

## **Notes on ORBAT Construction**

These ORBATs are a living document as almost every force in the region is updating and changing their forces to counter China. The most effort has been put into correctly ascertaining the forces of China, Taiwan, and the US, and any mistakes are likely within the bounds of random readiness variation. Where possible weaker sources have been cross checked, but the author is hindered by their lack of foreign language ability in the many languages of the region to obtain and read highly accurate information. As such, errors and anachronisms may occur, correct them for your games and please inform me of any mistakes you find.

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# Australia

## RAN<sup>1</sup>

- 3 x Hobart DDG
- 8 x ANZAC FFG
- 6 x Minehunter Coastal
- 6 x Collins SS
- 2 x LHD
- 1 x LSD

Total amphibious lift can carry 1 Battalion, typically 2nd Battalion, Royal Australian Regiment.

## RAAF<sup>2</sup>

The RAAF is organized with one strike wing (24 x F/A-18) and some number of (likely 3) fighter wings (72 x F-35's)<sup>3</sup>

### Squadron Breakdown

- No. 1 Squadron – Boeing F/A-18F Super Hornet (Multi-Role Fighter)
- No. 2 Squadron – Boeing E-7A Wedgetail (AEW&C)
- No. 3 Squadron – Lockheed-Martin F-35A Lightning (Multi-Role Fighter)
- No. 4 Squadron – Pilatus PC-21 (JTAC Training)
- No. 6 Squadron – Boeing E/A-18G Growler (Electronic Warfare)
- No. 10 Squadron – Lockheed AP-3C Orion (Maritime Patrol)
- No. 11 Squadron – Boeing P-8 Poseidon (Maritime Patrol)
- No. 32 Squadron – Beechcraft King Air 350 (School of Air Warfare Support)
- No. 33 Squadron – Airbus KC-30A MRTT (Air Refueling/Transport)
- No. 34 Squadron – Boeing 737 BBJ, Dassault Falcon 7X (VIP Transport)
- No. 35 Squadron – Alenia C-27J Spartan (Transport)
- No. 36 Squadron – Boeing C-17A Globemaster III (Transport)
- No. 37 Squadron – Lockheed C-130J-30 Super Hercules (Transport)
- No. 75 Squadron – McDonnell Douglas F/A-18A Hornet (Multi-Role Fighter)
- No. 76 Squadron – BAE Systems Hawk 127 (Lead-in Fighter Training/ADF Support)
- No. 77 Squadron – Lockheed-Martin F-35A Lightning (Multi-Role Fighter)
- No. 79 Squadron – BAE Systems Hawk 127 (Hawk Conversion/ADF Support)
- No. 100 Squadron – Heritage aircraft
- No. 292 Squadron – Lockheed AP-3C Orion (AP-3C Conversion)
- CFS – Pacific Aerospace CT4B, Pilatus PC-21 (Flying Instructor Training)
- ADFBFTS – Pacific Aerospace CT4B (Basic Tri-Service Flying Training)
- No. 2 FTS – Pilatus PC-21 (Advanced RAAF and RAN Flying Training)
- No. 2 OCU – Lockheed-Martin F-35A Lightning (Multi-Role Fighter)
- ARDU – Various Aircraft Types (Flight Testing)

### Combat Aircraft Breakdown<sup>4</sup>

- 49 x F/A-18A
- 23 x F/A-18F
- 23 x F-35A

Australia as of April 2023 has 46 mothballed F/A-18 in storage.<sup>5</sup>

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<sup>1</sup> navy.gov.au - Accessed 01/31/22

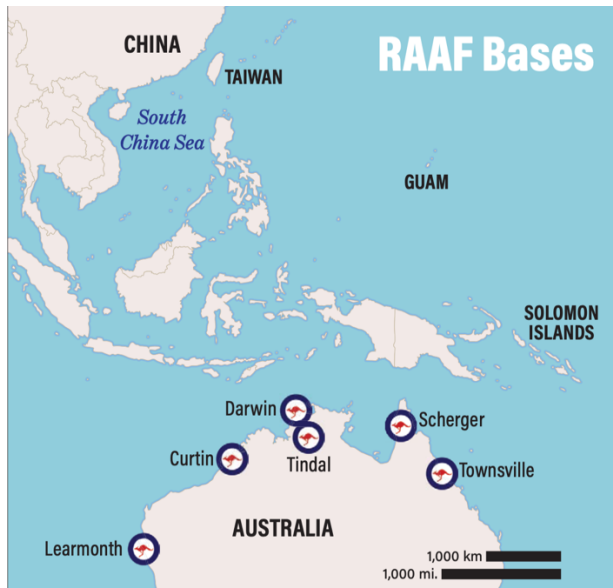
<sup>2</sup> [https://en.wikipedia.org/wiki/Royal\\_Australian\\_Air\\_Force](https://en.wikipedia.org/wiki/Royal_Australian_Air_Force) - Accessed 01/31/22, the combat aircraft are verified by <https://www.airforce.gov.au/technology/aircraft/air-combat> (accessed 6/22/2022), which states 24 F/A-18 flying, plus 50 operational F-35 as per <https://defbrief.com/2022/06/21/australias-f-35a-fleet-grows-to-50-airframes-with-latest-delivery/>

<sup>3</sup> *Australia Realigns its Military in Light of Regional Security Shifts*, Bradley Perrett, Aviation Week and Space Technology, Dec. 26 2022 – Jan 15, 2023, pg. 46-47

<sup>4</sup> <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>5</sup> <https://www.thedrive.com/the-war-zone/australias-mothballed-f-a-18-hornets-should-be-given-to-ukraine> (2023)

## Northern Airbases<sup>6</sup>



In peacetime squadrons are located at training bases near cities (mostly RAAF Amberly, Brisbane, and RAAF Williamtown, Newcastle). Tindal however does host a fighter squadron permanently.

## Army<sup>7</sup>

- 1st Division
  - 1<sup>st</sup> Div. is expeditionary, so when large forces are deployed abroad, they are subordinated to 1<sup>st</sup> Div.
  - Headquarters, 1st Division
  - Amphibious Task Group (Brisbane)
    - 2nd Battalion, Royal Australian Regiment (amphibious infantry)
- 7 Mech Infantry Brigades – Various Locations
  - Combat Arms: 2 Mechanized Infantry Regiments, 1 Motorized Infantry Regiment.
  - Support Arms: HQ, Artillery Regiment, Combat Engineer Regiment, Signal Regiment, Combat Service Support Battalion
- 2 Combat Support Brigade – New South Wales
  - HQ, Intelligence Battalion, MP Battalion, Engineer Support Regiment, Signal Regiment, 2 Artillery Regiments
- 17th Sustainment Brigade - Dispersed
  - HQ, Signal Squadron, 3 Force Support Battalions, 3 Health Battalions
- 5 light batteries of artillery and a handful of additional regiments
- Special Operations Command – New South Wales
  - Special Air Service Regiment
  - 1st Commando Regiment
  - 2nd Commando Regiment

<sup>6</sup> *Australia Realigns its Military in Light of Regional Security Shifts*, Bradley Perrett, Aviation Week and Space Technology, Dec. 26 2022 – Jan 15, 2023, pg. 46-47

<sup>7</sup> [https://en.wikipedia.org/wiki/Structure\\_of\\_the\\_Australian\\_Army](https://en.wikipedia.org/wiki/Structure_of_the_Australian_Army) - Accessed 02/03/22

- Special Operations Engineer Regiment
- Special Operations Logistics Squadron
- 16th Aviation Brigade - Dispersed
  - 1st Aviation Regiment (Tiger ARH helicopters)
  - 5th Aviation Regiment (MRH 90 Taipan and Chinook helicopters)
  - 6th Aviation Regiment (MRH 90 Taipan helicopters)

## **Missile Inventory**

- 260(-) x JASSM<sup>8</sup>
- 80 x JASSM-ER (Ordered July 2022)<sup>9</sup>
- 200 x LRASM (Ordered 2020)<sup>10</sup>

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<sup>8</sup> ADF Weapons: Was JASSM the right choice?, Tom Muir, 1 August 2007, <https://www.australiandefence.com.au/F030B8C0-F806-11DD-8DFE0050568C22C9>. There are inevitably less than 260 due to training missiles, test firings, training, and exercises.

<sup>9</sup> *Australia Realigns its Military in Light of Regional Security Shifts*, Bradley Perrett, Aviation Week and Space Technology, Dec. 26 2022 – Jan 15, 2023, pg. 46-47

<sup>10</sup> <https://www.navalnews.com/event-news/indo-pacific-2022/2022/05/up-to-200-lrasm-for-raaf-with-potentially-more-for-ran/> (2022)

# New Zealand

## Navy<sup>11</sup>

- 2 x ANZAC Class Frigate
- 2 x Offshore Patrol Vessel
- 1 x Sustainment Vessel
- 1 x Multi-role Vessel (can lift 400 troops along with vehicles)
- 2 x Inshore Patrol Vessels

## Air Force

### Organization<sup>12</sup>

- No. 3 Squadron (NH90, AW109) - RNZAF Base Ohakea
- No. 5 Squadron (Lockheed P-3K2 Orion) - RNZAF Base Auckland
- No. 6 Squadron (Kaman SH-2G(I) Super Sea Sprite) - RNZAF Base Auckland
- No. 40 Squadron (Lockheed C-130H(NZ) Hercules, Boeing 757-2K2 Combi) - RNZAF Base Auckland
- No. 42 Squadron (Beechcraft Super King Air 350) - RNZAF Base Ohakea

### Aircraft<sup>13</sup>

- Aircraft
  - 5 x P-3K Maritime Patrol Aircraft
  - 2 x 757 Transport Aircraft
  - 5 x C-120H
- Helicopters
  - 5 x AW-109
  - 8 x NH-90
  - 9 x SH-2G

## Army<sup>14</sup>

- 1st (NZ) Brigade
  - 1st Battalion, Royal New Zealand Infantry Regiment
  - 2nd/1st Battalion, Royal New Zealand Infantry Regiment
  - 2/4 Battalion, Royal New Zealand Infantry Regiment\*
  - 3/6 Battalion, Royal New Zealand Infantry Regiment\*
  - 5/7 Battalion, Royal New Zealand Infantry Regiment\*
  - Queen Alexandra's Mounted Rifles
  - 16th Field Regiment
  - 2nd Engineer Regiment
  - 1st Command Support Regiment
  - 2nd Combat Service Support Battalion
  - 3rd Combat Service Support Battalion
- Special Operations Component Command

<sup>11</sup> <https://www.nzdf.mil.nz/navy/our-equipment/ships-and-watercraft/> - Accessed 02/03/22

<sup>12</sup> [https://en.wikipedia.org/wiki/Royal\\_New\\_Zealand\\_Air\\_Force](https://en.wikipedia.org/wiki/Royal_New_Zealand_Air_Force) - Accessed 02/03/22

<sup>13</sup> <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>14</sup> <https://www.nzdf.mil.nz/army/our-structure/> - Accessed 02/03/22

- 1st New Zealand Special Air Service Regiment
- \*Reserves
  - 2/4 Battalion, Royal New Zealand Infantry Regiment
  - 3/6 Battalion, Royal New Zealand Infantry Regiment
  - 5/7 Battalion, Royal New Zealand Infantry Regiment



# UK

## Forces in Theater

- 2 x Offshore Patrol Vessel<sup>15</sup>
- British Forces Brunei<sup>16</sup>
  - Headquarters BFB
  - 2nd Battalion, the Royal Gurkha Rifles
  - 7 Flight Army Air Corps (Bell 212 helicopter)

## Reinforcements

- Queen Elizabeth Carrier Task Force
  - 1 x Queen Elizabeth Class Carrier
    - 2 x F-35B Squadrons
  - 1 x Albion class LPD
    - 1 x Royal Marine Battalion
  - 1 x Bay class LSD
  - 2 x Type 45 Destroyer
  - 3 x Type 23 Frigates
  - Astute Class Submarine
- Various elements can be activated and moved to Brunei or Japan\* to link up with units to form an Infantry Brigade.
  - 2nd Battalion, the Royal Gurkha Rifles
  - Elements of:
    - Royal Marine Commandos
    - Parachute Regiment
    - Ranger Regiment
- Expeditionary Air Wings (UK Bases)
  - No. 121 Expeditionary Air Wing (RAF Coningsby) – multi-role operations
  - No. 135 Expeditionary Air Wing (RAF Leeming) – fighter operations
  - No. 138 Expeditionary Air Wing (RAF Marham) – fighter operations
  - No. 140 Expeditionary Air Wing (RAF Lossiemouth) – fighter operations

\*As per the Reciprocal Access Agreement signed in 2023

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<sup>15</sup> <https://ukdefencejournal.org.uk/royal-navy-offshore-patrol-vessels-visit-san-diego-to-start-pacific-deployment/> (2021)

<sup>16</sup> <https://www.britishforcesbrunei.co.uk/about-bruneigarrison> - Accessed 3/08/22

# France

## In Theater

- Nothing suitable for high intensity combat.<sup>17</sup>

## Reinforcements

- Navy<sup>18</sup>
  - Charles de Gaulle CSG
    - Air Wing<sup>19</sup>
      - 24 x Rafale M in 2 x Rafale Squadron (4<sup>th</sup> Gen Multirole)
      - 2 x E-2C Hawkeye
      - 2 x Dauphin Helicopters
      - 1 x NH-90 (usually)
    - Screen of Various
      - May include other nations ships integrated into the CSG<sup>20</sup>
    - No organic MPA<sup>21</sup>
  - 1 x Rubis or Suffren SSN
  - 1 x ESG
    - Centered on Mistral class
      - 1 x Troupes de Marine Brigade
    - Screen of Various
- Air<sup>22</sup>
  - 1 Mirage 200-5F Squadron (4<sup>th</sup> Gen Multirole)
  - 1 Mirage 2000D Squadron (3<sup>rd</sup> Gen Tac Bomber)
  - 2 Rafale Squadron (4<sup>th</sup> Gen Multirole)
- Army<sup>23</sup>
  - Scratch Pacific Mech Brigade
    - 2e RPIMa Regiment
    - 5<sup>th</sup> Regiment of Cuirassier
    - 5<sup>th</sup> Regiment Outre Mer
  - 11<sup>th</sup> Airborne Brigade
  - 27<sup>th</sup> Mountain Brigade
  - 9th Marine Infantry Brigade

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<sup>17</sup> Other units are present but are not for high intensity combat - [https://espritsurcouf.fr/geopolitique\\_la-strategie-de-la-france-dans-l-indo-pacifique\\_par\\_joseph-le-gall/](https://espritsurcouf.fr/geopolitique_la-strategie-de-la-france-dans-l-indo-pacifique_par_joseph-le-gall/)

<sup>18</sup> <https://www.iiss.org/blogs/research-paper/2022/03/taiwan-cross-strait-stability-and-european-security> (2022), pg. 26

<sup>19</sup> Carrier Strike Group 2.0, Eammanuel Huberdeau, Janes's Defense Weekly, 26 February 2020, pg. 28-31 (pg. 29)

<sup>20</sup> Carrier Strike Group 2.0, Eammanuel Huberdeau, Janes's Defense Weekly, 26 February 2020, pg. 28-31 (pg. 31)

<sup>21</sup> Carrier Strike Group 2.0, Eammanuel Huberdeau, Janes's Defense Weekly, 26 February 2020, pg. 28-31 (pg. 30)

<sup>22</sup> Numbers drawn from <https://www.flightglobal.com/download?ac=83735> (2022), numbers given as number that could be drawn for Pacific service.

<sup>23</sup> IISS The Military Balance 2021 pg.102. Selected units are the guess of the author.



# Canada

## Army (Ready Forces)<sup>24</sup>

- 3 Mechanized Brigade Groups (5<sup>th</sup> CMBG,<sup>25</sup> 1<sup>st</sup> CMBG,<sup>26</sup> and 2<sup>nd</sup> CMBG)
  - three infantry battalions (two mechanized, one light)
  - an armoured regiment
  - an artillery regiment
  - a combat engineer regiment
  - a reconnaissance squadron
  - appropriate combat support, communications, medical and service support units
- Given the amount of airlift available, staging this into theater would be difficult with the heavy equipment. A scratch Light Infantry Brigade might more easily be formed by taking the three light infantry battalions plus supporting equipment.

## Navy

- MARPAC<sup>27</sup>
  - Frigates (Halifax Class)
    - HMCS Vancouver (FFH 331)
    - HMCS Regina (FFH 334)
    - HMCS Calgary (FFH 335)
    - HMCS Winnipeg (FFH 338)
    - HMCS Ottawa (FFH 341)
  - Coastal defence vessels (Kingston Class)
    - HMCS Nanaimo (MM 702)
    - HMCS Edmonton (MM 703)
    - HMCS Whitehorse (MM 705)
    - HMCS Yellowknife (MM 706)
    - HMCS Saskatoon (MM 709)
    - HMCS Brandon (MM 710)
  - Submarines
    - HMCS Victoria (SSK 876)
    - HMCS Corner Brook (SSK 878)
    - HMCS Chicoutimi (SSK 879)
- MARALNT (possibly some units would be deployed to assist)<sup>28</sup>
  - A Fleet of 15 His Majesty's Canadian Ships:
    - 7 Multi-Role Patrol Frigates
    - 6 Maritime Coastal Defence Vessels
    - 2 Long Range Patrol Submarines

## Air Force (Expeditionary Elements Only)<sup>29</sup>

<sup>24</sup> <https://www.canada.ca/en/army/corporate/the-canadian-army-of-today.html> (Accessed July 7, 2022)

<sup>25</sup> <https://www.canada.ca/en/army/corporate/2-canadian-division.html> (Accessed July 18, 2022)

<sup>26</sup> <https://www.canada.ca/en/army/corporate/3-canadian-division.html> (Accessed July 18, 2022)

<sup>27</sup> [https://en.wikipedia.org/wiki/Maritime\\_Forces\\_Pacific](https://en.wikipedia.org/wiki/Maritime_Forces_Pacific) (Accessed July 7, 2022)

<sup>28</sup> <https://www.canada.ca/en/navy/corporate/our-organization/structure/marlant/units.html> (Accessed July 7, 2022)

<sup>29</sup> Based on <https://www.canada.ca/en/air-force/corporate/wings-squadrons.html> and <https://www.canada.ca/en/air-force/corporate/reports-publications/royal-canadian-air-force-map.html> (accessed July 7, 2022)

- 425 Tactical Fighter Squadron (CF-188 Hornet)
- 433 Tactical Fighter Squadron (CF-188 Hornet)
- 401 Tactical Fighter Squadron (CF-188 Hornet)
- 409 Tactical Fighter Squadron (CF-188 Hornet)

# China

## Force Quality

### **In Short**

In official and public sources, the PLA is aware of the major issues with its force and is attempting to remedy them. This process has been going on starting since the mid-2010's, but it is difficult to assess the effectiveness of their remedies to their problems.

### **Overall Force Quality**

In recent years the PLA has instituted several initiatives to increase the quality of their personnel, which, while in early days seem to be making progress. The shift in 2021 to twice a year intake of conscripts, rather than once a year will likely improve the manning and quality of units, given that it works better with the training schedule the PLA uses (from 50% of conscripts being minimally qualified, to 75% year-round). Chinese units with large numbers of conscripts have visibility improved readiness as a result. It also allows for better recruitment of college students, however the twice a year cycle may be creating some issues within the force as seniority between different sets of conscripts leading to bullying. There remain issues with the quality of the NCO corps of which the PLA is aware. In 2022, new moves have been made to increase the quality of the NCO corps by clarifying roles and providing promotion pathways as well as providing better mechanisms to manage the NCOs leaving the service.<sup>30</sup> While it is early to make predictions on changes that will take many years to pan out, the moves thus far appear to be the correct ones to make.

### **Amphibious Units**

PLAA amphibious brigades appear to be capable amphibious operators, having gained skills over the past 5 years after their 2017 reorganization to the point of publicly conducting multi-brigade exercises.<sup>31</sup> The 1<sup>st</sup> and 2<sup>nd</sup> PLANMC Brigades have been and continue to be well trained in amphibious operations, and the 6<sup>th</sup> appears also to be competent. The quality of other brigades is unknown, and the 4<sup>th</sup> and 5<sup>th</sup> Brigades have not been publicly observed conducting amphibious training.<sup>32</sup>

There is also a complete lack of oppositional training against a proper OPFOR for PLAA amphibious brigades,<sup>33</sup> this also appears to be a problem for PLANMC brigades as well.<sup>34</sup> Chinese sources often note that a lack of capability to conduct joint operations is a problem that is being worked on.<sup>35</sup> These problems are compounded by the fact that both the PLAA amphibious brigades and PLANMC brigades use 2 year conscripts meaning that long term knowledge is not kept. “[T]he PLA will likely need several more years before it is comfortable executing larger training events with multiple amphibious brigades landing simultaneously. Although recent smaller scale exercises utilized joint capabilities, with PLAN vessels delivering PLAA landing forces and PLAAF aircraft providing fire support, the limited scale is not representative of the realistic requirements expected during a joint island landing

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<sup>30</sup> <https://warontherocks.com/2022/08/people-win-wars-a-2022-reality-check-on-pla-enlisted-force-and-related-matters/> (2022)

<sup>31</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 180.

<sup>32</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 181-182

<sup>33</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 178

<sup>34</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 184

<sup>35</sup> See any selection of the Chinese Maritime Studies Institute's China Maritime Report's

campaign.”<sup>36</sup> In addition PLAA amphibious brigades and PLANMC brigades may lack the ability to easily call for helicopter support.<sup>37</sup>

### **Airborne Units**

Training is generally battalion level, with a few at brigade level. Airborne training often occurs at night, and units have trained against heavier Blue forces. It is unclear if any joint training has been done with other services to any significant degree.<sup>38</sup> The airborne lack the capability to conduct joint operations, namely with no known training in: providing air cover to transport aircraft, practicing with fixed wing close air support for airborne troops, and in practicing with supporting fires from the Army, Navy, or Rocket Force.<sup>39</sup> For a full scale assault the airborne corps “does not appear to train to execute a multi-brigade deployment.”<sup>40</sup>

### **SOF**

SOF train at small unit levels regularly in a variety of circumstances and with a variety of simulated missions and to practice different skills. They also practice in larger drills as part of combined arms training, with examples of SOF operations at battalion level.<sup>41</sup> Several areas of deficiency are noted:<sup>42</sup>

- Questions on the quality of special mission equipment available to SOF, though it is difficult to ascertain the extent of problems or if they have already been remedied.
- Lack of technical reconnaissance training, meaning that “SOF officers and personnel have comparatively weak ability to obtain and handle intelligence” (for example vehicle recognition, and lack of training with small drones).
- SOF units do not appear to train for psychological or unconventional war (training is focused on direct action).
- SOF units from different services also do not appear to train together regularly, and several SOF forces exist outside the normal chain of command, though moves to increase training appear to be happening.
- Lack of permanent joint command structure for SOF below the theater level. It appears that lower-level moves are being made to remedy this at the moment.

### **Air Forces**

The step up in recent years of incursions into Taiwanese airspace has no doubt allowed PLAAF EW personnel to familiarize themselves with the signatures and signals of ROC air and missile defense systems as well as interceptor aircraft.”<sup>43</sup> China is increasing its training and increasing the complexity of the training (and integration with other branches) while practicing with its flights around Taiwan, and this may indicate that “the air force is increasingly capable of more complex operations”.<sup>44</sup> Overall the quality of the PLAAF is likely varied with the best units being equivalent to adversary nations, and other units being less so.<sup>45</sup> Problems remain with

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<sup>36</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 183

<sup>37</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 178

<sup>38</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 202-203

<sup>39</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 211-212

<sup>40</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 216

<sup>41</sup> China Maritime Report No. 18: Chinese Special Operations in a Large-Scale Island Landing (2022) pg. 10-13

<sup>42</sup> China Maritime Report No. 18: Chinese Special Operations in a Large-Scale Island Landing (2022) pg. 14-16

<sup>43</sup> *PLA Aerospace Power: A Primer on Trends in China’s Military Air, Space, and Missile Forces*, 3rd Edition, China Aerospace Studies Institute, August 2022, pg. 17

<sup>44</sup> *Strategic Service*, Janes Defense Weekly, 5 January 2022, Gabriel Dominguez and Andreas Rupprecht, Pg. 20-29 (pg. 26-27)

<sup>45</sup> *Strategic Service*, Janes Defense Weekly, 5 January 2022, Gabriel Dominguez and Andreas Rupprecht, Pg. 20-29 (pg. 27)

maintenance, flying hours, recruiting talented personal, and the lingering effects from the reorganization of the PLAAF in 2014, though efforts are being made to fix these issues.<sup>46</sup> Jointness is likely still lacking, though more and more training is going into it, it takes much time to build such capability.<sup>47</sup>

### **Submarine Forces**

“PLAN experts believe that their meteorology and oceanography capabilities significantly lag those of the USN ... especially beyond the First Island Chain.”<sup>48</sup> “Uneven quality and chain-of-command inefficiencies are likely enduring challenges”, with officers being likely better than the enlisted, but both suffer from submarines being a dead end career.<sup>49</sup> Submariners now train more realistically than previously since the start of major changes to the Chinese submarine force 6 years ago.<sup>50</sup> Currently “PLAN submarines often deploy with personnel senior to the commanding officer, which subverts shipboard chain of command, stresses the system, and complicates decision-making” though it is unclear if this would also happen in wartime.<sup>51</sup>

### **ASW**

Chinese ASW is being tested in large exercise every year, but it lacks the number and scope of multilateral exercises which help to challenge ASW capabilities to their fullest.<sup>52</sup>

### **ISR Complex**

Long range missiles will likely be detected by OTH radar, then cued by satellites. Chinese Jianbing-8 ocean surveillance satellites operate in triplets to triangulate and have a revisit time of 90 minutes in the Western Pacific. Overall, the ISR system may be more brittle than expected.<sup>53</sup>

### **PLAN**

North Theater Navy<sup>54</sup>. Headquartered in Qingdao, with one destroyer flotilla in Rizhao, one submarine flotilla in Qingdao, and one destroyer flotilla and submarine flotilla in Dalian<sup>55</sup>-responsible for the Bo Hai, Yellow Sea, and northern portion of the East China Sea. It falls under the PLA Northern Theater Command.

