

3 China's Coast Guard: Organization, Forces, and Yellow Sea Applications

Andrew S. Erickson¹

Introduction

China has by far the world's largest Coast Guard by number of ships, with the world's largest Maritime Law Enforcement (MLE) ships by size.² By 2017, following an historically unprecedented two-decade buildup, China's 17,000-plus CCG personnel crewed 225 ships of over 500 tons capable of operating offshore, and at least another 1,050 vessels confined to closer waters, for a total of over 1,275—more hulls than the Coast Guards of all its regional neighbors combined.³ Five years later, fleet size has stabilized at approximately this level.

This MLE juggernaut is proportionate to China's other superlative elements of national power. China has the world's second largest defense budget, funded by what is at least the world's second largest economy. Among many other defense distinctions, it also has the world's largest Navy and Maritime Militia by number of ships. Together, China's three sea forces "form the largest maritime force in the Indo-Pacific."⁴ Still more germane to MLE issues, China has the world's largest fishing fleet and world's most fishers. It has the world's largest merchant marine, largest aquaculture and pisciculture industries, and largest marine sector overall. Managing them—together with fisheries enforcement, marine traffic supervision, ensuring safety of life at sea, and customs administration more generally—constitutes a vital mission set for the CCG, inherently requiring numerous ships and personnel to execute fully and effectively.⁵

But here's the rub: China also has the world's most numerous and extensive disputed maritime and island/feature claims, with the largest number of other parties. Addressing them is likewise an important mission for the CCG. The CCG and its predecessor white hull counterparts (the "Five Dragons"—State Oceanic Administration, China Marine Surveillance, Fisheries Law Enforcement, etc.) have been involved in sovereignty disputes for years. (Admiral Swift cites a case with the Republic of Korea (ROK) in 1960 in his Preface; a more recent example is CCG enforcement of Beijing's seizure of Scarborough Shoal from 2012 onward.) Beijing employs its MLE forces to advance its disputed sovereignty claims to a greater degree than most other powers, and on a greater scale than all. Moreover, the CCG's

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force structure, organization, and leadership have evolved dramatically in recent years, with further developments unfolding as you read these words. An updated understanding of China's second sea force is therefore long overdue, although it will be far from the final word.

From the CCG's perspective, the operational environment and key dynamics of the Yellow Sea may be distilled concisely. As Admiral Swift relates from operational experience in his Preface to this volume, the Yellow Sea is a confined, congested, contested zone. Characteristics specific thereto include political sensitivities stemming from proximity to Beijing—as well as Seoul and Pyongyang—and the absence of contested land features between China and either of the Koreas⁶ (which dispute the status of maritime zones near the Northern Limit Line,⁷ as Terence Roehrig details in his chapter). This suggests that in the Yellow Sea Beijing places less emphasis on gray zone operations, and the CCG's role is somewhat different, than in the East and South China Seas. Gregory Poling surveys the key flashpoints in his chapter, the most extensive of which involve fishing rights disputes stemming from overlapping exclusive economic zone (EEZ) claims, particularly between China and South Korea. Beijing also opposes the operations of U.S. Navy and other U.S. government vessels in its claimed EEZ, which covers much of the Yellow Sea, and discourages their participation in military exercises nearby. Further complicating matters is North Korean proximity to this waterway and the fact that North Korea has its own fleet of fishing vessels operating in the area—a potential friction point between Beijing and Pyongyang. From the PRC's perspective, fishing disputes alone justify extensive CCG involvement. All major CCG vessels are potentially relevant to this area of operations, in the sense that they are potentially deployable there even if this is rarely done in practice. This chapter therefore examines China's overall MLE forces, centered on the CCG, with a particular focus on their leadership, organization, force structure, future trends, and operational employment.

China's Second Sea Force

This chapter is a counterpart to the subsequent chapter on China's Maritime Militia by Conor Kennedy. Together, as the second and third of China's three sea forces, respectively, the CCG and PAFMM typically operate on the front lines of China's maritime gray zone operations. As Peter Dutton has explained in his chapter, the PLAN is involved directly in some gray zone operations, and plays a key role, at least implicitly, in all—typically as a backstop deterrent instead of a front-line participant. This section situates the CCG within China's Armed Forces structure.

Make no mistake: all three sea forces are part of China's armed forces. As Figure 3.1 (below) illustrates, all three operate under a chain of command leading up through the PLA's Central Military Commission (CMC) to paramount leader and Commander-in-Chief Xi Jinping himself. For the CCG, this

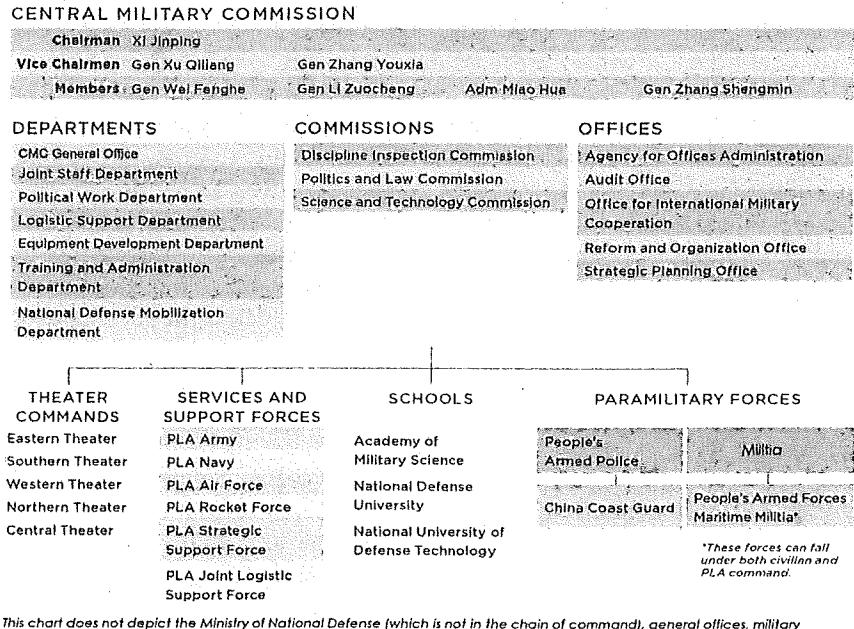


Figure 3.1 Chain of Command for the Three Sea Forces within China's Armed Forces. Source: U.S. Department of Defense.⁹

has been the case since its transfer on July 1, 2018 from the civilian State Oceanic Administration (SOA) to the People's Armed Police (PAP), which is now under the CMC. In the process, SOA itself was dissolved.⁸

As such, the CCG and PAFMM are always state-sponsored, and not "civilian" in the conventional sense, at least as a layperson would understand it. There is an ideological element to the use of nominally civil forces. Beijing employs "civil" forces to contest in areas it regards as domestic. In pragmatic terms, such forces are also the most effective for the cost and risk involved.

In practice, as Dutton explains, China usually seeks to use its second and third sea forces in as subtle and civilian-appearing a manner as possible in order to confound foreign countermeasures and to achieve its objectives with the minimum level of escalation consistent with mission fulfillment. Specific examples of Beijing's force-layering "cabbage strategy" and how it can be effective—i.e., by pairing white-hulled CCG vessels and blue-hulled PAFMM vessels against foreign naval gray hull(s)—can be seen in China's seizure of Scarborough Shoal in 2012 and defense of the HYSY-981 oil rig in 2014. Thus integrated and empowered, the fleets of all three of China's armed forces work together with increasing frequency and effectiveness at sea, particularly in gray zone operations.¹⁰

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In the cabbage strategy, the PRC seeks to "outmuscle" all opponents at every level. PRC regional superiority in both size and number matters greatly because gray zone operations are first and foremost an intimidation game. PRC fishing boats are (mostly) much larger and stronger-/steel-hulled, compared to others. This would likely cause another nation's MLE or Navy to enter any situation in which it sought to avoid retreating. CCG ships are larger than those of their neighbors' Coast Guards, and often their neighbors' navies. Ultimately, having PLAN assets nearby is the trump card. These dynamics, in turn, raise the risk of rapid escalation unless an opponent declines to press forward or capitulates.

