

PORTSMOUTH NAVAL SHIPYARD – INDUSTRIAL CAPACITY

Question: If Portsmouth is closed, would the Navy have adequate industrial capacity to maintain, modernize and repair the fleet?

Answer: NO

Discussion: There has been much discussion on whether Navy has adequate industrial capacity for the future. All discussions inevitably revert to asking: “What is the Submarine Force Structure of the future?” There have been numerous different DoD responses to that question over the past two months. It continues to be very difficult to obtain a straight answer. Latest information from Navy¹ is that they used a 56 submarine force structure for analysis, although we were previously told that capacity decisions were based on a reduced submarine force². The workload and drydock information received from DoD on 22 July 2005³ supports a 55 submarine force structure. Data and analysis in this paper, and the previous Industrial Capacity Point Paper⁴ are all based on a 55 Submarine Force Structure.

There are many levels at which Navy’s Industrial Capacity can be assessed. Much data and analysis has been provided in previous briefings and testimony. Many statements have been made based on subjective comparisons between “the past and present” and much speculation of the future. Any Capacity decision should start with a review of factual data of how the Navy Fleet and Infrastructure has downsized over the past 17 years. The below (Chart 1)⁵ identifies how the Navy had 100 Submarines as part of a 573 total active ship inventory in 1988, and how it dropped to 54 as part of a 337 ship fleet in 2001. This information establishes

U.S. Navy Active Ship Force Levels, 1988 to the present

Dates	9/30/88	11/16/01
Battleships	3	-
Carriers	14	12
Cruisers	38	27
Destroyers	69	54
Frigates	107	35
Submarines	100	54
SSBNs	37	18
Command Ships	4	-
Mine Warfare	22	27
Patrol	6	13
Amphibious	59	39
Auxiliary	114	58
Surface Warships	217	116
Total Active	573	337

<http://www.history.navy.mil/branches/org9-4.htm>

Chart 1

¹ Adm. Willard Testimony to BRAC Commission on Tuesday, 18 July 2005

² DoD Officials meeting with Congressional Staffers, 22 June 2005, and referenced in Earl Donnell Testimony to Commission on 6 July 2005, slide 17

³ Provided by DoD Officials to Congressional Inquiry, 20 Jul 2005.

⁴ Industrial Capacity Point Paper, prepared by Earl Donnell, forwarded to Commission staff by Congressional Delegation

⁵ Data found on website; www.history.navy.mil/branches/org9-4.htm

the shipyards to ships ratio at 1:72, in 1988, while it has risen to 1:84 today. During the same timeframe, the Navy's Infrastructure was reshaped dramatically. Naval Shipyards have been cut by 50%, while the submarine force has shrunk by 46% and total fleet has only dropped 41 %.

Although the fleet has downsized, it now contains a greater concentration of nuclear powered ships, causing the work to be much more technically complex. A prime example of the increasing technical nature of the workload, is that through the 1980s, only 11 major submarine availabilities were conducted across the corporation, while ~50 are scheduled between 2000 and 2011 (Chart 2)⁶. Also, the ships are being driven hard to support the war on terrorism and are aging. Current wars will eventually end, but the continuing reduction of ships will require operational tempos to remain high. All of these factors result in an increasing maintenance burden, even as our fleet reduces in size.

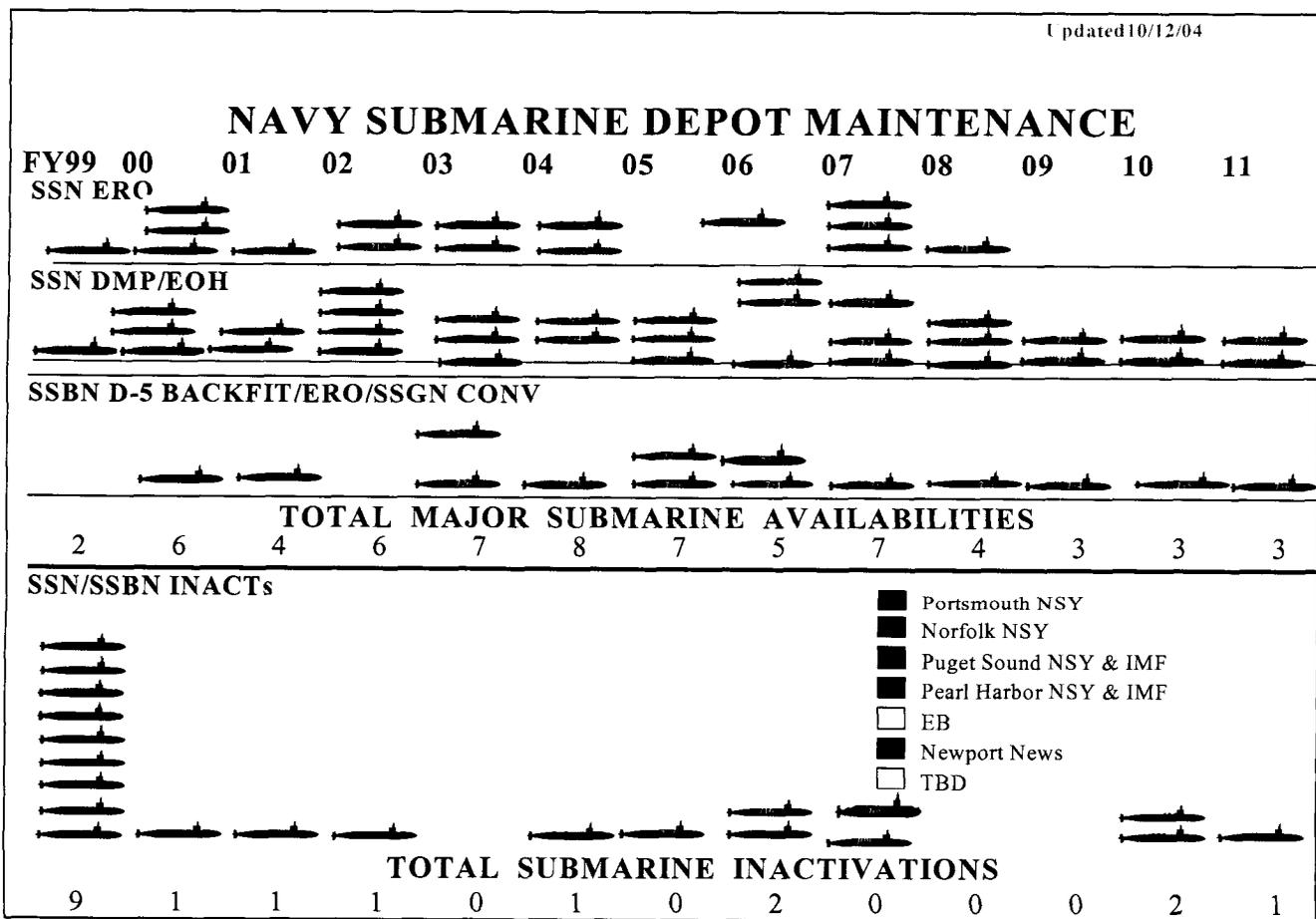


Chart 2

⁶ NAVSEA Submarine Workload Chart

The personnel downsizing started in 1988 with the closure of Philadelphia Naval Shipyard, but accelerated between 1993 and 1997, as Mare Island, Long Beach and Charleston Naval Shipyards all closed. The remaining four Naval Shipyards downsized, as well, with their workforces reducing from ~70,000 workers to ~22,000 by 1996 (Chart 3)⁷.

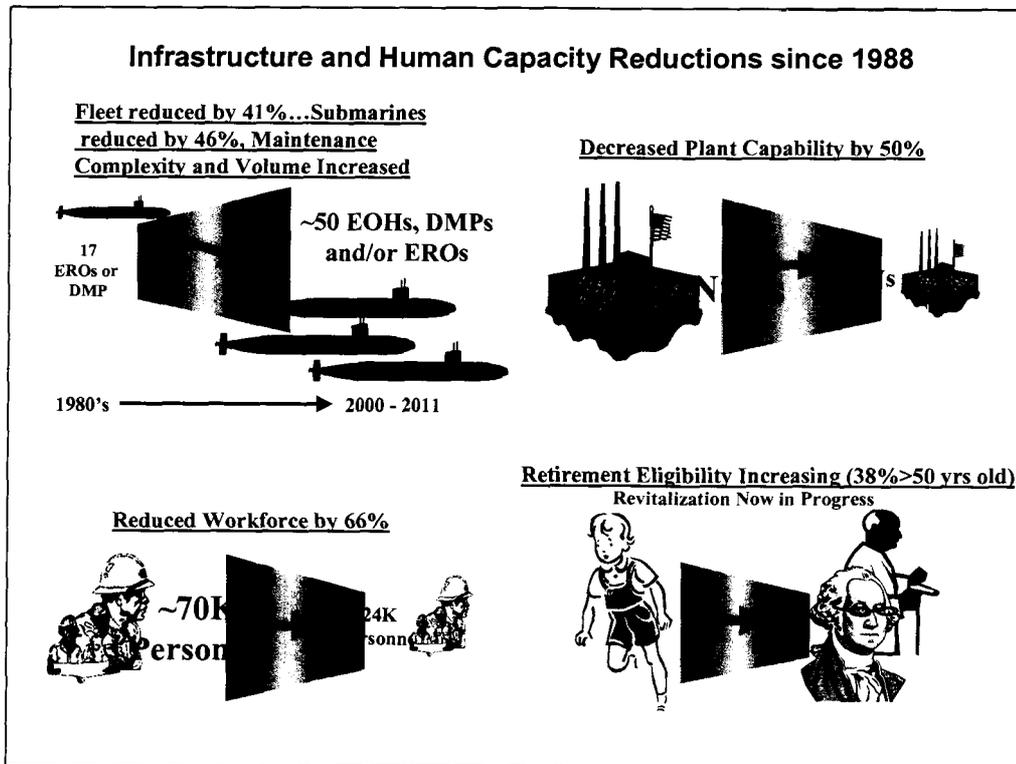


Chart 3

The downsizings in the 1990s left the workforce in a very narrow demographic band, with an average age of ~47 years old. We separated thousands of employees who were junior in tenure, while enticing thousands of older, more experience workers, to leave service through early retirement incentives. When the Naval Shipyards bottomed out staffing at ~22,000 people in 1999, below the necessary staffing levels to perform scheduled work, many experts believed we had “shrunk below critical mass”, and might not recover. Since that time, we have established revitalization initiatives to replenish our workforce consistent with workload, and today we are staffed at ~24,000 people, but we still remain a remarkable 66% below levels in ~1988. Through revitalization, we have lowered the average age across the corporation to ~45 years old (gaining 2 years demographically), but we still have about 38% of our workforce that is over 50. This population of ~9100 people (including Portsmouth workforce) have optional retirement opportunities within the next five years.

⁷ Chart and personnel data from NAVSEA Integrated Project Management Course Jan 2003, conducted at Oceana Naval Air Station, VA.