- Surface fleet

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<sup>46</sup> *Strategic Service*, Janes Defense Weekly, 5 January 2022, Gabriel Dominguez and Andreas Rupprecht, Pg. 20-29 (pg. 29)

<sup>47</sup> *Strategic Service*, Janes Defense Weekly, 5 January 2022, Gabriel Dominguez and Andreas Rupprecht, Pg. 20-29 (pg. 29)

<sup>48</sup> *Quick Look Report “Chinese Undersea Warfare: Development, Capabilities, Trends”*, April 2023, China Maritime Studies Institute [http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College\\_China-Maritime-Studies-Institute\\_CHINESE-UNDERSEA-WARFARE\\_CONFERENCE-SUMMARY\\_20230505.pdf](http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College_China-Maritime-Studies-Institute_CHINESE-UNDERSEA-WARFARE_CONFERENCE-SUMMARY_20230505.pdf), pg. 1

<sup>49</sup> *Quick Look Report “Chinese Undersea Warfare: Development, Capabilities, Trends”*, April 2023, China Maritime Studies Institute [http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College\\_China-Maritime-Studies-Institute\\_CHINESE-UNDERSEA-WARFARE\\_CONFERENCE-SUMMARY\\_20230505.pdf](http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College_China-Maritime-Studies-Institute_CHINESE-UNDERSEA-WARFARE_CONFERENCE-SUMMARY_20230505.pdf), pg. 2

<sup>50</sup> *Quick Look Report “Chinese Undersea Warfare: Development, Capabilities, Trends”*, April 2023, China Maritime Studies Institute [http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College\\_China-Maritime-Studies-Institute\\_CHINESE-UNDERSEA-WARFARE\\_CONFERENCE-SUMMARY\\_20230505.pdf](http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College_China-Maritime-Studies-Institute_CHINESE-UNDERSEA-WARFARE_CONFERENCE-SUMMARY_20230505.pdf), pg. 2

<sup>51</sup> *Quick Look Report “Chinese Undersea Warfare: Development, Capabilities, Trends”*, April 2023, China Maritime Studies Institute [http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College\\_China-Maritime-Studies-Institute\\_CHINESE-UNDERSEA-WARFARE\\_CONFERENCE-SUMMARY\\_20230505.pdf](http://www.andrewerickson.com/wp-content/uploads/2023/05/Naval-War-College_China-Maritime-Studies-Institute_CHINESE-UNDERSEA-WARFARE_CONFERENCE-SUMMARY_20230505.pdf), pg. 3

<sup>52</sup> *Blue Water Buildup*, Aika Torruella, Alessandra Giovanzanti, Georgios Papangelopoulos, and Matteo Scarano, Janes Defense Weekly, 18 May, 2022, pg. 22-29 (pg. 25)

<sup>53</sup> *Rocket Force*, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 18)

<sup>54</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2021, pg. 54

<sup>55</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2022, pg. 111



- 1 x Carrier
- 11 x Destroyers
- 12 x Frigate
- 12 x Corvettes
- 15 x Missile Patrol Craft
- Subsurface fleet
  - 4 x SSN
  - 14 x SS (14 modern Type 39)<sup>56</sup>
- Amphibious fleet
  - 2 x tank landing ships
  - 3 x medium landing ships
- Air Assets<sup>57</sup>
  - 2nd Aviation Division - Y-8 and Y-9 Transport aircraft
  - 5th Aviation Brigade - Probably 1 regiment of JH-7 attack-bombers and a second regiment of J-8 interceptors
- PLANMC Assets<sup>58</sup>
  - 5<sup>th</sup> Marine Brigade, 6<sup>th</sup> Marine Brigade

East Theater Navy<sup>59</sup>. Headquartered in Ningbo, all sub and surface assets centered on Qingdao - covers the majority of the East China Sea and the Taiwan Strait. It falls under the PLA Eastern Theater Command.

- Surface fleet
  - 13 x Destroyers
  - 23 x Frigates
  - 24 x Corvettes
  - 38 x Missile Patrol Craft
- Subsurface fleet
  - 18 x SS (11 modern Type 39, 6 updated Kilo, 2 old 636, 5 unknown)<sup>60</sup>
- Amphibious fleet
  - 3 x Amphibious Transport Docks
  - 16 x Tank Landing Ships
  - 5 x Medium Landing Ships
- Air Assets<sup>61</sup>
  - 4th Aviation Brigade (PLAN) - J-10, Su-30 (2019)
  - 6th Aviation Brigade (PLAN) - JH-7 Fighter-Bomber (2019)
- PLANMC Assets<sup>62</sup>
  - 3<sup>rd</sup> Marine Brigade (in Jinjiang, Fujian), 4<sup>th</sup> Marine Brigade (in Jieyang, Guangdong)

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<sup>56</sup> <http://www.andrewerickson.com/wp-content/uploads/2021/04/Screen-Shot-2021-04-01-at-5.32.24-PM.png> (2021)

<sup>57</sup> PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces 2nd Edition (2015). pg.34

<sup>58</sup> China Maritime Report No. 15: The New Chinese Marine Corps: A "Strategic Dagger" in a Cross Strait Invasion (2021) pg. 4

<sup>59</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2021, pg. 54

<sup>60</sup> <http://www.andrewerickson.com/wp-content/uploads/2021/04/Screen-Shot-2021-04-01-at-5.32.24-PM.png> (2021)

<sup>61</sup> PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces 2nd Edition (2015). pg.34

<sup>62</sup> China Maritime Report No. 15: The New Chinese Marine Corps: A "Strategic Dagger" in a Cross Strait Invasion (2021) pg. 4

South Theater Navy<sup>63</sup>. Headquartered in Zhanjiang, One destroyer flotilla in Zhanjiang, one submarine flotilla on the Chuanshan Islands, and one destroyer flotilla and submarine flotilla in Sanya.<sup>64</sup> STN is responsible for the South China Sea. It falls under the PLA Southern Theater Command.

- Surface fleet
  - 1 x Aircraft Carrier
  - 10 x Destroyers
  - 14 x Frigates
  - 20 x Corvettes
  - 14 x Missile Patrol Craft
- Subsurface fleet
  - 2 x SSN
  - 6 x SSBN
  - 14 x SS (2 old Pr. 636, 7 old Type 35, 4 modern Type 39, 4 upgraded Kilo, 1 unknown)<sup>65</sup>
- Amphibious fleet
  - 5 x Amphibious Transport Docks
  - 10 x Tank Landing Ships
  - 8 x Medium Landing Ships
- Air Assets<sup>66</sup>
  - 1 x ? Air Brigade - J-11 and J-7 fighters (2019)
  - 1 x ? Air Brigade - J-11 fighters (2019)
  - 1 x ? Regiment - H-6 bombers
- PLANMC Assets<sup>67</sup>
  - 1<sup>st</sup> Marine Brigade, 2<sup>nd</sup> Marine Brigade

### ASW Helicopters

PLANAF operates from shore 14 Ka-28 with Eastern Theater Command, and 22 Z-9C's with Northern and Southern theater commands, concentrated near areas where China has territorial disputes with neighbors.<sup>68</sup> Newer ASW helicopters such as Z-18F (flyable from aircraft carriers and likely LHD) and Z-20F are being produced which have datalinks and much better sensors than older helicopters.<sup>69</sup>

### MPA Aircraft<sup>70</sup>

- 737 – 2 (PLAAF Aircraft)
- Sh-5 – 3 (limited ASW capability)
- Y-9X (no ASW capability)

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<sup>63</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2021, pg. 54

<sup>64</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2022, pg. 111

<sup>65</sup> <http://www.andrewerickson.com/wp-content/uploads/2021/04/Screen-Shot-2021-04-01-at-5.32.24-PM.png> (2021)

<sup>66</sup> PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces 2nd Edition (2015). pg.34

<sup>67</sup> China Maritime Report No. 15: The New Chinese Marine Corps: A "Strategic Dagger" in a Cross Strait Invasion (2021) pg. 4, location page 6.

<sup>68</sup> *Blue Water Buildup*, Aika Torruella, Alessandra Giovanzanti, Georgios Papangelopoulos, and Matteo Scarano, Janes Defense Weekly, 18 May, 2022, pg. 22-29 (pg. 26)

<sup>69</sup> *Blue Water Buildup*, Aika Torruella, Alessandra Giovanzanti, Georgios Papangelopoulos, and Matteo Scarano, Janes Defense Weekly, 18 May, 2022, pg. 22-29 (pg. 27)

<sup>70</sup> *Blue Water Buildup*, Aika Torruella, Alessandra Giovanzanti, Georgios Papangelopoulos, and Matteo Scarano, Janes Defense Weekly, 18 May, 2022, pg. 22-29 (pg. 28), some numbers drawn from <https://www.flightglobal.com/download?ac=90688> (2023)

- Y-8Q (dedicated ASW aircraft) – 17-20 aircraft (2022), probably moving towards 48 aircraft

### Marine Brigades<sup>71</sup>

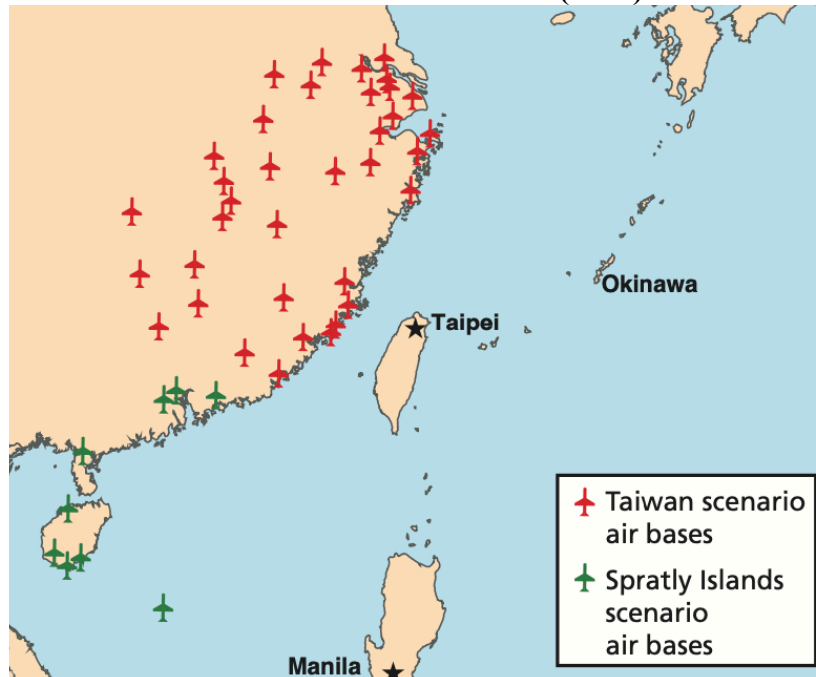
- Units are subordinated to theater navy's (as listed above)
- 8 total brigades, 5 deployed in Eastern or Southern theaters
  - 6 Marine Brigades
  - 1 Special Operations Brigade (would be dispersed to support), headquartered in Sanya on Hainan Island.
  - 1 (the 7<sup>th</sup>) Aviation Brigade (known to have utility helicopters, but may be equipped with attack helicopters)

### Mine Warfare and Countermeasure<sup>72</sup>

- 38 Ships

## PLAAF

### PLA Airbases within 800 km of Taiwan (2015)<sup>73</sup>



Note that this combines both PLAAF and PLAN airbases and does not include civilian airbases that might be used. PLAAF units have improved airbase infrastructure and support and have

<sup>71</sup> China Maritime Report No. 15: The New Chinese Marine Corps: A "Strategic Dagger" in a Cross Strait Invasion (2021) pg. 4, 6-7

<sup>72</sup> Combined Sources, pg. 130 of [https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210607\\_Cordesman\\_Chinese\\_Strategy.pdf?fg7hUZdWUVJgaJzyC4E9Qj1m3w13SfjQ](https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210607_Cordesman_Chinese_Strategy.pdf?fg7hUZdWUVJgaJzyC4E9Qj1m3w13SfjQ)

<sup>73</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND, published 2015, Heginbotham et. al., pg. 140, for a full map pg. 138.

increased the amount of unfamiliar airfield training allowing them to operate at non-home airfields easier.<sup>74</sup>

|                  | Total Air Bases | # w/ Runways longer than 2,500m | # w/ Hangers | # w/ Hardened Shelters | Number w/ Underground Facilities |
|------------------|-----------------|---------------------------------|--------------|------------------------|----------------------------------|
| 2015             | 39              | 32                              | 11           | 5                      | 7                                |
| Average 7 year Δ | +/-0            | +/-0                            | +2           | +1                     | +0                               |
| Projected 2024   | 39              | 32                              | 13           | 6                      | 7                                |

### Total Aircraft Overview

Includes non-frontline aircraft, training aircraft, etc.

- 5th Gen<sup>75</sup> - 150? (Only some parts are operational and non-prototype or testing airframes)<sup>76</sup> - 3 Aviation Brigades are equipped with J-20s.<sup>77</sup>
- 4th Gen<sup>78</sup> - 900
- 3rd Gen Fighters/Attack Aircraft<sup>79</sup> - 900, (attack aircraft are of poor quality)<sup>80</sup>
- Bombers<sup>81</sup>
  - I currently understand that all current H-6's with offensive rolls (K, H, M, N), are derivatives of the H-6G, and as such can carry 4 x ASCM<sup>82</sup>
  - By Regiment
    - 4 x H-6K Regiments– 22<sup>nd</sup>, 24<sup>th</sup>, 28<sup>th</sup> Air Regiments, plus elements of 107<sup>th</sup> and 108<sup>th</sup>
      - Upgraded with turbofans for longer range compared to older versions.
      - Can carry 6 x LACM (DH-10) per plane, and fire them at Guam<sup>83</sup>
    - 1 x H-6H Regiment – 29<sup>th</sup> Air Regiment, plus elements of 107<sup>th</sup>
      - Can carry two DH-10 ALCMs, and fire them at Guam<sup>84</sup>
    - 2 x H-6M Regiments – 30<sup>th</sup> Air Regiment, plus elements of 107<sup>th</sup> and 108<sup>th</sup>
    - 1 x H-6N Regiment – 108<sup>th</sup> Air Brigade

<sup>74</sup> *Strategic Service*, Janes Defense Weekly, 5 January 2022, Gabriel Dominguez and Andreas Rupprecht, Pg. 20-29 (pg. 26)

<sup>75</sup> <https://nationalinterest.org/blog/buzz/china%E2%80%99s-j-20-fighter-jet-fierce-it-has-numbers-problem-194739>

<sup>76</sup> <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>77</sup> *PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces 3rd Edition* (2022) pg.22

<sup>78</sup> Average of Japanese Ministry of Defense, Defense of Japan, 2020, p. 65 and U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2021, p. 55

<sup>79</sup> Total listed fighters from sources minus above number of 4th gen fighters. Source: U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2021, p. 55

<sup>80</sup> *PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces 2nd Edition* (2015). Pg 21

<sup>81</sup> PLA Air Force Bomber Force Organization, China Aerospace Studies Institute (2022), pg. 8 and 10-14. Assuming completely equal breakdown of Regiments when flying multiple types: H-6K - 3.8, H-6H - 1.3, H-6M - 1.8, H-6N - 1

<sup>82</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND, published 2015, Heginbotham et. al., pg. 172

<sup>83</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND, published 2015, Heginbotham et. al., pg. 50

<sup>84</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND, published 2015, Heginbotham et. al., pg. 50



### Combat Aircraft Breakdown<sup>94</sup>

- J-7 – 388 (3<sup>rd</sup> Gen Multirole)
- J-8 – 96 (3<sup>rd</sup> Gen Multirole)
- J-10 – 235 (4<sup>th</sup> Gen Fighter, J-10C is 4.5)
- J-11/16/Su-27/30/35 – 315 (4<sup>th</sup> Gen Fighter, J-16 and Su-30/35 are 4.5)
- J-20 – 150<sup>95</sup> (5<sup>th</sup> Gen Fighter) - only are operational (e.g. non-prototype or testing airframes)
- JH-7 – 140<sup>96</sup> (4<sup>th</sup> Gen Bomber w/ AShM capability)
- Q-5 – 118 (3<sup>rd</sup> Gen Bomber)

### SAM Launcher Inventory (2015)<sup>97</sup>

| Launcher   | HQ-2 (SA-2) | S-300 PMU (SA-10C) | S-300 PMU-1 (SA-20A) | S-300 PMU-2 (SA-20B) | HQ-12 (KSA-1) | HQ-9   | S-400 (SA-21) |
|------------|-------------|--------------------|----------------------|----------------------|---------------|--------|---------------|
| Range      | 35 km       | 100 km             | 150 km               | 200 km               | 50 km         | 200 km | 400 km        |
| #          | 200+        | 32                 | 64                   | 64                   | 48            | 64     | 16            |
| Batteries* | 33–50       | 5–8                | 10–16                | 10–16                | 8–12          | 10–16  | 3–4           |

\*Batteries are typically comprised of 4-6 launchers, hence the range.

### Airborne Brigades

3 light motorized, 2 mechanized, and 1 air assault. 1 special operations brigade (would be used to support the other airborne units). 1 transport brigade. All deployed in Eastern or Southern theaters.<sup>98</sup>

#### Breakdown<sup>99</sup>

Light Motorized: 127<sup>th</sup>, 128<sup>th</sup>, 131<sup>st</sup>

Mech: 133<sup>rd</sup>, 134<sup>th</sup>.

Air Assault: 130<sup>th</sup>

### Employment

- China could either deliver 1 mechanized brigade (-), or 2 light brigades (-).<sup>100</sup>

## PLARF

that “Regiments and aviation brigades are typically composed of between 20 and 40 aircraft.” Thus, I am assuming that Regiments are on the smaller side towards 20 and Brigades on the higher side towards 40.

<sup>94</sup> <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>95</sup> <https://nationalinterest.org/blog/buzz/china%E2%80%99s-j-20-fighter-jet-fierce-it-has-numbers-problem-194739> (2021),

<https://www.defensenews.com/air/2022/11/08/display-at-zhuhai-airshow-reveals-info-on-chinas-j-20-j-16-inventory/> (2022)

<sup>96</sup> The Military Balance, Volume 121, 2021 - Issue 1, Chapter 6: Asia

<sup>97</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND, published 2015,

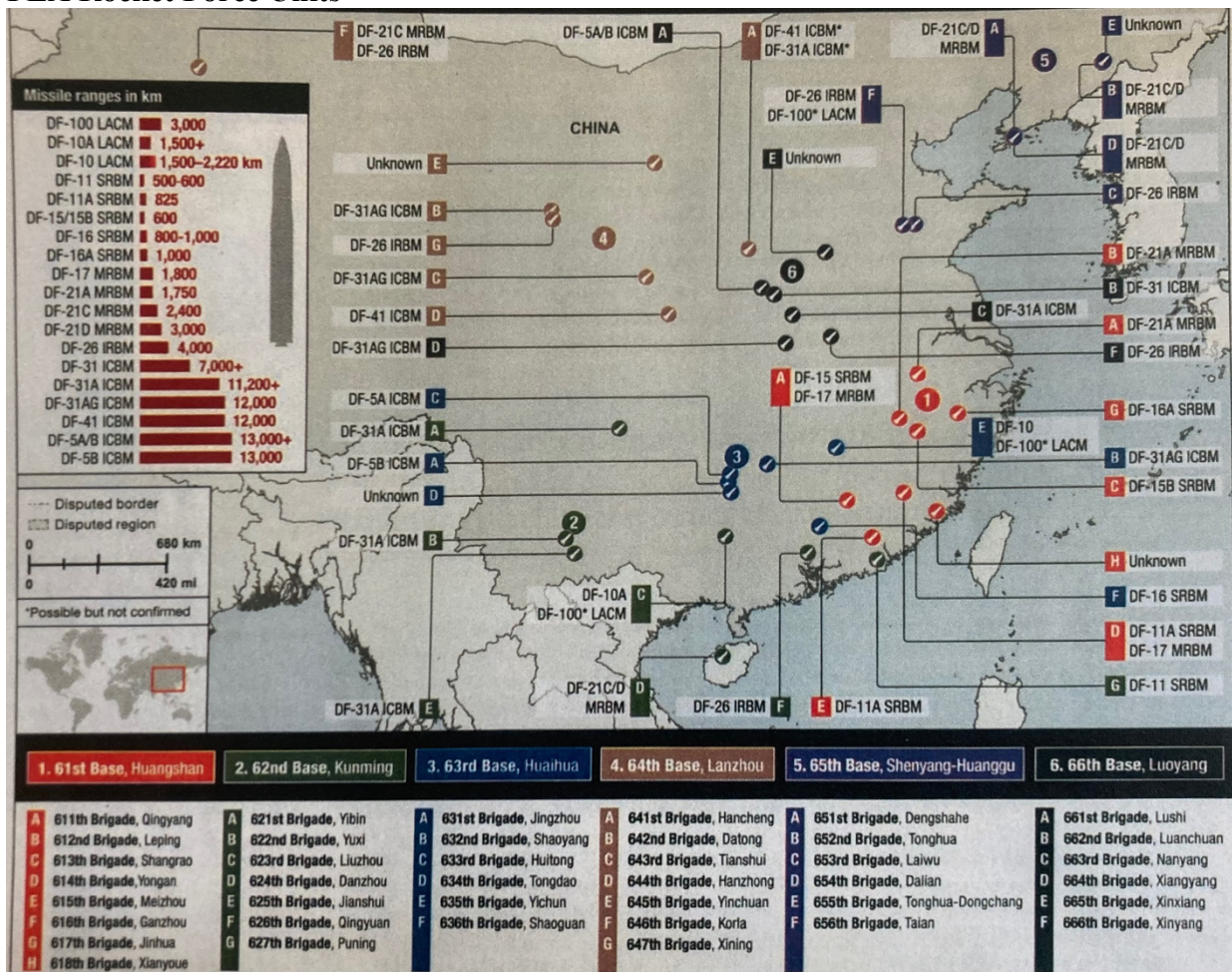
Heginbotham et. al., pg. 101

<sup>98</sup> Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2021, p. 161

<sup>99</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 200-202

<sup>100</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 209

# PLA Rocket Force Units<sup>101</sup>



As the only one missile brigade of conventional use is located in the far west of China and is a DF-21/26 brigade that could be moved. I assume that all missiles would be available for use in a Taiwan scenario.

## Organization

9 bases – 6 operational and 3 support (including oversight of the central nuclear stockpile). Each base is equivalent to a corps formation. These bases have up to 7 missile brigades and ~7 supporting regiments.<sup>102</sup>

1 Missile Brigade = 6 x Launch Bn. each of 2 x Coy, plus supporting assets.<sup>103</sup>

It is unclear the authority for weapons. Nuclear weapons fall under the control of the Central Military Commission (CMC), but conventional ones may be under theater commands, the

<sup>101</sup> Rocket force, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 18)

<sup>102</sup> Rocket force, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 19)

<sup>103</sup> Rocket force, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 19)

base, or the CMC (or a combination of the three). Weapons that reach beyond the first island chain likely fall under the control of the CMC.<sup>104</sup>

### Conventional Weapons

(Dual Use indicates the weapon can have nuclear or conventional warheads)

For some idea of what a pair of 2,000 lb. missiles do when they blow up see the footnote for an overhead drone shot.<sup>105</sup>

| System                                 | Range (mi) | Type                          | Missiles           | Launchers         | Payload (lbs.)             | CEP (m)*               | Notes  |
|--|------------|-------------------------------|--------------------|-------------------|----------------------------|------------------------|--|
| CJ-10/HN-2/DH-10/DF-10A <sup>106</sup> | 1,369      | Conventional, AShM            | 300 <sup>§</sup>   | 54                | 1,100                      | 15                     | Tomahawk equivalent, air launched conventional and AShM available. Has terrain following radar and can likely conduct a time on target attack. |
| DF-11/CSS-7 <sup>107</sup>             | 370        | Dual Use                      | 500                | 200               | 1,400                      | 200-600 <sup>108</sup> |  |
| DF-11A <sup>109</sup>                  | 373        | Dual Use, AShM, Bunker Buster | 100 <sup>110</sup> | 20 <sup>111</sup> | 1,100                      | 20-30 <sup>112</sup>   | Some number of DF-11AZT with a earth-penetrating warhead are in service, but unknown numbers.  |
| DF-12 <sup>113</sup>                   | 173/250    | HE, Bunker Buster, AShM       | ?                  | ?                 | 480                        | 30-50                  | AShM variant is the M20B, has BMD countermeasures, MaRV?   |
| DF-15 <sup>114</sup>                   | 600        | Dual Use                      | 350                | 20                | 1,100-1,500 <sup>115</sup> | 200-300                |  |
| DF-15A <sup>116</sup>                  | 372        | Dual Use                      | 17 <sup>∅</sup>    |                   |                            | 30-45                  |  |

<sup>104</sup> *Rocket force*, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 19)

<sup>105</sup> <https://twitter.com/RALee85/status/1560043907165163527>

<sup>106</sup> [RANGE, LAUNCHERS] Regaining the High Ground at Sea: Transforming the U.S. Navy’s Carrier Air Wing for Great Power Competition - CSBA 2017. Range pg. 17 [LAUNCHERS DUPLICATE] *Rocket force*, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 22) [CEP] *Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21st Century* (2022), Gerry Doyle and Blake Herzinger, pg. 50 [ALL ELSE] Understanding the People’s Liberation Army Rocket Force, Maj. Christopher J. Mihal, 2021 [TERRAIN FOLLOWING RADAR+TIME ON TARGET ATTACK] *Rocket force*, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 22)

<sup>107</sup> [Source states 600 total missiles and 100 DF-11A, so 600-100 = 500] Understanding the People’s Liberation Army Rocket Force, Maj. Christopher J. Mihal, 2021, [RANGE] Introducing the DF-17: China’s Newly Tested Ballistic Missile Armed With a Hypersonic Glide Vehicle 2017 ALL ELSE] Understanding the People’s Liberation Army Rocket Force, Maj. Christopher J. Mihal, 2021

<sup>108</sup> *Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21st Century* (2022), Gerry Doyle and Blake Herzinger, pg. 50

<sup>109</sup> [PAYLOAD] Regaining the High Ground at Sea: Transforming the U.S. Navy’s Carrier Air Wing for Great Power Competition - CSBA 2017, [ALL ELSE] Understanding the People’s Liberation Army Rocket Force, Maj. Christopher J. Mihal, 2021

<sup>110</sup> Number in line with Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21st Century (2022) pg. 50’s estimate of 80-120, and <https://missilethreat.csis.org/missile/dong-feng-11/> accessed Feb 27, 2023 claim of 108 in 2017

<sup>111</sup> *Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21st Century* (2022) pg. 50, or *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND, published 2015, Heginbotham et. al., pg. 47 (I suspect Carrier Killer drew from the RAND report, but cannot prove that.)