The increasingly empowering military authority under which CCG vessels operate is reflected in key provisions of new *PRC Coast Guard Law* adopted by the National People's Congress (NPC) on 22 January 2021 and effective on 1 February.¹¹ As Ryan Martinson explains, "'rights protection law enforcement' (维权执法, *weiquan zhifa*) ... is the overarching purpose of the CCG. It is symbolized by one of three stripes on the PAP service flag ... and codified in the recently-revised People's Armed Police Law Before 2018, 'rights protection law enforcement' narrowly referred to efforts to defend China's claimed maritime rights in the face of foreign encroachment. Today it encompasses everything the service does."¹²

All three PRC sea forces operate in the Yellow Sea. This was the case for the CCG even before its official consolidation on July 22, 2013.¹³ By the end of 2008, as Martinson relates, one of China's previous MLE subcomponents—China Marine Surveillance (CMS)—"stated that it had regularized rights-protection patrols to all jurisdictional waters, 'from the Yalu River to James Shoal.'"¹⁴ Martinson also explains how a Yellow Sea gray zone operation against USNS *Bowditch* (T-AGS-62) in 2001 (before further harassment in 2002 and 2003) inspired a model for subsequent MLE "rights protection" against foreign military activities in China's claimed EEZ. A PRC source recounts: "CMS ships maintained a certain safe distance [from the American ship] while tracking and monitoring it. At the right moment, we approached the *Bowditch* to observe its equipment and operations in real time. Moreover, we would frequently use high-frequency communications to admonish [the American ship], expressing our government's position and attitude, pointing out its illegal behavior, and demanding that it immediately halt its activities."¹⁵

PAFMM operations in the Yellow Sea are typically handled by local militiamen familiar with the area through their day jobs, but this localization is far less the case for CCG and PLAN operations. With regard to CCG operations, Ryan Martinson relates, "rights-protection [维权, *weiquan*] deployments now are overseen by a single command center in Beijing, which can and does communicate directly with ships at sea. This enables vessels from different regions to be directed to areas where they are needed. For instance, in 2015 eight ships based in the north of China were ordered to conduct rights-protection operations in the South China Sea, by far the service's largest theater of operations."¹⁶

Although these larger dynamics continue to characterize Beijing's maritime gray zone operations and the roles and missions of the CCG and PAFMM therein, some important adjustments and enhancements are afoot. In particular, emerging laws and procedures have the potential to change the CCG's operations and Rules of Engagement (ROE). Most significantly, the CCG's ongoing shift to a more forward-leaning posture is underwritten by the new *PRC Coast Guard Law*, whose provisions and scope are both at odds with international law.¹⁷ "Before the China Coast Guard Bureau was incorporated into the People's Armed Police, the term 'maritime rights protection law enforcement' (海上维权执法) narrowly and technically referred to suppression of foreign 'violations' of China's claimed maritime rights (especially in disputed maritime space)." In practice, however, it had become a euphemism for CCG bullying in Beijing's maritime expansionism campaign. As Martinson and Kennedy emphasize, "This law expands that definition to include a whole range of other maritime law enforcement functions," thereby updating the PRC's legal terminology to match the actual use of the term in the field.

Article 12 includes provisions that could clearly involve foreign governments, all with relevance to the Yellow Sea: "Supervising and inspecting within the scope of duties the activities such as use of sea areas, protection of islands, development and utilization of uninhabited islands, exploration and development of marine mineral resources, laying and protection of submarine electrical (optical) cables and pipelines, ocean survey and measurement, basic surveying and mapping of oceans and foreign-related marine scientific research and investigating and punishing illegal activities."

Atop an escalation ladder of calibrated measures authorized in fulfillment of these and other duties:

- Article 22 states, "When the sovereignty, sovereign rights or jurisdiction of the State is facing unlawful infringement or imminent danger of unlawful infringement by any foreign organization or individual, the Coast Guard agencies shall have the right to take all necessary measures including using weapons to stop the infringement or eliminate the danger in accordance with this Law and other relevant laws and regulations."
- Article 47 authorizes personnel to use hand-held weapons if, *inter alia*, "a foreign ship enters in the sea area under China's jurisdiction to illegally engage in production and operating activities and refuses to obey the stop order or otherwise refuses to accept boarding and inspection and using other measures cannot stop the illegal activities."
- Article 48 authorizes the use of "shipborne or airborne weapons" in certain circumstances.

Notably, in the earlier draft law, there was a specific clause that personnel should not fire under the waterline of the target vessel. This clause was omitted in the actual law, implying that the PRC government is not inclined

to put caps on the extent to which the MLE forces can apply force in an actual situation (i.e., sinking the other vessel). Omission of the clause also gives considerable room for freedom of action by the operational commanders, which could contribute to inflammatory and escalatory consequences. In another sign of the CCG's focus on advancing PRC sovereignty assertion at the expense of cooperative MLE missions, in April 2021 CCG representatives declared their North Pacific Patrol a great success and reported no violations by PRC fishing boats, despite having failed to conduct a single boarding.¹⁸

Arguably most worrisome of all is the expansive yet ambiguous geographic scope within which the CCG may be authorized to conduct such activities. As Admiral Swift and others have long emphasized, China applies its domestic laws (i.e., for the CCG) to disputed waters and other sea areas that are in fact part of the international maritime commons. In Martinson's analysis, the completely undefined "jurisdictional waters" (管辖海域) covered by the new CCG Law likely correspond to all 3 million square kilometers of "blue national territory" that Beijing claims—virtually the entire Near Seas—over half of which, it acknowledges, are contested by neighboring nations.¹⁹ As part of a larger PRC pattern, this major new law expresses resolve to advance China's "maritime rights" while providing little clarity regarding how Beijing may seek to do so in practice.

China Coast Guard Leadership and Organization

As Martinson explains, the CCG "is a component of China's 'armed forces' (武装力量, *wuzhuang liliang*)."²⁰ Its personnel wear camouflage working uniforms, are divided into officers and enlisted, seek promotion according to a system of ranks/grades, and operate vessels classified as 'warships' (舰, *jian*)."²¹ Former PLAN officers constitute an increasing proportion of its leadership, and its fleet already contains a significant number of former PLAN destroyers and frigates.²²

Under the PRC's Party-Military-State organizational structure, the recently militarized CCG (中国人民武装警察部队海警总队/中国海警局) is similar to the PLAN and PAFMM in having a dual leadership structure. Based in Beijing, at the CCG Bureau, two individuals stand at its apex: a Rear Admiral as the CCG's Commander and a Major General as its Political Commissar.

Serving under the Commander at CCG Headquarters are four known Deputy Directors. Serving under the Political Commissar are two known Deputy Political Commissars.

The CCG has several other leading organizations. The Discipline Inspection Commission (纪律检查委员会/纪委) is led by a Secretary. The Coast Guard Command and Chinese Coast Guard Command Center (海警司令部/中国海警指挥中心) is headed by a Chief of Staff, supported by his Deputy. The Legal Division (法制处) is headed by a Deputy Director. The Natural Resources and Environmental Law Enforcement Division

(资源环境执法处) is headed by a Deputy Director. For its part, the Coast Guard Political Work Department (海警政治工作部) is headed by a Director. And the Coast Guard Logistics and Equipment Department (海警后勤装备部) is headed by a Deputy Director.

