtimes.com/business/article/new-russian-naval-doctrine-enshrines-confrontation-with-nato/526277.html?utm_source=email_tmt-editorial&utm_medium=email&utm_campaign=55-issue-2015-07-28&utm_content=title_2. Nevertheless, as already shown significant reinforcement of the BSF has already taken place

[103] http://www.jamestown.org/single/?tx_ttnews%5Btt_news%5D=42791&no_cache=1#.VjNL8NLhAW0

N.B. Admiral Kabanenko has publically expanded slightly on this. See http://m.day.kiev.ua/ru/article/tema-dnya-podrobnosti/pyat-aspektov

[104] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html; and http://reforms.in.ua/en/reform/indicator/6822

[105] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html; and Saunders: *IHS Jane's Fighting Ships 2015-16* p.873

[106] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html

[107] Ibid.

[108] Ibid.; http://uatoday.tv/politics/ukrainian-navy-day-celebrated-in-odesa-for-first-time-since-russia-s-seizure-of-crimea-451056.html; https://en.wikipedia.org/wiki/Serhiy_Hayduk; and Saunders: *IHS Jane's Fighting Ships 2015-16* p.873

[109] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html; and British Admiralty charts BA2212 & BA2232

N.B. The older (pre-metric) Admiralty charts give far more soundings than the current ones

[110] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html

[111] http://fas.org/nuke/guide/russia/industry/chernomorsky.htm; and http://smart-maritime.com/en/enterprises/chernomorskiy-sudostroitelnyy-zavod/

N.B. The ownership of Chernomorsky Yard might raise real concern. The 'SMART Group' is owned by Vadim Novinsky and has links to Rinat Akhmetov. See https://en.wikipedia.org/wiki/Vadim_Novinsky; https://wikileaks.org/plusd/cables/07KYIV2496_a.html; https://en.wikipedia.org/wiki/Rinat_Akhmetov; and

https://wikileaks.org/gifiles/docs/54/5425314_re-fwd-re-eurasia-fwd-discussion-ukraine-oligarchs-.html

[112] http://www.unian.info/politics/1097166-deputy-chief-of-ukraines-navy-terms-of-operation-of-all-ukrainian-military-vessels-will-have-run-out-by-2018.html; http://www.jamestown.org/programs/edm/single/?tx_ttnews%5Btt_news%5D=43132&cHash=715603a13f43b117fad83d4af8d459e3#.VjZBXdLhAW0; and http://defence-blog.com/news/new-ukrainian-multifunctional-missile-complex-to-start-production-next-year.html

N.B. There is a plan for the industrial defence complex to be used to develop Ukraine's wider economy. See http://www.jamestown.org/programs/edm/single/?tx_ttnews%5Btt_news%5D=43132&cHash=715603a13f43b117fad83d4af8d459e3#.VjZBXdLhAW0

[113] http://m.day.kiev.ua/ru/article/tema-dnya-podrobnosti/pyat-aspektov

[114] Ibid.

[115] Neil Melvin: *Russians Beyond Russia: The Politics of National Identity* (London: The Royal Institute of International Affairs, 1995) pp.18-22

[116] There are many books on these subjects available in English. For a good introduction on Ukrainian aspects, see Menon and Rumer: *Conflict in Ukraine*. Similarly, for wider aspects, see Lucas: *The New Cold War*. Interesting analysis on Russia up to c.2006 can be found in Roderic Lyne, Strobe Talbott and Koji Watanabe: *Engaging With Russia: The Next Phase* (Washington: The Trilateral Commission, 2006). And, as an excellent example of how corruption operates in Ukraine, see Oliver Bullough: *Looting Ukraine: How East and West Teamed up to Steal a Country* (London: Legatum Institute, 2014)

[117] http://www.unian.info/society/1153872-creating-new-ukrainian-army.html

N.B. This opinion was also expressed during a discussion entitled 'Donbass Fortunes: from Hot Battle to Frozen Conflict', held at King's College, London on 9th November 2015

[118] http://www.unian.info/economics/1169748-sales-of-industrial-goods-grow-by-244-since-years-start.html; http://www.unian.info/economics/1162418-ukraines-trade-representative-russian-embargo-not-to-affect-our-economy.html; and http://uk.reuters.com/article/2015/10/29/uk-ukraine-crisis-imf-idUKKCN0SN1YQ20151029

N.B. Within a short time of news of a recovering economy came an announcement that Ukraine's GDP had shrunk. See http://www.unian.info/economics/1196740-ukraines-audit-chamber-reports-13-decline-in-gdp-gdp-in-nine-months.html

[119] For examples of success against corruption, see Sarah Lain and Alisa Voznaya: *Anti-Corruption Reform and Business Security in Ukraine Glass Half Full?* (London: Royal United Services Institute, 2015)

[120] In an interview in July 2015 Admiral Kabanenko stated that corruption was a 'major problem' in the armed forces. Also, four months before this same admiral voiced criticisms of procurement procedures. See http://www.jamestown.org/press/events/single/?tx_ttnews%5BbackPid%5D=7&tx_ttnews%5Btt_news%5D=44151&cHash=3f93b2721f57bd1d9a5b82a56247cdb2; and http://m.day.kiev.ua/ru/article/tema-dnya-podrobnosti/pyat-aspektov