<sup>112</sup> <https://missilethreat.csis.org/missile/dong-feng-11/> accessed Feb 27, 2023,

<sup>113</sup> <https://missilethreat.csis.org/missile/df-12/> - accessed Feb 27, 2023. Questions over the range remain.

<sup>114</sup> [CEP] *Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21st Century* (2022) pg. 50 [ALL ELSE] <https://missilethreat.csis.org/missile/df-15-css-6/>. Accessed Feb, 26, 2023. For the # of missiles I assume that of the 350-400 number + 30 per year some would be dedicated to nuclear forces, so I take the low bound (350) to use.

<sup>115</sup> *Rocket force*, Sam Cranny-Evans, Janes Defence Weekly, 21 September 2022, pg. 16-23 (pg. 22)

<sup>116</sup> [CEP, # OF LAUNCHERS] *Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21st Century* (2022) pg. 50, [CEP DUPLICATE] *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017*, RAND, published 2015, Heginbotham et. al., pg. 47 (I suspect Carrier Killer drew from the RAND report, but cannot prove that.) [RANGE] <https://missilethreat.csis.org/missile/df-15-css-6/> accessed Feb 26, 2023



|                       |       |                         |                   |                   |       |            |   |
|-----------------------|-------|-------------------------|-------------------|-------------------|-------|------------|---|
| DF-15B <sup>117</sup> | 447   | Dual Use                | 66 <sup>∅</sup>   |                   |       | 30 or 5-10 | Can conduct terminal maneuvers                          |
| DF-15C                | 528   | Dual Use, Bunker Buster | 17 <sup>∅</sup>   |                   |       |            |   |
| DF-16 <sup>118</sup>  | 621   | Dual Use                | 50 <sup>119</sup> | 36                | 2,200 |            |   |
| DF-17 <sup>120</sup>  | 1,400 | Dual Use, AShM          | 16                | 16                | ?     |            | Hypersonic, AShM in development, at least 16 in service |
| DF-21C <sup>121</sup> | 1,087 | Dual Use                | 75+ <sup>†</sup>  | 26+ <sup>†</sup>  | 1,320 | 40-50      |   |
| DF-21D <sup>122</sup> | 1,243 | Dual Use, AShM          | 75+ <sup>†</sup>  | 18+ <sup>†</sup>  | 1,320 | 20         | Carrier Killer w/MaRV                                   |
| DF-26 <sup>123</sup>  | 2,486 | Dual Use, AShM          | 100+              | 48 <sup>124</sup> | ?     |            | "Guam Killer"   |

§ Getting a hard estimate of this is very difficult, but 300 is the most authoritative source. Other sources say 450 minimum<sup>125</sup>

\* Note that CEP are difficult to estimate so these numbers are from sources, but should be considered very approximate.

† These numbers are probably slightly low as there are total 60 launchers and 200+ missiles.<sup>126</sup>

∅ These numbers are based off the # of brigades fielding these weapons<sup>127</sup>

<sup>117</sup> [RANGE] <https://missilethreat.csis.org/missile/df-15-css-6/> accessed Feb 26, 2023, [CEP] The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 47 (states 5-10m.), <https://missilethreat.csis.org/missile/df-15-css-6/> accessed Feb 26, 2023 (states 30m) [# OF LAUNCHERS] Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50

<sup>118</sup> [PAYLOAD and LAUNCHERS] DF-16 on Missile Threat <https://missilethreat.csis.org/missile/dong-feng-16-css-11/> accessed 2/26/23, [# of MISSILES] See footnote in table [ALL ELSE] Regaining the High Ground at Sea: Transforming the U.S. Navy’s Carrier Air Wing for Great Power Competition - CSBA 2017

<sup>119</sup> See Table:

| Source  | Date               | # of Missiles       |
|---|--------------------|---------------------|
| Regaining the High Ground at Sea: Transforming the U.S. Navy’s Carrier Air Wing for Great Power Competition - CSBA 2017   | 2017               | 30                  |
| <a href="https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/china/dong-feng-16/">https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/china/dong-feng-16/</a> | 2017               | 50                  |
| Understanding the People’s Liberation Army Rocket Force: Strategy, Armament, and Disposition, Maj. Christopher J. Mihal, pg. 21   | 2021               | 24 (12 per brigade) |
| International Institute for Strategic Studies “Chapter Six: Asia,” in <i>The Military Balance 2021</i> (International Institute for Strategic Studies, 2021).   | 2021               | 36                  |
| Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21 <sup>st</sup> Century (2022) pg. 49  | 2022, but for 2020 | 2 brigades (24)     |

<sup>120</sup> [RANGE] Introducing the DF-17: China’s Newly Tested Ballistic Missile Armed With a Hypersonic Glide Vehicle 2017, *A Guide to China’s Bomber Fleet*, Bradley Perrett, Aviation Week and Space Technology, Jan 16-29, 2023, pg. 39 lists 1,800-2,500 km [ALL ELSE] Understanding the People’s Liberation Army Rocket Force, Maj. Christopher J. Mihal, 2021

<sup>121</sup> Regaining the High Ground at Sea: Transforming the U.S. Navy’s Carrier Air Wing for Great Power Competition - CSBA 2017, [# of Missiles] DF-21 on Missile Threat 01/31/22

<sup>122</sup> Regaining the High Ground at Sea: Transforming the U.S. Navy’s Carrier Air Wing for Great Power Competition - CSBA 2017, [# of Missiles] DF-21 on Missile Threat 01/31/22

<sup>123</sup> Regaining the High Ground at Sea: Transforming the U.S. Navy’s Carrier Air Wing for Great Power Competition - CSBA 2017, [# of Missiles] Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 48 [# of Launchers] Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50, note that US DoD estimates were 80—160 in 2019, and 200+ in 2020 (no estimates were given in the 2021 or 2022 reports) [CEP] <https://missilethreat.csis.org/missile/dong-feng-26-df-26/> accessed Feb 27, 2023

<sup>124</sup> Previous estimates of the number of launchers being 16 is probably the low end, as it is the number seen in a parade in 2015 (Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 48)

<sup>125</sup> The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 53, (450+), *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 6 (500+), *Rocket force*, Sam Cranny-Evans, Janes Defence Weekly, 21 Septmber 2022, pg. 16-23 (pg. 22) (500 missiles)

<sup>126</sup> Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50

<sup>127</sup> 2 Brigades field these weapons (Carrier Killer, China’s Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 49): 1 operating only B’s, one operating A, B, and C (I am guessing that the old, non upgraded ones are held in reserve somewhere). As such, assuming an equal breakdown of missiles in the 2<sup>nd</sup> brigade to the given number of missiles in *Carrier Killer* (80-120 missiles), I take

Note that these numbers represent a consensus view that is not held by all, and much depends on how many reloads you count for each TEL.<sup>128</sup>

### Coastal Defense Missiles

YJ-12 and YJ-62 missiles are in service with coastal defense units on ground-based launchers.

YJ-12 ASHM (with land attack ability) (250–400 km range, supersonic sea skimming), but I have no information on how many units, how many were produced, and where units are located (other than some in the Spratly Islands).

YJ-62 (150-250 nautical mile range, subsonic sea skimming) is also in service but again I have no information on how many units, how many were produced, and where units are located.

### Other Missiles

Some number of HN 1 are likely still in service but no source could be found for the number. Range is 600 km (ground launched), or 650 km (air launched), with a 400 kg warhead (20 to 90 kT nuclear warhead, HE, or submunition)<sup>129</sup> It is presumed for the game that all HN-1/2/3 are nuclear and not used and/or are abstracted as part of air support and general combat attrition.

### Nuclear Weapons<sup>130</sup>

Note heavy overlap of missile types with the above table.

| Land Based Ballistic Missiles |                           |               |            |                             |                         |   |
|-------------------------------|---------------------------|---------------|------------|-----------------------------|-------------------------|---|
| Type                          | # Of Launchers            | Year Deployed | Range (km) | Warheads x yield (kilotons) | # of Warheads           | Notes   |
| DF-4                          | 6                         | 1980          | 5,500 km   | 1 x 3,300                   | 6                       | Probably in process of retirement if not already retired  |
| DF-5A                         | 10*                       | 1981          | 12,000 km  | 1 x 4,000-5,000             | 10                      | Total missiles 18 <sup>131</sup> (or likely 1:1 with number of launchers)                       |
| DF-5B                         | 10*                       | 2015          | 13,000 km  | 5x 200-300                  | 50                      |   |
| DF-5C                         | ?*                        | -2020         | 13,000 km  | ? x MIRV                    | ?                       |   |
| DF-15                         | 20? <sup>132</sup>        | 1990          | 600 km     | 1 x Unknown                 | ?                       | Not yet operational. In 1993 CIA stated that warhead had been developed but unknown if deployed |
| DF-17                         | 18                        | -2021         | 1,800+ km  | 1 x HGV                     | ?                       |   |
| DF-21A/E                      | 40                        | 2000, 2016    | 2,100+ km  | 1 x 200-300                 | 40                      |   |
| DF-26                         | 100                       | 2016          | 4,000 km   | 1 x 200-300                 | 20                      |   |
| DF-31                         | 6 or 56-70 <sup>133</sup> | 2006          | 7,200 km   | 1 x 200-300                 | 6 or 32+ <sup>134</sup> |   |

the middle bound 100, and do some basic math. Note that there are several brigades that we do not know what they are equipped with could be operating the DF-15 or other missiles.

<sup>128</sup> The best example of this is *The PLA Rocket Force's Conventional Missiles*, Lawrence Trevethan, Proceedings, April 2023, Pg. 10-11.

<sup>129</sup> <https://missilethreat.csis.org/missile/hong-niao/> (accessed Oct, 29, 2022)

<sup>130</sup> Source: Hans M. Kristensen and Matt Korda, "Nuclear notebook: Chinese nuclear forces, 2020," Bulletin of the Atomic Scientists, December 7, 2020, <https://thebulletin.org/premium/2020-12/nuclear-notebook-chinese-nuclear-forces-2020/>.

<sup>131</sup> Carrier Killer, China's Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50

<sup>132</sup> Based on my read of the bottom table in Carrier Killer, China's Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50, which I may well be misunderstanding

<sup>133</sup> Carrier Killer, China's Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50

<sup>134</sup> Carrier Killer, China's Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50

| DF-31A                                | 36             | 2007          | 11,200 km  | 1 x 200-300                 | 36            |                     |
|---------------------------------------|----------------|---------------|------------|-----------------------------|---------------|---------------------|
| DF-31AG                               | 36             | 2018          | 11,200 km  | 1 x 200-300                 | 36            | Not yet operational |
| DF-41                                 | -18            | -2021         | 12,000 km  | (3 x 200-300)               | 54            |                     |
| Submarine-Launched Ballistic Missiles |                |               |            |                             |               |                     |
| Type                                  | # Of Launchers | Year Deployed | Range (km) | Warheads x yield (kilotons) | # of Warheads | Notes               |
| JL-2                                  | 4/48           | 2016          | 7,000+     | 1 x 200-300                 | 48            | JL-2                |
|                                       | 2/24           | -2021         | 7,000+     | 2 x 200-300                 | -24           |                     |
| Aircraft Delivered Nuclear Weapons    |                |               |            |                             |               |                     |
| Type                                  | # Of Launchers | Year Deployed | Range (km) | Warheads x yield (kilotons) | # of Warheads | Notes               |
| H-6                                   | 20             | 1965/2009     | 3,100+     | 1 x bomb                    | 20            |                     |
|                                       |                |               |            | (1 x ALBM)                  | N/A           |                     |

\* It seems that the total number of launchers is around 20, but it is unknown which missiles/reloads exactly are given to which launchers<sup>135</sup>

## PLAGF

| Force  | China Total                 | Eastern + Southern Theaters |
|--|-----------------------------|-----------------------------|
| Combined Arms Brigades <sup>136</sup>            | 78                          | 24 (30 total - 6 amphib)    |
| Amphibious Combined Arms Brigades <sup>137</sup> | 6                           | 6*                          |
| Army Aviation Brigades <sup>138</sup>            | 13                          | 4                           |
| Air Assault <sup>139</sup>                       | 2                           | 1                           |
| Artillery Brigades <sup>140</sup>                | 15                          | 5                           |
| Airborne Brigades <sup>141</sup>                 | 7 (under control of PLAAF)  | 7                           |
| Marine Brigades <sup>142</sup>                   | 8 (under control of PLANMC) | 5                           |

\* 2 in Hangzhou, Zhejiang, 2 in Zhangzhou, Fujian, 1 in Buluo, Guangdong, 1 in Bao'an, Guangdong.<sup>143</sup>

## Long Range Artillery

<sup>135</sup> Carrier Killer, China's Anti-Ship Ballistic Missiles and Theater of Operations in the early 21<sup>st</sup> Century (2022) pg. 50

<sup>136</sup> U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2021, p. 161

<sup>137</sup> China Maritime Report No. 20: The PLA Army Amphibious Force, April 2022, pg. 3

<sup>138</sup> [CHINA TOTAL DATA] PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces 2nd Edition (2015) [EASTERN AND SOUTHERN DATA] Uses the DoD source minus the PLA Aerospace source [OTHER DATA] U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2020, August 21, 2020, p. 164.

<sup>139</sup> PLA Aerospace Power: A Primer on Trends in China's Military Air, Space, and Missile Forces 2nd Edition (2015)

<sup>140</sup> U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2021, p. 161

<sup>141</sup> U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2021, p. 161 [NOTE] same as Numbers, p. 58

<sup>142</sup> U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2021, p. 161

<sup>143</sup> China Maritime Report No. 20: The PLA Army Amphibious Force, April 2022, pg. 3

The army has 50+ PHL-19 (also called the PHL-16, PHL-191, and AR-3), a 370mm MRL.<sup>144</sup> “Fired from the mainland coast, these rockets can cover all of the urban areas of northern Taiwan and the western plain down to Tainan. Warheads include cluster and fuel air explosives.”<sup>145</sup> In addition extended range 155mm tube artillery shells, and 122mm MRL’s can also hit the western plains of Taiwan.<sup>146</sup>

### **Special Operations Forces**<sup>147</sup>

Units marked with \* are geographically close to the Taiwan strait or would likely be engaged in a Taiwan scenario.<sup>148</sup> It is difficult to assess the individual capability of each unit, but most units are likely to be more like U.S. Rangers than they are Tier 1 units.<sup>149</sup>

#### **PLAA**

There is one SOF brigade per group army.

*Eastern Theater Command* – Sharks\*, Thunderbolts\*, Dragons of the East Sea\*

*Southern Theater Command* – Sword of the South\*, Unidentified Brigade\*, (also a Special Forces Battalion\* and Lion Company\*).

*Western Theater Command* – Sirius, Cheetahs, Snowy Owls, Sharp Blade of the Kunlun, Snow Leopards of the Plateau.

*Northern Theater Command* – Tigers of the Northeast, Falcons\*

*Central Theater Command* – Sacred Sword of the East\*, Whistling Arrows\*, Ferocious Tigers\*

**PLANMC** – Sea Dragons\*

**PLAAF** – Thunder Gods\*

**PLARF** – Sharp Blade

**PAP** – 2 mobile contingents (for counterterrorism), most applicably to Taiwan the Snow Leopards

### **Coast Guard and Maritime Militia**

Coast Guard Ships<sup>150</sup> – 223

Breakdown:<sup>151</sup>

- 130 large patrol ships
  - Many of the fleet’s large patrol ships are well-armed and capable of conducting operations in distant waters
- 70+ fast patrol combatants
- 400+ coastal patrol craft
- Approximately 1,000 inshore and riverine vessels

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<sup>144</sup> IISS, *The Military Balance 2023*, pg. 239

<sup>145</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 13, footnote 14

<sup>146</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 119-120

<sup>147</sup> China Maritime Report No. 18: Chinese Special Operations in a Large-Scale Island Landing (2022) pg. 7

<sup>148</sup> Based upon locations in China Maritime Report No. 18: Chinese Special Operations in a Large-Scale Island Landing (2022) pg. 7 and discussion on pg. 6, and parity on descriptions from <https://twitter.com/nuwangzi/status/1656982424788639746> (2023)

<sup>149</sup> China Maritime Report No. 18: Chinese Special Operations in a Large-Scale Island Landing (2022) pg. 6

<sup>150</sup> U.S. Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2021, p. 162.

<sup>151</sup> Caitlin Campbell, China’s Military: The People’s Liberation Army, CRS, R46808, June 4, 2021, p. 33. This breakdown is different from IISS Military Balance 2022, pg. 238 which states 91 patrol craft and 524 overall.

## Maritime Militia

- Unknown number of fishing and small ships
- Larger ships - 5,000 ships organized into 89 militia transportation units, 53 waterway engineering units, and 143 units with other specializations<sup>152</sup>

## Civilian Car Ferries<sup>153</sup>

- RoRo ferries ~750,000 displacement tons
  - w/ Hong Kong's ferries added +370,000 RoRo displacement tons
- Vehicle carriers ~425,000 tons

## Airbases and Ports

China has 40 military airbases within unrefueled fighter range of Taiwan, able to hold 1000 aircraft.<sup>154</sup>

## Hydrophone Network

China maintains hydrophone networks in the South China Sea, East China Sea, and off of Guam.<sup>155</sup>

## SCS Bases

All are equipped with anti-ship and anti-aircraft missile systems and offensive and defensive EW equipment<sup>156</sup>

*The following are southern SCS bases.*

### **Fiery Cross Reef**

Infrastructure: “Research station”<sup>157</sup>, aviation facilities (fixed wing and helipad), large port facilities, radar installations<sup>158</sup>, fixed weapons positions, barracks, administration buildings, and communications facilities.<sup>159</sup>

Known Deployments: PLA deployed KJ-200 anti-submarine warfare and KJ-500 airborne early warning aircraft to Fiery Cross Reef.<sup>160</sup>

Airfield Capacity: 8,800 ft runway (can land transport aircraft), 24 aircraft<sup>161</sup>

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<sup>152</sup> China Maritime Report No. 21: Civilian Shipping and Maritime Militia: The Logistics Backbone of a Taiwan Invasion, Lonnie D. Henley, May 2022. Pg. 4

<sup>153</sup> <https://warontherocks.com/2021/08/mind-the-gap-how-chinas-civilian-shipping-could-enable-a-taiwan-invasion/>

<sup>154</sup> The U.S.–China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 72, 75

<sup>155</sup> See [http://www.hisutton.com/Cn\\_Underwater\\_Great\\_Wall.html](http://www.hisutton.com/Cn_Underwater_Great_Wall.html), <https://maritimeindia.org/chinas-undersea-great-wall-project-implications/>, <https://www.usni.org/magazines/proceedings/2014/april/wired-sound-near-seas>, <https://www.thedrive.com/the-war-zone/17903/china-reveals-it-has-two-underwater-listening-devices-within-range-of-guam>, <https://www.forbes.com/sites/hisutton/2020/08/05/china-builds-surveillance-network-in-international-waters-of-south-china-sea/?sh=78f3a37f74f3>, <https://www.npr.org/sections/parallels/2018/02/06/582390143/china-is-placing-underwater-sensors-in-the-pacific-near-guam>

<sup>156</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101

<sup>157</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 19

<sup>158</sup> Karen Leigh, Peter Martin and Adrian Leung, “Troubled Waters: Where the U.S. and China Could Clash in the South China Sea,” Bloomberg, December 17, 2020.

<sup>159</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101-102

<sup>160</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2021. Pg. 104

<sup>161</sup> JIDR 05/19 AND Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 79

### **Cuarteron Reef**

Infrastructure: administrative buildings, weapons stations (fixed guns),<sup>162</sup> helipad, small harbor, and radar installations<sup>163</sup>

### **Subi Reef**

Infrastructure: “Research station”<sup>164</sup>, aviation facilities (fixed wing and helipad), large port facilities, radar installations<sup>165</sup>, fixed weapons positions, barracks, administration buildings, and communications facilities.<sup>166</sup>

Airfield Capacity: 8,800 ft runway (can land transport aircraft), 24 aircraft<sup>167</sup>

### **Gaven Reef**

Infrastructure: administrative buildings, weapons stations (fixed guns)<sup>168</sup>, helipad, small harbor, and radar installations<sup>169</sup>

### **Hughes Reef**

Infrastructure: administrative buildings, weapons stations (fixed guns)<sup>170</sup>, helipad, small harbor, and radar installations<sup>171</sup>

### **Johnson Reef**

Infrastructure: administrative buildings, weapons stations (fixed guns)<sup>172</sup>, helipad, small harbor, and radar installations<sup>173</sup>

### **Mischief Reef**

Infrastructure: Aviation facilities (fixed wing and helipad), large port facilities, radar installations<sup>174</sup>, fixed weapons positions, barracks, administration buildings, and communications facilities.<sup>175</sup>

Airfield Capacity: 8,800 ft runway (can land transport aircraft), 24 aircraft<sup>176</sup>

*The following are northern SCS bases.*

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<sup>162</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101-102

<sup>163</sup> Karen Leigh, Peter Martin and Adrian Leung, “Troubled Waters: Where the U.S. and China Could Clash in the South China Sea,” Bloomberg, December 17, 2020.

<sup>164</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 19

<sup>165</sup> Karen Leigh, Peter Martin and Adrian Leung, “Troubled Waters: Where the U.S. and China Could Clash in the South China Sea,” Bloomberg, December 17, 2020.

<sup>166</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101-102

<sup>167</sup> JIDR 05/19 AND Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 79

<sup>168</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101-102

<sup>169</sup> Karen Leigh, Peter Martin and Adrian Leung, “Troubled Waters: Where the U.S. and China Could Clash in the South China Sea,” Bloomberg, December 17, 2020.

<sup>170</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101-102

<sup>171</sup> Karen Leigh, Peter Martin and Adrian Leung, “Troubled Waters: Where the U.S. and China Could Clash in the South China Sea,” Bloomberg, December 17, 2020.

<sup>172</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101-102

<sup>173</sup> Karen Leigh, Peter Martin and Adrian Leung, “Troubled Waters: Where the U.S. and China Could Clash in the South China Sea,” Bloomberg, December 17, 2020.

<sup>174</sup> Karen Leigh, Peter Martin and Adrian Leung, “Troubled Waters: Where the U.S. and China Could Clash in the South China Sea,” Bloomberg, December 17, 2020.

<sup>175</sup> Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 101-102

<sup>176</sup> JIDR 05/19 AND Report on Military and Security Developments Involving the Peoples Republic of China 2020. Pg. 79

### **Duncan Island**

Infrastructure: helipad, large port, radar installation<sup>177</sup>

### **Money Island**

Infrastructure: helipad, small port, radar installation<sup>178</sup>

### **Tree Island**

Infrastructure: helipad, large port, radar installation<sup>179</sup>

### **Triton Island**

Infrastructure: helipad, small port, radar installation<sup>180</sup>

### **Lincoln Island**

Infrastructure: small port, radar installation<sup>181</sup>

### **Woody Island**

Infrastructure: airfield (long enough to land long range bombers on)<sup>182</sup>, helipad, large port, radar installation<sup>183</sup>

## **Chinese Logistics for an Invasion of Taiwan**

### **Movement to Staging Areas**

The PLA believes that to support an invasion of Taiwan 40% of rail capacity would be used to move troops and stores to staging points across the strait, up to 60% in special cases.<sup>184</sup>

The PLA has an unknown number of Heavy equipment transporters (HET), and a large but unknown number of motor transport units.<sup>185</sup> Civilian HETs are concentrated in the south and east of the country and would need to be mobilized, but civilian equipment may not meet necessary requirements to move armor.<sup>186</sup> The PLA believes the current mobilization system for civilian HETs and the total number of HETs insufficient.<sup>187</sup>

### **Military Amphibious Lift**

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<sup>177</sup> Karen Leigh, Peter Martin and Adrian Leung, "Troubled Waters: Where the U.S. and China Could Clash in the South China Sea," Bloomberg, December 17, 2020.

