**The Diplomat**

**Predicting the Chinese Navy of 2030**

Making predictions for the Chinese Navy a decade in advance is difficult given the PLA’s overall opacity.

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Predictions for the Chinese Navy’s (People’s Liberation Army Navy, or PLAN) growth have often focused on the quantitative number of ships or submarines. Even [recent](https://www.nytimes.com/2018/08/29/world/asia/china-navy-aircraft-carrier-pacific.html) commentary surrounding the PLAN describes it as the “world’s largest navy” in terms of the number of ships fielded, rather than using more sensible metrics such as tonnage. A 22 class fast missile boat and an 052D class destroyer are both counted as “one” ship, but the difference between a 220 ton craft and a 7,000 ton surface combatant is significant.

Some future predictions for the PLAN have been more acknowledging of the qualitative advancements in addition to quantity. However, only a [few](http://sdsc.bellschool.anu.edu.au/sites/default/files/publications/attachments/2018-05/cog_41_chinas_new_navy-_a_short_guide_for_australian_policy-makers.pdf) commentaries have considered the number of each warship type which may be produced. This piece will seek to paint a picture of what the PLAN may look like in 2030 among major warship categories.

**Destroyers and Frigates**

The growth of Chinese surface combatants in recent years has greatly enhanced the PLAN’s overall profile. The emergence of the 055 class destroyer and high production rates of 055 and 052D class destroyers at two major shipyards have greatly changed the projections of future PLAN surface combatant composition from as a recently as a couple of years ago.

To place this growth in perspective, in the eight years between 2010 and 2018, 24 destroyers were launched from Chinese shipyards, consisting of four 052Cs, 16 052Ds (the three most recent being extended length variants), and four 055 large destroyers. By contrast, in the 20 years between 1990 and 2010, only 10 destroyers were launched from Chinese shipyards (not including four *Sovremenny-*class destroyers purchased from Russia), of which only two were the Aegis-type, competitive 052C class.

Current rumors regarding PLAN destroyer production suggest about 12 baseline 055 class destroyers will be produced before moving onto a more advanced 055A class perhaps sometime in the early 2020s. Production of the 052D will likely continue to over 25 units before an improved 052E variant succeeds it. Both the notional 055A and 052E are thought to incorporate new propulsion technologies in the form of partial or full electric propulsion.

Assuming Jiangnan and Dalian shipyards continue building destroyers at a similar pace to recent years when both shipyards were active, it is not unreasonable to project a launch rate of three 052D/E destroyers and two 055/A destroyers a year. Sustaining such a production rate from 2019 to the beginning of 2030 would result in approximately an additional 33 052D/E pattern destroyers and 22 055/A destroyers launched in those 11 years. Considering the current number of modern Aegis type destroyers in the water (six 052Cs in service, 10 052Ds in service, six 052Ds in sea trials or launched, four 055s in sea trials or launched), the total number of 7,000 ton destroyers in the water would number about 55, whereas the 12,000 ton destroyers would number 26.

However, the number of destroyers in service would be somewhat less when considering that two to three years pass between a destroyer being launched and commissioned. Therefore, by 2030 it is more likely that around 40 7,000 ton destroyers (052C/D/E) will be in service, and up to 20 12,000 ton destroyers (055/A) as well. It is worth noting that additional destroyers will likely be commissioned and procured after 2030.

The situation is somewhat less clear for PLAN warships in the 4,000 ton category. While the last of the 30 capable and proven 054A frigates will soon enter service in 2019, the long rumored 054B successor has yet to emerge. There are some indicators that production may have been delayed for additional enhancement to its propulsion system, but some more radical rumors suggest the PLAN may do away with the 4,000 ton category and choose to build more ships of the 7,000 ton and 12,000 ton category in lieu of the 054B. This author considers such a possibility unlikely at this stage, and believes 054B production will occur in the early 2020s, at the same Huangpu and Hudong shipyards that 054As were built. Assuming a three ship per year launch rate similar to the 054A and assuming eight years of production beginning in 2022, up to 24 054Bs could be launched and up to 20 commissioned by 2030.