Organizationally, the Beijing-based CCG Bureau oversees three regional branch bureaus (海区分局); North Sea (formerly called Yellow/Bohai), East Sea, and South Sea, corresponding to PLA Navy fleets. They direct operations involving forces homeported within their respective geographic areas of responsibility; and, in turn, oversee 11 provincial-level CCG bureaus (省级海警局), municipal-level CCG bureaus (市级海警局), and CCG work stations (工作站).²³

At the regional level, first in protocol order, and of greatest relevance to Yellow Sea operations, is the North Sea Branch, headquartered in Qingdao, Shandong Province (北海分局, 山东省青岛市). Subordinate to the North Sea Branch are Coast Guard *zongdui* (总队; general units/contingents) in Liaoning Province (海警辽宁总队, 辽宁省); in the Tianjin municipality (海警天津总队, 天津市); in Hebei Province (海警河北总队, 河北省); and in Shandong Province (海警山东总队, 山东省). Facilities are located, *inter alia*, in Liaoning's Jinzhou; Tianjin's port area; Hebei's Qinhuangdao fishing wharf and coal terminal; and Shandong's Dalian Mianhuadao, Dalian Wantong, Qingdao Tuandao Inlet, Qingdao port area, Qingdao Huangdao, Yantai Yangma Dao/Island, and Yantai Zhifu Wan/Bay. Second, the East Sea Branch is headquartered in the Shanghai municipality (东海分局, 上海市).²⁴ And third, the South Sea Branch is headquartered in Guangzhou, Guangdong Province (南海分局, 广东省广州市). It has a Director, as well as a Planning Team, led by another Director.²⁵

Significant CCG reorganization and restructuring remains underway. As part of this continued effort, pennant numbers are in flux and appear poised to remain so for some time.²⁶ As part of coming under the PAP command structure, CCG forces have shifted from a three-fleet organization to a six-district organization. Perhaps due to this new institutional culture, fewer new vessels with their pennant numbers are available online. Pennant numbers are being reconfigured accordingly, but this remains a work in progress, likely to last several more years.²⁷ However, this renumbering does not change the numerical or locational order of battle, which is already relatively well known and stable.

Force Construction, Structure, and Key Elements

This section surveys CCG ship construction, force structure, and likely further developments.

Shipbuilding

Construction of seagoing vessels is an industry that has migrated geographically over time in pursuit of highly favorable conditions. It is a natural fit for a

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developing nation that has reached the stage where large projects can be organized but where masses of skilled labor still remain available economically. China has recently become the world's largest ship builder. China's shipbuilding industry (SBI) has grown more rapidly than any other in modern history, albeit with the majority of shipyard production consisting of merchant ships for foreign customers. Commercial shipbuilding output jumped thirteen-fold from 2002 to 2012 and has grown considerably thereafter, enabling Beijing to achieve its goal of surpassing South Korea as the world's leading shipbuilder. Several factors have enabled this production rate.²⁸

- First, PRC leaders provide coherent, stable national political, military, and maritime strategies. Overall, government shipbuilding is the product of a carefully conceived and executed plan based on national priorities and strengths. Consistent top-down requirements provide clear guidance.
- Second, China's leadership provides stable funding, in the form of Five-Year Plans. This includes significant investment in shipbuilding infrastructure, which is treated as an important national asset in the form of large shipyards within major state-owned enterprises.
- Third, China actively surveys, acquires, and incorporates foreign technology and shipbuilding practices. This allows China to skip much of the research and focus instead on development. The result is a process of "Imitative Innovation" and spiral development, in which China seeks, finds, evaluates, and adapts systems and processes.
- Fourth, as in many other sectors, China pursues "civil-military integration"—an opportunistic fusion of commercial and defense technologies—in its ship production.
- Fifth, China has come close to optimizing the tuning of its production methods to its relative strengths. Unless a better standard is absolutely required, ships are built to what might be termed a "good-enough" or "80% solution" level of sophistication and quality. Production remains relatively manpower-intensive to leverage competitive salary-to-capability ratios. As will be explained shortly, this is an excellent fit for MLE ship production.

To be sure, some of China's progress is uneven, with military shipbuilding leading overall, albeit with some lingering weakness in propulsion and electronics for military and civilian applications. Overall, however, it is force to be reckoned with. The results are tangible and unmistakable: the world's largest Navy, Coast Guard, and Maritime Militia by number of ships, themselves increasingly capable.

Overhead costs for production of ships for all three PRC forces are in effect heavily subsidized by China's gargantuan commercial SBI, which largely funds massive newbuild infrastructure that is typically used to construct both commercial and government vessels in co-located fashion. The

production of government vessels is further subsidized and supported by the availability of a well-trained workforce to participate largely on demand. In addition to the physical integration of civilian and military ship production, this shifting of shipbuilding personnel between civilian and military production as needed is likely facilitated by the use of a hybrid civilian-military production standard. Over the past 15-plus years, under such favorable conditions, more than 20 naval and commercial shipyards have produced CCG vessels. Efficiency increased further just under a decade ago, when China's SBI underwent a major consolidation whereby the smaller yards were closed down in order further concentrate resources on the most productive large-scale yards.

Increasingly impressive qualitatively as well as quantitatively, China's SBI can already meet even sophisticated PLAN requirements. And CCG requirements are far simpler, PAFMM requirements more straightforward still. CCG vessels use commercial, off-the-shelf drivetrains and electronics, and they lack complex combat systems. Unlike that of warships, which China does not build significantly faster than the United States, MLE vessel assembly is relatively simple and rapid. Typical total construction time (from start to commissioning) is 12–18 months for a large (over 1,000 tons) patrol ship (designated WPS) and 9–12 months for a smaller (under 1,000 tons) patrol craft (WPC) or patrol combatant (WPG). Construction of CCG and other PRC MLE vessels is thus cheap, efficient, and rapid. Multiple units are built simultaneously, further speeding output.²⁹

Order of Battle

Reviewing the overall order of battle for CCG offers important insights into the fleet's overall capabilities and the patterns within it.

Tables 3.1–3.3 (below) list all CCG vessel classes with total number, length, displacement, and size/caliber of guns. A significant number of vessels presently operated by the CCG formerly served in the PLAN; most of these are homeported in the East China Sea, with some in the South China Sea as well. This is part of a larger pattern in which the CCG does not tend to base its largest or most formidable vessels in the Yellow Sea. However, as mentioned before, these and virtually any other CCG vessels could be sent there on short notice.

The current CCG emerged in 2013 from a consolidation of the fleets of the Fisheries Bureau; State Oceanic Administration; and the old CCG, which was a People's Armed Police organization. Many current CCG cutters still reflect the specialization of their former parent bureaus, or they reflect that they were inherited from the PLAN.

More modern CCG cutters are capable of a wider array of missions. Helicopters are a relatively new aspect of CCG capabilities; older cutters usually lack helicopter decks. Modern cutters are fitted with fire monitors

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Zhaolai W
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Table 3.1 China Coast Guard Offshore Surveillance, Patrol, and Sovereignty-Enforcement: Notable Ship Classes

Class	# in Country	Length (feet)	Displacement (tons)	Guns
Zhaotou WPS	2	541	10,000+	76 mm, 30 mm
Zhaoduan WPS	6	450	4,000+	76 mm
Zhaojun WPS	9	328	2,700	76 mm
Shuoshi II WPS	4	426	5,800	76 mm (prov.)
Zhaolai WPS	4	325	4,800	76 mm (prov.)
Shucha II WPS	10	321	4,000	30 mm
Hai Yang WPS (ex-PLAN)	1	345	3,325	none
Kanje WPS (ex-PLAN)	1	425	5,830	removed
Type 053 Jiangwei I WFF (ex-PLAN)	3	367	2,000	37 mm
Shusheng WPS	5	290	1,750	14.5 mm (prov.)
Shuke I/II/III WPS	20	245-265	1,450	none
Shuyou WPS	3	242	1,000	none
Shuwu WPS	3	288	1,750	None
Tuzhong WPS (ex-PLAN)	3	278	3,300	None
Haixun II WPS	1	311	1,900	37 mm, 23 mm
Haijian WAGOR/WPS	4	230	1,350	None
Shuzao II/III WPG	15	215	600	12.7 mm
Type 618B-II WPG	30+	201-208	650	25 mm or 30 mm

Source: Andrew S. Erickson.