<sup>178</sup> Karen Leigh, Peter Martin and Adrian Leung, "Troubled Waters: Where the U.S. and China Could Clash in the South China Sea," Bloomberg, December 17, 2020.

<sup>179</sup> Karen Leigh, Peter Martin and Adrian Leung, "Troubled Waters: Where the U.S. and China Could Clash in the South China Sea," Bloomberg, December 17, 2020.

<sup>180</sup> Karen Leigh, Peter Martin and Adrian Leung, "Troubled Waters: Where the U.S. and China Could Clash in the South China Sea," Bloomberg, December 17, 2020.

<sup>181</sup> Karen Leigh, Peter Martin and Adrian Leung, "Troubled Waters: Where the U.S. and China Could Clash in the South China Sea," Bloomberg, December 17, 2020.

<sup>182</sup> Report on Military and Security Developments Involving the People's Republic of China 2020. Pg. 94

<sup>183</sup> Karen Leigh, Peter Martin and Adrian Leung, "Troubled Waters: Where the U.S. and China Could Clash in the South China Sea," Bloomberg, December 17, 2020.

<sup>184</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 14

<sup>185</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 14

<sup>186</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 14

<sup>187</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 14

The main military fleet would be composed of PLAN ships with PLAA landing vessels.<sup>188</sup> In the aggregate, the PLAN can generate enough lift for up to 19,080 combat troops and approximately 666 ZTD-05 amphibious assault vehicles.<sup>189</sup>

### PLAN Landing Ships by Assignment and Total Lift Capacity<sup>190</sup>

|                       | NTN                          | STN                           | ETN                           | Hong Kong Garrison        | Unknown Assignment           | Total                          |
|-----------------------|------------------------------|-------------------------------|-------------------------------|---------------------------|------------------------------|--------------------------------|
| Type-071 LPD          | 0                            | 4                             | 2                             | 0                         | 2                            | 8                              |
| Type-072B LST         | 0                            | 0                             | 6                             | 0                         | 0                            | 6                              |
| Type-072A LST         | 3                            | 4                             | 1                             | 0                         | 0                            | 9                              |
| Type-072III LST       | 0                            | 4                             | 6                             | 0                         | 0                            | 10                             |
| Type-072II LST        | 0                            | 1                             | 3                             | 0                         | 0                            | 4                              |
| Type-073A LSM         | 0                            | 6                             | 4                             | 0                         | 0                            | 10                             |
| Type-073III ISM       | 0                            | 1                             | 0                             | 0                         | 0                            | 1                              |
| Type-074A LSM         | 3                            | 4                             | 3                             | 0                         | 0                            | 10                             |
| Type-074 LSM          | 8                            | 0                             | 0                             | 3                         | 0                            | 11                             |
| Type-958 LCAC*        | 0                            | 3                             | 0                             | 0                         | 3                            | 5                              |
| <b>Total Capacity</b> | 2,960 troops;<br>66 ZTD-05's | 7,190 troops;<br>276 ZTD-05's | 6,300 troops;<br>252 ZTD-05's | 750 troops;<br>9 ZTD-05's | 1,880 troops;<br>63 ZTD-05's | 19,080 troops,<br>666 ZTD-05's |

\*aka Zubr Hovercraft

PLAA Coastal defense brigades – operate between 80-200 Type-271 series depending on counting of various older classes ship that may still be operating.<sup>191</sup> These can be used to land troops on Taiwan as long as the weather is not too severe.<sup>192</sup>

### Landing Ship Capacity<sup>193</sup>

| <i>Class</i>    | <i>Capacity</i>   |
|-----------------|---|
| Type-075 LHA    | 1,200 troops, potentially 50-60 ZTD-05s, 30 helicopters, 3 Type-726 LCACs |
| Type-071 LPD    | 730 troops, 24 ZTD-05s, 2-4 helicopters, up to 4 Type-726 LCACs           |
| Type-072B LST   | 260 troops, 10 ZTD-05s, 1 helipad   |
| Type-072A LST   | 250 troops, 10 ZTD-05s, 1 helipad   |
| Type-072III LST | 250 troops, 10 ZTD-05s, 1 helipad   |
| Type-072II LST  | 200 troops, 10-11 ZTD-05s   |
| Type-073A LSM   | 180 troops, 8-10 ZTD-05s  |
| Type-073III ISM | 180 troops, 6-7 ZTD-05s   |
| Type-074A LSM   | 70 troops, 4 ZTD-05s  |
| Type-074 LSM    | 250 troops, 203 ZTD-05s   |

<sup>188</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 223, 224

<sup>189</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 225

<sup>190</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 226

<sup>191</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 228

<sup>192</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 228-229

<sup>193</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 227



|               |                    |
|---------------|--------------------|
| Type-958 LCAC | 360 troops, 3 MBTs |
| Type-271IIIA  | 200 troops, 3 MBTs |
| Type-271III   | 200 troops, 3 MBTs |
| Type-271II    | 200 troops, 2 MBTs |

### **Civilian Sealift**

In 2017, a deputy commander of the Northern Theater Command Army explained that fewer than 2,000 transport vessels are suited for “direct mobilization.”<sup>194</sup>

China currently has access to 63 civilian RO-RO’s with a total of 140,000 deadweight tons, though it is unclear how many of these have high-strength ramps and reinforced decks<sup>195</sup>

Note that the following is all ships, not all useful ships earmarked for military service<sup>196</sup>

- 5<sup>th</sup> Transport Dadui - CSC RORO Logistics Co., Ltd.
  - 25 car carriers of varying sizes
- 8<sup>th</sup> Transport Dadui - Bohai Ferry
  - 17 RO-RO ferries (20,000- to 45,000-ton ships), total displacement 460,000 tons, most are reinforced for military use
- 9<sup>th</sup> Transport Dadui - Hainan Strait Shipping Co., Ltd.
  - 18 RO-RO ferries (6,000- to 11,000-ton ships)
- Unidentified Transport Dadui - Zhoushan Strait Ferry Group Co., Ltd.
  - 45 various types of small to medium coastal ferries (passenger, high-speed passenger, passenger-vehicle, cargo, hazardous materials, etc.).

Fast RO-RO ships are a key enabler for this mission, capable of rapidly transporting PLAA Group Army motorized and mechanized units that can offload under their own power. This transport mode also allows units to quickly organize for combat after completing transit and debarkation operations.<sup>197</sup>

If a port is captured and damaged (a near certainty) RO-RO’s may have to execute a more difficult Mediterranean mooring to disembark their forces on a quay, though this has the advantage of only needing several unobstructed meters of quay to land troops allowing for multiple RO-RO’s to disembark at the same time. However, this is complex and greatly affected by the height of the ship, the quay, and the tides.<sup>198</sup>

There are 27+ semi-submersible ships - which can be used to land helicopters, carry landing craft, or amphibious vehicles.<sup>199</sup>

### **Coast Guard and Maritime Militia**

<sup>194</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 232

<sup>195</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 234

<sup>196</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 234-235

<sup>197</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 233

<sup>198</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 235-236

<sup>199</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 239

Would be involved, difficult to assess<sup>200</sup>

### **Air Lift**

PLAAF Airborne units would be transported by the 4<sup>th</sup> Transport division (13 x Y-20 and 24 x Y-9, divided into 3 regiments), 13<sup>th</sup> Transport division (10 x Y-20s, 22 x Il-76s, and 20 x Y-8s or Y-9, divided into 3 regiments), and the PLAAF Airborne Corps transport brigade (6 x Y-8, plus Y-12's and An-2s that could be used to deliver SOF and pathfinders).<sup>201</sup>

### **Civilian Airline Strategic Projection Support Fleet**

There are 15 civil support fleets based on various air carriers, the first established in 2013, which have supported “evacuations from Libya and international disaster relief operations such as the Indian Ocean tsunami and earthquakes in Haiti and Chile”<sup>202</sup>

Capabilities as of 2019<sup>203</sup>

- 143 large and medium cargo aircraft (for strategic projection). In the case of Taiwan being an “all hands on deck situation” other aircraft may be used (Preighters)<sup>204</sup>
  - 60 x 737 (20 tons)
  - 30 x 757 (44 tons)
  - 26 x 777 (115 tons)
- Total payload 6,200 tons<sup>205</sup>

### **Medical Capabilities**

The PLA believes itself to have good medical capabilities. It can establish 46 field hospitals and 43 brigade medical aid posts processing 36,000 patents a day. Combat medical support can deal with 18,000 wounded a day.<sup>206</sup> Military hospitals after expansion can admit 70,000 patients and local hospitals can provide additional capability or have recovering military patients discharged to them to free up space in military hospitals.<sup>207</sup> However, PLAN medical evacuation capabilities are weak.<sup>208</sup> The PLA assesses maritime search and rescue assets as too few to support a large combat operation. Some areas of medical support are assessed as adequate, but field medical support needs improvement. The PLA is stressing field medical aid in training, but not for a large-scale amphibious operation.<sup>209</sup>

### **War Reserves**

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<sup>200</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 241-243

<sup>201</sup> *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 204-205

<sup>202</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, Kevin McCauley, June 2022, CMSI China Maritime Reports, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1021&context=cmsi-maritime-reports>, pg. 13

<sup>203</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, Kevin McCauley, June 2022, CMSI China Maritime Reports, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1021&context=cmsi-maritime-reports>, pg. 13.

Tonnage numbers are from various sources.

<sup>204</sup> Authors view, as many Chinese airlines operate passenger planes that could be used as Preighters if needed.

<sup>205</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, Kevin McCauley, June 2022, CMSI China Maritime Reports, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1021&context=cmsi-maritime-reports>, pg. 13. Note that the given numbers for capacity and number of aircraft only add up to 5,510 tons. The author is unsure of where the discrepancy is.

<sup>206</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 27

<sup>207</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 27

<sup>208</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 27

<sup>209</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 32

“The PLA assesses that the PRC’s war readiness materiel reserve is insufficient to support a large joint landing operation, and intervention by the U.S. or chain reaction conflicts in other directions would further stress war reserves.”<sup>210</sup> The military has supplies for up to 600,000 troops, and medical reserves can support 500,000 troops for 30 days.<sup>211</sup>

### **Over the Beach**

From at least 2012 China has in exercises used floating pier system/floating causeways (in Chinese, a “offshore mobile debarkation platform”), which allows civilian ships with ramps to drop off equipment more easily. It may rely on a semi-submersible barge for loading and unloading. These systems can be operated up to sea state 3 (4 ft. waves),<sup>212</sup> and can survive up to sea states four to five (8- to 13-foot swells).<sup>213</sup>



*USNS Pililaau (T-AKR 304) with INLS in U.S. Exercise JLOTS 2008 (U.S. Navy Photo, MC2 Caracci)*



*Semi-submersible barge used with offshore mobile debarkation system in 2014 exercise (CCTV)*

There have been four observed offshore mobile debarkation platforms, though which are in use, or if some of these are the same is unknown.

| Designator      | Grey Colored   | Green Colored          | New 2021 Long Pier | New 2021 Short Pier     |
|-----------------|--|------------------------|--------------------|-------------------------|
| Length          | 720 ft.  | 1200 ft.               | 1475 ft.           | ~490 ft. <sup>214</sup> |
| Use             | Offloading point for cargo ships using landing craft as connectors | ?                      | ?                  | ?                       |
| Barge Required? | No barge   | Semi-submersible barge | ?                  | ?                       |
| Notes           |  |                        |                    |                         |

<sup>210</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 29

<sup>211</sup> China Maritime Report No. 22: Logistics Support for a Cross-Strait Invasion: The View from Beijing, 2022, pg. 27

<sup>212</sup> <https://cimsec.org/civilian-shipping-ferrying-the-peoples-liberation-army-ashore/> (2021), *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 239

<sup>213</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 239

<sup>214</sup> Based on imagery from <https://cimsec.org/civilian-shipping-ferrying-the-peoples-liberation-army-ashore/>



# Taiwan

## Force Quality

### *The Army*

It appears that operational strength of front-line units is much less than on paper, and they would be severely understaffed for wartime (between 10%<sup>215</sup> to 40%<sup>216</sup> undermanned). Furthermore, the army has a “military training culture that limits live-fire training activities”.<sup>217</sup> There may be problems with training across the board in practical skills such as casualty care, or heavy weapons training.<sup>218</sup>

Conscripts are given lackluster 4-month training, with few soldier skills taught. No teaching of the basics of how the People’s Liberation Army would invade, no teaching of “Map reading and navigation with a compass”, no basic medical skills, insufficient firearms training<sup>219</sup> no inclusion in exercises,<sup>220</sup> training is overall “outdated, boring and impractical”, with little on urban warfare or drones, with a lack of equipment for training, or use of extremely outdated equipment for training, a failure to have enough small arms ammunition to practice with, and a failure to train conscripts on heavy weapons.<sup>221</sup>

This means that C level units (reservists) seem to lack proper supply, training, and command and control,<sup>222</sup> and are generally regarded as of poor quality.<sup>223,224</sup> In addition only male reservists are required to show up for mandatory reservist training.<sup>225</sup> It is unknown how many of these problems could be overcome by morale (if applicable) and serious effort with the shadow of an invasion overhead, particularly as it appears that due to the poor training morale could be low in reserve forces.<sup>226</sup> While the Russia-Ukraine war shows that even troops with limited training but high morale, mission command, and the right weapons might still have effects on the battlefield,<sup>227</sup> it is unclear how much this would be applicable to Taiwan and its reservists. In the wake of the invasion of Ukraine, the Taiwanese government has begun to make changes, in December 2022 announcing a plan to increase military service from 4 months to 1 year,<sup>228</sup> and a month later (January 2023) announcing that it would begin to allow women in reservist training.<sup>229</sup> Announcements included that “all conscripts will shoot at least 800 rounds during their service, and they will be trained with new weapons such as anti-tank missiles and drones. Bayonet training will be modified to include other forms of close combat training, it added, and conscripts may also participate in joint military drills with professional soldiers. Meanwhile, basic training will rise from five to eight weeks.”<sup>230</sup> A dual-track reservist

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<sup>215</sup> Reconceiving Taiwan’s Reserve Forces, David G. Brown, 2020

<sup>216</sup> <https://foreignpolicy.com/2020/02/15/china-threat-invasion-conscription-taiwans-military-is-a-hollow-shell/> (2020)

<sup>217</sup> *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 336, <https://scholars-stage.org/why-i-fear-for-taiwan/>, posted 2020, referencing events in 2019.

<sup>218</sup> <https://scholars-stage.org/why-i-fear-for-taiwan/>, posted 2020, referencing events in 2019.

<sup>219</sup> <https://www.vice.com/en/article/m7gp7v/taiwan-defense-china-invasion-conscripts> (2022)

<sup>220</sup> Quote from <https://foreignpolicy.com/2020/02/15/china-threat-invasion-conscription-taiwans-military-is-a-hollow-shell/> (2020) further corroborated by <https://scholars-stage.org/why-i-fear-for-taiwan/>, posted 2020, referencing events in 2019.

<sup>221</sup> <https://edition.cnn.com/2023/01/20/asia/taiwan-mandatory-military-service-conscription-intl-hnk-dst/index.html>

<sup>222</sup> <https://twitter.com/PaulHuangReport/status/1517473063926870016> (April 2022)

<sup>223</sup> Reconceiving Taiwan’s Reserve Forces, David G. Brown, 2020

<sup>224</sup> <https://foreignpolicy.com/2020/02/15/china-threat-invasion-conscription-taiwans-military-is-a-hollow-shell/> (2020)

<sup>225</sup> <https://focustaiwan.tw/politics/202301170011> (2023)

<sup>226</sup> This is a common theme in the interviews with reservists over the quality of the training they receive. See any of the above sources on conscripts for their sentiments. Note however it may be difficult to pull a full view from a handful of interviews, and that such perceptions could change in wartime.

<sup>227</sup> <https://www.militarytimes.com/opinion/commentary/2022/07/05/how-volunteers-can-defeat-great-powers/> (2022)

<sup>228</sup> <https://www.channelnewsasia.com/asia/taiwan-extend-compulsory-military-service-china-threat-3169056> (2022)

<sup>229</sup> <https://www.channelnewsasia.com/asia/taiwan-women-military-service-reservist-training-china-3211411>

<sup>230</sup> <https://edition.cnn.com/2023/01/20/asia/taiwan-mandatory-military-service-conscription-intl-hnk-dst/index.html>

training program from early 2023 has been open to volunteers, currently sized at ~700 reservists.<sup>231</sup>

Under the Gu'an Operational Plan (the Taiwanese playbook for preparations against the Chinese), reservists should be recalled and trained prior to the outbreak of conflict,<sup>232</sup> but it is unclear how long this would take and how much benefit it would bring. This is also absent larger structural problems with the reserve force: it “has only 60 percent of the NCOs it needs, and just 40 percent of the officers it requires.”<sup>233</sup> At least some number of reservists are unclear on what they are to do if they were called up.<sup>234</sup>

### *The Air Force*

It appears that the ROCAF is a trained, competent force trained to Western standards.<sup>235</sup> For example, F-16 pilots are trained to US standards and train with the US, mostly through the 21<sup>st</sup> Fighter Squadron at Luke AFB.<sup>236</sup> However, the increase in the number of scrambles from China crossing the median line post 2020 is wearing on the ROCAF,<sup>237</sup> though by early 2023, scrambles are no longer being done for every incursion due to the cost.<sup>238</sup> Additionally files from the 2023 Pentagon document leaks indicate that barely half of Taiwan's aircraft were fully mission capable.<sup>239</sup>

### *Foreign Trainers*

US SOF and Marines have trained Taiwanese troops from roughly 2020, and National Guard from at least 2023.<sup>240</sup> The ROCAF trains with the US through the 21<sup>st</sup> Fighter Squadron at Luke AFB.<sup>241</sup>

## **Army (RoCA)**<sup>242</sup>

- 6<sup>th</sup> Field Army - Zhongli, Taoyuan
  - 269<sup>th</sup> Mechanized Infantry Brigade
  - 542<sup>nd</sup> Armored Brigade
  - 584<sup>th</sup> Armored Brigade
  - 21<sup>st</sup> Artillery Command
  - 33<sup>rd</sup> Chemical Group
  - 53<sup>rd</sup> Engineering Group
  - 153<sup>rd</sup> Infantry Brigade
  - 206<sup>th</sup> Infantry Brigade
  - Guandu Defense Command

<sup>231</sup> <https://focustaiwan.tw/politics/202301170011> (2023)

<sup>232</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pg. 41

<sup>233</sup> <https://rollcall.com/2022/09/28/taiwans-military-needs-overhaul-amid-china-threat-critics-say/> (2022)

<sup>234</sup> <https://scholars-stage.org/why-i-fear-for-taiwan/>, posted 2020, referencing events in 2019.

<sup>235</sup> This is a general impression from Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021, and from one séance in <https://scholars-stage.org/why-i-fear-for-taiwan/>, posted 2020, referencing events in 2019. Lacking any other evidence I default to what is said, but note the overall weakness of the sources here.

<sup>236</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pg. 51

<sup>237</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pg. 44

<sup>238</sup> Taiwan's asymmetric defense strategy loses focus, Christian Le Miere, Jane's Defense and Intelligence Review, February 2023, p. 20-25 (pg. 21)

<sup>239</sup> <https://www.washingtonpost.com/national-security/2023/04/15/taiwan-china-invasion-leaked-documents/> (2023)

<sup>240</sup> <https://asia.nikkei.com/Politics/International-relations/Taiwan-tensions/U.S.-expands-training-of-Taiwanese-military-with-National-Guard> (2023)

<sup>241</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pg. 51

<sup>242</sup> The Chinese Invasion Threat (2017), Ian Easton, Appendix III

- Lanyang Defense Command
- 10th Field Army
  - 586th Armored Brigade
  - 234th Mechanized Infantry Brigade
  - 58th Artillery Group
  - 626th Artillery Group
  - 52nd Engineering Coy
  - 36th Chemical Group
  - 74th Signals Group
  - 302nd Infantry Brigade
  - 104th Infantry Brigade
  - 257th Infantry Brigade
- 8th Field Army
  - 333rd Mechanized Infantry Brigade
  - 564th Armored Brigade
  - 43rd Artillery Command
  - 624th Group
  - 54th Engineering Group
  - 39th Chemical Group
  - 203rd Infantry Brigade
- Island Defense Units
  - Huatung Defense Command
  - Hualien Defense Team
  - Taitung Defense Team
  - Penghu Defense Command
  - Kinmen Defense Command
  - Kinmen Defense Team
  - Lieyu Defense Team
  - Matsu Defense Command
  - Nangan Defense Team
  - Beigan Defense Team
  - Juguan Defense Team
  - Dongyin Defense Command
- Other Units
  - Special Service Company (Tier 1 Special Forces Unit)
  - Tactical Reconnaissance Group
    - 32 Chung Shyang II UAV
  - 601<sup>st</sup> Air Cavalry Brigade
  - 602<sup>nd</sup> Air Cavalry Brigade
  - Army Special Operations Command
    - 5 x SF Battalions
  - 202<sup>nd</sup> Military Police Command
    - Brigade element for protecting various important locations and the president in Taipei

- Army Reserves<sup>243</sup> - In order of ease of activation
  - A-Level Reserve Units - Infantry brigades heavy manned by permanent troops, able to be quickly supplemented by small numbers of reservists. Total – 9 well equipped brigades.
  - B-Level Reserve Units - Brigades are made of active duty personal in the MND’s professional military education system.
  - C-Level Reserve Units - Infantry brigades are local reserve units. Comprised of 3 to 5 battalions of infantry and one of field artillery. Total – 22 brigades
  - D-Level Reserve Units - reserve units made of soldiers from the mobilization structure itself. Total – 2-3 brigades without artillery.
  - C and D level units are of lesser quality in combat than A and B units which are as good as standing forces.<sup>244</sup>

## Navy<sup>245</sup>

- Unknown Assignment
  - 1 x LPD<sup>246</sup>
- 124<sup>th</sup> Flotilla - Zuoying
  - 6 x Frigates
- 131<sup>st</sup> Flotilla - Keelung
  - 12 x Missile Patrol Ships (Corvette)
  - 31 x Missile Boats
  - 2 x Corvettes
- 146<sup>th</sup> Flotilla - Magong
  - 8 x Frigates
- 151<sup>st</sup> Flotilla - Zuoying
  - 9 x LST
  - 1 x Landing Ship Dock
  - 2 x Support Ships
- 168<sup>th</sup> Flotilla - Su’ao
  - 6 x Frigates
  - 4 x Destroyers
- 192<sup>nd</sup> Flotilla
  - 3 x Minesweepers
  - 4 x Mine Hunters
  - 2 x Coastal Mine Hunters
- 256<sup>th</sup> Squadron - Tsoying Naval Base, Kaohsiung<sup>247</sup>
  - 2 x SSK

## Minelaying Capability<sup>248</sup>

<sup>243</sup> [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RR1700/RR1757/RAND\\_RR1757.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RR1700/RR1757/RAND_RR1757.pdf) (2017)

<sup>244</sup> Combined Sources, pg. 130 of [https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210607\\_Cordeman\\_Chinese\\_Strategy.pdf?fG7hUZdWUVJgaJzyC4E9Qj1m3w13SfjQ](https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210607_Cordeman_Chinese_Strategy.pdf?fG7hUZdWUVJgaJzyC4E9Qj1m3w13SfjQ), <https://foreignpolicy.com/2020/02/15/china-threat-invasion-conscription-taiwans-military-is-a-hollow-shell/> (2020)

<sup>245</sup> The Chinese Invasion Threat (2017/19), Appendix III

<sup>246</sup> <https://www.janes.com/defence-news/news-detail/taiwanese-shipbuilder-csbc-corporation-launches-first-locally-built-lpd-for-rocn>

<sup>247</sup> <https://www.nti.org/analysis/articles/taiwan-submarine-capabilities/> (Accessed April 21, 2023, page last updated Feb 28, 2023)

<sup>248</sup> <https://www.taipeitimes.com/News/front/archives/2022/01/15/2003771403> (2022)



- 4 x Automatic Minelayers (corvettes)
- ? x Landing Craft (limited to operations in non-rough water)

### **Marine Corps**<sup>249</sup>

- 66<sup>th</sup> Marine Brigade - Guishan District, Taoyuan
  - 2 Mech Infantry, 1 Tank, and 1 M109 Battalions
- 99<sup>th</sup> Marine Brigade
  - 2 Mech Infantry, 1 Tank, and 1 M109 Battalions
- Amphibious Reconnaissance and Patrol Unit
  - 3x Recce Company
  - Marine Special Service Company (Tier 1 Special Forces Unit)
  - Underwater Demolition company
- Wuqiu Garrison Group
  - 2x Garrison Company (with towed 155mm and 105mm howitzers), plus ADA detachment of 40mm AA guns

### **Air Force (ROCAF)**<sup>250</sup>

#### **Survivability**

Initial dispersion to Chiashan (at Hualien air base) and Shizishan mountain bases will be important to survive missile strikes, but both are reliant upon a single runway at each complex (Chiashan can hold up to 200 fighters<sup>251</sup>). Five highway sites are acknowledged as dispersal sights, and this number may be as high as 8 with unacknowledged sites, but concrete median dividers have to be removed before the highway sites can be used. Civilian airports provide an additional option for basing.<sup>252</sup> If dispersion were to occur, ~100 fighters could remain in protected shelters at airbases, while the rest of the fighter force would disperse or remain in unhardend shelters.<sup>253</sup> Documents from the 2023 Pentagon document leaks indicates that it would take a week to disperse aircraft.<sup>254</sup> In addition most aircraft shelters are not hardened to today's standards (having been built in the 1970's), but 36 new shelters will be constructed at Ching Chuan Kang Air Base from 2022-2027.<sup>255</sup>

After airbases have been hit it is expected that it will take 90 to 120 minutes to fix the runway (though this can be affected by UXO and the amount of damage). Runway repair teams are well trained, practice, and have the appropriate equipment.<sup>256</sup> Note however that these repair times may be optimistic. It may take 4 hours to repair each cut point on a runway (longer with UXO), and repair teams are at great risk from follow on attacks and attacks targeting the runway repair crew themselves.<sup>257</sup> In the case of bases operating F-16's, their higher risk of ingesting foreign objects<sup>258</sup> might also impose problems once an airbase has been hit (FOD

<sup>249</sup> The Chinese Invasion Threat (2017/19), Appendix III

<sup>250</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pgs 32-34, ORBAT accurate as of April 2021

<sup>251</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 17

<sup>252</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pg. 41

<sup>253</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 18

<sup>254</sup> <https://www.washingtonpost.com/national-security/2023/04/15/taiwan-china-invasion-leaked-documents/> (2023)

<sup>255</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pg. 25-28

<sup>256</sup> Modern Taiwanese Air Power, Roy Choo and Per Ho, 2021. Pg. 28

<sup>257</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 15

<sup>258</sup> Geopolitics Decanted, *Episode 41: How Ukraine Can Survive the Exhaustion of Its Air Defense Stocks*, Dmitri Alperovitch, Justin Bronk, and Dara Massicot. April 17, 2023. Minutes 35:20-39:10.

walks and clearing debris carry risk to airbase personnel from another strike, not doing a thorough enough sweep risks airframes). All air operations would be at risk from Chinese ability to have good situational awareness and strike bases if they were to see air operations start, this also applies to dispersal operations (which might also suffer from logistical complexity).<sup>259</sup>

Overall, as Taiwan is geographically close to China and the airbases, mountain complexes, and dispersal airfields are all fixed sites it is unknown how effective attempts to protect the air force from the initial strike and in the long term will be.<sup>260</sup> If Taiwan fails to disperse its aircraft prior to the initial Chinese strike, casualties will likely be large.