During 6 July 2005 Public Hearing in Boston, MA, Portsmouth's Witnesses showed an SSN chart which indicated a potential budget driven reduction of submarines in the 2030 timeframe. The below (Chart 4)⁸ is the latest version posted on the Submarine Industrial Base Council's website. It illustrates the War Fighter and National Security shortfalls. Two important take-aways from this chart are: (1) numbers of subs don't start to decline for more than 10 years, and (2) there is a real potential for the number of submarines to grow in the out-years, should the Country establish the priority to invest in additional construction and development.

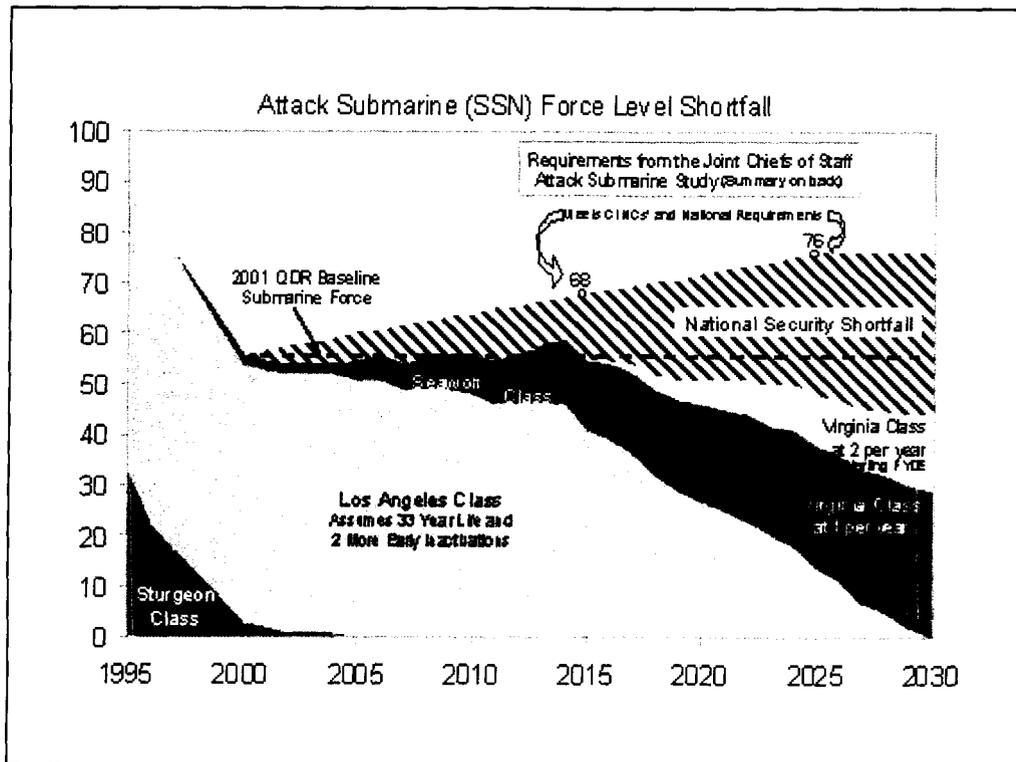


Chart 4

Navy continues to allege that proper analysis was performed of Drydock and Commodity Capacity to support their recommendation to close Portsmouth, yet DoD has provided little objective evidence to substantiate their claims. After two months of asking for evidence to support the recommendation and analysis performed, the Navy finally supplied the Drydock study (Chart 5 – on the following page)⁹, illustrating that much, but not all, of the Portsmouth workload could physically fit in the Norfolk Drydocks. This chart represents Norfolk's workload for the 80/20 workload split, where 80% of Portsmouth work would relocate to Norfolk; the remaining 20% relocates to Puget. This represents the initial Data Call Scenario. As noted in the yellow text box, one EOH was deferred by 4 months and one SRA was deferred for 2 months to make the plan workable. There is still no capacity for the 15 Portsmouth SRAs shown in light blue below the

⁸ <http://www.submarinesuppliers.org> then go to current programs then to force level shortfall

⁹ Provided by DoD Officials to Congressional Inquiry, 20 Jul 2005. Notes added to reflect required ship schedule changes and omitted workload.

actual Drydock plan. There is not capacity for the historical 6 emergent dockings per year. Note the excessive high risk of this plan, as there is no room for any slippage of any schedule.

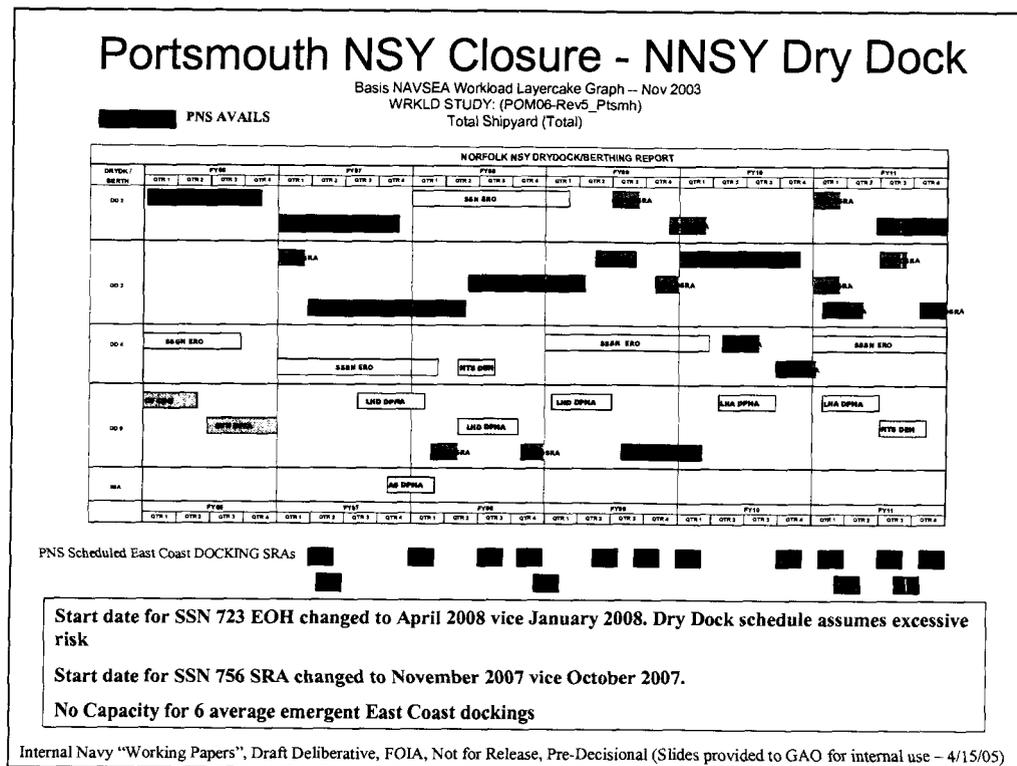


Chart 5

More important than the high risk of the above docking sequences is the fact that the above study is un-executable based on Norfolk's historical capacity. Over the past 5 years, Norfolk has been staffed, and actually executed ~1.2 million mandays of work annually. The above plan would expect Norfolk to perform 1.7M mandays in both FY07 and FY08, some 500,000 manday above current and historical capacity. The chart below illustrates the increased workload created by the unrealistic drydock study created to support the 80/20 Portsmouth workload redistribution (Chart 6 – on the following page)¹⁰. Clearly this plan is/was unexecutable, resulting in DoD later deciding that a 45/45/10 redistribution would be required. When asked for the revised study, DoD Officials responded to Congressional Staffers, that none had been performed¹¹. Not only was there no high-level analytical analysis performed, there was also no Commodity/Human Capacity analysis performed. All analytics are based on this flawed study, and none of the analytical conclusions from this study support the closure recommendation.

¹⁰ Slide was part of a SEA 00 Briefing on 16 Dec 2004. Provided to Naval Shipyard Workload Forecasters by NAVSEA 04X, via e-mail dated 17 Dec 2004.

¹¹ Email from Senator Collins staff assistant, documenting communication with DoD Officials, dated 20 July 2005

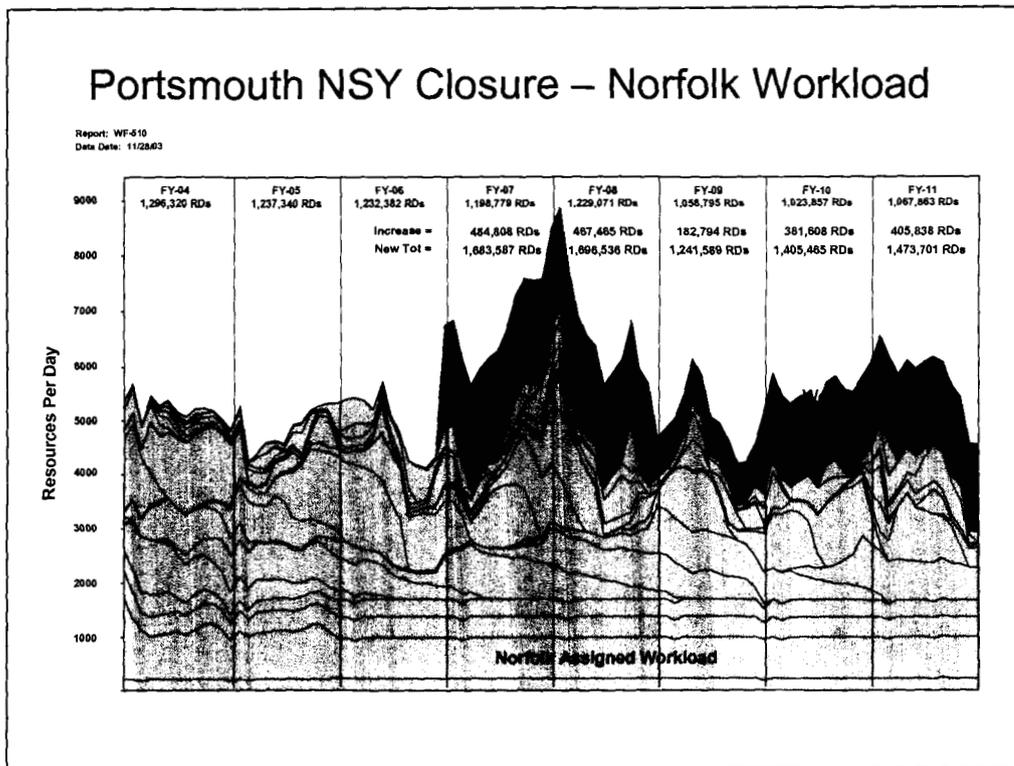


Chart 6

Conclusion: Since 1988, the following reductions of Fleet and Infrastructure have occurred:

- 1) Submarines - 41%
- 2) Total Fleet - 46%
- 3) Naval Shipyards – 50%
- 4) Workforce – 66%

Navy has performed no comprehensive analysis of Commodities or Drydock Capacity to support the recommendation for Portsmouth closure. There is no reduction of maintenance workload for the next 15 years. Decisions on future Force Structure, operational tempos and aging of the fleet, could increase maintenance requirements far above current and Navy projected levels. The workforce demographics add significant risk to Naval Shipyards' ability to execute workload over the next 5 years if the personnel eligible for optional retirement leave and the Portsmouth workforce doesn't relocate.