Note: One of the 30+ Type 618B-II WPG hulls, (Hai Jing) 015, is a training vessel subordinate to the Maritime Police Academy, but is nonetheless fully combat capable.

(water cannons), which they have used as a weapon against foreign fishing boats protesting China's expansionism.

The most relevant vessels to Yellow Sea activities include the *Zhaotim* fisheries enforcement ship and the *Zhongtao* coastal fisheries enforcement ship, some of which have ice-strengthened bows for winter operations there.

For regional fishing-enforcement operations—including in disputed fisheries areas near the Koreas—the CCG has built a large contingent of smaller patrol ships, the *Zhaotim* class. The fifteen 269-foot-long, 39-foot-beam, 1,764-ton ships in this class are optimized for regional, medium-endurance patrols, with a reported 7,500-mile range at 13 knots, an ice-strengthened

Table 3.2 China Coast Guard Maritime Customs: Notable Ship Classes

Class	# in Country	Length (feet)	Displacement (tons)	Guns
Zhaogao WPS	3	308	1,750	30 mm
Hutao I WPG	7 (3+ new units)	223	625	30 mm
Hutao III WPG	2	223	625	30 mm
Haihei WPC	2	205	450	37 mm
Haifeng WPC	5	190	440	14.5 mm
Hulai II WPC	15 (+ new units)	177	330	14.5 mm
Hailin I WPC	25+	170	230	23 mm, 14.5 mm
Hailin II WPC	10+	170	230	23 mm
Type 611 WPC	~10	145	170	14.5 mm
Haigao WPC	10+	140	100	14.5 mm

Source: Andrew Erickson.

Note: The CCG overall has several hundred classes of ships; to keep this table manageable, only the most significant classes are included.

Table 3.3 China Coast Guard Fisheries Enforcement: Notable Ship Classes

Class	# in Country	Length (feet)	Displacement (tons)	Gun(s) (mm/cal)
Zhaochang WPS	1	360	3,500	30
Zhaoyu WPS	12	360	3,500	30
Zhaotim WPS	14–15	269	1,764	30
Dalang I WPS (ex-PLAN)	1	370	4,500	30
Zhongeng WPS	10+	180	~1,000	14.5
Zhongwen WPS	1	195	850	Unknown
Zhongke WPG	6+	180	~500	Unknown
Zhongem WPG	2	190	550	14.5
Zhongtao WPC	50+	160–170	300–400	14.5
Zhongsui WPC	6	165	~350	14.5
Duancude WPC	10+	130	~200	none
Nanhua Type A WPC	~10	110	150	23
Zhongbong WPC	10+	100–120	~150	none
Fisheries patrol trawlers	30+	100–120	Varies; 250–600 tons	none, generally
Red Arrow WPB	50+	40	15	None

Source: Andrew S. Erickson.

Note: The six classes at the bottom of the table (beginning with the Zhongsui WPC), while relatively small in tonnage, are deployable to PRC-occupied features, outposts, and installations, and may well be used thus.

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hull (for winter operations in the northern Bohai), a 30 mm gun, two small fast-interceptor boats, and a moderate towing capability to assist disabled fishing vessels. With its regional, near-shore focus, *Zhaotim*s lack helicopter facilities. The relatively beamy, low-slung hull design, with bulbous bow, indicates that seakeeping in heavy weather and efficiency were key design factors, rather than the high speed and maneuverability prioritized in other CCG ships intended for interdiction duties. (Fishing boats, typically low speed, cannot outrun even patrol ships whose top speed does not exceed 20 knots, such as the *Zhaotim* class.)

A staple of PRC coastal fisheries enforcement is the 50-meter, 450-ton *Zhongtao* class. Newer units feature a stern gate and quick-launch ramp. All units share a common hull and basic superstructure design, but vary significantly in how they are fitted out topside, depending on operational location and typical weather conditions. For operational areas where assertive fishermen may use collisions and shouldering as a defense against enforcement, *Zhongtao* units have reinforced ribbing along the hulls. Units stationed in the Yellow Sea and Bohai may have ice-strengthened bows to facilitate year-round operations. These varied, evolving features make the *Zhongtao* class yet another example of Coast Guard designers adapting and learning operational lessons when building new ships and patrol craft.

Future Trends

Although prediction remains elusive, several broad trends seem likely to characterize CCG development moving forward. With a large, rapid buildup largely completed, the service is now pursuing further specialization by ship and qualitative over quantitative improvements by spreading enabling equipment, technologies, and techniques across the fleet, supported by strengthened personnel recruitment and training to optimize employment of hardware. A key area to watch is Coast Guard aviation, manned and unmanned, which will be greatly enhanced from its heretofore constrained state. To a limited extent, unmanned undersea vehicles may augment efforts as well.

Moving forward, CCG force size appears largely settled at roughly the current extraordinary numbers, which have largely met the needs that Beijing has articulated. Like the PLAN and PAFMM, the CCG does not publish acquisition plans. Ship orders and contracts, by contrast, are typically well-publicized; yet, they show no apparent impending growth spikes. The two-decade buildup underway by the turn of the century was virtually complete by 2018; subsequent additions have been primarily small fisheries patrol boats. With regard to patrol ships and combatants over 500 tons; henceforth, new ships will replace obsolete predecessors on close to a one-to-one basis. Small patrol craft (100–500 tons) numbers may in fact decline as synergies from CCG consolidation continue to accrue in practice.³⁰ A graph accompanying the latest U.S. Maritime Strategy shows a CCG of ~250 ships

for which little further quantitative growth is forecast through 2030, but for which substantial qualitative development can be expected.³¹

The primary growth to come is likely not in ships but in unmanned systems, helicopters, and longer-range maritime patrol aircraft, as well as other new-technology surveillance tools to enhance their operations. Equipping most new ships with helicopters alone would consume significant funding.

Gray Zone Operations and Implications

Beijing charges the CCG with executing manifold “rights protection” missions. Historically, China’s MLE forces have engaged in a range of such operations. To uphold PRC claims to disputed features, CCG forces patrol surrounding waters to “manifest China’s claims” and collect intelligence. To enforce claims, they engage in blockades to prevent foreign access to disputed features.³²

To advance contested PRC claims to both features and maritime zones, CCG forces operate persistently there, and signal carefully calibrated resolve to use force if necessary to protect PRC vessels. To uphold “maritime rights” in PRC-claimed waters, CCG forces: (1) engage in tracking and monitoring to manifest China’s claims and collect intelligence, pursue foreign vessels operating “illegally” there, and exhort them to leave. Reported recent increases in CCG vessels chasing Japanese fishing boats within the Senkaku Islands’ territorial waters appears a tactic to claim PRC jurisdiction over the islands, inspired in part by the new CCG law. CCG forces also employ nonlethal measures to (2) compel foreign vessels to cease “illegal” activities there and leave, and (3) prevent foreign vessels from interfering in PRC activities there.

To support such nonlethal efforts, most new, larger CCG constabulary ships have helicopter facilities including decks—and hangars (in some cases), sirens, and water cannons with far greater power and range than those of the most formidable PAFMM vessels.³³ To allow for limited use of force, they also have 30-mm to 76-mm guns.³⁴ Internet photographs indicate that all CCG ships built within the last five-plus years have a datalink antenna (such as the HN-900), similar to those on PLAN vessels and to the U.S. Navy’s Link 11; older CCG ships are now being retrofitted with such antennas. Some CCG ships of multiple types reportedly have jamming capabilities.³⁵ The *Zhongyang*-class patrol ship formerly known as China Fisheries Law Enforcement/FLE 310 has appeared in multiple sources that credit it with some sort of electronic capabilities.³⁶ One of the CCG’s most electronically sophisticated vessels, it reportedly jammed an Indonesian Coast Guard ship’s communications with headquarters during a March 2013 standoff, prompting it to release captured Chinese fishermen.³⁷ Some vessels also have 10-meter-long fast-interceptor boats with twin outboard engines enabling a 35-knot top speed.