Meanwhile, 056/A corvette production – now approaching 60 ships in total – is thought to be winding down.

Overall, the growth of PLAN destroyer production has made various past numerical projections obsolete. In the [book](https://www.amazon.com/Chinese-Naval-Shipbuilding-Ambitious-Development/dp/1682470814) *Chinese Naval Shipbuilding – an Ambitious and Uncertain Course*, a “maximal scenario” 2030 forecast for the PLAN predicted 34 destroyers, 68 frigates, and 26 corvettes in service. Needless to say, the destroyer projections appear to have been somewhat underestimated, and corvette prediction completely off the mark, while frigates were exaggerated. Considering the book was published in late 2015 – at a time when 052D production at two shipyards had only begun, as well as a year and a half before the first 055 was launched, and when 056 production was difficult to track – such numbers were not unreasonable for the time.

**Submarines**

The situation for PLAN submarines, both nuclear (SSNs, SSBNs) and diesel electric (SSKs) are somewhat more uncertain. It is virtually confirmed that new types of each category are due to emerge in coming years, namely the 09V SSN, the 09VI SSBN, and the 039C SSK.

However the exact number of boats currently in service is unknown. It is thought that anywhere between six to nine 09III SSNs of different variants may exist, as well as two to three older 091 SSNs. Up to five 09IV SSBNs may also exist. The status of the original 092 SSBN is unknown. Over 12 of the newest 039A/B class SSKs are in service, as well as 13 039 class SSKs, 12 *Kilo* class SSKs, and anywhere up to 16 035 class SSKs which are very much obsolete and likely in the process of being retired.

The suspected new nuclear submarine production facility at [Huludao](https://thediplomat.com/2019/01/pondering-chinas-future-nuclear-submarine-production/" \t "_blank) presents a potential wildcard for the future of PLAN nuclear submarine procurement as well as the overall PLAN submarine fleet. It is unknown how rapidly the PLAN may want to build new SSNs and SSBNs and the technological maturity of new upcoming boats can only be speculated upon. However, the sheer scale of the new nuclear submarine production facility suggests the PLAN has planned for a long production run of many nuclear submarines, and it is unknown if the PLAN will alter or reduce the size of its SSK fleet if a growth of nuclear submarine fleet size occurs.

The very opaque nature of Chinese submarine production means it is difficult to make even a medium term projection; however a very cautious estimate of the new facility producing one SSN per year and one SSBN every two years introduces an additional eight SSNs in service and three to four SSBNs in service by 2030. But it should be cautioned that if the technological maturity and capability of upcoming nuclear submarines are deemed satisfactory, a ramp up of production may occur to take advantage of the new facility’s overall potential. In such a situation, by 2030 anywhere up to 30-40 new SSNs might be launched for three to four per year, though it is not currently judged to be imminent.

**Carriers**

Recent pictures of Jiangnan shipyard have effectively confirmed that construction of China’s third aircraft carrier – 003, a conventionally powered carrier displacing about 80,000 tons full and equipped with electromagnetic catapults – is now underway. Large modules are currently being fabricated in a staging area and are expected to be transported to a drydock for assembly later in 2019 or in early 2020. It is thought that 003 will be launched by 2021 at the earliest, with commissioning at least two years afterwards.

In addition to CV-16 *Liaoning* in service and the as yet unnamed 002 carrier due to enter service in 2019, the PLAN will likely operate three aircraft carriers by 2023 at the earliest. However it is not known how Chinese carrier production will proceed after 003 is launched. It has been rumored that Dalian (where 002 was constructed) may proceed to build another carrier similar to 003, after which a nuclear powered carrier is expected from either Dalian or Jiangnan. It is also possible that 003 will be followed directly by a nuclear carrier, in which case both Dalian and Jiangnan will likely see a pause in carrier work as facilities are upgraded and retooled.