Based on these factors, and previous data and Testimony, a Portsmouth Naval Shipyard closure places the Navy and Nation at excessively high risk of being able to maintain it's war fighting capability; thereby, placing our National Security at risk.

This information is certified to be accurate to the best of my knowledge, Earl R. Donnell Jr.

//s//



The below clarifies and amplifies Secretary Davis' response to Congressional Delegation (DoD response is in black; counter-points are in blue):

Excess Capacity by Depot Commodity

Note: Capacity calculations were conducted in accordance with the "DoD 4151.18H Depot Maintenance Capacity and Utilization Handbook".

The total capacity calculation is based upon a single shift 40-hour/week basis measured in Direct Labor Hours (DLH) and used data obtained in the 7 Jan 04 Capacity Data Call.

Total Capacity data is found in Section 5.3.1.D of the above Data Call ¹(column 2 in table below). Total Capacity is a calculated value. Per the 7 Jan 04 Data Call instructions, NSYs were to add values certified in Section 5.3.1.B (Theoretical maximum Shop and Building Capacity - with NO workforce constraint applied) and Section 5.3.1.C (Theoretical maximum potential workload that can be performed in Drydocks – with no workforce constraint, using a DoN prescribed Drydock loading plan for each Naval Shipyard). Data in Sec 5.3.1.D does not equal B + C as instructed, because data in Commodity "Other" was modified by DoN after data certification. ²

Required capacity is equal to the amount of workload required to execute funded workload requirements measured in DLHs. Also obtained in the 7 Jan 04 Capacity Data Call.

Data found in Section 5.3.1.A of above Data Call (column 3 in table below).

The difference between total and required capacity equates to the excess available capacity.

Section 5.3.1.D minus Section 5.3.1.A = Excess Available Capacity (column 4 in table below).

The use of overtime and/or additional shifts by the depot ship overhaul and repair activity can result in required capacity exceeding the (40 hour/week) total capacity (no excess based upon the 40 hour/week method).

Shipyards used their workload forecasts to provide Current Usage³ (i.e., workload) data for FY03, 04 and 05. Workload forecasts include the overtime worked. Shipyards have been averaging ~20% overtime, total shipyard, with higher rates in Production shops. Therefore, if DON is relying on additional overtime to accommodate growth, inefficiencies, surge or emergent repairs, then DON is relying on the shipyards working far more than 20% overtime.

The Commodities highlighted in yellow reflect commodities that

¹ All Data for 7 Jan 04 Capacity Data Call (CDC) was certified by shipyards upon submission.

² Portsmouth Certified Data submission compared to current (existing) DONBITS data.

³ NAVSEA Guidance for CDC development and submission, attachment to email dtd 27 April 04

do not have excess capacity.

We performed the analysis for 10 of the most Critical Trades (Commodities), as reported by NAVSEA, using an average Commodity workforce level (Oct 04 – April 05), and the Certified “Required Capacity” Data from the 7 Jan 04 Data Call. The Commodities with workforce shortages, when comparing “Workforce w/o Portsmouth (working 15% OT) to Required Capacity”, have been highlighted in red. We also highlighted the DOD calculated Excess Capacity in yellow, to highlight DOD analysis of Excess while at the same time, we are short personnel in those same Commodities.

With the exception of the “Boiler” commodity, all of the commodities highlighted are not production commodities.

(Data in Columns 2 and 3 are from 7 Jan 04 Certified Data Call)

1. Commodity Trade Skills	2. Total Capacity (Section 5.3.1.D)	3. Required Capacity (Section 5.3.1.A)	4. Excess Available Capacity (column 2 - column3)	5. Workforce Capacity w/o Portsmouth, @ 15% OT ⁴	6. Workforce Shortage (people per day), w/o Portsmouth, @ 15% OT ⁵ (column 3 – column 5)
Air Conditioning & Refrigeration					
Boiler					
Business Support					
Calibration					
Cranes & Rigging	1932.8	1702.7	230.1	1360.6	■
Electrical	2261.8	1391.3	870.5	1067.9	■
Electronics	1364.6	471.4	893.2	521.0	-41(excess)
Environmental and Safety					
Forge					
Foundry					
Hazardous Material					
Heavy Fabrication	2228.5	1434.4	794.1	1278.2	■
Inside Machine	2076.1	1076.1	1000	870.2	■
Marine (Outside) Machine	3425.8	2760.9	664.9	2122.3	■
Non-nuclear Engineering & Planning					

⁴ Workforce average capacity from Naval Shipyard Workload and Resource Reports (WARRs), Oct 04 – April 05; supplied by Unions

⁵ Column 3 minus Column 5 values (using 2008 work hours per year, .7 direct labor index, 14% historical leave rate and 15% overtime to convert hours to “people per day”).

Non-nuclear Project Management					
Non-nuclear Quality Assurance					
Non-nuclear Testing					
Nuclear Engineering & Planning					
Nuclear Project Management					
Nuclear Quality Assurance					
Nuclear Testing					
Optical Instruments					
Paint	2536.8	1567.1	969.7	983.6	█
Piping	2600.3	1606.8	993.5	1249.5	█
Plastic Fabrication					
Radiological Engineering and Health					
Radiological Monitoring and Support Services					
Sheet Metal	1111.7	594.2	517.5	550.9	█
Shipwright	1074.8	707.7	367.1	698.0	█
Tool Manufacture					
Welding	2329.4	1578.9	750.5	1186.7	█
Wood Crafting					

The data above illustrates the grave disconnect between the methodology of calculating capacity using building square footage for commodities compared to a more "Industrial Capacity" analysis that includes Human Capital Capacity. The 7 Jan 04 Data Call clearly indicates excess capacity in all Commodities evaluated above, while in actuality, Naval Shipyards have experienced an ~ 2500 worker per day shortage when analyzing only the 11 Critical Production Trade Commodities above.

Conclusion:

Methodology to calculate Industrial Capacity was significantly flawed for two reasons:

1. It never considered Human Capacity.
2. It assumed that drydock and building square footage, when added together, were an accurate measure of capacity. These two elements have significant overlap, are not linear and should not be directly additive.



PORTSMOUTH NAVAL SHIPYARD

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Answer: NO

Discussion: The inconsistency between DoD conclusions on Capacity and the Delegation's is in how DoD calculated Capacity. DoD calculated Total Capacity¹ by soliciting separately for Drydock Capacity² and theoretical Building Capacity³ (backshops). They then simply added the two figures together. The methodology is very specific in the 7 Jan 04 Data Call, for calculating theoretical Drydock and Building capacity. The instructions⁴ read, "Capacity is measured on a 40-hour workweek baseline. **Skilled workforce is available/can be obtained**". This resulted in overstatement of Total Capacity, as square footage of buildings and workstations became the measure of backshop capacity, with no Human Capacity constraint.

In a pure manufacturing environment, that approach may have merit. However, in a Naval Shipyard Depot, 85% of the work accomplished is aboard the ships, while in Drydock or at the pier, or in direct support of the ship in dock. If there is no ship in a drydock, or at a pier, the backshops sit idle. The vast majority of our work is "repair", on and off-hull.... not manufacturing. Only about 15% of our total work can be considered manufacturing. Of that quantity, about 10% directly supports repair of components removed from the ships and the remaining 5% can be considered pure manufacturing, for sources other than ships in drydock. Our Commodities are staffed to compliment our drydocked ships, not our backshop physical size. The backshops are only there to house workers', personal tools, lockers, machinery, tooling, equipment, and work areas to perform off-hull repairs to components removed from the ship. Consequently, our backshops are staffed for about 15% of our total workload. Only about 15% of the backshop theoretical capacity should have been included in the "Total Capacity" calculations.⁵

¹ Found in www.defenselink.mil/brac, then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.D in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD_AND_IMF_PEARL_HARBOR_HI (Page 66), NAVSHIPYD_NORFOLK_VA (Page 75), NAVSHIPYD_PORTSMOUTH_NH (Page 115), and NAVSHIPYD_PUGET_SOUND_WA (Page 67)

² Found in www.defenselink.mil/brac, then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.C in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD_AND_IMF_PEARL_HARBOR_HI (Page 65), NAVSHIPYD_NORFOLK_VA (Page 73), NAVSHIPYD_PORTSMOUTH_NH (Page 114), and NAVSHIPYD_PUGET_SOUND_WA (Page 66)

³ Found in www.defenselink.mil/brac, then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.B in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD_AND_IMF_PEARL_HARBOR_HI (Page 63), NAVSHIPYD_NORFOLK_VA (Page 72), NAVSHIPYD_PORTSMOUTH_NH (Page 112), and NAVSHIPYD_PUGET_SOUND_WA (Page 64)

⁴ NAVSEA Guidance for 7 Jan 04 CDC; (See attachment (1)).

⁵ PNS assessment of workload distribution between Backshops and Drydocks

We have created “thermometer graphs” to analyze the certified 7 Jan 04 Data Call information for Total Capacity (section 5.3.1.D), Required Capacity (section 5.3.1.A)⁶ and we have added Workforce Capacity⁷ data (actual average staffing levels, by Commodity, from Oct 04 through Apr 05. Use the sum of the 4 shipyards average workforce then multiply by 2008 hours per year will equal yearly capacity data. The capacity for the 3 shipyards are calculated the same as the 4 shipyards; however, without Portsmouth). We also superimposed a heavy black line⁸ on the Total Capacity portion of our graphs to illustrate how much of the Total Capacity is comprised of the over-stated backshop element. To measure building and workstation square footages and use those figures to assess Total Capacity is fundamentally incorrect.

The only exception to the above discussion is the Inside Machine Shop, where 99%⁹ of their work is performed inside the building. It is still true that 85% of Inside Machine Shop work is directly repairing components removed from the ship, and the remaining 15% is pure manufacturing. Like all Commodities/Trades, they are staffed to support waterfront drydock repair work, and their capacity is constrained by people, not building square footage or numbers of machines. Because the 7 Jan 04 Data Call calculated capacity based on building square footage and workstations, the heavy black line, on this graph is at the top of the Total Capacity column. This Commodity’s capacity is also overstated as we do not man every workstation, yet we measured each. It is like your local gas station having a tire-changing machine. They don’t man that workstation, but you are sure glad they have the capability when you need it.

Without Portsmouth, DON will not be able to maintain adequate numbers of skilled government workers to perform the scheduled repair work. Or more importantly, activate personnel to support an event of tragic proportions (e.g., SAN FRANCISCO hitting an uncharted sea mount, bombing of the COLE, sending welders and shipfitters to Kuwait to armor plate Army vehicles, etc). Naval Shipyard workers provide our nation the competitive, strike-free, force-to-travel anywhere, non-profit motivated artisans that we need UNDER ANY CIRCUMSTANCE.