PRC MLE forces will almost certainly continue such operations and further enhance them using new powers bequeathed by the *PRC Coast Guard Law*. Operations and incidents to date are covered throughout this

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volume, particularly in Poling's chapter. But what further efforts might be conceivable, particularly at the highest intensity end of "rights protection" operations? Relevant PRC state-sponsored operational patterns to date include a layered "cabbage strategy" approach wherein CCG and PAFMM forces are used to envelop either a disputed feature (e.g., Scarborough Shoal) whose sovereignty Beijing is contesting or a PRC national sovereignty-supporting asset (e.g., the HYSY-981 oil rig or a survey ship with a towed-array sonar), whose delicate operations Beijing seeks to protect from disruption.³⁸

In extreme scenarios, China might even employ CCG and PAFMM vessels and crewmembers as "human shields" against foreign military operations. In addition to the difficulty in targeting a naval vessel surrounded by "civilian" boats, U.S. and Allied navies, adhering to rules and norms based on international law, would face limited operational options to counter Chinese CCG and PAFMM forces. Here, CCG—and particularly PAFMM—vessels' very weakness and lack of apparent armament becomes their strength: threatening to physically oppose them or harm their crews might be deemed disproportionately escalatory by an opponent, and hence avoided.

Whether or not PRC strategists think in these terms, history offers further examples of "strength in weakness" that may be applicable to CCG and PAFMM operations alike. These factors, combined with present dynamics of modern weapons systems, risk—in a worst case—producing an historical "blast from the past" in naval warfare: mêlée conditions. Avoiding such an outcome, either when preparing for imminent conflict—or attempting to demonstrate preparation for such conflict with the objective of deterring escalation to it—would likely necessitate efforts to move CCG and PAFMM vessels away from opposing naval vessels, or away from hostilities entirely. Yet, examination of PRC gray zone operations points to a likely strategy of keeping CCG and PAFMM vessels front and center, precisely to deter such actions and perhaps to use them as shields. It could be very difficult to force them to retreat. These dynamics, in turn, raise tensions and severely heighten chances of unintended accidents or other problems that could spiral with disproportionate volatility, making crisis containment difficult.

Even though China has overwhelming numbers of both CCG and PAFMM vessels, and is already more likely to deploy them in contested contingencies, using anti-ship cruise missiles (ASCMs) against them could bring complications because target discrimination is extremely difficult. Properly defended, modern naval vessels (which the United States, ROK, and China all possess) can be extremely hard to hit with cruise missiles. The history of ASCM shots against targets suggests that no ship employing *soft-kill* defenses (deception seduction, e.g., with chaff, cut to certain lengths to reflect given wavelengths; other decoys; and electronic jamming)³⁹ has ever been hit by an ASCM.⁴⁰ Ships that employ soft-kill defenses tend to deflect missiles to less well-defended ships nearby. A cruise missile aimed at a destroyer employing proper countermeasures and surrounded by MLE,

militia, or “fishing” vessels would thus likely hit one of those far less-defended vessels instead.

The 1982 Falklands War, history’s most recent major naval battle, offers just such an example. On 25 May 1982, two Argentine Navy Super Étendard jet fighters launched one AM39 *Exocet* ASCM apiece at British vessel HMS *Ambuscade*. Fooled by a chaff cloud launched by the carrier, the missiles flew through the cloud and instead struck the STUFT (Ships Taken Up From Trade) System-requisitioned roll-on, roll-off container ship MV *Atlantic Conveyor*, which lacked both active and passive defense systems. Penetrating small arms and machine gun fire from MV *Atlantic Conveyor*, the missiles struck its port quarter. Their unconsumed propellant caused a fire that destroyed the ship and all but one of the helicopters it was transporting. Chinese experts have studied the Falklands War closely, and surely appreciate these lessons.⁴¹ In addition to the over-the-horizon (OTH) targeting challenges outlined above, other factors further complicate the use of coastal defense cruise missiles (CDCMs) against MLE, militia, or “fishing” boats. Even with a 1:1 hit-kill ratio, it is still easy to run out of missiles.

Given these technological limitations, Near Seas scenarios may offer challenging conditions. Crowding and ambiguity would be compounded by the almost certain presence of MLE, and PAFMM/“fishing” vessels. These factors would leave three major ways to address provocative exercises/encounters:

- 1 Sort enemy naval/MLE ships from “fishing” vessels
- 2 Scare off “fishing” vessels
- 3 Target everything, risking major destruction/loss of life

In the three aforementioned ways to address provocative exercises and encounters, fully coordinated defense actions led by any of China’s maritime actors would present major difficulties to other naval forces. Mild harassment actions by PAFMM vessels are frequently backed up by PRC MLE and naval forces, such as the 2009 harassment of USNS *Impeccable* by a combination of two PAFMM vessels, a fisheries law-enforcement vessel, a state oceanographic patrol vessel, and a naval intelligence ship.⁴² In another instance, China moved its HYSY-981 Oil Rig inside Vietnam’s claimed EEZ in May 2014, and PAFMM vessels represented a significant portion of the array of Chinese vessels defending it.⁴³

The overt targeting and destruction of fishing vessels by naval weaponry is simply not an acceptable course of action in most contingencies outside of direct war. Scaring them away may prove difficult if they are backed up by PLAN destroyers or some of the more advanced Coast Guard ships in China’s inventory. Sorting the combatants from the non-combatants could be unacceptably risky for U.S., allied, and partner forces since it gives away the initiative in combat, which is critical in modern engagements. Moreover, such actions would not occur in the traditional fleet engagement sense, but rather under conditions arranged to favor China’s “home team,” using an

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Conclusion

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In a hypothetical conflict with reduced reliance on OTH missile strike capabilities, a close-up engagement would see a whole spectrum of PRC forces deployed in maritime mêlée combat; forcing the question of how to draw the line when confronting non-conventional combatants with lethal and non-lethal force.

To be sure, a close-up mêlée would pose challenges for PRC forces as well. Making such a mêlée effective in a very chaotic environment would require sufficient command and control to maintain orchestration of forces. These deeply concerning issues clearly merit further research.

Conclusion

This chapter has endeavored to enhance understanding of CCG and its forces, missions, and rules of engagement. Such knowledge can help all who may encounter it to interact effectively, deter where necessary, and minimize chances of miscalculation.

The need for updated analysis is considerable. Following the initially unsuccessful attempt to consolidate the CCG in 2013, the far more fruitful post-2018 reforms and professional development represent a significant breakthrough. After five years of stillborn integration, the force was transferred to the PAP, itself newly reorganized and placed under the CMC. Much work remains, but today the Coast Guard has finally achieved a unitary identity, a clear command structure, and a revised legal framework for its increasingly capable, wide-ranging operations.

Among the key coercive provisions of China's new Coast Guard Law is subjecting foreign vessels operating within the claimed PRC jurisdiction to boarding and inspection; refusal to comply could mean a forcible boarding by armed personnel prepared to compel compliance. Authorizing deadly force to uphold China's expansive maritime claims, while unlikely to be maximally applied in all instances, authorizes the Coast Guard to do so as ordered as Beijing sees fit. The law's very ambiguity in application risks tension and miscalculation.