Whichever option is taken, it is likely that the PLAN will have four carriers in service by 2030, made up of CV-16, 002, and 003, with the fourth being either a second 003 pattern carrier or perhaps a nuclear carrier. Depending on PLAN confidence in key technologies and their overall carrier experience, it is also possible for additional carriers to be ordered more quickly, with a most high end ceiling of five to six carriers in service by 2030.

**Amphibious Assault**

As of early 2019, six 25,000 ton 071 class landing platform docks (LPDs) are in service, with a seventh being fitted out and an eighth hull under construction. Modules for the long awaited 075 class landing helicopter dock (LHD) are expected to emerge by the end of 2019 at the earliest, with three ships rumored to have been ordered. The 075 class is thought to field a full displacement around 36,000 tons, placing it smaller than U.S. Navy *Wasp*and *America* class LHDs but larger than most other classes of similar ships in the world. Recent rumors have suggested that a larger 075 derivative may be built after the first three 075s, to displace in excess of 40,000 tons. All large Chinese amphibious assault ships are built at Hudong Zhonghua shipyard and that is not expected to change in the immediate future.

It is difficult to predict the size of the PLAN’s future combined LPD and LHD fleet because PLAN procurement of 071 class ships has been somewhat irregular, with multiyear gaps between batches. It is unknown if such procurement practice will continue into the 2020s; however Hudong’s production of the last three 071 hulls has shown that a one ship per year launch rate can be comfortably sustained. Assuming that the larger 075 class LPD takes correspondingly longer (let’s say overall 1.5 years) to launch one ship, and assuming that production capacity is not expanded, a reasonable LPD and LHD fleet by 2030 would consist of eight 071 class LPDs and three 075 LHDs in service. In other words, such a fleet would consist of the present number of 071s and 075s confirmed or rumored to have been ordered. This could be achieved by 2026, with the eight 071 LPDs commissioned by 2020-2021. However, if additional orders are placed – a very reasonable notion considering the overall trajectory of PLAN procurement – anywhere up to 12 LPDs and five to six LHDs may be achievable by 2030. If the PLAN “only” achieves the conservative estimate, the combined amphibious assault capability would rank second largest in the world after the U.S. Navy, even disregarding the PLAN’s 25-30 strong fleet of the 072 family of landing ships which displace approximately 5,000 tons each.

**Future factors**

In summary, an early 2019 prediction for PLAN ships in service by 2030 are broken down as such:

* 16-20 055/A destroyers (12,000 ton category)
* 36-40 052D/E destroyers (7,000 ton category)
* 40-50 054A/B frigates (4,000-5,000 ton category)
* Approximately 60 SSKs
* Anywhere from 16 or more SSNs (including six to eight existing SSNs)
* Anywhere from eight or more SSBNs (including four to five existing SSBNs)
* At least four aircraft carriers (two ski jump, two catapult)
* At least eight 071 LPDs (25,000 ton category)
* At least three 075 LHDs (36,000 ton category)

Of the above, frigates, SSNs, SSBNs, and carriers are currently the most difficult to predict, with the most margin for error.

Other ships of note include the approximately 60 056/A corvettes that will complete its production run within the next year or so, as well as the 11 older “non-Aegis” type destroyers and dozen or so older frigates that will likely remain in service as “second line” surface combatants. The 25-30 ship fleet of 072s will likely be retained. It is unknown if the 60 odd fleet of 22 class missile boats will be retained. The numbers of replenishment ships are not predicted here, due to lack of long-term regular production rates that can be extrapolated, though fast launch rates have been demonstrated.

Making predictions for the PLAN a decade in advance is difficult given the PLA’s overall opacity. Unforeseen confounding factors – such as project mismanagement, technological hurdles, economic adversity, military conflict, and natural disaster – are also difficult to consider.

The projection laid out here is not concrete and final, and is likely to evolve in coming years as 2030 approaches. However, use of critical extrapolation and consideration of Chinese naval requirements can provide a gauge for how the PLAN may evolve in the medium term future.