The chart below plots the 7 Jan 04 Data Call certified data. The middle thermometer shows a shortage of ~4000¹⁰ workers (the size of a small shipyard), if the workforce of the remaining three shipyards works 15% overtime. The thermometer to the right,

⁶ Found in www.defenselink.mil/brac, then go to Scenario Data Calls, Department of Navy, Redacted Activity Data Calls-Final Certified Answers (Capacity), ZipFile 4 (32.6MB), then add the totals for 5.3.1.A in the following PDF files: Redacted BRAC Capacity Data Call, 7 January, NAVSHIPYD_AND_IMF_PEARL_HARBOR_HI (Page 63), NAVSHIPYD_NORFOLK_VA (Page 72), NAVSHIPYD_PORTSMOUTH_NH (Page 111), and NAVSHIPYD_PUGET_SOUND_WA (Page 63)

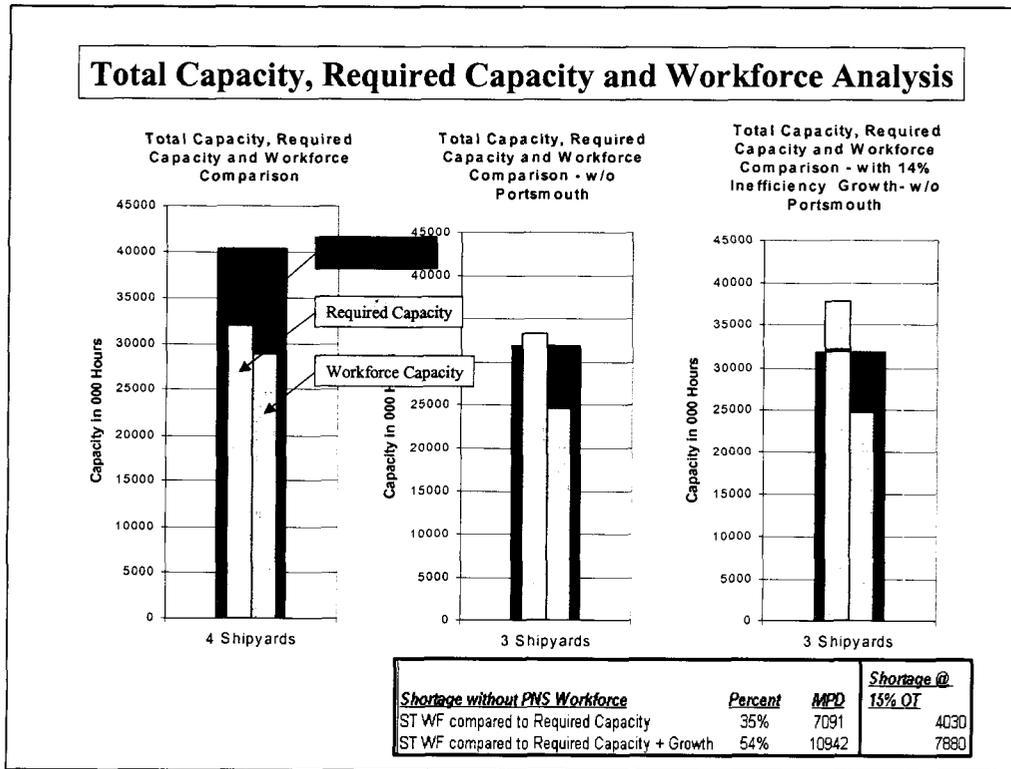
⁷ Naval Shipyard Available Force Data (Avg. Oct 04 – Feb 05); found in www.nde.navy.mil, then go to WEBWARR, workforce, and use available force data

⁸ (Same as footnote 3)

⁹ PNS assessment

¹⁰ Calculated workforce capacity (WF) (used 14% leave, 70% direct labor index, 15% overtime, and 2008 work hours per year) compared to certified Required Capacity Data, Section 5.3.1.A of 7 Jan 04 (same as footnote 6 above)

representing the most probable Required Capacity analysis, shows a shortage of ~7900¹¹ workers, when working the same 15% overtime. Without the Portsmouth workforce, the remaining three shipyards would have to work ~54%¹² overtime to achieve the Required Capacity of the right thermometer.



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DoN reports excess in 27 of 35 commodities¹⁴. This is based on data collected for FY03, 04 and 05, and reported to our Delegation in a letter from DOD, dated 13 Jul 05, see attached word document file (Comments_Excess_Capacity_DoD_Response_7-17-05.doc). However, throughout these same years, the naval shipyards have experienced

¹¹ (Same WF calculation as above) Compared WF capacity to Required Capacity +14% growth. Note: Required Capacity, Section 5.3.1.A, was escalated by 4% average across all 4 shipyards to accommodate some growth. We continued to use the 14% historical growth as a conservative compensation for inefficiency of moving work to less efficient yards.

¹² Used the same formula as footnote 10 and 11, but incremented Overtime to zero out the equation (no excess or shortage with ~54% OT).

¹³ Total Capacity = (See footnote 1)

Required Capacity = (See footnote 6)

Shop Workload Line = (See footnote 3)

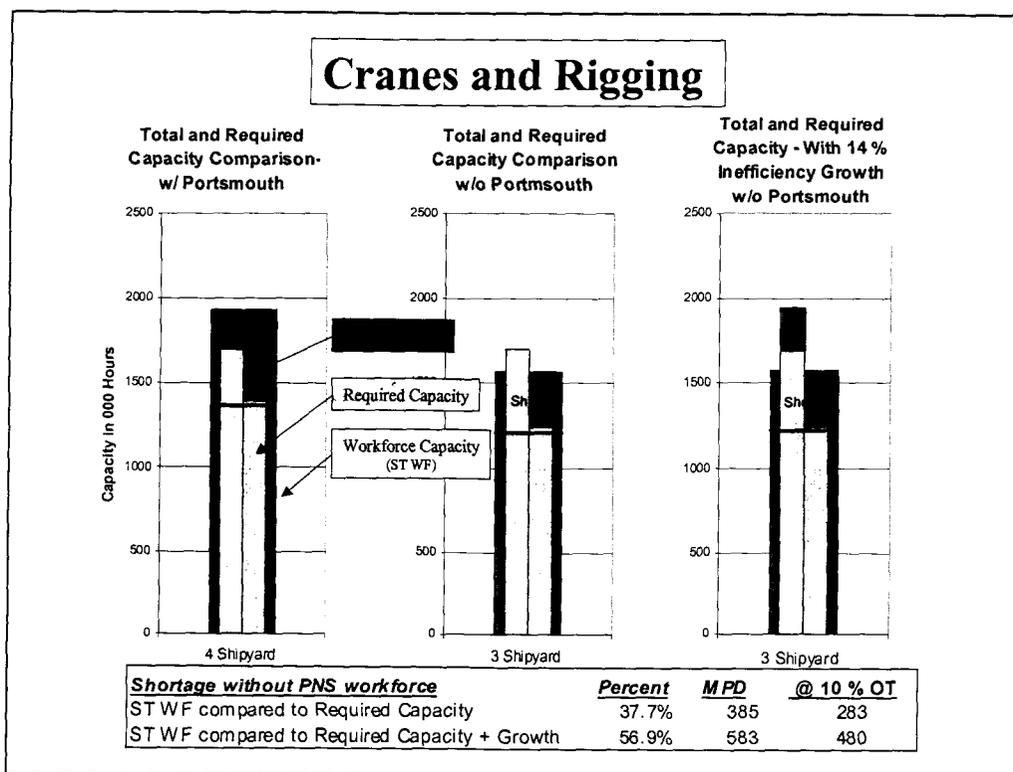
Workforce Capacity = Average Available workforce (Same as footnote 7)

Shortage Calculations = Compared straight-time workforce capacity to certified Required Capacity and Required Capacity + 14% Growth to determine percentage short and people per day short, with no overtime and 15% overtime calculations.

¹⁴ DoD Response to Senator Gregg Inquiry dated 13 July 05

significant shortfalls in most of the very commodities that DON reports to be in excess¹⁵. These resource shortfalls have caused delays and cost overruns on ships in at least two shipyards (e.g., SSN 759 DMP at Puget and SSN 715 ERO in Pearl)¹⁶. Additionally, the resource shortfalls continue and are causing lengthy extensions to the planned durations for ships currently in execution (e.g., SSN 762 DMP at Puget and SSN 698 ERO at Pearl)¹⁷.

The charts on the ensuing pages are “thermometer graphs” for 11 of Navy’s most critical Commodities (Trade Skills). These 11 Trades perform about 85%¹⁸ of the productive work during major depot repair events. Ten of these graphs illustrate shortages when comparing actual Workforce Capacity to Required Capacity. The Electronics trade does show slight excess, but this trade works interchangeably with our Electricians. The Electronics overage will accommodate about 15% of the Electrician shortage, leaving the Electricians short by some 230 workers per day.



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¹⁵ Corporate Production Resource Team (CPRT) Quarterly Executive Summaries, past two years; (See attachment (2))

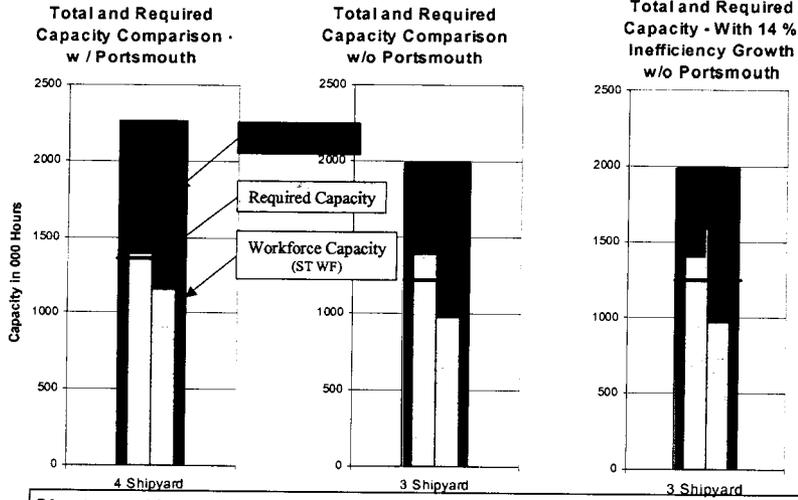
¹⁶ June 05 Naval Shipyard WARR information; same as footnote 7 except use total shipyard report, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

¹⁷ June 05 Naval Shipyard WARR; same as footnote 7 except use total shipyard, resources per day data instead of “workforce” and compare current start/complete dates to notional duration

¹⁸ CPRT statistic (See attachment (2)), based on study done by CPRT in Jun 1999.