The *PRC Coast Guard Law* also adds an additional "lawfare" measure that Beijing could and might take within the Yellow Sea and other Near Seas. However, employing it in practice would be a political decision with many ramifications for Beijing. These include potential further souring of U.S.-China relations and harm to relations with the ROK at a minimum—even potential for significant miscalculation and escalation. Overall, Beijing continues to prefer a "winning without fighting" approach. Beijing will attempt to take and secure what it claims as "blue national territory" while avoiding conflict with the United States and Japan, severe tensions and crises with the ROK, and other contingencies that could derail its long-term objectives. This strong PRC

incentive to limit escalation offers the United States and its regional allies an important means of deterring pernicious PRC behaviors at sea.

Notes

- 1 The views expressed in this chapter are solely those of the author in his personal capacity. The author thanks many experts for invaluable insights. This chapter updates and expands upon his previous research, including Andrew S. Erickson, Joshua Hickey, and Henry Holst, "Surging Second Sea Force: China's Maritime Law-Enforcement Forces, Capabilities, and Future in the Gray Zone and Beyond," *Naval War College Review* 72.2 (Spring 2019): 11–25, <https://digital-commons.usnwc.edu/nwc-review/vol72/iss2/4/>; and Joshua Hickey, Andrew S. Erickson, and Henry Holst, "China Maritime Law Enforcement Surface Platforms: Order of Battle, Capabilities, and Trends," in Andrew S. Erickson and Ryan D. Martinson, eds., *China's Maritime Gray Zone Operations* (Annapolis, MD: Naval Institute Press, 2019), 108–132. This chapter focuses on the CCG specifically as the most relevant maritime law-enforcement (MLE) organization to support PRC gray zone operations. To consider all potentially relevant ships available to China in this general category and to ensure compatibility with the methodology employed in public U.S. government reports, however, for calculations and exhibits concerning overall order of battle it surveys China's principal MLE ships from a platform-centric perspective, organized by mission set. Broadly categorized, MLE forces include the national-level CCG; the portion of China Marine Surveillance (CMS) and Fisheries Law Enforcement (FLE) vessels organized at the subnational-level (which still exist and are active in the "gray zone," but are not included in the CCG); Maritime Safety Administration (MSA) vessels, which exist outside the CCG even at the national level; and China Rescue and Salvage (CRS) vessels, which are outside the CCG even at the national level and generally play only supporting (not MLE/sovereignty-upholding) roles. Also included in overall figures are some of the most important non-CCG ships, including from provincial-level—but not municipal—MLE organizations. The past decade also has witnessed multiple firsts in terms of China's MLE assets operating in certain areas. MLE fleet usage, like the general regional situation, is fluid. Ships from all the agencies (including FLE, General Administration of Customs [GAC], and MSA) have been observed participating in, or at least in the vicinity of, conflicts in the gray zone. For instance, while GAC vessels are absent from many gray-zone operations, GAC patrol craft can be seen in photos of the China National Offshore Oil Corporation (CNOOC) HYSY-981 oil rig operations. Accordingly, this coverage includes some MLE ships and forces (e.g., GAC, MSA, and CRS) that are not always involved in gray zone operations, but conceivably could become involved in the future, particularly as features the PRC has augmented in the South China Sea offer forward-deployment options. Moreover, not all CCG ships are relevant to gray zone operations. Some are too small to be considered "ocean-going," although this is a subjective term. For instance, many ships performing disputed-area operations, and similar functions displace fewer than 500 tons, leaving no identifiable size cutoff in this regard. Conversely, some ships outside the CCG are relevant to rights-protection/gray-zone missions. The CCG reorganization in 2013 incorporated only national-level assets, not provincial, county, or municipal MLE vessels. For example, the *Zhongtao* class is not actually part of the CCG, but rather is part of provincial-level fisheries-enforcement resources. CMS also has provincial-level cutters. Guangdong and Hainan provinces have provincial-, county-, and municipal-level cutters relevant to rights-protection/gray zone missions. One vessel dramatically encapsulates the value of a platform-centric approach: Having joined FLE in November 2010, *Zhongyang*-

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class patrol ship *Zhong Guo Yu Zheng 310* conducted multiple rights-protection missions when it was homeported in Guangzhou, including the 2012 Scarborough Shoal standoff and its March 2013 jamming of Indonesian Ministry of Maritime Affairs and Fisheries vessel *Hiu Macan 001*. From July 2013 to May 2015 the vessel was designated CCG 3210 and participated in the 2014 HYSY-981 incident. Redesignated *Sansha City Comprehensive Law Enforcement 1* in May 2015, the ship now is based in Sansha City and engages in further sovereignty missions. Scott Bentley, "Indonesia's 'Global Maritime Nexus': Looming Challenges at Sea for Jokowi's Administration," *The Strategist*, September 24, 2014, <https://www.aspistrategist.org.au/indonesia-global-maritime-nexus-looming-challenges-at-sea-for-jokowis-administration/>; Ryan D. Martinson, "The Lives of a Chinese Gunboat," *U.S. Naval Institute Proceedings* 142.6 (June 2016), 34–39. For the leading organization-centric analysis of the CCG, see Ryan D. Martinson, *Echelon Defense: The Role of Sea Power in Chinese Maritime Dispute Strategy*, Naval War College China Maritime Study 15 (February 2018), <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1014&context=cmsi-red-books>.

- 2 For the most extensive three-fleet compilation publicly available, see Manfred Meyer (edited by Larry Bond and Chris Carlson), *Modern Chinese Maritime Forces* (Admiralty Trilogy Group, July 1, 2022).
- 3 Lyle J. Morris, "Blunt Defenders of Sovereignty: The Rise of Coast Guards in East and Southeast Asia," *Naval War College Review* 70.2 (Spring 2017): 84, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1016&context=nwc-review>. Japan's Coast Guard has around 80 hulls, South Korea's has 45, and the U.S. Coast Guard has 50.
- 4 *Annual Report to Congress [on] Military and Security Developments Involving the People's Republic of China 2018* (Arlington, VA: Department of Defense, 2018), 16; Ronald O'Rourke, *U.S.-China Strategic Competition in South and East China Seas: Implications for U.S. Interests—Background and Issues for Congress*, R42784 (Washington, DC: Congressional Research Service, July 23, 2021), 13, <https://crsreports.congress.gov/product/pdf/R/R42784/>.
- 5 For a survey of China's maritime superlatives, see Rear Admiral Michael McDevitt, USN (ret.), ed., *Becoming a Great "Maritime Power": A Chinese Dream* (Arlington, VA: CNA Corporation, June 2016), <https://www.cna.org/news/events/china-and-maritime-power>.
- 6 Seoul and Beijing dispute sovereignty over the submerged Socotra Rock (Ieodo, 이어도, 離於島/Suyan, 苏岩), although tensions have subsided in recent years.
- 7 The nearby islands *per se* are not in dispute—North Korea has never challenged ROK sovereignty of the islands as specified by the Armistice.
- 8 Katsuya Yamamoto, "The China Coast Guard as a Part of the China Communist Party's Armed Forces," Sasakawa Peace Foundation, December 10, 2020, https://www.spf.org/iina/en/articles/yamamoto_01.html; Global Times, "China's Military to Lead Coast Guard to Better Defend Sovereignty," *People's Daily Online*, June 25, 2018, <http://en.people.cn/n3/2018/0625/c90000-9474212.html>. For background and implications, see Ryan D. Martinson, "Militarizing Coast Guard Operations in the Maritime Gray Zone," Andrew S. Erickson and Ryan D. Martinson, eds., *China's Maritime Gray Zone Operations* (Annapolis, MD: Naval Institute Press, 2019), 92–107.
- 9 Source of figure: Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2020* (Arlington, VA: Department of Defense, September 1, 2020), 34, <https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF>.
- 10 Ibid., 69–72.

11 "Coast Guard Law of the People's Republic of China 中华人民共和国海警法," *NPC Observer*, <https://npcobserver.com/legislation/coast-guard-law/>.