## ORBAT

- HQ – Taipei
- Tainan Air Base – 1<sup>st</sup> Tactical Fighter Wing
  - 1<sup>st</sup> Tactical Fighter Group – F-CK-1C and F-CK1D (operational conversion unit)
  - 3<sup>rd</sup> Tactical Fighter Group – F-CK-1C and F-CK1D
  - 9<sup>th</sup> Tactical Fighter Group – F-CK-1C and F-CK1D
- Hsinchu Air Base – 2<sup>nd</sup> Tactical Fighter Wing
  - 41<sup>st</sup> Tactical Fighter Group – Mirage 2000-5DI and Mirage 2000-5EI
  - 42<sup>nd</sup> Tactical Fighter Group – Mirage 2000-5DI and Mirage 2000-5EI
  - 48<sup>th</sup> Training Group – Mirage 2000-5DI and Mirage 2000-5EI (operational conversion unit)
- Ching Chuan Kang Air Base – 3<sup>rd</sup> Tactical Fighter Wing
  - 7<sup>th</sup> Tactical Fighter Group – F-CK-1C and F-CK1D
  - 28<sup>th</sup> Tactical Fighter Group – F-CK-1C and F-CK1D
- Chiayi Air Base – 4<sup>th</sup> Tactical Fighter Wing<sup>261</sup>
  - 21<sup>st</sup> Tactical Fighter Group – F-16V
  - 22<sup>nd</sup> Tactical Fighter Group – F-16V
  - 23<sup>rd</sup> Tactical Fighter Group – F-16V
- Hualien Air Base – 5<sup>th</sup> Tactical Composite Wing
  - 12<sup>th</sup> Tactical Reconnaissance Group – RF-5E, F-5F, F-16A Block 20, F-16B Block 20
  - 17<sup>th</sup> Tactical Fighter Group – F-16A Block 20, F-16B Block 20 – Aggressor squadron in training exercises
  - 26<sup>th</sup> Tactical Fighter Group – F-16A Block 20, F-16B Block 20
  - 27<sup>th</sup> Tactical Fighter Group – F-16A Block 20, F-16B Block 20 (OCU)
- Pingtung North Air Base – 6<sup>th</sup> Combined Wing
  - Anti-Submarine Warfare Group
    - 33<sup>rd</sup> Squadron – P-3C
    - 34<sup>th</sup> Squadron – P-3C
  - 20<sup>th</sup> Electronic Warfare Group
    - 2<sup>nd</sup> Early Warning Squadron – E-2K – This is made up of 6 total airframes<sup>262</sup>

<sup>259</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 18

<sup>260</sup> *Crossing The Strait, China's Military Prepares for War with Taiwan*, National Defense University Press, 2022 pg. 330

<sup>261</sup> <https://www.thedrive.com/the-war-zone/43193/taiwan-has-declared-its-upgraded-f-16v-fighter-jets-fully-operational>

<sup>262</sup> <https://www.flightglobal.com/download?ac=83735> (2022)

- Pingtung South Air Base – 6<sup>th</sup> Combined Air Wing
  - 10<sup>th</sup> Tactical Airlift Group
    - 101<sup>st</sup> Airlift Squadron – C-130H
    - 102<sup>nd</sup> Airlift Squadron – C-130H
  - 20<sup>th</sup> Electronic Warfare Group
    - 6<sup>th</sup> Electronic Warfare Squadron – C-130HE, C-130H
- Chihhang Air Base - 7<sup>th</sup> Flight Training Wing
  - 7<sup>th</sup> Flight Training Group
    - 44<sup>th</sup> Flight Training Squadron – F-5E, F-5F
    - 45<sup>th</sup> Flight Training Squadron – F-5E, F-5F
    - 46<sup>th</sup> Flight Training Squadron – F-5E, F-5F
- Gangshan Air Base – Air Force Academy
  - Air Force Academy Flight Training Command
  - Songshan Air Base Command
    - Special Transport Squadron and Presidential Flight Squadron
- Magong Air Base
  - Detachments contributed from 1<sup>st</sup> and 3<sup>rd</sup> TFW.
- Overseas
  - Luke AFB – 56<sup>th</sup> Fighter Wing
    - 21<sup>st</sup> Fighter Squadron
  - Edwards AFB – 412<sup>th</sup> Test Wing
    - 416<sup>th</sup> Flight Test Squadron

## Air Defenses

The Air Defense Missile Command (ADMC) was established in 2017 under the ROCAF.<sup>263</sup> Its current force plus an additional 300 PAC-3 missiles would allow it to open up at best two 12-hour windows of opportunity for Taiwanese forces to maneuver free from Chinese airpower.<sup>264</sup> Note that this is likely optimistic due to the fielding of Chinese 5<sup>th</sup> Gen aircraft and likely improvements in Chinese SEAD capabilities.<sup>265</sup> Taiwan has 350 missiles in inventory and as of 2020 have planned to purchase a further 300 by 2027,<sup>266</sup> though the (US) Congress has not been notified of the sale.

Taiwanese air defense units lack a common operating picture and compatible secure radios, leading to a lack of target deconfliction.<sup>267</sup> In addition Taiwan’s “current doctrine of firing two air defense missiles per target ‘would be strained under high-volume PLA fires’ from China’s short-range ballistic missile system ... Taiwanese airmen train for shooting at single unmoving targets.”<sup>268</sup> Air defense may also suffer from restrictive rules of engagement until China strikes the first blow towards the island.<sup>269</sup> Jane’s however notes that “Taiwan’s air-defense capability appear as a coordinated and effective system with modern equipment that is

<sup>263</sup> *Taiwan’s Overall Defense Concept*, Sam Cranny Evans, Janes Defence Weekly, 18 June, 2021. Pg. 20-28 (pg 23)

<sup>264</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. xxiii, more specifically 65-68

<sup>265</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 58

<sup>266</sup> <https://www.taiwannews.com.tw/en/news/4071599> (2020)

<sup>267</sup> <https://www.washingtonpost.com/national-security/2023/04/15/taiwan-china-invasion-leaked-documents/> (2023), also see *Taiwan’s Overall Defense Concept*, Sam Cranny Evans, Janes Defence Weekly, 18 June, 2021. Pg. 20-28 (pg 23-4)

<sup>268</sup> <https://www.washingtonpost.com/national-security/2023/04/15/taiwan-china-invasion-leaked-documents/> (2023)

<sup>269</sup> <https://www.washingtonpost.com/national-security/2023/04/15/taiwan-china-invasion-leaked-documents/> (2023)

expected to be upgraded further in the next decade.” Jane’s does mention issues of mass, and largely points out the issues discussed here (drawing on the cited RAND report).<sup>270</sup>

### Ground Based Air Defense Batteries<sup>271</sup>

| Name    | # of Batteries     | Battery Missile Capacity | Mobility             | Intercept SRBM? |
|---------|--------------------|--------------------------|----------------------|-----------------|
| Patriot | 6/9 <sup>272</sup> | 40                       | Moveable in ~60 min. | Yes             |
| TK-I/II | 6                  | 40-60                    | Fixed                | No              |
| TK-III  | 12                 | 24                       | Moveable in ~30 min. | Yes             |

### Coast Guard

#### Coast Guard Ships<sup>273</sup>

- 13 x 1000+ tons
- 21 x ~700 tons
- 3 x 100-300 tons
- 46 x 100 tons
- 161 x Inshore and riverine vessels (100- tons)

4 of these cutters can have Hsiung Feng II fitted very quickly to them for combat roles.<sup>274</sup>

### Missile Inventory<sup>275</sup>

| Missile Name    |                            |              | # of Missiles            | # of Launchers |
|-----------------|----------------------------|--------------|--------------------------|----------------|
| Harpoon         | AShM                       |              | 200 <sup>276</sup>       | ?              |
| Hsiung Feng II  | ASCM                       | 100 - 120 km | 810 <sup>277</sup>       | Ships          |
| Hsiung Feng IIE | LACM                       | 600 km       | 500-1,000 <sup>278</sup> | Trucks         |
| Hsiung Feng III | ASCM<br>(possible<br>LACM) | 120 - 150 km | 220 <sup>279</sup>       | Ship, Truck    |

<sup>270</sup> *Taiwan’s Overall Defense Concept*, Sam Cranny Evans, Janes Defence Weekly, 18 June, 2021. Pg. 20-28 (pg 23-4)

<sup>271</sup> *Air Defense Options for Taiwan, An Assessment of Relative Costs and Operational Benefits*, Lostumbo et. al., RAND, 2016, pg. 4. While this data is from 2016, looking through the Defense Security Cooperation Agency’s required notices to Congress on foreign military sales (<https://www.dsca.mil/search/node?keys=>), Taiwan has not purchased additional batteries. No numbers post 2016 could be found by the author for TK-III batteries (though the author does not speak any of the areas languages), so there may well have been updates that the author has missed.

<sup>272</sup> *Taiwan’s Overall Defense Concept*, Sam Cranny Evans, Janes Defence Weekly, 18 June, 2021. Pg. 20-28 (pg 23) lists them as having 6 battery fire units instead.

<sup>273</sup> Coast Guard Administration (Taiwan), Wikipedia, - Accessed 01/31/22

<sup>274</sup> <https://www.thedrive.com/the-war-zone/taiwans-coast-guard-test-its-ability-to-turn-cutters-into-ship-killers> (June 2022)

<sup>275</sup> Unless otherwise referenced information comes from <https://missilethreat.csis.org/country/taiwan/> - Accessed 02/02/22

<sup>276</sup> [https://armstrade.sipri.org/armstrade/page/trade\\_register.php](https://armstrade.sipri.org/armstrade/page/trade_register.php)

<sup>277</sup> Estimated production run of 81/year (see Missile Production Table) of 10 years (2011-2021) this is a highly conservative estimation as it assumes a full production line switch to Hsiung Sheng in 2021. As per *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 336, the adversity to live fire exercises means that I assume that the pre-full production run covers training expenditures.

<sup>278</sup> Hazeldine, Richard. "US trying to block Taiwan missiles: 'Defense News'", Taipei Times, 29 October 2008.

<sup>279</sup> Estimated production run of 20/year (see Missile Production Table) of 11 years (2011-2022) this is a highly conservative estimation as no full-scale production pre-2011. As per *Crossing The Strait*, China’s Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 336, the adversity to live fire exercises means that I assume that the pre-full production run covers training expenditures.

|           |                                  |                                     |                                   |  |
|-----------|----------------------------------|-------------------------------------|-----------------------------------|--|
| Tien Chi  | SRBM<br>(Submunition<br>Warhead) | 120 km                              | At least 15-<br>50 <sup>280</sup> | Silos on Tungyin<br>and Penghu<br>Islands <sup>281</sup> |
| Wan Chien | ALCM                             | 240 km                              | ~126? <sup>282</sup>              | Aircraft   |
| Yun Feng  | LACM<br>(bunker<br>buster)       | 1,200 or 2,000 km<br>(two variants) | 20 <sup>283</sup>                 | 10 <sup>284</sup>  |

### Missile Production

It's unclear if the June 2022 deadline for upgrades of production was met as this source<sup>285</sup> indicates that the capacity upgrades were planned to be finished by June, but the language from the following article from August<sup>286</sup> would indicate that capacity upgrades were not finished.

| <i>Missile</i>                    | <i>Production Rate</i>  | <i>Missiles/Month (from<br/>Production Rate)</i> | <i>Production<br/>Start Date</i>                        |
|-----------------------------------|---|--|---|
| Hsiung Feng II +<br>Hsiung Sheng* | 81/year (initial)<br>131/year (post June 2022) <sup>287</sup> | 6.75/mo. (initial)<br>10.9/mo. (post June 2022)  | 2011 (HF-II) <sup>288</sup><br>2021 (HS) <sup>289</sup> |
| Hsiung Feng III                   | 20/year (initial)<br>70/year (post June 2022) <sup>290</sup>  | 1.66/mo. (initial)<br>5.83/mo. (post June 2022)  | Between 2007-<br>2011 <sup>291</sup>                    |
| Tien Chien II                     | 40/year (initial)<br>150/year (post June 2022) <sup>292</sup> | 3.33/mo. (initial)<br>12.5/mo. (post June 2022)  | Between 1997-<br>2001 <sup>293</sup>                    |
| Tien-Kung III                     | 48/year (initial),<br>96/year (post June 2022) <sup>294</sup> | 4/mo. (initial),<br>8/mo. (post June 2022)       | ?   |
| Wan Chien                         | 18/year (initial),<br>50/year (post June 2022) <sup>295</sup> | 1.5/mo. (initial),<br>4.16/mo. (post June 2022)  | Full production<br>in 2015 <sup>296</sup>               |

\*Joint production line. The Hsiung Sheng is an upgraded version of the HF-III.

<sup>280</sup> <https://missilethreat.csis.org/missile/tien-chi/> (Accessed 03/09/22)

<sup>281</sup> <https://missilethreat.csis.org/missile/tien-chi/> (Accessed 03/09/22)

<sup>282</sup> Estimated production run of 18/year (see Missile Production Table) of 7 years (2015-2022). As per *Crossing The Strait*, China's Military Prepares for War with Taiwan, National Defense University Press, 2022 pg. 336, the adversity to live fire exercises means that I assume that the pre-full production run covers training

<sup>283</sup> <https://missilethreat.csis.org/missile/yun-feng/> - Accessed 02/02/22

<sup>284</sup> <https://missilethreat.csis.org/missile/yun-feng/> - Accessed 02/02/22

<sup>285</sup> <https://focustaiwan.tw/politics/202203030020> (2022) - article no longer publicly available, use the Wayback Machine to get a copy.

<sup>286</sup> <https://www.taiwannews.com.tw/en/news/4625333> (2022).

<sup>287</sup> <https://www.taiwannews.com.tw/en/news/4625333> (2022). Post June 2022 is inferred from linked article.

<sup>288</sup> While [https://en.wikipedia.org/wiki/Hsiung\\_Feng\\_III#Hsiung\\_Sheng](https://en.wikipedia.org/wiki/Hsiung_Feng_III#Hsiung_Sheng) cites an article stating 2011, the article cannot be accessed and the 2011 number cannot be confirmed.

<sup>289</sup> <https://www.taiwannews.com.tw/en/news/4099431> AND

<https://web.archive.org/web/20210117101919/https://focustaiwan.tw/politics/202101110011>

<sup>290</sup> <https://focustaiwan.tw/politics/202203030020> (2022) - article no longer publicly available, use the Wayback Machine to get a copy.

<sup>291</sup> <https://missilethreat.csis.org/missile/hsiung-feng-iii/> - the missile was unveiled in 2007, and became operational in 2011, as such it entered production at some point in-between those two years.

<sup>292</sup> <https://focustaiwan.tw/politics/202203030020> (2022) - article no longer publicly available, use the Wayback Machine to get a copy.

<sup>293</sup> <https://missilethreat.csis.org/missile/tien-chi/> - missile was first test fired in 1997, and entered service in 2001, so it must have entered production at some point between those years.

<sup>294</sup> <https://focustaiwan.tw/politics/202203030020> (2022) - article no longer publicly available, use the Wayback Machine to get a copy.

<sup>295</sup> <https://focustaiwan.tw/politics/202203030020> (2022) - article no longer publicly available, use the Wayback Machine to get a copy.

<sup>296</sup> <https://missilethreat.csis.org/missile/wan-chien/> (accessed October 2022)

# Japan

## Command and Control Arrangements

By 2024, Japan will set up a new commanding officer position for the Self-Defense Force branches to oversee them in an emergency. “Currently, the Joint Staff Office of the SDF commands all three forces and is overseen by the Chief of Staff, the sole person in charge of communication with the Prime Minister and U.S. military.” However, the Chief of Staff has multiple other duties and this move is intended to relieve some of the workload. In an emergency the Chief of Staff will be “required to primarily focus on supporting the Prime Minister and Defense Minister.” The new position will report to the Defense Minister and will be a counterpart to the commander of USINDOPACOM, easing the control of JSDF forces.<sup>297</sup>

## JMSDF<sup>298</sup>

Escort Flotilla 1 at Yokosuka

- 1 Helicopter Carrier (Izumo, F-35B capable<sup>299</sup>)
- 3 Destroyers

Escort Flotilla 2 at Sasebo

- 1 Helicopter Carrier
- 4 Destroyers

Escort Flotilla 3 at Maizuru

- 1 Helicopter Carrier
- 3 Destroyers

Escort Flotilla 4 at Kure

- 1 Helicopter Carrier (Kaga, F-35B capable<sup>300</sup>)
- 4 Destroyers

11th Escort Squadron

- 3 Destroyers

12th Escort Squadron

- 1 Destroyer
- 2 Destroyer Escorts

13th Escort Squadron

- 2 Destroyers
- 1 Destroyer Escort

14th Escort Squadron

- 2 Destroyers

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<sup>297</sup> <https://asia.nikkei.com/Politics/Japan-to-establish-Self-Defense-Forces-joint-command-in-2024> (2022)

<sup>298</sup> Submarine numbers slightly different from IISS Military Balance 2021 and 2022 (off by 1 combat sub, but this is within readiness tolerance), organization from <https://www.mod.go.jp/msdf/en/about/org/> Accessed 2/17/22, exact types (Izumo, Kaga) from [https://en.wikipedia.org/wiki/Fleet\\_Escort\\_Force](https://en.wikipedia.org/wiki/Fleet_Escort_Force) Accessed 2/17/22.

<sup>299</sup> <https://www.defensenews.com/naval/2022/06/02/japans-converted-aircraft-carrier-to-undertake-indo-pacific-deployment/> (2022), *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 23-4). Note that “F-35B Capable” here does not mean the practice and experience needed to support such operations off the deck, which may pose a problem in wartime unless properly trained for. For details on the upgrades done to the ships see <https://www.thedrive.com/the-war-zone/japans-converted-f-35b-carrier-leaves-dock-sporting-new-bow> (2023)

<sup>300</sup> <https://www.defensenews.com/naval/2022/06/02/japans-converted-aircraft-carrier-to-undertake-indo-pacific-deployment/> (2022), *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 23-4). Note that “F-35B Capable” here does not mean the practice and experience needed to support such operations off the deck, which may pose a problem in wartime unless properly trained for. For details on the upgrades done to the ships see <https://www.thedrive.com/the-war-zone/japans-converted-f-35b-carrier-leaves-dock-sporting-new-bow> (2023)

- 1 Destroyer Escort
- 15th Escort Squadron
- 1 Destroyer
  - 2 Destroyer Escorts

Submarine Flotilla 1 at Kure

- 10 x SSK

Submarine Flotilla 2 at Yokosuka

- 8 x SSK

Landing Ship Squadron 1 (Kure)

- 3 x LST

## **JASDF**<sup>301</sup>

- Northern Air Defense Force: Misawa, Aomori
  - 2nd Air Wing - Chitose Air Base
    - 201SQ, F-15J/DJ
    - 203SQ, F-15J/DJ
  - 3rd Air Wing - Misawa Air Base
    - 301SQ, F-35A
    - 302SQ, F-35A
- Central Air Defense Force
  - 6th Air Wing - Komatsu Air Base
    - 303SQ, F-15J/DJ
    - 306SQ, F-15J/DJ
  - 7th Air Wing - Hyakuri Air Base
    - 3SQ, F-2A/B
- Western Air Defense Force
  - 5th Air Wing - Nyutabaru Air Base
    - 305SQ, F-15J/DJ
  - 8th Air Wing - Tsuiki Air Base
    - 6SQ, F-2A/B
    - 8SQ, F-2A/B
- Southwestern Air Defense Force: Naha, Okinawa
  - 9th Air Wing - Naha Air Base
    - 204SQ, F-15J/DJ
    - 304SQ, F-15J/DJ
- Airborne Early Warning and Control Wing: Hamamatsu Air Base
  - Flight Warning and Control Group - Hamamatsu Air Base
    - 602SQ, E-767
  - Flight Alert Monitoring Group - Misawa Air Base
    - 601SQ, E-2C/D - Misawa Air Base

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<sup>301</sup> Squadron numbers cross checked with IISS Military Balance 2021 pg. 272-273, organizational structure and planes Wikipedia Accessed 01/31/22

- 603SQ, E-2C/D - Naha Air Base
- Electronic Warfare Squadron Iruma Air Base (EC-1, YS-11EB)
- Electronic Intelligence Squadron Iruma Air Base (YS-11EB)
- Air Rescue Wing
- Detachments: Chitose, Matsushima, Ashiya, Akita, Hyakuri, Nyutabaru, Niigata, Hamamatsu, Naha, Komatsu, Komaki (Training Squadron) (UH-60J, U-125A)
- Helicopter Airlift Squadrons: Iruma (CH-47J (LR)), Kasuga (CH-47J (LR)), Misawa (CH-47J (LR)), Naha (CH-47J (LR))
- Air Support Command: Fuchū Air Base, Tokyo
  - 1st Tactical Airlift Group - Komaki Air Base
    - 401SQ, C-130H, KC-130H
    - 404SQ, KC-767
  - 2nd Tactical Airlift Group - Iruma Air Base
    - 402SQ, C-1, U-4
  - 3rd Tactical Airlift Group - Miho Air Base
    - 403SQ, C-1, C-2
    - 41SQ, T-400

#### Combat Aircraft<sup>302</sup>

- 62 x F-2A
- 155 x F-15J<sup>303</sup>
- 23 x F-35A/B

#### JGSDF

- Amphibious Rapid Deployment Brigade<sup>304</sup> – Ainoura<sup>305</sup>
  - Brigade HQ
  - 2 x Infantry Regiments
  - Artillery Battalion
  - Reconnaissance Battalion
  - Engineer Battalion
  - Combat Landing Battalion
  - Logistic Support Battalion
  - Signal Company
- 1st Airborne Brigade<sup>306</sup> - Funabashi
  - Brigade Headquarters
  - Quartermaster Company
  - Signal Company
  - 3x Airborne Infantry Battalion (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>)
  - Airborne Artillery Battalion

<sup>302</sup> <https://www.flightglobal.com/download?ac=83735> (2022). Note that *Japan's F-15 Upgrade Adds Strike Capability*, Bradley Perett, Aviation Week and Space Technology, Jan 30-Feb 12, 2023, pg. 20-21 lists 91 F2, 200 F-15J, and 31 F-35A in inventory (with 116 F-35A to be delivered). I defer to the Flight Global numbers as that's what I use consistently throughout.