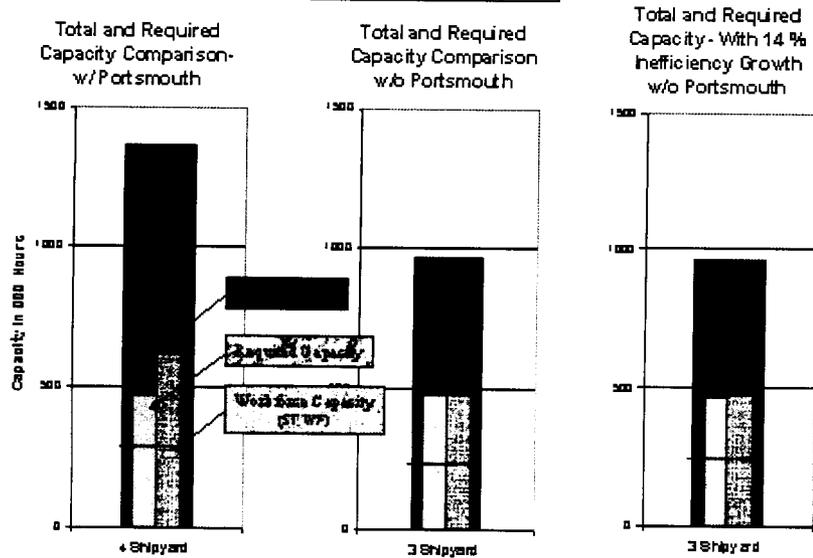
¹⁹ All Commodity/Trade Thermometer Graphs calculations were based on working ONLY 10% Overtime, NAVSEA goal for overtime for several years.

Electrical



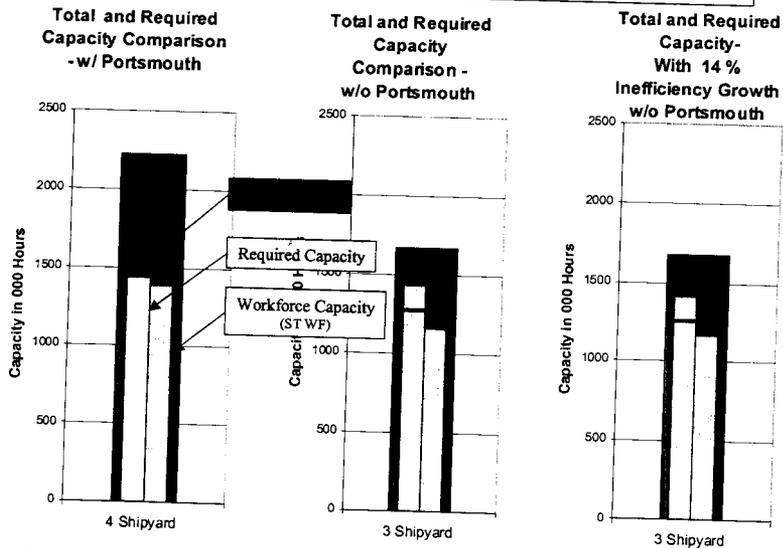
<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		43.3%	348	268
ST WF compared to Required Capacity + Growth		63.4%	509	429

Electronics



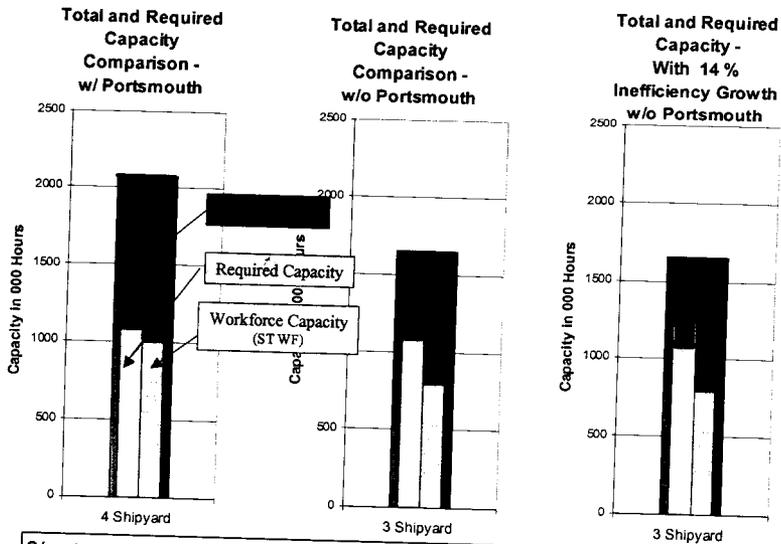
<u>Shortage without PNS workforce</u>		<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity		-0.5 %	-2	-41
ST WF compared to Required Capacity + Growth		13.5 %	53	14

Heavy Fabrication - Shipfitting



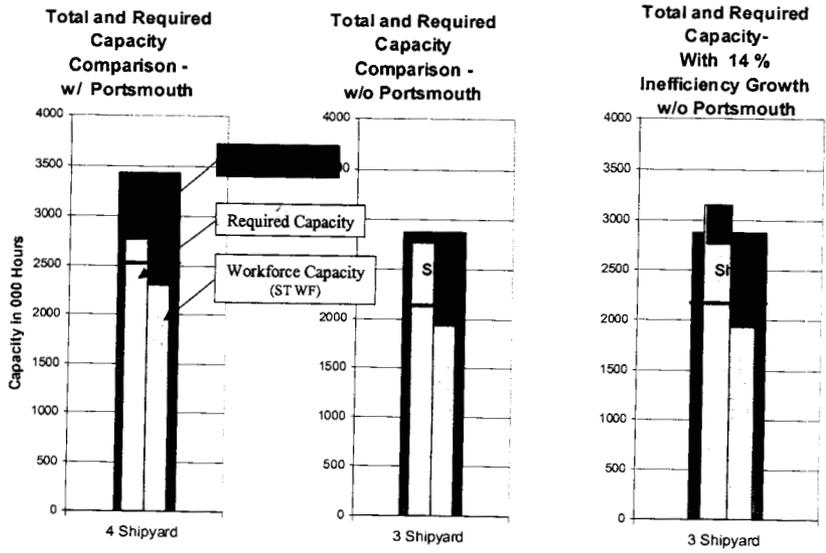
Shortage without PNS workforce		Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity		23.4%	225	129
ST WF compared to Required Capacity + Growth		40.7%	391	295

Inside Machine



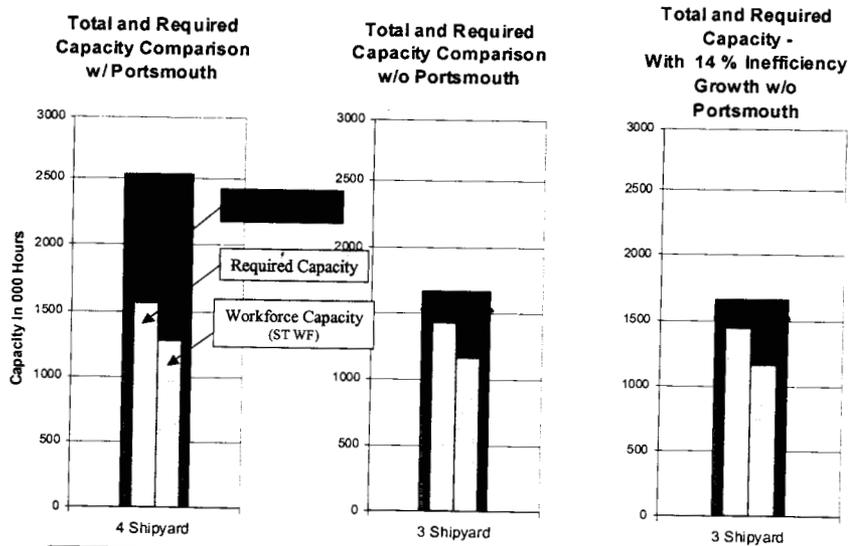
Shortage without PNS workforce		Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity		36.0%	236	170
ST WF compared to Required Capacity + Growth		55.1%	360	295

Marine (Outside) Machinist



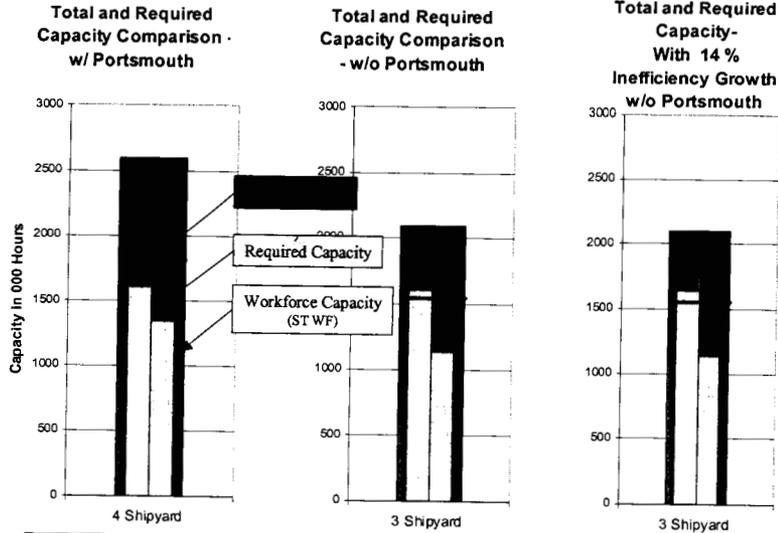
Shortage without PNS workforce		Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity		43.1%	688	528
ST WF compared to Required Capacity + Growth		63.1%	1008	848

Paint



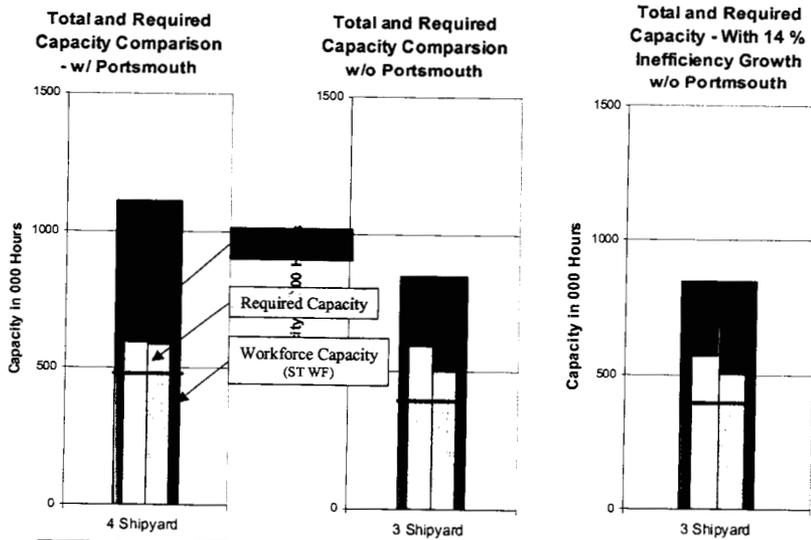
Shortage without PNS workforce		Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity		75.3%	557	483
ST WF compared to Required Capacity + Growth		99.8%	738	664