12 Ryan D. Martinson, "Early Warning Brief: Introducing the 'New, New' China Coast Guard," *Jamestown China Brief*, January 25, 2021, <https://jamestown.org/program/early-warning-brief-introducing-the-new-new-china-coast-guard/>.

13 For a comprehensive history of the new Coast Guard's consolidation, see Ryan D. Martinson, "Appendix I—The China Coast Guard: A Uniformed Armed Service," in Michael A. McDevitt, *China as a Twenty-First-Century Naval Power: Theory, Practice, and Implications* (Annapolis, MD: Naval Institute Press, 2020), 187–206; Lyle J. Morris, "Organizing for the Gray Zone: Assessing the Rights Protection Capabilities of the New China Coast Guard," in Andrew S. Erickson and Ryan D. Martinson, eds., *China's Maritime Gray Zone Operations* (Annapolis, MD: Naval Institute Press, 2019), 77–91.

14 Ryan D. Martinson, *Echelon Defense: The Role of Sea Power in Chinese Maritime Dispute Strategy*, Naval War College *China Maritime Study* 15 (February 2018), <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1014&context=cmsi-red-books>, 53.

15 Ryan D. Martinson, "China's Second Navy," U.S. Naval Institute *Proceedings* 141.4 (April 2015), <https://www.usni.org/magazines/proceedings/2015/april/chinas-second-navy>.

16 Ryan D. Martinson, *Echelon Defense: The Role of Sea Power in Chinese Maritime Dispute Strategy*, Naval War College *China Maritime Study* 15 (February 2018), 15, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1014&context=cmsi-red-books>. For further examples of cross-region operations, see data from Marine Traffic (AIS), <https://www.marinetraffic.com/>.

17 中华人民共和国海警法 [Coast Guard Law of the People's Republic of China]. Unless otherwise specified, this chapter quotes text from Westlaw, which has published the best English-language translation available.

18 Major Zhang Jizhe, Administrative Law Enforcement Division, China Coast Guard, PowerPoint presentation to Fisheries Enforcement Working Group, North Pacific Coast Guard Forum Experts' Meeting, April 2021, Slide 7.

19 Ryan D. Martinson, "Gauging the Real Risks of China's New Coastguard Law," *The Strategist*, Australian Strategic Policy Institute, February 23, 2021, <https://www.aspistrategist.org.au/gauging-the-real-risks-of-chinas-new-coastguard-law/>.

20 Note: According to international law, camouflage is associated with military forces, but it does not define what is military. For a definition of the term "armed forces" in international law, see: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule4#:~:text=1.%20to%20be%20commanded%20by,laws%20and%20customs%20of%20war.

1 to be commanded by a person responsible for his subordinates;
 2 to have a fixed distinctive emblem recognizable at a distance;
 3 to carry arms openly; and
 4 to conduct their operations in accordance with the laws and customs of war.

That definition is imperfect because it only obliquely addresses the most important element—what the nations themselves say. Nations declare their armed forces in their law. For example, 14 USC 1 explicitly states that the USCG is an armed force. The Chinese Constitution likewise explicitly declares that the People's Armed Police are a component of China's armed forces, and PAP crew CCG cutters. The definition of "warships" is in UNCLOS Article 29.

21 Martinson, "Early Warning Brief."

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- 22 "The Coast Guard Law of the People's Republic of China," Japan Ministry of Defense, https://www.mod.go.jp/en/d_act/sec_env/ch_ocn/index.html.
- 23 Martinson, "Early Warning Brief."
- 24 It has a Planning Team (筹备组). Subordinate to the East Sea Branch are Coast Guard *zongdui* in Jiangsu Province (海警江苏总队, 江苏省); Shanghai (海警上海总队, 上海市); Zhejiang Province (海警浙江总队, 浙江省); and in Fujian Province (海警福建总队, 福建省). The Fujian *zongdui* has its own Planning Team, headed by a Deputy Director. Facilities are located, *inter alia*, in Jiangsu's Nantong; Shanghai's Fuxing Dao, Gaoqiao, and port facility; Zhejiang's Zhoushan Waichangzhi, Ningbo CCG Academy, and Wenzhou Lucheng; and Fujian's Fuzhou Guling, Fuzhou Tingjiang, Xiamen downtown, and Xiamen CCG base.
- 25 Subordinate to the South Sea Branch are the following Coast Guard units. There is a *zongdui* in Guangdong Province (海警广东总队, 广东省). There is a *zongdui* in Hainan Province (海警海南总队, 海南省), led by a Political Commissar. It has a Planning Team with two Deputy Directors. Finally, there is a *zongdui* in the Guangxi Zhuang Autonomous Region (海警广西总队, 广西壮族自治区). It, too, has a Planning Team, led by a Director. Facilities are located, *inter alia*, in Guangdong's Guangzhou Taihe, Huangpu Changzhou, Huangpu Luntou, Shantou, and Zhanjiang Tiaoshun; Hainan's Haikou port, Haikou Haidian River, Sanya, and Wenchang; and in Guangxi's Beihai, Fangchenggang Shiping, and Qinzhou.
- 26 In the old system, the first digit of the hull number indicated the region: north (1), east (2), or south (3). For example, there used to be five *Zhaoyu*-class cutters in the CCG Southern Regional Bureau (3301–3305). Under the new system, the first digit indicates the number of the directly subordinate bureau. There are three of these in the south: 3rd, 4th, or 5th. However, one cannot easily determine which *Zhaoyu*-class cutters went to which bureau without more specific information. More broadly, it is not possible to predict pennant numbers simply by systematically updating the initial one to two geographical designator digits in accordance with the new pennant numbering system. The reason is that system does not in itself indicate which cutters were placed into which units during the post-2018 reform. It is therefore currently impossible to compile a comprehensive Order of Battle listing all known CCG vessels to date with (1) pennant number, (2) vessel class, (3) branch (分局), (4) general unit/contingent (总队/zongdui), and (5) detachment/brigade/flotilla (支队/zhidui).
- 27 For CCG vessel pennant numbers, the first digit generally denotes region, the second size, and the next two to three digits its sequence within a single-location or nearby geographic cluster. The MSA is engaged in similar restructuring and renumbering, albeit among 10–12 regions. New numbers are emerging but not yet updated publicly by the U.S. Office of Naval Intelligence (ONI): *China's People's Liberation Army Navy (PLAN), Coast Guard, and Government Maritime Forces 2019–2020 Recognition and Identification Guide* (Suitland, MD: ONI, 19 February 2020), https://www.oni.navy.mil/Portals/12/Intel%20agencies/China_Media/2020_China_Recces_Poster_UNCLAS.jpg?ver=2020-02-19-081430-327. Martinson, "Early Warning Brief," addresses this ongoing effort and provides some of the new pennant numbers. Local-level CCG Bureaus' vessels have five-digit pennant numbers, with the first two digits being 11 (Jiangsu), 12 (Shanghai), 13 (Zhejiang), 14 (Fujian), 21 (Guangdong), 22 (Guangxi), 23 (Hainan), 31 (Liaoning), 32 (Hebei), 22 (Tianjin), and 34 (Shandong). Directly Subordinate Bureaus' vessels have four-digit pennant numbers, with the first digit being 1 (Shanghai), 2 (Ningbo, Zhejiang), 3 (Guangzhou, Guangdong), 4 (Wenchang, Hainan), 5 (Sanya, Hainan), and 6 (Qingdao).

28 The author thanks Christopher Carlson for invaluable inputs regarding this and the next three paragraphs.

29 Data for this paragraph are derived from Andrew S. Erickson, Joshua Hickey, and Henry Holst, "Surging Second Sea Force: China's Maritime Law-Enforcement Forces, Capabilities, and Future in the Gray Zone and Beyond," *Naval War College Review* 72.2 (Spring 2019): 14.