<sup>303</sup>

<sup>304</sup> <https://www.mod.go.jp/gsdf/gcc/ardb/sta.html> – Accessed 02/03/22

<sup>305</sup> [https://www.mod.go.jp/en/publ/w\\_paper/wp2020/pdf/R02030102.pdf](https://www.mod.go.jp/en/publ/w_paper/wp2020/pdf/R02030102.pdf)

<sup>306</sup> Core info from IISS Military Balance 2021 pg. 272-273, slight supplemental info from [https://en.wikipedia.org/wiki/1st\\_Airborne\\_Brigade\\_\(Japan\)](https://en.wikipedia.org/wiki/1st_Airborne_Brigade_(Japan)) – Accessed 02/03/22



- Airborne Logistic Support Battalion
- Engineer Company
- 12<sup>th</sup> Airmobile Brigade<sup>307</sup> - Shintō
  - Brigade HQ
  - 3 x Infantry Regiments
  - 1 x Recce Squadron
  - 1 x Aviation squadron
  - 1 x Field Artillery Battalion
  - 1 x SAM Coy.
  - 1 x Combat Engineer Coy.
  - 1 x NBC Coy.
  - 1 x Signals Coy.
  - 1 x Logistics Bn.
- 15<sup>th</sup> Brigade
  - Oversees the Nansei region, in the coming years it “will be effectively doubled in size and reorganized into a division, while a new marine transport unit will be established to make troops more mobile.”<sup>308</sup> Based in Naha, capitol of Okinawa Prefecture.<sup>309</sup>
  - Currently: 1 x Infantry Regiment, commanded by a Major General.<sup>310</sup>
    - 1 x Reconnaissance Squadron, 1 x Infantry Regiment, 1 x Aviation Squadron, 1 x Air Defense Regiment, 1 x Combat Engineer Company, 1 x NBC Company, 1 x Signals Company, 1 x Logistics Battalion<sup>311</sup>
  - Planned: 2 x Regiments, commanded by a General (to better cooperate with III MEF, which is commanded by a General). Other additions will be signals troops, facility’s personal and logistics personal.<sup>312</sup>

### **Japanese Coast Guard**<sup>313</sup>

- Patrol vessels: 121
- Patrol craft: 234
- Various ISR assets including MQ-9B SeaGuardians<sup>314</sup>

### **Missile Inventory**<sup>315</sup>

| Missile Name | Class | Range  | # of Missiles                 | # of Launchers    |
|--------------|-------|--------|-------------------------------|-------------------|
| Type 88 SSM  | AShM  | 150 km | 324 (at least) <sup>316</sup> | 54 <sup>317</sup> |

<sup>307</sup> IISS The Military Balance, 2022, pg. 276

<sup>308</sup> <https://www.japantimes.co.jp/news/2022/12/20/national/japan-defense-nansei-islands-taiwan/> (2022)

<sup>309</sup> <https://www.japantimes.co.jp/news/2022/12/03/national/okinawa-nansei-islands-sdf/> (2022)

<sup>310</sup> <https://www.japantimes.co.jp/news/2022/12/03/national/okinawa-nansei-islands-sdf/> (2022)

<sup>311</sup> IISS Military Balance, 2023, pg. 258

<sup>312</sup> <https://www.japantimes.co.jp/news/2022/12/03/national/okinawa-nansei-islands-sdf/> (2022)

<sup>313</sup> <https://www.kaiho.mlit.go.jp/info/books/report2020/html/top.html> (2021)

<sup>314</sup> *To Deter and Disrupt*, Chen Chuanren, Aviation Week and Space Technology, Jan 30-Feb 12, 2023, pg. 19

<sup>315</sup> <https://missilethreat.csis.org/country/taiwan/> - Accessed 02/02/22

<sup>316</sup> <https://www.navyrecognition.com/index.php/news/defence-news/year-2013-news/november-2013-navy-naval-forces-maritime-industry-technology-security-global-news/1344-jsdf-deploys-type-88-land-based-mobile-anti-ship-missiles-launchers-in-okinawa-.html> (2021)

<sup>317</sup> Stated to have both 54 launchers by this 2007 source: Wertheim, Eric (2007). *The Naval Institute Guide to Combat Fleets of the World: Their Ships, Aircraft, and Systems*. Naval Institute Press. p. 374. ISBN 9781591149552. This source says that they deployed 54, so I feel confident that this is the correct number: <https://www.navyrecognition.com/index.php/news/defence-news/year-2013-news/november-2013-navy-naval-forces-maritime-industry-technology-security-global-news/1344-jsdf-deploys-type-88-land-based-mobile-anti-ship-missiles-launchers-in-okinawa-.html> (2021)

|             |      |        |                               |                              |
|-------------|------|--------|-------------------------------|------------------------------|
| Type 12 SSM | AShM | 200 km | 144 (at least) <sup>318</sup> | 24 (at least) <sup>319</sup> |
|-------------|------|--------|-------------------------------|------------------------------|

## **Basing Rights**

Both the US, British, and Austirlains have some degree of basing rights.

## **Ryuku Island Garrisons**

*Note that this list is likely incomplete and is missing facilities and troops.*

### **Yonaguni Island**

“Coastal surveillance unit” since 2016.<sup>320</sup> Radar station, 160 troops,<sup>321</sup> EW unit, (by unknown date) SAM unit<sup>322</sup>

### **Miyako Island**

360 troops, Type 12 AShM unit (unknown size), Type 03 SAM unit (unknown Size)<sup>323</sup>

### **Amami-Oshima Island**

500 troops, Type 12 AShM and Type 03 SAM<sup>324</sup>

### **Okinawa**

By 2023 – AshM battery<sup>325</sup>

### **Ishigaki**

In November 2021 Japan budgeted for a garrison of 570 troops + 1 SAM and 1 AShM battery for the island by 2022<sup>326</sup>

### **Mageshima Island**

New base by end of 2023<sup>327</sup>

### **Yonaguni Island**

New EW unit by end of 2023<sup>328</sup>

<sup>318</sup> <https://www.thedefensepost.com/2022/03/03/japan-type-12-missile-upgrade/> (2022)

<sup>319</sup> <https://www.thedefensepost.com/2022/03/03/japan-type-12-missile-upgrade/> (2022)

<sup>320</sup> <https://www.japantimes.co.jp/news/2022/12/03/national/okinawa-nansei-islands-sdf/> (2022)

<sup>321</sup> *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 24)

<sup>322</sup> <https://www.japantimes.co.jp/news/2022/12/27/national/yonaguni-japan-missile-deployment/> (2022)

<sup>323</sup> *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 24)

<sup>324</sup> *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 24)

<sup>325</sup> *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 24)

<sup>326</sup> *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 21, 24)

<sup>327</sup> *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 24)

<sup>328</sup> *South by Southwest*, Christian Le Miere, Janes Defense Weekly, 12 January, 2022, pgs. 20-29 (pg. 24)

# United States

## Navy<sup>329</sup>

### Force Quality

#### *Surface Force*

#### *Submarine Force*

In general US Submariners are considered to be extremely skilled at their job. The submarine force undergoes force on force training at AUTEC to practice and develop new tactics.<sup>330</sup>

#### 3<sup>rd</sup> Fleet - Point Loma, CA

- 2 x Zumwalt Class
- CSG 1 – San Diego, CA
  - 1 x CV (USS Carl Vinson)
    - 3 x F/A-18, 1 x F-35 Squadrons
  - 2 x Cruisers
  - 5 x Destroyers
- CSG 3 – San Diego, CA
  - 1 x CV (USS Abraham Lincoln)
    - 3 x F/A-18, 1 x F-35 Squadrons
  - 2 x Cruisers
  - 5 x Destroyers
- CSG 9 - San Diego, CA
  - 1 x CV (USS Theodore Roosevelt)
    - 4 x F/A-18 Squadrons
  - 2 x Cruisers
  - 5 x Destroyers
- CSG 11 – NS Everett, WA
  - 1 x CV (USS Nimitz)
    - 4 x F/A-18 Squadrons
  - 1 x Cruiser
  - 5 x Destroyers
- Surface Squadron 31 – Pearl Harbor, HI
  - 1 x Cruiser
  - 9 x Destroyers
- ESG 3 – San Diego, CA
  - 1 x LHA
  - 4 x LHD
  - 5 x LPD
  - 4 x LSD
- LCSRON - San Diego, CA
  - 13 x LCS
- MCM Squadron – San Diego, CA

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<sup>329</sup> [https://en.wikipedia.org/wiki/List\\_of\\_units\\_of\\_the\\_United\\_States\\_Navy#United\\_States\\_Third\\_Fleet\\_\(NB\\_Point\\_Loma,\\_CA\)](https://en.wikipedia.org/wiki/List_of_units_of_the_United_States_Navy#United_States_Third_Fleet_(NB_Point_Loma,_CA)) – Accessed 02/01/22

<sup>330</sup> <https://www.thedrive.com/the-war-zone/33090/how-american-and-allied-submarines-regularly-fight-to-the-death-off-the-bahamas>

- 3 x CMC ships
- Submarine Squadron 1 – Pearl Harbor, HI
  - 2 x Los Angeles SSN
  - 6 x Virginia SSN
- Submarine Squadron 7 – Pearl Harbor, HI
  - 6 x Los Angeles SSN
- Submarine Squadron 17 – Kitsap-Bangor, WA
  - 7 x Ohio SSBN
- Submarine Squadron 19 – Kitsap-Bangor, WA
  - 4 x Los Angeles SSN
  - 2 x Ohio SSGN
  - 1 x Ohio SSBN
- Submarine Development Squadron 5 – Kitsap-Bangor, WA
  - 3 x Seawolf SSN
- Submarine Squadron 11 – Point Loma, CA
  - 4 x Los Angeles SSN

#### 7<sup>th</sup> Fleet - Yokosuka, Japan

- 2 x Submarine tender (based in Guam)
- CSG 5 – Yokosuka, Japan
  - 1 x CV (USS Ronald Regan)
    - 4 x F/A-18 Squadrons
  - 3 x Cruisers
  - 7 x Destroyers
- ESG 7 – Sasebo, Japan
  - 1 x LCC
  - 1 x LHA
  - 2 x LPD
  - 2 x LSD
- MCM Squadron – Sasebo, Japan
  - 4 x MCM vessels
- Submarine Squadron 15 – Guam<sup>331</sup>
  - 5 x Los Angeles SSN
  - 2 x Submarine tenders (both of the US submarine tenders)

#### **Other Important Information**

Upward Facing Hydrophone Networks - the gaps between the Philippines, the Ryukyu Islands, and Taiwan.<sup>332</sup>

#### **Marine Corps**

- West Coast<sup>333</sup>
  - 11<sup>th</sup>, 13<sup>th</sup>, 15<sup>th</sup> MEU - Camp Pendleton, California.

<sup>331</sup> [https://news.usni.org/2022/11/02/navy-expanding-attack-submarine-presence-on-guam-as-a-hedge-against-growing-chinese-fleet?ct=\(USNI\\_NEWS\\_DAILY\)&mc\\_cid=a8422a2f74&mc\\_eid=b5bb52f60a](https://news.usni.org/2022/11/02/navy-expanding-attack-submarine-presence-on-guam-as-a-hedge-against-growing-chinese-fleet?ct=(USNI_NEWS_DAILY)&mc_cid=a8422a2f74&mc_eid=b5bb52f60a) (2022)

<sup>332</sup> <https://www.foreignaffairs.com/articles/china/2022-06-16/consequences-conquest-taiwan-indo-pacific> (2022)

<sup>333</sup> [https://en.wikipedia.org/wiki/Marine\\_expeditionary\\_unit](https://en.wikipedia.org/wiki/Marine_expeditionary_unit) - Accessed 02/01/22

- Marine Rotational Force – Darwin, MRF-D (from April to October)<sup>334</sup>
  - Draws from the above. Organized into a MEU
- III MEF<sup>335</sup>
  - 3<sup>rd</sup> Marine Division – Okinawa<sup>336</sup>
    - 3rd Marine Littoral Regiment (same size as MEU) - Hawaii<sup>337</sup>
    - 3rd Reconnaissance Battalion
    - 12th Marine Regiment (Artillery Unit)
    - 4th Marine Regiment
  - 31<sup>st</sup> MEU – Okinawa
  - 1<sup>st</sup> Marine Aircraft Wing<sup>338</sup>
    - 2 x F-35B squadrons – Iwakuni

## **Air Force**

### **Force Issues**

“Throughout this project experts identified a lack of qualified ground crew personnel as one of the most serious constraints on the ability of the Air Force to sustain operations under fire, or to adopt a more dispersed basing posture.”<sup>339</sup> A CNAS report found that if China could effectively target US logistics, it would severely limit US air operations and force it to rely on strikes from CONUS based bombers.<sup>340</sup>

### **USAF Pacific<sup>341</sup>**

This list includes only offensive units (no support ones)

- 3rd Wing - JB Elmendorf-Richardson, Alaska
  - 1 x F-22A Squadron
- 8th Fighter Wing (FW) Kunsan AB, South Korea<sup>342</sup>
  - 2 x F-16C/D Squadrons (35th and 80th Fighter Squadrons)
- 15th Wing JB Pearl Harbor-Hickam, Hawaii
  - 1 x F-22A Squadron (19th Fighter Squadron)
- 18th Wing Kadena AB, Japan
  - 48 x 4<sup>th</sup> and 5<sup>th</sup> Gen aircraft (F-16's<sup>343</sup> and F-35's<sup>344</sup>, possible others<sup>345</sup>) on a rotational basis.<sup>346</sup>
- 35th FW Misawa AB, Japan

<sup>334</sup> <https://www.marforpac.marines.mil/MRFDarwin/> (accessed April 14, 2023) and

[https://en.wikipedia.org/wiki/Marine\\_Rotational\\_Force\\_%E2%80%93\\_Darwin](https://en.wikipedia.org/wiki/Marine_Rotational_Force_%E2%80%93_Darwin), unit is under I MEF command.

<https://www.pacom.mil/Media/News/News-Article-View/Article/2970258/marine-rotational-force-darwin-22-arrives-in-darwin/>.

<sup>335</sup> [https://en.wikipedia.org/wiki/III\\_Marine\\_Expeditionary\\_Force](https://en.wikipedia.org/wiki/III_Marine_Expeditionary_Force) - Accessed 02/01/22

<sup>336</sup> [https://en.wikipedia.org/wiki/3rd\\_Marine\\_Division](https://en.wikipedia.org/wiki/3rd_Marine_Division) - Accessed 02/03/22

<sup>337</sup> <https://www.marinecorpstimes.com/news/your-marine-corps/2020/09/22/corps-to-begin-3-year-marine-littoral-regiment-experiment-using-hawaii-marines/> (2020), it's placement under 3<sup>rd</sup> MARDIV is mentioned in <https://www.marinecorpstimes.com/news/your-marine-corps/2023/03/16/marine-littoral-regiment-fends-off-traditional-regiment-in-exercise/> (2023)

<sup>338</sup> [https://en.wikipedia.org/wiki/1st\\_Marine\\_Aircraft\\_Wing](https://en.wikipedia.org/wiki/1st_Marine_Aircraft_Wing) - Accessed 02/01/22

<sup>339</sup> *Buying Time: Logistics for a New American Way of War*, Chris Dougherty, April 2023, CNAS Report. <https://s3.us-east-1.amazonaws.com/files.cnas.org/documents/CNASReport-Logistics-Final.pdf?mtime=20230411171556&focal=none> pg. 10

<sup>340</sup> *Buying Time: Logistics for a New American Way of War*, Chris Dougherty, April 2023, CNAS Report. <https://s3.us-east-1.amazonaws.com/files.cnas.org/documents/CNASReport-Logistics-Final.pdf?mtime=20230411171556&focal=none> pg. 10

<sup>341</sup> Air Force Magazine Almanac 2021 is the general source for all following unless indicated otherwise.

<sup>342</sup> <https://www.kunsan.af.mil/About-Us/Fact-Sheets/Article/412731/8th-fighter-wing/> - Accessed 02/01/22

<sup>343</sup> <https://www.airandspaceforces.com/spangdahlem-f-16s-deploy-to-kadena-permanent-replacement-for-f-15s-will-be-superior/> (2023)

<sup>344</sup> <https://www.kadena.af.mil/News/Article/3342555/lightning-iis-arrive-at-kadena-to-maintain-advanced-fighter-presence/> (2023)

<sup>345</sup> *Changing the Guard*, Janes Defense Weekly, 30 November, 2022, pg. 28-29, lists 1 squadron F-22's - the 525<sup>th</sup> Fighter Squadron of the 3<sup>rd</sup> Wing. Janes estimates that it would be “difficult to maintain regular deployments” to Kadena of only 5<sup>th</sup> Gen aircraft. (pg. 29)

<sup>346</sup> <https://www.defensenews.com/air/2022/10/27/air-force-to-replace-kadena-f-15-squadrons-with-rotational-fighters/> (2022)

- 2 x F-16C/D Squadrons (13th and 14th Fighter Squadron)<sup>347</sup>
- 51st FW Osan AB, South Korea<sup>348</sup>
  - 1 x A-10C Squadron (25<sup>th</sup> Fighter Squadron)
  - 1 x F-16C/D Squadron (36<sup>th</sup> Fighter Squadron)
- 354th FW Eielson AFB, Alaska<sup>349</sup>
  - 1 x F-35 (355th Fighter Squadron)<sup>350</sup>
  - 1x F-16C/D (356th Fighter Squadron)

### **USAF Air Combat Command<sup>351</sup>**

This list includes only offensive units (no support ones) and leaves out units that are dedicated to a training role.

- 1st Fighter Wing - JB Langley-Eustis, Va.<sup>352</sup>
  - 2 x F-22 squadrons
- 4th Fighter Wing Seymour - Johnson AFB, N.C.<sup>353</sup>
  - 4 x F-15E squadrons (only 2 are expeditionary)
- 20th Fighter Wing Shaw - AFB, S.C.<sup>354</sup>
  - 3 x F-16CM squadrons
- 23rd Wing - Moody AFB, Ga.
  - 2 x A-10C squadrons
- 355th Wing - Davis-Monthan AFB, Ariz.<sup>355</sup>
  - 1 x A-10C Squadron
- 366th Fighter Wing - Mountain Home AFB, Idaho<sup>356</sup>
  - 2 x F-15E Squadrons
- 388th Fighter Wing - Hill AFB, Utah<sup>357</sup>
  - 3 x F-35A Squadrons

Optionally the A-10's (or other aircraft) could theoretically be sent to Europe or the Middle East to free up other squadrons of aircraft instead for deployment to the Pacific.<sup>358</sup>

### **Likely USAF bomber allocation<sup>359</sup>**

- 1 x wing of B-52 (out of 2 wings)
- 1 x wing of B-1 (out of 2 wings)
- 1 x wing of B-2 (out of 1 wing)

<sup>347</sup> <https://www.misawa.af.mil/Units/> - Accessed 02/01/22

<sup>348</sup> [https://en.wikipedia.org/wiki/51st\\_Fighter\\_Wing](https://en.wikipedia.org/wiki/51st_Fighter_Wing) - Accessed 02/01/22

<sup>349</sup> [https://en.wikipedia.org/wiki/354th\\_Fighter\\_Wing#354th\\_Operations\\_Group](https://en.wikipedia.org/wiki/354th_Fighter_Wing#354th_Operations_Group) - Accessed 02/01/22

<sup>350</sup> <https://www.dvidshub.net/image/7023924/49th-state-welcomes-49th-f-35> (2022) - Other sources note this as a F-16C/D Squadron, but the most up to date info says they just became a F-35 unit.

<sup>351</sup> Air Force Magazine Almanac 2022 is the general source for all following unless indicated otherwise.

<sup>352</sup> <https://www.jble.af.mil/About-Us/Units/Langley-afb/1st-Fighter-Wing/#:~:text=The%201st%20Fighter%20Wing%20is,to%20support%20Combatant%20Commander%20taskings> - Accessed 09/28/2022

<sup>353</sup> <https://www.seymourjohnson.af.mil/About-Us/Fact-Sheets/4th-Operations-Group/> - Accessed 09/28/2022

<sup>354</sup> <https://www.shaw.af.mil/About-Us/> - Accessed 09/28/2022

<sup>355</sup> <https://www.dm.af.mil/About-DM/Units/355th-Operations-Group/> - Accessed 09/28/2022

<sup>356</sup> <https://www.mountainhome.af.mil/About-MHAFB/> - Accessed 09/28/2022

<sup>357</sup> <https://www.hill.af.mil/About-Us/Fact-Sheets/Display/Article/1464092/388th-fighter-wing/> - Accessed 09/28/2022

<sup>358</sup> <https://www.wsj.com/articles/u-s-to-send-aging-attack-planes-to-mideast-and-shift-newer-jets-to-asia-europe-df72da15> (2023)

<sup>359</sup> Guess, data on # of wings pulled from Air Force Magazine Almanac 2021 with the intent being to hold forces in reserve. The reserve bombers would then be committed to destroy the main invasion force once it was set to set to invade Taiwan.

## Bomber Inventory<sup>360</sup>

- B-52H – 76
- B-1 – 44
- B-2 – 20

## Role of the A-10

Much has been made on the unsuitability of the A-10 in a high intensity peer conflict. The author generally believes that they would be of limited use in a war against China compared to other platforms. If one were to use them however, they have several possible uses: maritime security patrols (before conflict), search and rescue support,<sup>361</sup> or they can be employed as a long loiter time weapons carrier for MALDs (up to 16, same as a B-52, for comparison a F-16 carries 4), SDBs (between 16-24 with pylons to spare), and JASSM (once JASSM is integrated with the A-10).<sup>362</sup> Another potential use could be against lightly defended targets like coast guard ships or fishing vessels.<sup>363</sup> However, all of these are highly situational, and context dependent. Draw your own conclusion as to their use and their effectiveness.

## Army<sup>364</sup>

- US Army Pacific
  - 1<sup>st</sup> and 3<sup>rd</sup> Multi-Domain Task Forces<sup>365</sup>
  - 8<sup>th</sup> Army – South Korea
    - 2nd Infantry Division<sup>366</sup>
      - Headquarters Battalion
      - 3rd Armored BCT (rotational unit)
      - 210 Field Artillery Regiment
      - 2nd Combat Aviation Brigade
    - 19th Expeditionary Sustainment Command
  - I Corps
    - 7th Infantry Division - Washington<sup>367</sup>
      - 1<sup>st</sup> Stryker BCT
      - 2<sup>nd</sup> Stryker BCT
      - 81<sup>st</sup> Stryker BCT
      - Divisional Artillery, 2<sup>nd</sup> Infantry Division
      - 16<sup>th</sup> Combat Aviation Brigade
    - 17th Field Artillery Brigade (HIMARS) - Washington
    - 25th Infantry Division – Hawaii<sup>368</sup>
      - 1st Striker BCT detached to Alaska

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<sup>360</sup> *Base Point*, Janes Defense and Intelligence Review, February 2023, pg. 26-28, graphic on pg. 27

<sup>361</sup> [https://www.airforcetimes.com/news/your-air-force/2022/10/28/a-10-warthogs-to-brush-up-on-maritime-combat-in-pacific-deployment/?utm\\_source=facebook&utm\\_medium=social&utm\\_campaign=fb\\_aft&fbclid=IwAR2AtPn0n-uXhNCwxqql-IoJkrTOloqj5PcxzKiyhYGxATRkby-6px\\_VGRU](https://www.airforcetimes.com/news/your-air-force/2022/10/28/a-10-warthogs-to-brush-up-on-maritime-combat-in-pacific-deployment/?utm_source=facebook&utm_medium=social&utm_campaign=fb_aft&fbclid=IwAR2AtPn0n-uXhNCwxqql-IoJkrTOloqj5PcxzKiyhYGxATRkby-6px_VGRU) (2022)

<sup>362</sup> <https://www.thedrive.com/the-war-zone/a-10-warthogs-tusks-are-being-sharpened-for-a-high-end-fight> (2022), additional info on A-10 MALDs <https://www.thedrive.com/the-war-zone/a-10s-train-with-air-launched-decoys-alongside-b-1b-bombers> (2022)

<sup>363</sup> This is the authors view and may be a result of reading *The Hunt for Red October* too many times.

<sup>364</sup> [https://en.wikipedia.org/wiki/United\\_States\\_Army\\_Alaska#Current\\_Structure](https://en.wikipedia.org/wiki/United_States_Army_Alaska#Current_Structure) - Accessed 02/01/22

<sup>365</sup> <https://insidedefense.com/insider/third-multi-domain-task-force-will-be-full-operating-capacity-may> (2023)

<sup>366</sup> <https://www.2id.korea.army.mil/About-Us/Organization/> - Accessed 02/03/22

<sup>367</sup> [https://en.wikipedia.org/wiki/7th\\_Infantry\\_Division\\_\(United\\_States\)#Current\\_structure](https://en.wikipedia.org/wiki/7th_Infantry_Division_(United_States)#Current_structure) - Accessed 02/03/22

<sup>368</sup> [https://en.wikipedia.org/wiki/25th\\_Infantry\\_Division\\_\(United\\_States\)#Organization](https://en.wikipedia.org/wiki/25th_Infantry_Division_(United_States)#Organization) - Accessed 02/03/22

- 2<sup>nd</sup> Infantry BCT
  - 3<sup>rd</sup> Infantry BCT
  - DIVARTY is organic to BCT's rather than their own command.
  - 25<sup>th</sup> Combat Aviation Brigade
- 593rd Expeditionary Sustainment Command
- United States Army, Japan<sup>369</sup>
  - United States Army Aviation Battalion, Japan
  - 1st Battalion/1st Special Forces Group
- United States Army, Alaska<sup>370</sup>
  - 1st Striker BCT<sup>371</sup> - Alaska
  - 4th BCT (Airborne) – Alaska
- 8th Theater Sustainment Command (Hawaii)
- 9th Mission Support Command (Hawaii)
- Immediate Response Force – CONUS
  - 18-hour standby BCT from the 82<sup>nd</sup> Airborne
  - 18-hour standby 75<sup>th</sup> Ranger Regiment<sup>372</sup>
- NATO High Readiness Units
  - 1<sup>st</sup> Armored BCT/3<sup>rd</sup> Infantry Division (Georgia)<sup>373</sup>
- Other Rapidly Deployable Units
  - 82<sup>nd</sup> Airborne Brigade
    - 3 BCT's
      - One BCT is part of the Immediate Response Force
      - Two Airborne BCT's available for deployment
    - One Combat Aviation Brigade
- Additional High Value Capabilities for Deployment
  - 4 x CONUS THADD Battery (total of 7 batteries in inventory, the other three are deployed in Hawaii, South Korea, and Guam)<sup>374</sup>
  - Patriot Batteries - Total 33 CONUS batteries + 27 batteries overseas, not all would be available for use, and not all use PAC-3 (some are still PAC-2)<sup>375</sup>
- Other rapid reaction forces are put together as needed.