Piping



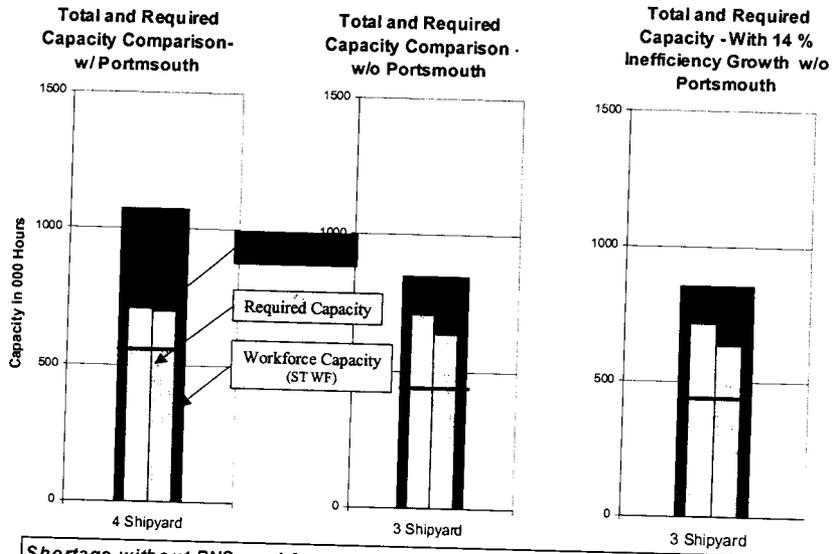
Shortage without PNS workforce		Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity		41.5%	390	296
ST WF compared to Required Capacity + Growth		61.3%	576	482

Sheetmetal



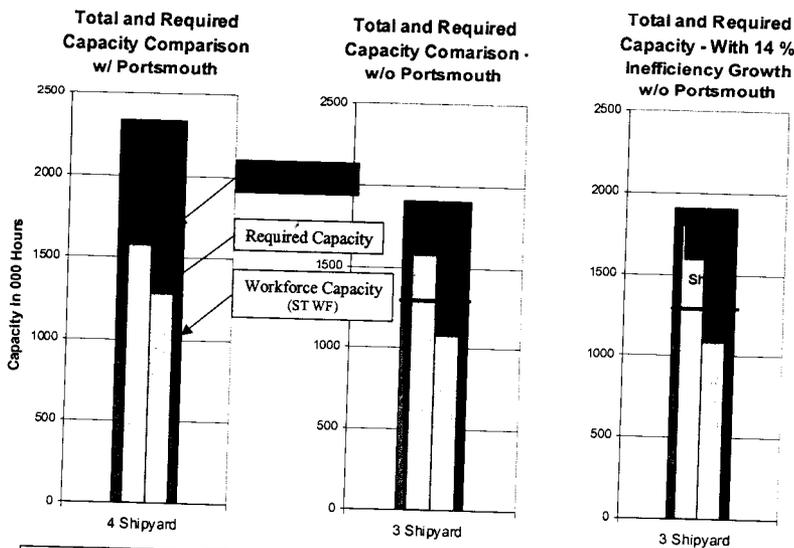
Shortage without PNS workforce		Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity		18.7%	77	36
ST WF compared to Required Capacity + Growth		35.3%	146	105

Shipwright



Shortage without PNS workforce			
	Percent	M PD	@ 10 % OT
ST WF compared to Required Capacity	11.5%	61	8
ST WF compared to Required Capacity + Growth	27.2%	143	90

Welding



Shortage without PNS workforce			
	Percent	M PD	@ 10 % OT
ST WF compared to Required Capacity	46.4%	414	324
ST WF compared to Required Capacity + Growth	66.8%	597	507

The charts above graphically depict a personnel shortage of ~2500²⁰ workers when we analyze only 11 of the 27 Commodities reported in excess by DoD. The Radiological Monitoring Commodity, although not analyzed, has been running 40 – 60% short of personnel for more than a year. This includes our two nuclear construction yards, Northrop Grumman Newport News and General Dynamics Electric Boat.

An example of how the DoD methodology grossly overstated Total Capacity can be found with the Inside Machine Data for Portsmouth. Section 5.3.1.D²¹ reports the Portsmouth Total Capacity for this Commodity at 423,700 hours. The hours can be reduced to mandays of effort (one mechanic working for one – eight hour day), by dividing by 8, which equates to 52,962 mandays capacity. The straight time workforce capacity²² is 212,300 hours, or 26,538 mandays, based on staffing data. This Trade will actually accomplish ~ 28,969²³ mandays of capacity this year, by using ~ 9% Overtime. How can Navy ignore the fact that their Total Capacity conclusions are overstated by ~83%²⁴ from what can actually be performed by this Commodity?

Navy persists in believing that the workforce is transferable and/or replaceable. It is true that any industry can hire personnel. You have heard from Navy's experts, that it takes six to ten years to develop requisite skills and knowledge for our most complex tasks. When we assess our ability to reconstitute a workforce without the Portsmouth artisans, we must take age demographics into account. About 38%²⁵ of the Naval Shipyard Production workforce is over 50 years old. This statistic is consistent at the shipyard level, with or without Portsmouth data included, and across shipyards. The total Naval Shipyard workforce is ~ 24,000²⁶ employees. Without Portsmouth, this workforce shrinks to ~ 20,000. The remaining infrastructure cannot support the training, or absorb the inefficiency and cost if 7600 workers (38%) retire and need replacement over the next five years, coupled with reconstitution of the 3600 Portsmouth workers unlikely to relocate.

This equates to nearly 50% replacement of our skilled engineers and artisans over the next five years. The problem is significant, with Portsmouth, but unmanageable if we were to lose any of the four Naval Shipyards.

²⁰ Summation of Shortages on Graphs, comparing Required Quantity to WF working 10% Overtime. Summation of shortages against Required Quantity + Growth, working 10% Overtime, is 4209.

²¹ (Same as footnote 1)

²² (Same as footnote 7)

²³ June 05 Naval Shipyard WARR; (same as footnote (7)) except use total shipyard, resources per day data, select Portsmouth, then select Inside Machine Shop, then layer cake

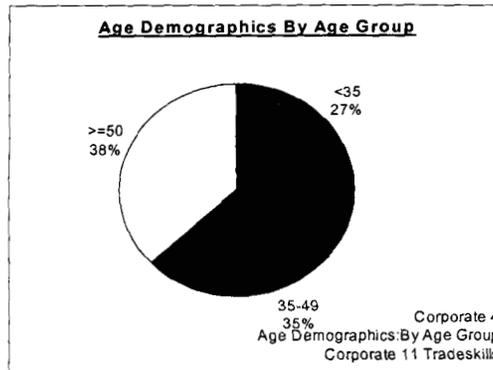
²⁴ Difference between certified Section 5.3.1.D (See footnote (1)) and WF Capacity (See footnote 7))

²⁵ CPRT Demographic Data from Jun 05 Meeting Metrics (See attachment (3))

²⁶ June 05 Naval Shipyard WARR data (actual staffing between 24,000 and 25,000); (Same as footnote (7))

Naval Shipyard Production Age Demographics (11 Critical Trade Commodities)

Age Distribution		
<35	35-49	>=50
2568	3331	3490
27%	35%	37%



	Corporate 4								
	18-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+
PNSY	168	154	105	107	178	281	293	223	95
PSNSY	308	326	321	317	392	537	657	382	169
PHNSY	123	240	185	123	81	128	268	201	77
NNSY	253	231	154	208	441	538	594	385	146

27

Conclusion:

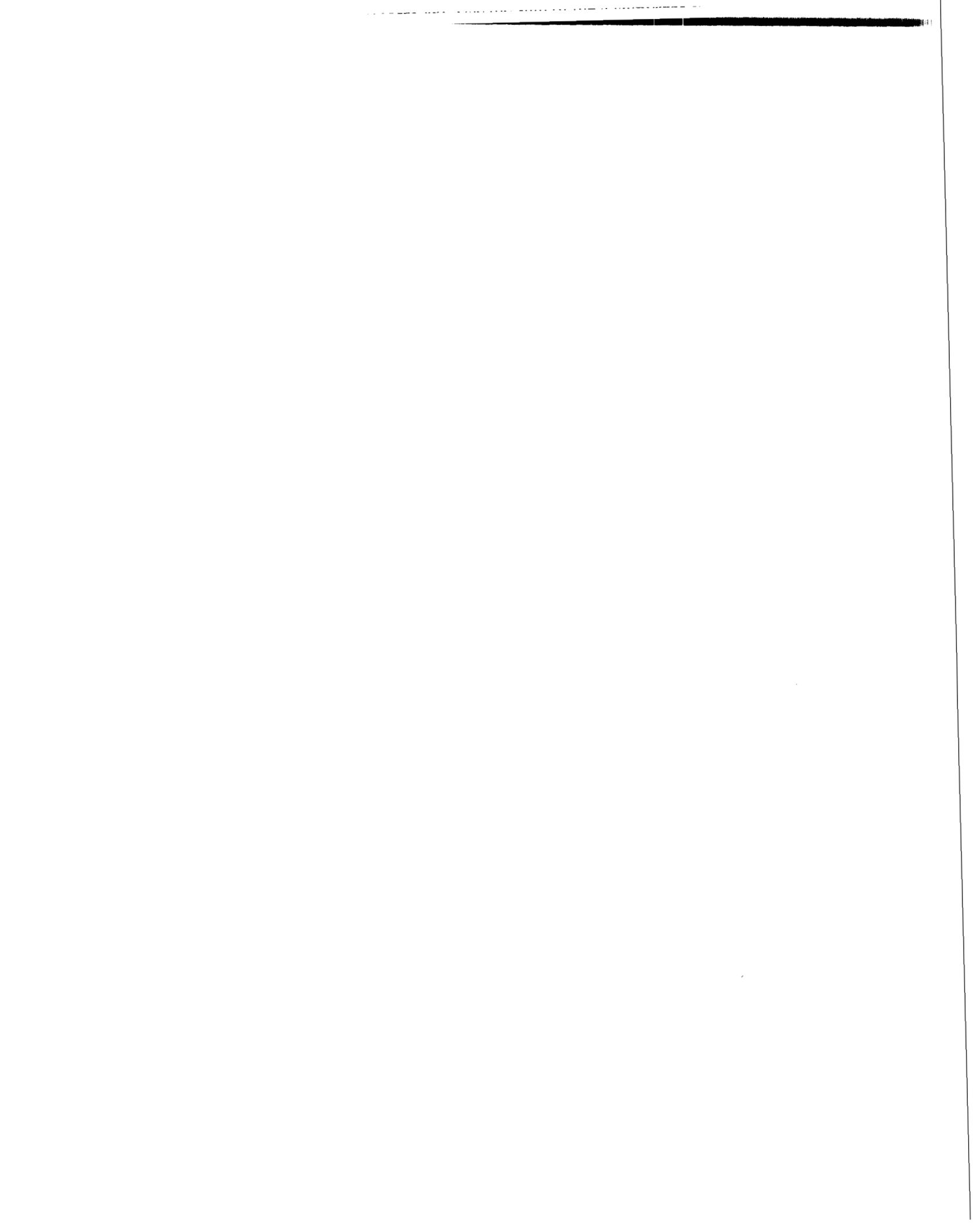
Clearly by measuring building and potential workstation square footages and assuming they are directly additive to drydock capacity has created a woefully inadequate assessment of Navy's Industrial Capacity. The methodology used by DoD resulted in a **calculated excess capacity of 3565²⁸ people/Commodities** (section 5.3.1D - 5.3.1A data), while at the same time the Corporation is **actually short 2186²⁹ people/Commodities** (section 5.3.1.A – WF capacity). Human Capacity must be included in any discussion or analysis of Capacity, but was omitted from the DoD methodology. The Navy cannot perform planned maintenance without the Workforce and Drydocks of all four Naval Shipyards.