30 Based on some orders that have been publicized, China's Maritime Safety Administration (MSA) is expected to launch 5–10 impressive 10,000-ton cutters over the next decade. Media reports indicate that MSA is currently outfitting its new 10,000-ton *Shuhan*-class patrol ship (at Huangpu) as well as a new *Shuoshi III* WPS (outfitting at Shuangliu). However, this subset of China's maritime law enforcement forces is the one major component not to have been integrated within the CCG's organizational structure, has not generally operated on the front lines of PRC sovereignty disputes, and thus these count toward CCG numbers or missions.

31 "Figure 1: Growth of China's maritime forces since 2000. (Source: Office of Naval Intelligence)," *Advantage at Sea: Prevailing with Integrated All-Domain Naval Power* (Washington, DC: U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard, December 17, 2020), 4, <https://media.defense.gov/2020/Dec/17/2002553481/-1/-1/0/TRISERVICESTRATEGY.PDF/TRISERVICESTRATEGY.PDF>.

32 This and the next two paragraphs are derived from "Table 6. Major Operation Types in China's Echelon Defense Strategy" in Ryan D. Martinson, *Echelon Defense: The Role of Sea Power in Chinese Maritime Dispute Strategy*, Naval War College China Maritime Study 15 (February 2018), 48, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1014&context=cmsi-red-books>.

33 *Ibid.*, 17.

34 Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2020* (Arlington, VA: Department of Defense, September 1 2020), 71; *China Military Power, Modernizing a Force to Fight and Win, 2019* (Washington, DC: Defense Intelligence Agency), 66, 78; *Annual Report to Congress [on] Military and Security Developments Involving the People's Republic of China 2018* (Arlington, VA: Department of Defense, 2018), 71–72.

35 According to an authoritative article that Ryan Martinson has located, at least some CMS vessels are installed with "listening and jamming equipment" (侦听和干扰设备) for sovereignty protection missions. Published by the former SOA's now-discontinued *China Ocean News* in 2011, this and all other articles in its issue were removed from the paper's website in 2016. "长足发展 亮点纷呈 成绩斐然——‘十一五’期间中国海监事业发展回眸" ["Outstanding Development with Many Achievements—a Review of CMS Development during the 11th Five-Year Plan"], 中国海洋在线 [China Ocean Online], March 1, 2011, www.oceanol.com/zfjc/dwjianshe/11024.html; op. cit. Ryan D. Martinson, *Echelon Defense: The Role of Sea Power in Chinese Maritime Dispute Strategy*, Naval War College China Maritime Study 15 (February 2018), 72, <https://digital-commons.usnwc.edu/cmsi-red-books/15/>.

36 After it joined FLE in November 2010 and was homeported in Guangzhou, vessel 310 participated in multiple "rights protection missions." These included the 2012 Scarborough Shoal seizure and the vessel's March 2013 confrontation with and jamming of Indonesian Ministry of Maritime Affairs and Fisheries vessel *Hiu Macan 001*. Redesignated CCG 3210, from July 2013 to May 2015 the ship participated in the 2014 HYSY 981 incident. It continues its "rights protection" missions in a new guise, having been renamed after its latest homeport as *Sansha City Comprehensive Law Enforcement 1* in May 2015. Scott Bentley, "Indonesia's 'Global Maritime Nexus': Looming Challenges at Sea for Jokowi's

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37 Ryan D. Martinson, *Echelon Defense: The Role of Sea Power in Chinese Maritime Dispute Strategy*, Naval War College *China Maritime Study* 15 (February 2018), 46.

38 The author is indebted to Conor Kennedy, Jim FitzSimonds, and Craig Koerner for their contributions to this section.

39 For Chinese efforts to employ such countermeasures, see 苏宪成, 于小红, 王佳, 高飞 [Su Xiancheng, Yu Xiaohong, Wang Jia, and Gao Fei], "装备指挥技术学院] 对巡航导弹的空间电子干扰途径分析" [An Analysis of Aerial Electronic Jamming of Cruise Missiles], 飞航导弹 [*Winged Missiles Journal*] 6 (2008): 35–37, 64; 唐守伦, 江伯友 [Tang Shoulin and Jiang Boyou], "导弹呼啸靶机落—南京军区某防空旅着眼实战推进训练转变纪实" [The Missiles Whistled Down—On the Spot Report of Nanjing Military Region Air Defense Brigade Focuses on Promoting Real Transformation in Training], 解放军报 [*Liberation Army Daily*], October 21, 2007, 7; 陈奇, 马威, 姜宁 [Chen Qi, Ma Wei, and Jiang Ning], "箔条干扰与副炮系统战斗使用电磁兼容模型" [Electromagnetic Compatibility Model for Using Decoy Jamming With Close-in Auxiliary Artillery System], 火力与指挥控制 [*Fire Control and Command Control*], (October 2007): 112–115; 王琪, 万中南, 韩俊伟 [Wang Qi, Wan Zhongnan, and Han Junwei], China North Optical-electrical Technology Co. and Harbin Institute of Technology's School of Mecha-tronics Engineering; "具有防御性的空空导弹干扰" [Research on Interference in the Infrared and Radar Guidance of Air-to-Air Missiles], 火力与指挥控制 [*Fire Control and Command Control*], (July 2008): 21–23.

40 John C. Schulte, "An Analysis of the Historical Effectiveness of Anti-Ship Cruise Missiles in Littoral Warfare," M.A. Thesis, Naval Postgraduate School, September 1994, <https://apps.dtic.mil/sti/pdfs/AD192139.pdf>. Important caveat: the advent of multimode sensors could severely undermine the current potency of advanced countermeasures to anti-ship cruise missiles. These will make it harder and harder to conceal military vessels among fishing vessels; their infrared sensors will become easier to distinguish. In an indication of the risk to vessels from cruise missiles that could not be decoyed, a single, Iranian-made C-802 (export variant) ASCM fired at an Israeli *Hanit* Sa'ar 5-class missile corvette by land-based Hezbollah guerrillas on July 14, 2006 killed four sailors and rendered the vessel unprepared to engage in combat operations—in wartime it would have been a mission kill. "One detonated upon launch; the second damaged the Israeli corvette INS *Hanit*, exploding upon hitting a guardrail, and the other missed the frigate; and the third sank a merchantman some 32 n miles (60 km) away." "CSS-N-4 'Sardine' (YJ-8/C-801); CSS-N-6 (YJ-83/C-802/Noor); YJ-62/C-602; YJ-82; CY-1," *Jane's Naval Weapon Systems*, August 13, 2012. For detailed analysis of the incident, see "C-802 袭击'哈尼特'" [The C-802 Makes a Surprise Attack on the 'Hanit'], 舰船知识 [*Naval & Merchant Ships*], (August 2008): 37–39.

41 Lyle Goldstein, "China's Falklands Lessons," *Survival* 50.3 (June 2008): 65–82; Christopher D. Yung, "Sinica Rules the Waves? The People's Liberation Army Navy's Power Projection and Anti-Access/Area Denial Lessons from the Falklands/Malvinas Conflict," in Andrew Scobell, David Lai, and Roy Kamphausen, eds., *Chinese Lessons From Other Peoples' Wars* (Carlisle, PA: Army War College Strategic Studies Institute and National Bureau of Asian Research, 2011), <https://publications.armywarcollege.edu/pubs/2163.pdf>. See this

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42 Andrew S. Erickson and Conor M. Kennedy, "China's Daring Vanguard: Introducing Sanya City's Maritime Militia," Center for International Maritime Security (CIMSEC), November 5, 2015, <https://cimsec.org/chinas-daring-vanguard-introducing-sanya-citys-maritime-militia/>.

43 Conor M. Kennedy and Andrew S. Erickson, "From Frontier to Frontline: Tanmen Maritime Militia's Leading Role—Part 2," *Center for International Maritime Security (CIMSEC)*, May 17, 2016, <https://cimsec.org/frontier-frontline-tanmen-maritime-militias-leading-role-pt-2/>.

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Introduction

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