#### US Army Material Command (in the Pacific Theater)

- 1 x Army pre-positioned stock afloat (APS-3)<sup>376</sup>
  - Several “United States naval ship (Large Medium-Speed Roll-On/Roll-Off (RO/RO) (LMSR) vessels containing pre-configured unit sets and Unit Basic Load (UBL) of various classes of supply, in addition to Class V theater stock carrying commercial Motor Vessels (M/V).”<sup>377</sup>

<sup>369</sup> [https://en.wikipedia.org/wiki/United\\_States\\_Army,\\_Japan](https://en.wikipedia.org/wiki/United_States_Army,_Japan) - Accessed 02/03/22

<sup>370</sup> [https://en.wikipedia.org/wiki/United\\_States\\_Army\\_Alaska](https://en.wikipedia.org/wiki/United_States_Army_Alaska) - Accessed 02/03/22

<sup>371</sup> [https://en.wikipedia.org/wiki/25th\\_Infantry\\_Division\\_\(United\\_States\)#Organization](https://en.wikipedia.org/wiki/25th_Infantry_Division_(United_States)#Organization) - Accessed 02/03/22

<sup>372</sup> <https://75thranregiment.org/about-75th-ranger-regiment/> (accessed April 21, 2023), indicates all the Bn.'s are on 18 hour notice.

<sup>373</sup> <https://www.defensenews.com/news/pentagon-congress/2022/02/25/thousands-of-us-troops-deploying-for-first-ever-nato-response-force-activation-amid-russia-attack/> (2022)

<sup>374</sup> <https://www.armscontrol.org/factsheets/usmissiledefense> (2019)

<sup>375</sup> <https://media.defense.gov/2019/Jan/17/2002080666/-1/-1/1/2019-MISSILE-DEFENSE-REVIEW.PDF> (2019) pg. 50

<sup>376</sup> <https://www.defensenews.com/digital-show-dailies/ausa/2022/10/11/us-army-materiel-command-tasked-to-ramp-up-joint-logistics-in-pacific/> (2022)

<sup>377</sup> [https://www.army.mil/article/228788/aps\\_3\\_floating\\_stock\\_deployment\\_and\\_rsoi](https://www.army.mil/article/228788/aps_3_floating_stock_deployment_and_rsoi) (2019)



- It's unclear how much individual ships/whole group carry, but "17 M1 Abrams ... as well as 400 pieces of rolling stock",<sup>378</sup> and "500 pieces of army equipment [plus other stores]"<sup>379</sup>
- The APS-3 (Afloat) stocks aboard ships have prepositioned sets, ammunition, operational project stocks and sustainment stocks.<sup>380</sup> They have sets of equipment for different BCT's<sup>381</sup>
- APS-3 operates from Charleston, South Carolina, and Diego Garcia<sup>382</sup>
- 4 x Land-based Army pre-positioned stock locations in the Indo-Pacific AO (APS-4)<sup>383</sup>
  - Locations
    - Camp Carroll, Korea
    - Yokohama, Japan
    - Camp Sagami, Japan
    - 1 x unknown?
  - APS-4 (Northeast Asia) has prepositioned sets, operational project stocks, sustainment stocks, ammunition and watercraft.<sup>384</sup>

## Missile Inventories

| Weapon   | Type                 | # in Inventory             | Launch Platform                                  | Notes  |
|----------|----------------------|----------------------------|--|--|
| CALCM    | Air-to-Surface       | 450 <sup>385</sup>         |  | 1,300 km. #'s from 2017, but no production since then. |
| SLAM-ER  | Air-to-Surface, ASHM | 700-1,500 <sup>386</sup>   |  | 300km, 700 as of 2017, upgrades to 1,500 ongoing       |
| JASSM    | Air-to-Surface       | 3,000 <sup>387</sup>       | B-1B, B-52. Externally F-16, F-15E, F/A-18, F-35 | 200 nm   |
| JASSM-ER | Air-to-Surface       | 2,000 <sup>388</sup>       | B1B, Externally F-15E                            | 500 nm   |
| Harpoon  | AShM                 | 2,000-4,000 <sup>389</sup> | Everything                                       | Numbers very unclear                                   |

<sup>378</sup> [https://www.defensenews.com/digital-show-dailies/global-force-symposium/2023/04/07/army-readies-for-record-setting-logistics-exercise-in-pacific/?utm\\_source=twitter&utm\\_medium=social&utm\\_campaign=tw\\_dfn](https://www.defensenews.com/digital-show-dailies/global-force-symposium/2023/04/07/army-readies-for-record-setting-logistics-exercise-in-pacific/?utm_source=twitter&utm_medium=social&utm_campaign=tw_dfn) (2023)

<sup>379</sup> [https://www.army.mil/article/262377/aps\\_3\\_dynamic\\_employment\\_begins\\_on\\_oahu](https://www.army.mil/article/262377/aps_3_dynamic_employment_begins_on_oahu) (2022)

<sup>380</sup> <https://www.ansa.org/sites/default/files/TBIP-2008-Army-Prepositioned-Stocks-Indispensable-to-Americas-Global-Force-Projection-Capability.pdf> (2008) pg. 3

<sup>381</sup> <https://www.defensenews.com/land/2022/07/21/us-armys-floating-equipment-stockpile-in-pacific-gets-first-test/> (2022), known sets are IBCT

<sup>382</sup> The list of the given locations comes from the map on pg. 2 of: <https://www.ansa.org/sites/default/files/TBIP-2008-Army-Prepositioned-Stocks-Indispensable-to-Americas-Global-Force-Projection-Capability.pdf> (2008)

<sup>383</sup> <https://www.defensenews.com/digital-show-dailies/ansa/2022/10/11/us-army-materiel-command-tasked-to-ramp-up-joint-logistics-in-pacific/> (2022), the list of the given locations comes from the map on pg. 2 of: <https://www.ansa.org/sites/default/files/TBIP-2008-Army-Prepositioned-Stocks-Indispensable-to-Americas-Global-Force-Projection-Capability.pdf> (2008). It's possible that I may be misreading the first source and "Indo-Pacific" includes the middle east, in which case Camp Arifjan & Kuwait Naval Base, and Camp As Saliyah, Qatar would be two of the bases, while the bases in Japan would count as one.

<sup>384</sup> <https://www.ansa.org/sites/default/files/TBIP-2008-Army-Prepositioned-Stocks-Indispensable-to-Americas-Global-Force-Projection-Capability.pdf> (2008) pg. 3

<sup>385</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 106*

<sup>386</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 218, see footnote 36*

<sup>387</sup> <https://sgp.fas.org/crs/weapons/R45996.pdf> (2021) pg.15-16, number based on guesswork from source and known production rates for end of FY2022

<sup>388</sup> <https://sgp.fas.org/crs/weapons/R45996.pdf> (2021) pg.15-16, number based on guesswork from source and known production rates for end of FY2022

<sup>389</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 217.*

|                          |      |                    |          |               |
|--------------------------|------|--------------------|----------|---------------|
| LRASM                    | AShM | 198 <sup>390</sup> | Aircraft |               |
| Maritime Strike Tomahawk | AShM | 88 <sup>391</sup>  | Ship     |               |
| Naval Strike Missile     | AShM | 30 <sup>392</sup>  | Ship     | 100-300 miles |

### **Munitions Inventories**

All of the following at current production rates, which could be expanded.

Javelin – 14,000 in stockpile, 2,100 produced a year, heading towards 4,000<sup>393</sup>

PRISM – 110 produced a year<sup>394</sup>

JASSM – 500-627 produced a year<sup>395</sup>

Tomahawk – 60 produced a year<sup>396</sup>

### **Logistics**

#### *Merchant Marine*

#### **Force Quality**

Our merchant mariners are capable ship drivers, but are not trained (and the training establishments have been shut down) with even basic information for what do in a large scale war. Furthermore the tactical advisors planned to be put on the merchant marine ships to give experience are too few in number to put one on every ship.<sup>397,398</sup> The force also faces readiness challenges, and many of the ships are old (~44 years in 2019)<sup>399</sup> and steam driven with a declining number of engineers who know how to work that propulsion.<sup>400</sup> Even the best case scenario has no reserve of trained mariners which could lead to problems when losses occur (even assuming all of them show up).<sup>401</sup> 11,786 mariners are available to crew 11,678 positions in the Ready Reserve Force, which could do in a surge, but is short ~1,800 mariners for long term sustainment.<sup>402</sup> EMCOM is key to survivability as it is unlikely that the USN will have enough warships to escort ships, but civilian crews are not trained on this and the number of emitting devices is larger on commercial ships.<sup>403</sup>

<sup>390</sup> <https://www.defensenews.com/naval/2020/02/11/as-china-continues-rapid-naval-expansion-the-us-navy-begins-stockpiling-ship-killing-missiles/> (2021) – current number is based on projected buys from 2021

<sup>391</sup> <https://www.defensenews.com/naval/2020/02/11/as-china-continues-rapid-naval-expansion-the-us-navy-begins-stockpiling-ship-killing-missiles/> (2021) – current number is based on projected buys from 2021

<sup>392</sup> <https://www.defensenews.com/naval/2020/02/11/as-china-continues-rapid-naval-expansion-the-us-navy-begins-stockpiling-ship-killing-missiles/> (2021) – current number is based on projected buys from 2021

<sup>393</sup> <https://rusi.org/explore-our-research/publications/commentary/return-industrial-warfare> (2022)

<sup>394</sup> <https://rusi.org/explore-our-research/publications/commentary/return-industrial-warfare> (2022)

<sup>395</sup> <https://rusi.org/explore-our-research/publications/commentary/return-industrial-warfare> (2022), *Industry Looks to Surge Munitions Production Beyond Arming Ukraine*, Brian Everstein and Steve Tremble, Aviation Week and Space Technology, Dec 26 2022 – Jan 15 2023, pg. 60-62 (pg. 62) gives that there are plans to increase production to 1,100, which is 57% current output, which reverse engineering vies an output of 627 missiles. It's possible that 500 was the pre-Ukraine war production and the 627 is the surged production, or it could be for the whole family including LRASM making up the difference between the two numbers.

<sup>396</sup> <https://rusi.org/explore-our-research/publications/commentary/return-industrial-warfare> (2022)

<sup>397</sup> <https://www.usni.org/magazines/proceedings/2022/january/modernize-training-us-merchant-marine> (2022)

<sup>398</sup> <https://gcaptain.com/editorial-admiral-i-am-not-ready-for-war/> (2019)

<sup>399</sup> <https://news.usni.org/2019/05/06/marad-ready-reserve-force-still-faces-readiness-manning-challenges> (2019)

<sup>400</sup> <https://www.defensenews.com/naval/2018/10/08/the-army-is-preparing-to-fight-in-europe-but-can-it-even-get-there/> (2018)

<sup>401</sup> <https://www.defensenews.com/naval/2018/10/10/youre-on-your-own-us-sealift-cant-count-on-us-navy-escorts-in-the-next-big-war-forcing-changes/>

<sup>402</sup> <https://www.defensenews.com/naval/2018/10/08/the-army-is-preparing-to-fight-in-europe-but-can-it-even-get-there/> (2018)

<sup>403</sup> <https://www.defensenews.com/naval/2018/10/10/youre-on-your-own-us-sealift-cant-count-on-us-navy-escorts-in-the-next-big-war-forcing-changes/>

## Mines

US mines are standard bombs with a different fuse set.<sup>404</sup> The Navy does not have ship laid mines.<sup>405</sup> Bomb based mines (QuickStrike) “can be laid by trained crews at low altitude from the Navy’s P-3 and F-18, and by the Air Force’s B-1 and B-52.”<sup>406</sup> A B-1 can carry 84 of the Mk-36 QuickStrike mines, and 8 Mk-65 QuickStrike mines.<sup>407</sup> However “[m]inelaying accuracy is very low, with the parachute kits contributing to poor predictability. Air-laid minefields [sic] are thus designed for a “random uniform distribution” and consequently require large numbers of mines (and multiple minelaying passes at substantial risk to the aircraft) to be effective”.<sup>408</sup>

## Bases

### *Pacific – Marianas Islands*

#### **Guam**

Fighter aircraft based in Guam can fly about ½ as many effective sorties as aircraft based in Japan/Philippines.<sup>409</sup>

#### *Anderson AFB*

THAAD Battery and Iron Dome Battery<sup>410</sup>

Capacity for 250 aircraft, “space available to fighters would not likely exceed four to five squadrons” (roughly 100–125 aircraft), in addition to the other aircraft needed to enable those fighters and other aircraft.<sup>411</sup> If a squadron of bombers needed to be based, it would take up 2 squadrons worth of space.<sup>412</sup>

#### *Northwest Field*

Can land tankers, THAAD<sup>413</sup>

#### *Naval Facilities*

The US from 2022 has started to expand it’s capability’s to operate submarines from the naval base.<sup>414</sup>

## **Tinian Island**

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<sup>404</sup> <https://news.usni.org/2016/04/26/essay-navy-air-force-reviving-offensive-mining-with-new-quickstrikes> (2016)

<sup>405</sup> [https://warontherocks.com/2022/11/invisible-blockades-and-strategic-coercion/?\\_s=v9qoijgke47g70218fdn](https://warontherocks.com/2022/11/invisible-blockades-and-strategic-coercion/?_s=v9qoijgke47g70218fdn) (2022)

<sup>406</sup> <https://news.usni.org/2016/04/26/essay-navy-air-force-reviving-offensive-mining-with-new-quickstrikes> (2016)

<sup>407</sup> <https://www.airandspaceforces.com/b-1s-carry-naval-mines-for-bomber-task-force-mission/> (2022)

<sup>408</sup> <https://news.usni.org/2016/04/26/essay-navy-air-force-reviving-offensive-mining-with-new-quickstrikes> (2016)

<sup>409</sup> The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 80

<sup>410</sup> <https://www.thedrive.com/the-war-zone/42687/the-iron-dome-air-defense-system-is-heading-to-guam> (2021)

<sup>411</sup> The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg.78. Please also note the caveats provided in the footnote. AS OF MARCH 2023, there has been no airfield expansion (though there has been expansion of some non-airfield facilities), meaning that the RAND report’s numbers are still current.

<sup>412</sup> This is a rough rule of thumb based on the information in footnote 9 (assuming a tanker and bomber are roughly the same size), The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg.78.

<sup>413</sup> <https://www.thedrive.com/the-war-zone/44232/kc-46-tanker-shows-it-can-rapidly-unload-tons-of-fuel-to-thirsty-fighters-at-austere-airstrips> (2022)

<sup>414</sup> [https://news.usni.org/2022/11/02/navy-expanding-attack-submarine-presence-on-guam-as-a-hedge-against-growing-chinese-fleet?ct=t\(USNI\\_NEWS\\_DAILY\)&mc\\_cid=a8422a2f74&mc\\_eid=b5bb52f60a](https://news.usni.org/2022/11/02/navy-expanding-attack-submarine-presence-on-guam-as-a-hedge-against-growing-chinese-fleet?ct=t(USNI_NEWS_DAILY)&mc_cid=a8422a2f74&mc_eid=b5bb52f60a) (2022)

Can take fast jets and could be used, but cannot sustain military operations for a long time<sup>415</sup>

## **Saipan**

### *Pacific – Other*

## **Marshall Islands**

### **Wake Island**

Major air facilities and runway can take any aircraft.<sup>416</sup> It is at the extreme end (if not out of IRBM range) from China and is likely inside the outer engagement envelope of GBMD.<sup>417</sup>

## **Midway**

### *Singapore*

The 1990 Memorandum of Understanding Regarding United States Use of Facilities in Singapore, “facilitates US' forces access to Singapore's air and naval bases, and provides logistic support for their transiting personnel, aircraft and vessels. Under its ambit, the US has rotationally deployed fighter aircraft for exercises, refueling and maintenance, and Littoral Combat Ships and P-8 Poseidon aircraft to Singapore since 2013 and 2015 respectively.”<sup>418</sup> Whether or not this access (or to what degree) would remain in wartime is uncertain.

### *Palau*<sup>419</sup>

## **Roman Tmetuchl International Airport**

### **Angaur Airfield**

Semi-improved dirt strip. Rough field operations only (C-130's, A-10's)

### *Australian Bases*

## **RAAF Tindal**

Up to 6 bombers can already be deployed and a US Squadron Operations facility, fuel tanks, ammunition storage, and apron space for 6 more bombers is planned by 2026.<sup>420</sup> The Australians began improvements in 2020, increasing aviation fuel storage and improving base engineering services (due to be finished by 2027).<sup>421</sup>

## **RAAF Darwin**

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<sup>415</sup> <https://www.thedrive.com/the-war-zone/37885/air-force-to-build-alternate-airbase-on-tinian-island-in-case-guam-gets-knocked-out> (2020)

<sup>416</sup> <https://www.thedrive.com/the-war-zone/34404/big-airfield-expansion-on-wake-island-seen-by-satellite-as-u-s-preps-for-pacific-fight> (2022) and the earlier article <https://www.thedrive.com/the-war-zone/34404/big-airfield-expansion-on-wake-island-seen-by-satellite-as-u-s-preps-for-pacific-fight> (2020)

<sup>417</sup> <https://www.thedrive.com/the-war-zone/34404/big-airfield-expansion-on-wake-island-seen-by-satellite-as-u-s-preps-for-pacific-fight> (2022)

<sup>418</sup> [https://www.mindef.gov.sg/web/portal/mindef/news-and-events/latest-releases/article-detail/2019/September/24sep19\\_nr](https://www.mindef.gov.sg/web/portal/mindef/news-and-events/latest-releases/article-detail/2019/September/24sep19_nr) (2019)

<sup>419</sup> <https://www.thedrive.com/the-war-zone/a-10-warhogs-are-operating-from-a-tent-village-in-palau> (2022)

<sup>420</sup> [https://www.abc.net.au/news/2022-10-31/china-tensions-taiwan-us-military-deploy-bombers-to-australia/101585380?utm\\_campaign=abc\\_news\\_web&utm\\_content=twitter&utm\\_medium=content\\_shared&utm\\_source=abc\\_news\\_web](https://www.abc.net.au/news/2022-10-31/china-tensions-taiwan-us-military-deploy-bombers-to-australia/101585380?utm_campaign=abc_news_web&utm_content=twitter&utm_medium=content_shared&utm_source=abc_news_web) (2022),

<sup>421</sup> *Base Point*, Janes Defense and Intelligence Review, February 2023, pg. 26-28

USAF jet fuel storage (11 big tanks).<sup>422</sup> In 2021 the US issued a contract to create infrastructure to support 8 KC-10 Tankers at the base.<sup>423</sup>

### **RAAF Amberly**

### **RAAF Base Curtian**

### **RAAF Base Learmonth**

### **RAAF Base Scherger**

### **RAAF Base Townsville**

### **Pine Gap**

In a war 'Pine Gap would be detecting the launch of the missile ... it would be queuing US missile defence systems to find that missile in mid-flight and attack it with their own missiles, ... Pine Gap's geo-location technology would then be used to find and destroy the missile launch site.'<sup>424</sup>

## *Japanese Bases*

### **Kadena AB**

Space for 1 wing of fighter aircraft (72)<sup>425</sup>

### **Misawa AB**

Space for 1 wing of fighter aircraft (72)<sup>426</sup>

### **Atsugi**

### **Yokota**

Air Base

### **Yokosuka**

Currently rearming is done at anchor points around Yokosuka using barges a process that can be affected by bad weather. A combatant loading wharf to allow for the loading of mentions pier side was started in 2021 and will be complete by 2027.<sup>427</sup>

## *Philippines Bases*

### **Tambler AB<sup>428</sup>**

1 Runway, 10,000ft

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<sup>422</sup> [https://www.abc.net.au/news/2022-10-31/china-tensions-taiwan-us-military-deploy-bombers-to-australia/101585380?utm\\_campaign=abc\\_news\\_web&utm\\_content=twitter&utm\\_medium=content\\_shared&utm\\_source=abc\\_news\\_web](https://www.abc.net.au/news/2022-10-31/china-tensions-taiwan-us-military-deploy-bombers-to-australia/101585380?utm_campaign=abc_news_web&utm_content=twitter&utm_medium=content_shared&utm_source=abc_news_web) (2022)

<sup>423</sup> *Base Point*, Janes Defense and Intelligence Review, February 2023, pg. 26-28

<sup>424</sup> [https://www.abc.net.au/news/2022-10-31/china-tensions-taiwan-us-military-deploy-bombers-to-australia/101585380?utm\\_campaign=abc\\_news\\_web&utm\\_content=twitter&utm\\_medium=content\\_shared&utm\\_source=abc\\_news\\_web](https://www.abc.net.au/news/2022-10-31/china-tensions-taiwan-us-military-deploy-bombers-to-australia/101585380?utm_campaign=abc_news_web&utm_content=twitter&utm_medium=content_shared&utm_source=abc_news_web) (2022)

<sup>425</sup> The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg.78.

<sup>426</sup> The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg.78.

<sup>427</sup> <https://www.dvidshub.net/news/403852/ground-breaking-ceremony-held-new-combatant-loading-wharf-urago-ordnance-storage-area> (2021)

<sup>428</sup> The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg.66

12 fixed wing jet capacity

**Antonio Bautista AB (Palawan)<sup>429</sup>**

1 runway, 8,000ft

5 fixed wing jet capacity

New ECDA site

**Basa Air Base (Pampanga)<sup>430</sup>**

2,800ft runway

Original EDCA site

**Fort Magsaysay (Nueva Ecija)<sup>431</sup>**

The Philippines largest military base

Original EDCA site

**Benito Ebuena Air Base (Cebu, Visayas)<sup>432</sup>**

Original EDCA site

**Lumbia Air Base (Cagayan de Oro City, Mindanao)<sup>433</sup>**

Original EDCA site

**Santa Ana Naval Base<sup>434</sup>**

- 80 meter pier (cannot take most surface combatants), probably not deep dredged.
- 800 (2,625 ft.) runway
- New ECDA site.

**Cagayan North International Airport<sup>435</sup>**

- 2100m (6,900 ft) runway, but extremely limited apron space.
- Without apron expansion perhaps 4 jets with 1-2 support aircraft.<sup>436</sup>
- New ECDA site

*South Korea Bases*

Kunsan Air Base

Osan Air Base

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<sup>429</sup> The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power, 1996–2017, RAND, published 2015, Heginbotham et. al., pg.66

<sup>430</sup> <https://news.usni.org/2023/02/02/u-s-philippines-add-four-more-sites-to-edca-military-basing-agreement> (2023)

<sup>431</sup> <https://news.usni.org/2023/02/02/u-s-philippines-add-four-more-sites-to-edca-military-basing-agreement> (2023)

<sup>432</sup> <https://news.usni.org/2023/02/02/u-s-philippines-add-four-more-sites-to-edca-military-basing-agreement> (2023)

<sup>433</sup> <https://news.usni.org/2023/02/02/u-s-philippines-add-four-more-sites-to-edca-military-basing-agreement> (2023)

<sup>434</sup> <https://twitter.com/tshugart3/status/1642934960402186244>

<sup>435</sup> <https://twitter.com/tshugart3/status/1642934964747370496>

<sup>436</sup> The numbers here are based upon the authors look at the area on google earth. For examples of such Agile Combat Employment see: <https://www.thedrive.com/the-war-zone/39278/air-force-f-35-stealth-fighters-are-now-operating-from-guams-austere-airfield> (2021)

# Philippines

## Navy<sup>437</sup>

- 2 x LPD
- 3 x LST
- 2 x Frigates
- 1 x Corvette
- 6 x Gun Armed Warships
- 10 x Patrol Boats with ATGM (Spike)

## Air Force

- 12 x KAI FA-50 Golden Eagle<sup>438</sup>
- 2 x Squadron Light Attack Aircraft<sup>439</sup>
- 1 x Squadron AH-1 Cobra<sup>440</sup>

## Marine Corps<sup>441</sup>

- 1st Marine Brigade
- 2nd Marine Brigade
- 3rd Marine Brigade
- 4th Marine Brigade
- 7th Marine Brigade (Reserve)
- Rotating Marine Rifle Battalion
- Field Artillery Battalion
  - 105mm and 155mm howitzers, towed ADA guns
- Assault Armor Battalion
  - IVF's

## Army<sup>442</sup>

- 1st Brigade Combat Team (Light/Mech Infantry)
- Large number of conventional forces

## Coast Guard<sup>443</sup>

- 3 large patrol ships
- 18 patrol craft
- 36 coastal patrol craft

## Missile Inventory

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<sup>437</sup> IISS Military Balance 2023, pg. 284-284, with [https://en.wikipedia.org/wiki/Philippine\\_Navy#Ships](https://en.wikipedia.org/wiki/Philippine_Navy#Ships) - Accessed April 25, 2023 for additional information.