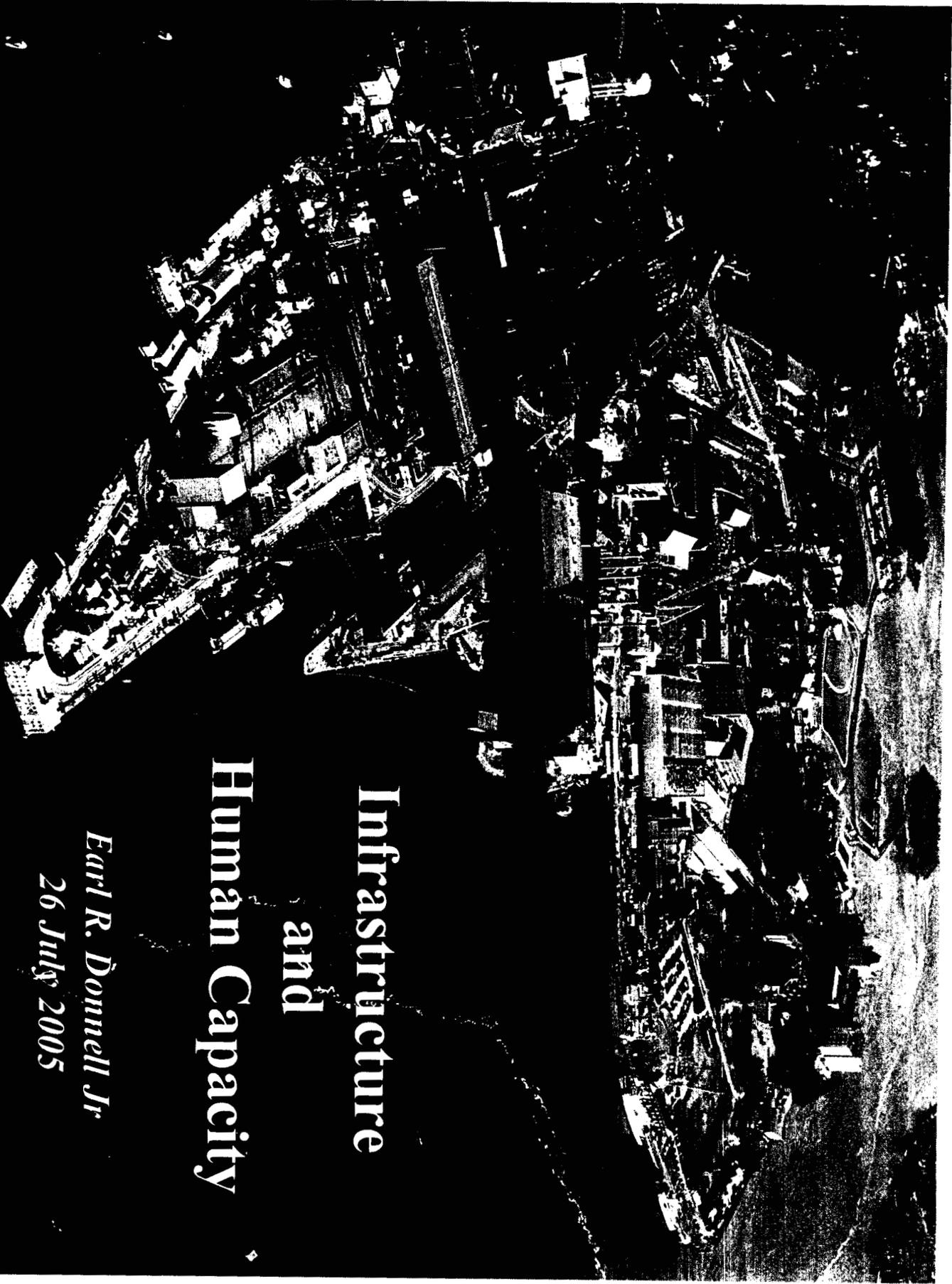
This information is certified to be accurate to the best of my knowledge, Earl R Donnell Jr .
//s//

²⁷ CPRT Jun 05 Meeting Metrics (See attachment (3)), Demographic data supplied to CPRT by each Naval Shipyard for development of these charts.

²⁸ Calculation using Certified 7 Jan 04 CDC data, converted from (000) hours to direct workers per day (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (1) minus footnote (6) divided by 250 production days and then divided by 8 hours per day to equal resources per day)

²⁹ Calculated direct workers per day shortage (does NOT include any adjustments for Overtime, Overhead, or Leave). (See footnote (6) minus footnote (7) divided by 250 production days and then divided by 8 hours per day to equal resources per day)





**Infrastructure
and
Human Capacity**

*Earl R. Donnell Jr.
26 July 2005*

Industrial Capacity

- History and Future
- DoD Drydock Capacity Study
- Commodity/Human Capacity

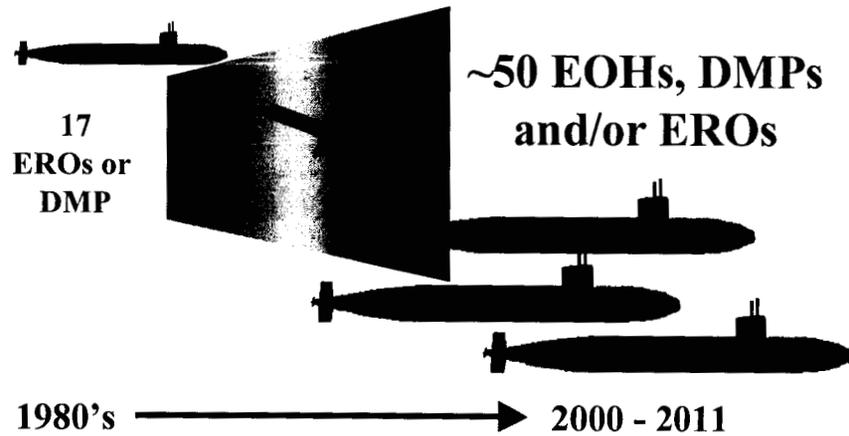
U.S. Navy Active Ship Force Levels, 1988 to the present

Ship Type	FY 1988	FY 2005
Aircraft Carriers	14	11
SSBN/SSGN	37	18
SSN	100	55
Surface Combatants	223	99
Amphibs	59	35
Combat Logistics	64	32
Mine Warfare	22	17
Support	54	18
Total	573	285

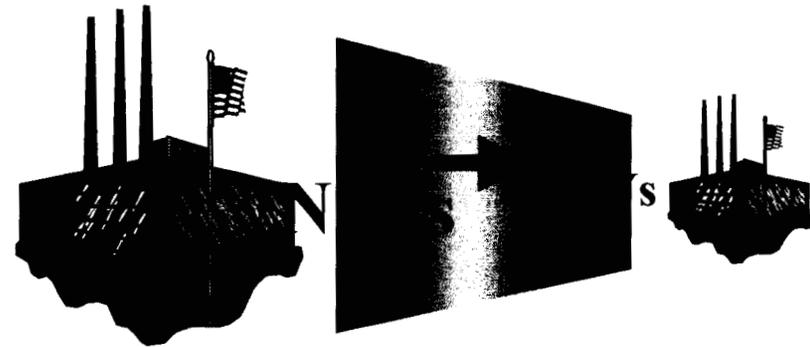
<http://www.history.navy.mil/branches/org9-4.htm>

Infrastructure and Human Capacity Reductions since 1988

Fleet reduced by 50%, Subs reduced by 45% but Maintenance Complexity and Volume Increased

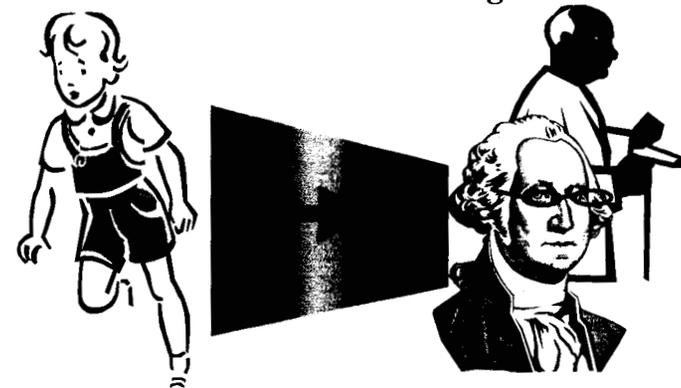
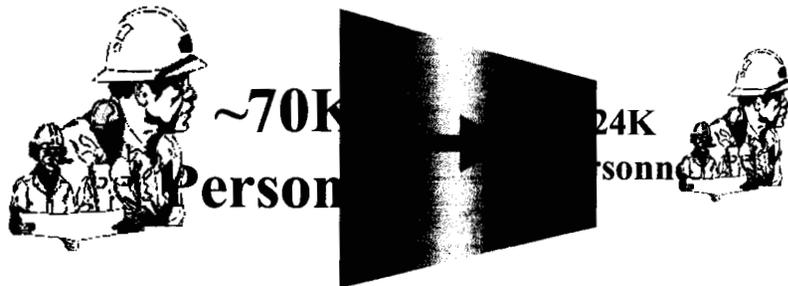


Decreased Plant Capability by 50%



**Retirement Eligibility Increasing (38% > 50 yrs old)
Revitalization Now in Progress**

Reduced Workforce by 66%



Industrial Capacity

- History of Downsizing
- DoD Drydock Capacity Study
- Commodity/Human Capacity

Drydock Capacity Conclusions:

- Navy cut sufficiently deep in previous BRAC rounds
 - Shipyards 50%
 - Ships 50% (Subs 45%)
- 80/20 Plan un-executable.....excessively Risky
- NO additional analytical studies performed by DoD
- Drydock maintenance/certification not accommodated
- No capacity for SRAs
- No capacity for emergent dockings
- Force Structure and workload of the future ill-defined

There is NO excess Drydock Capacity.