<sup>438</sup> Aviation Week and Space Technology 02/10/20 cross checked with <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>439</sup> [https://en.wikipedia.org/wiki/Philippine\\_Air\\_Force#Organization](https://en.wikipedia.org/wiki/Philippine_Air_Force#Organization) - Accessed 02/03/22 cross checked with <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>440</sup> [https://en.wikipedia.org/wiki/Philippine\\_Air\\_Force#Organization](https://en.wikipedia.org/wiki/Philippine_Air_Force#Organization) - Accessed 02/03/22 cross checked with <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>441</sup> [https://en.wikipedia.org/wiki/Philippine\\_Marine\\_Corps](https://en.wikipedia.org/wiki/Philippine_Marine_Corps) - Accessed 02/03/22

<sup>442</sup> [https://en.wikipedia.org/wiki/Philippine\\_Army#Organization](https://en.wikipedia.org/wiki/Philippine_Army#Organization) - Accessed 02/03/22

<sup>443</sup> [https://en.wikipedia.org/wiki/Philippine\\_Coast\\_Guard](https://en.wikipedia.org/wiki/Philippine_Coast_Guard) - Accessed 02/03/22

No land based anti-ship missiles or extra missile stores



# Vietnam

## Navy<sup>444</sup>

- 6 x SSK (Kilo Class)
- 4 x Guided Missile Frigates (Gepard Class)
- 3 x ASW Frigates (Petya-II/-III Class)
- 2 x ASW Corvettes (Pohang Class)
- 21 x Missile Boats (Mixed classes)
- 12 x Gunboats
- 5 x Torpedo Boats
- 5 x LST
- 4 x RoRo
- 8 x MCM Ships
- At least two Naval Infantry (Marine) Brigades:
  - 101<sup>st</sup> Naval Infantry Brigade<sup>445</sup>
  - 147<sup>th</sup> Naval Infantry Brigade<sup>446</sup>

## Air Force

### Structure<sup>447</sup>

- 371st Air Force Division
  - 931st Fighter Regiment (Su-22M4/UM3K) - Yên Bái Air Base
  - 921st Fighter Regiment (Su-22M4/UM3K) - Phúc Yên Air Base
  - 923rd Fighter-bomber Regiment (Su-30MK2) - Tho Xuan Airport
  - 927th Fighter Regiment (Su-30MK2) - Kép Air Base
  - 916th Helicopter Regiment (Mi-8/17) - Hòa Lạc Air Base
  - 918th Air Transport Regiment (An-2, An-26, An-30, M-28, C-295M) - Gia Lam Airport
- 372nd Air Force Division
  - 929th Fighter-Bomber Regiment (Su-22M4) - Da Nang International Airport
  - 930th Helicopter Regiment (Mi-8/17) - Da Nang International Airport
  - 940th Fighter/Air Training Regiment (Su-27SK/UBK) - Phu Cat Airport
- 370th Air Force Division
  - 937th Fighter-Bomber Regiment (Su-22M4/UM3K) - Thanh Son Air Base
  - 935th Fighter Regiment (Su-30MK2) - Biên Hòa Air Base
  - 917th Mixed Air Transport Regiment (Mi-8/17) - Tan Son Nhat International Airport
- Vietnam People's Air Force Academy
  - 910th Air Training Regiment (L-39C) - Dong Tac Airport
  - 920nd Air Training Regiment (Unknown Aircraft) - Nha Trang Air Base
- 361st Air Defense Division
- 363rd Air Defense Division

<sup>444</sup> [https://en.wikipedia.org/wiki/List\\_of\\_equipment\\_of\\_the\\_Vietnam\\_People%27s\\_Navy](https://en.wikipedia.org/wiki/List_of_equipment_of_the_Vietnam_People%27s_Navy) – Accessed 02/03/22

<sup>445</sup> <https://nhandan.vn/tin-tuc-su-kien/huan-luyen-the-luc-o-lu-doan-hai-quan-danh-bo-101-279712/> – Accessed 02/03/22

<sup>446</sup> <https://baoquangninh.com.vn/lu-doan-hai-quan-danh-bo-147-ra-quan-huan-luyen-nam-2017-2333653.html> – Accessed 02/03/22

<sup>447</sup> Numbers checked by <https://www.flightglobal.com/download?ac=83735> (2022), with structure and air bases from [https://en.wikipedia.org/wiki/Vietnam\\_People%27s\\_Air\\_Force](https://en.wikipedia.org/wiki/Vietnam_People%27s_Air_Force) – Accessed 02/03/22

- 365th Air Defense Division
- 375th Air Defense Division
- 377th Air Defense Division
- 367th Air Defense Division

#### Combat Aircraft Breakdown<sup>448</sup>

- 34 x Su-22 (3<sup>rd</sup> Gen Fighter-Bomber)
- 46 x Su-27/30 (4<sup>th</sup> Gen Fighter)
- 6 x Medium Cargo Aircraft
- 87 x Mi-8/17
- 25 x L-39/NG (3<sup>rd</sup> Gen Trainer Aircraft, can be converted for light attack)

#### Army<sup>449</sup>

- 1<sup>st</sup> Corps Major Units:
  - 308<sup>th</sup> Infantry Division
  - 312<sup>th</sup> Infantry Division
  - 390<sup>th</sup> Infantry Division
- 2<sup>nd</sup> Corps Major Units:
  - 304<sup>th</sup> Infantry Division
  - 306<sup>th</sup> Infantry Division
  - 325<sup>th</sup> Infantry Division
- 3<sup>rd</sup> Corps Major Units:
  - 10<sup>th</sup> Infantry Division
  - 31<sup>st</sup> Infantry Division
  - 320<sup>th</sup> Infantry Division
  - 198<sup>th</sup> Commando Regiment
- 4<sup>th</sup> Corps Major Units:
  - 7<sup>th</sup> Infantry Division
  - 9<sup>th</sup> Infantry Division
  - 324<sup>th</sup> Infantry Division
  - 429<sup>th</sup> Commando Regiment

#### Coast Guard<sup>450</sup>

- 9 x 1000+ tons (Cutters, OPV's)
- 16 x 400-600 ton patrol ships
- 32 x 100-200 ton patrol ships
- 50 x High-Speed Patrol boat (glorified speedboats)

<sup>448</sup> <https://www.flightglobal.com/download?ac=83735> (2022)

<sup>449</sup> [https://en.wikipedia.org/wiki/People%27s\\_Army\\_of\\_Vietnam](https://en.wikipedia.org/wiki/People%27s_Army_of_Vietnam) – Accessed 02/03/22

<sup>450</sup> [https://en.wikipedia.org/wiki/Vietnam\\_Coast\\_Guard](https://en.wikipedia.org/wiki/Vietnam_Coast_Guard) – Accessed 02/03/22

## Missile Inventory

| Weapon                                 | Platform              | Range              | Number               |
|--|-----------------------|--------------------|----------------------|
| Short Range Air-to-Air Missile         | Aircraft              |                    | 3,075 <sup>451</sup> |
| Beyond Visual Range Air-to-Air Missile | Aircraft              |                    | 320+ <sup>452</sup>  |
| Kh-29                                  | Aircraft              | 30 km              | 100 <sup>453</sup>   |
| Kh-31                                  | Aircraft              | 110 km (P variant) | 100 <sup>454</sup>   |
| Kh-59                                  | Aircraft              | 200 km             | 200 <sup>455</sup>   |
| SUCD (B and C) <sup>456</sup>          | TEL                   |                    | 24 <sup>457</sup>    |
| Costal Defense Missiles                | Shore based Launchers | Varies, 50-750km   | ~100 <sup>458</sup>  |

<sup>451</sup> [https://en.wikipedia.org/wiki/Vietnam\\_People%27s\\_Air\\_Force](https://en.wikipedia.org/wiki/Vietnam_People%27s_Air_Force) – Accessed 02/03/22

<sup>452</sup> [https://en.wikipedia.org/wiki/Vietnam\\_People%27s\\_Air\\_Force](https://en.wikipedia.org/wiki/Vietnam_People%27s_Air_Force) – Accessed 02/03/22

<sup>453</sup> [https://en.wikipedia.org/wiki/Vietnam\\_People%27s\\_Air\\_Force](https://en.wikipedia.org/wiki/Vietnam_People%27s_Air_Force) – Accessed 02/03/22

<sup>454</sup> [https://en.wikipedia.org/wiki/Vietnam\\_People%27s\\_Air\\_Force](https://en.wikipedia.org/wiki/Vietnam_People%27s_Air_Force) – Accessed 02/03/22

<sup>455</sup> [https://en.wikipedia.org/wiki/Vietnam\\_People%27s\\_Air\\_Force](https://en.wikipedia.org/wiki/Vietnam_People%27s_Air_Force) – Accessed 02/03/22

<sup>456</sup> <https://www.armscontrol.org/factsheets/missiles#3> (2017)

<sup>457</sup> Number as given by IISS Military Balance 2017, 338–9. but I cannot access it to confirm

<sup>458</sup> Educated guess, based on data from [https://en.wikipedia.org/wiki/List\\_of\\_equipment\\_of\\_the\\_Vietnam\\_People%27s\\_Navy](https://en.wikipedia.org/wiki/List_of_equipment_of_the_Vietnam_People%27s_Navy) – Accessed 02/03/22

# Space

## Anti-Satellite Capabilities<sup>459</sup>

Note that none of the following accounts for cyber anti-space capabilities, or ASAT's via non-purpose ground based missiles like the SM-3.

| <i>United States</i>    | R&D         | Testing     | Operation   | Used in Conflict? |
|-------------------------|-------------|-------------|-------------|-------------------|
| LEO Direct Ascent       | Significant | Some        | –           | None              |
| MEO/GEO Direct Ascent   | –           | –           | –           | None              |
| LEO Co-Orbital          | Some        | –           | –           | None              |
| MEO/GEO Co-Orbital      | Some        | –           | –           | None              |
| Directed Energy         | Significant | Some        | –           | None              |
| Electronic Warfare      | Significant | Significant | Significant | Significant       |
| SSA (Best in the World) | Significant | Significant | Significant | Significant       |

Further Capabilities:

- Globally deployed uplink jamming for GEO communication satellites
- Local GNSS denial/spoof for civilian GNSS
- Likely ability for GNSS degrade/denial of military targets
- Can likely dazzle, possibly blind satellites
- SM-3's + GBMD can target LEO satellites

| <i>Australia</i>      | R&D  | Testing | Operation | Used in Conflict? |
|-----------------------|------|---------|-----------|-------------------|
| LEO Direct Ascent     | –    | –       | –         | None              |
| MEO/GEO Direct Ascent | –    | –       | –         | None              |
| LEO Co-Orbital        | –    | –       | –         | None              |
| MEO/GEO Co-Orbital    | –    | –       | –         | None              |
| Directed Energy       | Some | –       | –         | None              |
| Electronic Warfare    | ?    | –       | –         | None              |
| SSA                   | Some | Some    | Some      | ?                 |

| <i>United Kingdom</i> | R&D  | Testing | Operation | Used in Conflict? |
|-----------------------|------|---------|-----------|-------------------|
| LEO Direct Ascent     | –    | –       | –         | None              |
| MEO/GEO Direct Ascent | –    | –       | –         | None              |
| LEO Co-Orbital        | –    | –       | –         | None              |
| MEO/GEO Co-Orbital    | –    | –       | –         | None              |
| Directed Energy       | –    | –       | –         | None              |
| Electronic Warfare    | ?    | –       | –         | ?                 |
| SSA                   | Some | Some    | Some      | ?                 |

| <i>France</i>         | R&D  | Testing | Operation | Used in Conflict? |
|-----------------------|------|---------|-----------|-------------------|
| LEO Direct Ascent     | –    | –       | –         | None              |
| MEO/GEO Direct Ascent | –    | –       | –         | None              |
| LEO Co-Orbital        | –    | –       | –         | None              |
| MEO/GEO Co-Orbital    | –    | –       | –         | None              |
| Directed Energy       | Some | ?       | ?         | None              |
| Electronic Warfare    | Some | ?       | ?         | ?                 |
| SSA                   | Some | Some    | Some      | ?                 |

<sup>459</sup> Unless otherwise noted the following information comes from Global Counterspace Capabilities: An Open Source Assessment [https://swfound.org/media/207350/swf\\_global\\_counterspace\\_capabilities\\_2022\\_rev2.pdf](https://swfound.org/media/207350/swf_global_counterspace_capabilities_2022_rev2.pdf) (2022)

| <b>Japan</b>          | R&D  | Testing | Operation | Used in Conflict? |
|-----------------------|------|---------|-----------|-------------------|
| LEO Direct Ascent     | –    | –       | –         | None              |
| MEO/GEO Direct Ascent | –    | –       | –         | None              |
| LEO Co-Orbital        | –    | –       | –         | None              |
| MEO/GEO Co-Orbital    | –    | –       | –         | None              |
| Directed Energy       | ?    | –       | –         | None              |
| Electronic Warfare    | ?    | –       | –         | –                 |
| SSA                   | Some | Some    | Some      | –                 |

Further Capabilities:

- SM-3's can target LEO satellites

| <b>South Korea</b>    | R&D  | Testing | Operation | Used in Conflict? |
|-----------------------|------|---------|-----------|-------------------|
| LEO Direct Ascent     | –    | –       | –         | None              |
| MEO/GEO Direct Ascent | –    | –       | –         | None              |
| LEO Co-Orbital        | –    | –       | –         | None              |
| MEO/GEO Co-Orbital    | –    | –       | –         | None              |
| Directed Energy       | ?    | –       | –         | None              |
| Electronic Warfare    | ?    | –       | –         | –                 |
| SSA                   | Some | –       | –         | ?                 |

| <b>India In Support</b> | R&D  | Testing | Operation | Used in Conflict? |
|-------------------------|------|---------|-----------|-------------------|
| Electronic Warfare      | ?    | ?       | ?         | ?                 |
| SSA                     | Some | Some    | ?         | ?                 |

| <b>China</b>          | R&D         | Testing     | Operation   | Used in Conflict? |
|-----------------------|-------------|-------------|-------------|-------------------|
| LEO Direct Ascent     | Significant | Significant | Significant | None              |
| MEO/GEO Direct Ascent | Some        | Some        | –           | None              |
| LEO Co-Orbital        | Some        | ?           | –           | None              |
| MEO/GEO Co-Orbital    | Some        | –           | –           | None              |
| Directed Energy       | Significant | Some        | –           | None              |
| Electronic Warfare    | Significant | Significant | Significant | ?                 |
| SSA                   | Significant | Significant | Significant | ?                 |

Further Capabilities:

- Likely strong EW for GNSS and satellite communications
- Limited SSA capabilities not based in mainland China, especially during wartime.
- China and Russia's GPS back each other up<sup>460</sup>

| <b>North Korea</b>    | R&D         | Testing | Operation | Used in Conflict? |
|-----------------------|-------------|---------|-----------|-------------------|
| LEO Direct Ascent     | –           | –       | –         | None              |
| MEO/GEO Direct Ascent | –           | –       | –         | None              |
| LEO Co-Orbital        | –           | –       | –         | None              |
| MEO/GEO Co-Orbital    | –           | –       | –         | None              |
| Directed Energy       | –           | –       | –         | None              |
| Electronic Warfare    | Significant | Some    | Some      | ?                 |
| SSA                   | ?           | ?       | ?         | –                 |

| <b>Russia In Support</b> | R&D         | Testing     | Operation   | Used in Conflict? |
|--------------------------|-------------|-------------|-------------|-------------------|
| Electronic Warfare       | Significant | Significant | Significant | ?                 |

<sup>460</sup> <https://www.airforcemag.com/space-force-can-only-mitigate-china-russia-space-cooperation/> (May 2022)

|                                     |             |             |             |             |
|-------------------------------------|-------------|-------------|-------------|-------------|
| SSA (2 <sup>nd</sup> Best in World) | Significant | Significant | Significant | Significant |
|-------------------------------------|-------------|-------------|-------------|-------------|

### **Military Satellites**<sup>461</sup>

LEO = Low Earth Orbit

MEO = Medium Earth Orbit

GEO = Geosynchronous Orbit

HEO = Highly Elliptical Orbit

| <b>SIGINT</b> | <b>LEO</b> | <b>GEO</b> | <b>HEO</b> |
|---------------|------------|------------|------------|
| US            | 13         | 11         | 7*         |
| China         | 76         | 3          | 0          |
| Russia        | 8          |            |            |

\*Likely mostly/wholly tasked on Russia

| <b>LEO Remote Sensing</b> | <b>US</b> | <b>China</b> | <b>Russia</b> |
|---------------------------|-----------|--------------|---------------|
| EO                        | 9         | 36           | 7             |
| Radar                     | 5         | 19           | 1             |
| Meteorology               | 4         | 8            | 0             |
| Other                     | 0         | 0            | 2             |

| <b>Space Surveillance</b> | <b>US</b> |
|---------------------------|-----------|
| LEO                       | 2         |
| GSO                       | 6         |

| <b>Rendezvous and Proximity Operations</b> | <b>China</b> | <b>Russia</b> |
|--|--------------|---------------|
| LEO  | 0            | 6             |
| GSO  | 2            | 1             |

| <b>Early Warning</b> | <b>US</b> | <b>China</b> | <b>Russia</b> |
|----------------------|-----------|--------------|---------------|
| GSO                  | 10        | 5            | 5             |

| <b>Communications</b> | <b>US</b> | <b>China</b> | <b>Russia</b> |
|-----------------------|-----------|--------------|---------------|
| LEO                   | 0         | 0            | 15            |
| GSO                   | 43        | 11           | 8             |
| HEO                   | 3         | 0            | 9             |

| <b>PNT*</b> | <b>US</b> | <b>China</b> | <b>Russia</b> |
|-------------|-----------|--------------|---------------|
| MEO         | 31        | 27           | 28            |
| GSO         | 0         | 18           | 0             |

\*Positioning, Navigation, and Timing

### **Military Space Launch Facilities**<sup>462</sup>

#### **China**

Jiuquan Satellite Launch Center

Taiyuan Satellite Launch Center

Xichang Satellite Launch Center

Wenchang Satellite Launch Center (Hainan Island)

<sup>461</sup> (2023) The 2023 Military Balance Chart: Military space assets: China, Russia and the United States, The Military Balance, 123:1, ci-ci, DOI: 10.1080/04597222.2023.2162729

<sup>462</sup> (2023) The 2023 Military Balance Chart: Military space assets: China, Russia and the United States, The Military Balance, 123:1, ci-ci, DOI: 10.1080/04597222.2023.2162729

## **North Korea**

Sohae Satellite Launching Station

## **South Korea**

Naro Space Center

## **Japan**

Tanegashima Space Center (Kyushu)

Uchinoura Space Center (Kyushu)

*Spaceport Kii (Wakayama) – late 2023<sup>463</sup>*

## **US**

*Anderson AFB - Air-Launch to Orbit*

Pacific Spaceport Complex (Kodiak Alaska)

Vanderberg Space Force Base (California)

Mojave Air and Space Port (California) - Air-Launch to Orbit

*SpaceX Starbase, (Boca Chica, Texas)*

Cape Canaveral Space Force Station, (Florida)

Kennedy Space Center (Florida)

Mid-Atlantic Regional Spaceport (Virginia)

## **Canada**

*Canso (Nova Scotia)*

## **Australia**

*Abbot Point (Queensland) – 202X?<sup>464</sup>*

*Whaler's Way Orbital Launch Complex (South Australia) – full launch capability 202X?<sup>465</sup>*

## **New Zealand**

*Rocket Lab Launch Complex 1*

## **France**

Guiana Space Center (Kourou, French Guiana)

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<sup>463</sup> <https://asiatimes.com/2023/01/japans-space-one-finally-ready-for-blast-off/>

<sup>464</sup> <https://www.gspace.com/post/qld-govt-gives-go-ahead-for-a-small-rocket-launch-site-at-abbot-point>

<sup>465</sup> <https://www.southernlaunch.space/completed-missions> (accessed May 22, 2023)

# Environmental Factors

## Weather Overview

Each spring and fall has approximately 4 weeks of suitable weather for an invasion of Taiwan across the strait.<sup>466</sup> “From late October until the middle of March, weather in the Strait is so foul it regularly grounds civil air traffic and delays passenger ships.”<sup>467</sup> “PLA writings assess that the strait has military significant waves 97 percent of the year, with average sea states between level 4 and level 7,” level 4 waves are between 4-8ft tall, level 7 are 20-30ft tall and make destroyer operations difficult.<sup>468</sup> Spring and fall is often “just choppy enough to make it difficult for groups of landing craft to maintain a steady heading for beach assaults”<sup>469</sup> In higher sea states seasickness is a major concern on impacting the ability of troops to fight.

## Weather Conditions for Amphibious Invasion of Taiwan<sup>470</sup>

### **January**

Gales, high winds/waves, low clouds  
Poor suitability.

### **February**

Gales, high winds/waves, heavy fog\*  
Poor suitability.

### **Early March**

High winds/waves, heavy fog.  
Poor suitability.

### **Late March [Invasion Window 1]**

Heavy fog, mild wind/waves.  
Good suitability.

### **April [Invasion Window 1]**

Heavy fog/rain, mild wind/waves. Low number of clear days.  
Good suitability.

### **May**

Plum rains (very heavy seasonal rainstorms), heavy fog, mild wind/waves.  
Variable suitability.

### **June**

Plum rains (very heavy seasonal rainstorms), fog, strong currents, mild wind/waves. Typhoons possible.  
Poor suitability.

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<sup>466</sup> The Chinese Invasion Threat (2017), Ian Easton, 150

<sup>467</sup> The Chinese Invasion Threat (2017), Ian Easton, 145-146

<sup>468</sup> The Chinese Invasion Threat (2017), Ian Easton, 146

<sup>469</sup> The Chinese Invasion Threat (2017), Ian Easton, 146

<sup>470</sup> Based mostly on The Chinese Invasion Threat (2017), Ian Easton, 151-152, with some additional notes from pg. 150



## **July**

Typhoons regularly, variable waves, strong currents, mild winds.  
Poor suitability.

## **August**

Typhoons regularly, variable waves, strong currents, mild winds.  
Poor suitability.

## **September [Invasion Window 2\*\*]**

Typhoons regularly, variable wind/waves, strong currents.  
Variable suitability.

## **Early October [Invasion Window 2]**

Variable waves, variable winds. Typhoons possible.  
Variable suitability.

## **Late October**

High winds/waves. Typhoons possible.  
Poor suitability.

## **November**

Gales, high winds/waves, low clouds.  
Poor suitability.

## **December**

Gales, high winds/waves, low clouds.  
Poor suitability.

\* Fog is a major factor from February 15 to June 15<sup>th</sup>. The worst fog is early morning in April and May. Overall average visibility is 2km in spring, 4km in winter, and 10 km in summer.

\*\* Starting late September

## **Tides**

Generally it is optimal to attack at monthly high tide. The attacker would clear obstacles on the beach at low tide, then attack on the rising tide so that beached landing craft may be cleared later. On China's side of the Taiwan strait tidal difference may minorly hamper loading and sailing of troops. The tides for Taiwan are much more difficult: Northwestern Taiwan has semi-diurnal tides experiencing 2 high tides and 2 low tides each day (cyclical period of 12 hr., 25 min), while southwestern Taiwan has diurnal tides (one high/low per lunar cycle of 24 hr. and 50min), or irregular tides. Tidal ranges can be between 1 to 14 feet, with 8 being average and it varies highly by location.<sup>471</sup> The area around Taiwan also experiences erratic currents that may disrupt landing craft.<sup>472</sup> These currents tend to be stronger in summer and weaker in winter.<sup>473</sup>

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<sup>471</sup> The Chinese Invasion Threat (2017), Ian Easton, 147

<sup>472</sup> The Chinese Invasion Threat (2017), Ian Easton, 148

<sup>473</sup> The Chinese Invasion Threat (2017), Ian Easton, 151

## Underwater Geography

### **The Taiwan Strait**

The Taiwan Strait’s “level of background noise is much higher than in the open ocean depths, greatly improving the odds that Chinese submarines could avoid sonar detection as they sneaked up on Taiwan”<sup>474</sup> However, the sea is shallow and it is difficult to remain concealed.<sup>475</sup> Furthermore the “shallow and constrained waters of the strait restrict the number of submarines that can operate... the danger of blue-on-blue engagements would severely limit the number of U.S. boats that could operate in the Taiwan Strait—we postulated two submarines”<sup>476</sup>

### **ECS and SCS**

“The East China Sea is shallow, with more than half of it less than 100m deep and another 20% is less than 200m deep. The South China Sea also includes a group of large shallow areas, mainly in the southern part and deep-water regions where the depth drops below 2,000m. There are also many small islands, atolls, and reefs.”<sup>477</sup> The seas around China have been warming much faster than other areas due to global warming, which affects sonar distortions.<sup>478</sup> The area has “high maritime traffic (especially in the South China Sea), marine life, industrial coastal infrastructure, currents and a complex seabed, temperature, and salinity profile, ... an inhomogeneous and noisy undersea environment. In many areas there is also a high sea bottom reverberation level. The result is an operating environment in which passive and active ship mounted sonars are challenged to meet ASW detection, classification, and target—tracking requirements”<sup>479</sup>

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<sup>474</sup> The Chinese Invasion Threat (2017), Ian Easton, 150

<sup>475</sup> The Chinese Invasion Threat (2017), Ian Easton, 150

<sup>476</sup> *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power*, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 223

<sup>477</sup> *Blue Water Buildup*, Aika Torruella, Alessandra Giovanzanti, Georgios Papangelopoulos, and Matteo Scarano, *Janes Defense Weekly*, 18 May, 2022, pg. 22-29 (pg. 24)

<sup>478</sup> *Blue Water Buildup*, Aika Torruella, Alessandra Giovanzanti, Georgios Papangelopoulos, and Matteo Scarano, *Janes Defense Weekly*, 18 May, 2022, pg. 22-29 (pg. 24)

<sup>479</sup> *Blue Water Buildup*, Aika Torruella, Alessandra Giovanzanti, Georgios Papangelopoulos, and Matteo Scarano, *Janes Defense Weekly*, 18 May, 2022, pg. 22-29 (pg. 24). This is not a consensus view as *The U.S.-China Military Scorecard Forces, Geography, and the Evolving Balance of Power*, 1996–2017, RAND, published 2015, Heginbotham et. al., pg. 223 states: The “hydrography of the South China Sea is also conducive to submarine anti-surface warfare operations. The water around the Spratly Islands is deep, permitting submarine acoustic detection and tracking of surface ships at long ranges. The converse is also true, with Chinese escort ships better able to detect U.S. submarines.”