Industrial Capacity

- History of Downsizing
- DoD Drydock Capacity Study
- Commodity/Human Capacity

DoD Capacity Analysis Methodology

Started with 4 Certified Capacity Data Tables

Table 5.3.1.A
Required

Table 5.3.1.B
Back-shop

Table 5.3.1.C
Drydock/Pier

Table 5.3.1.D
Total

Methodology

- Table A = POM 06 Rev 5
 - Required Capacity = Workload + some growth
- Table B = Bldg. sq.ft. + Workstations
 - Theoretical Capacity of Back-shops
- Table C = Drydock loading as provided by NAVSEA
- Table D = Table B + Table C

DoD Capacity Analysis Methodology

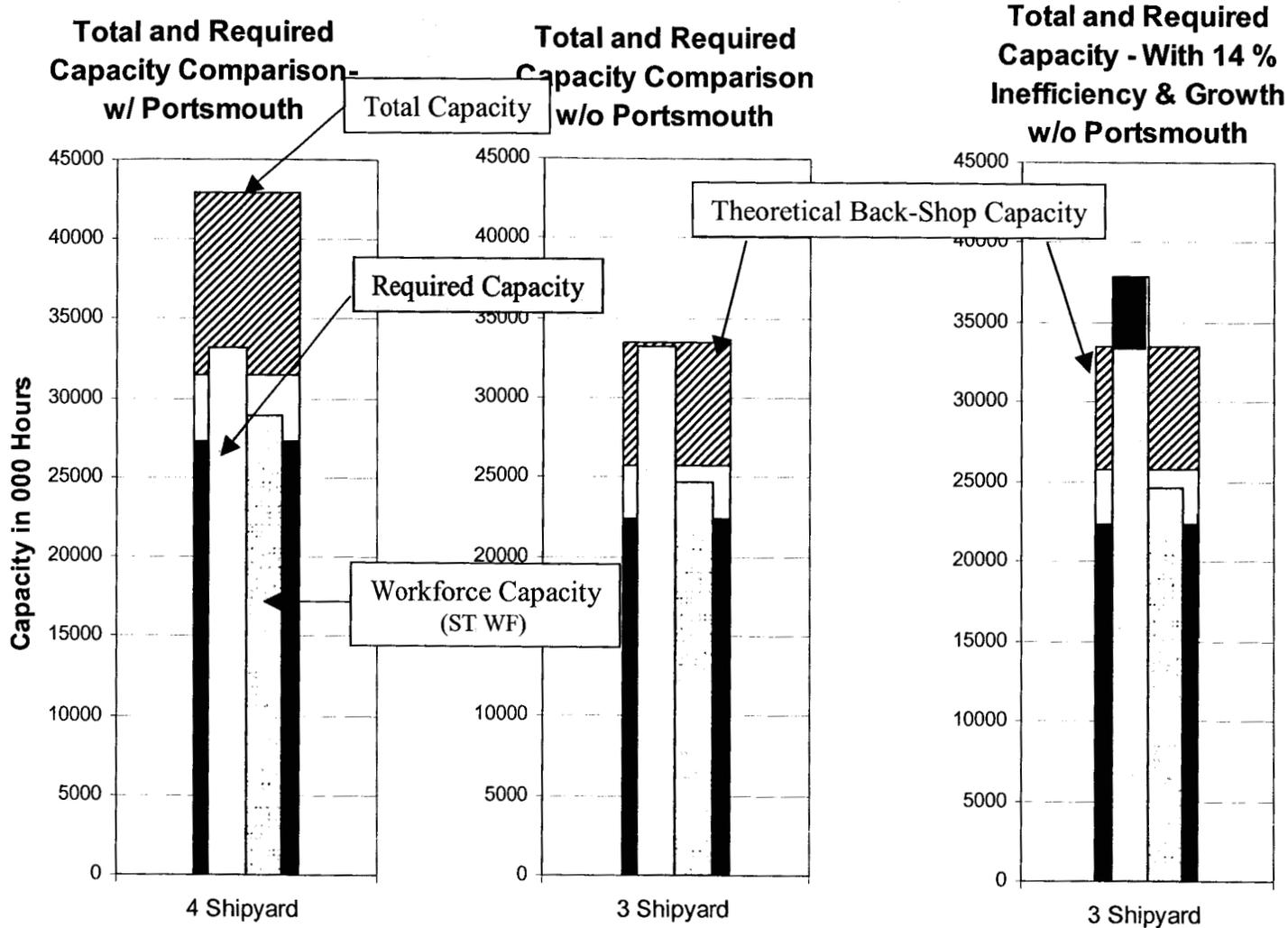
Assumptions

- Unlimited people/skills
- Back-shop and Drydock are directly additive
- Excess Capacity = Table D – Table A – Why? D ^{by 50%} _{30%} ^{20%} _{10%}

Problems

- Table B + C does NOT equal Table D
- Back-shop and Drydock are not directly additive
- Growth in Table A averaged only 4%
 - Historical growth 14%...likely 20% in future
- NO Human Capacity evaluation
- DoD concluded excess Commodities in the very years (FY 03, 04, 05) the Corporation experienced large shortages

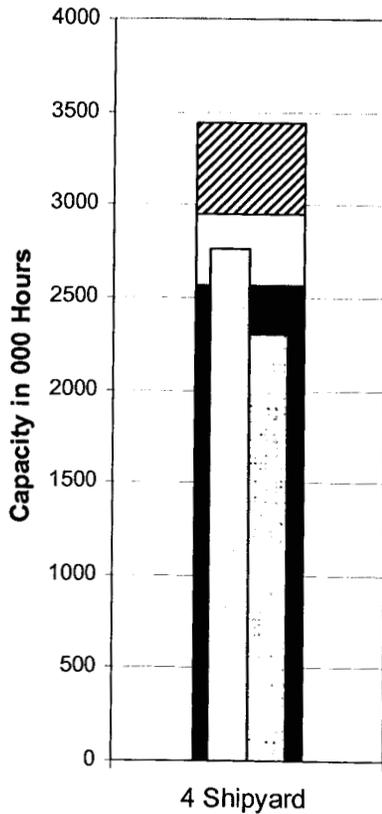
Total Capacity, Required Capacity and Workforce Analysis



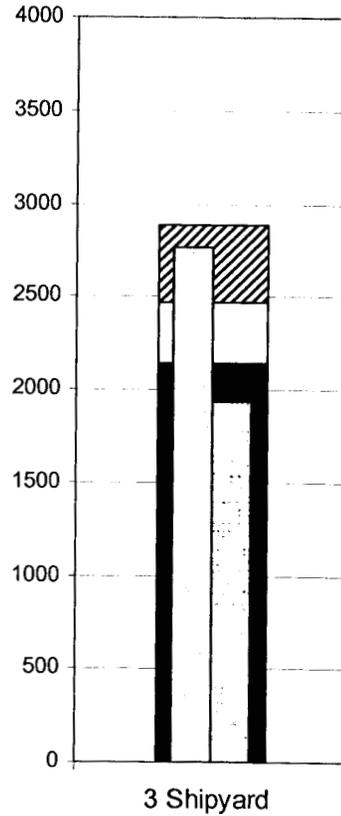
<i>Shortage without PNS Workforce</i>	<i>Percent</i>	<i>MPD</i>	<i>Shortage @ 15% OT</i>
ST WF compared to Required Capacity	35%	7091	4030
ST WF compared to Required Capacity + Growth	54%	10942	7880

Marine (Outside) Machinist

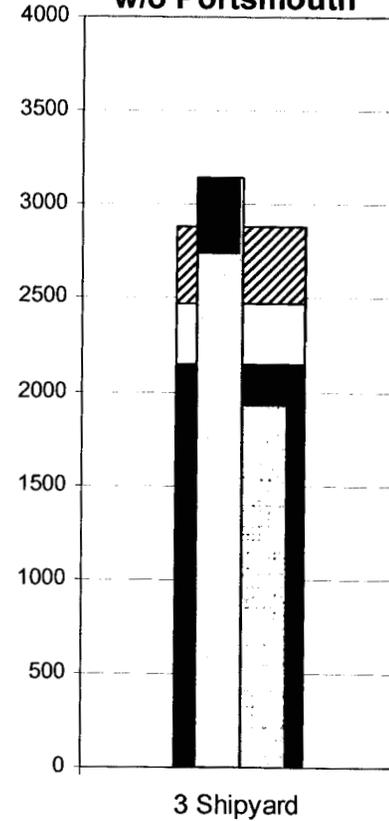
Total and Required Capacity Comparison - w/ Portsmouth



Total and Required Capacity Comparison - w/o Portsmouth



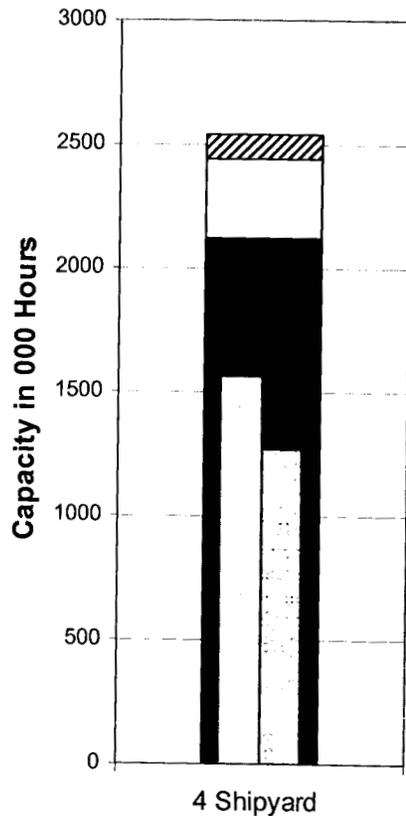
Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth



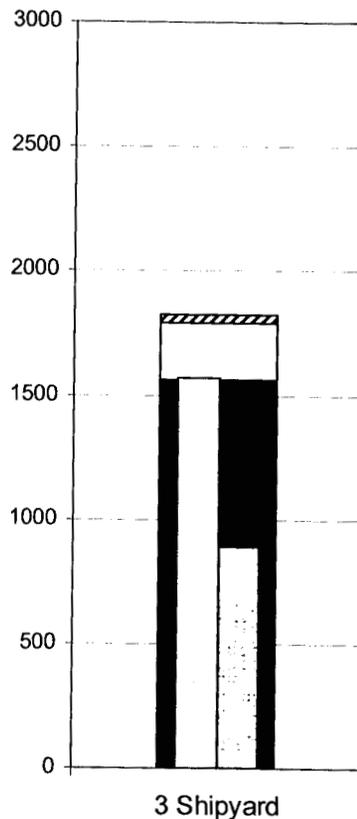
<u>Shortage without PNS workforce</u>	<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	43.1%	688	528
ST WF compared to Required Capacity + Growth	63.1%	1008	848

Paint

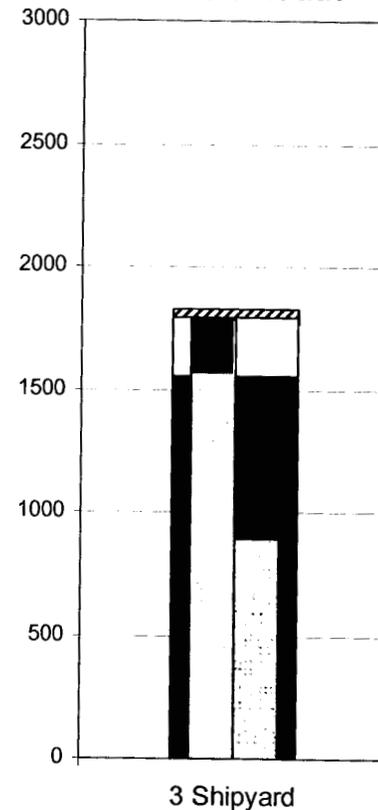
Total and Required Capacity Comparison w/ Portsmouth



Total and Required Capacity Comparison w/o Portsmouth



Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth

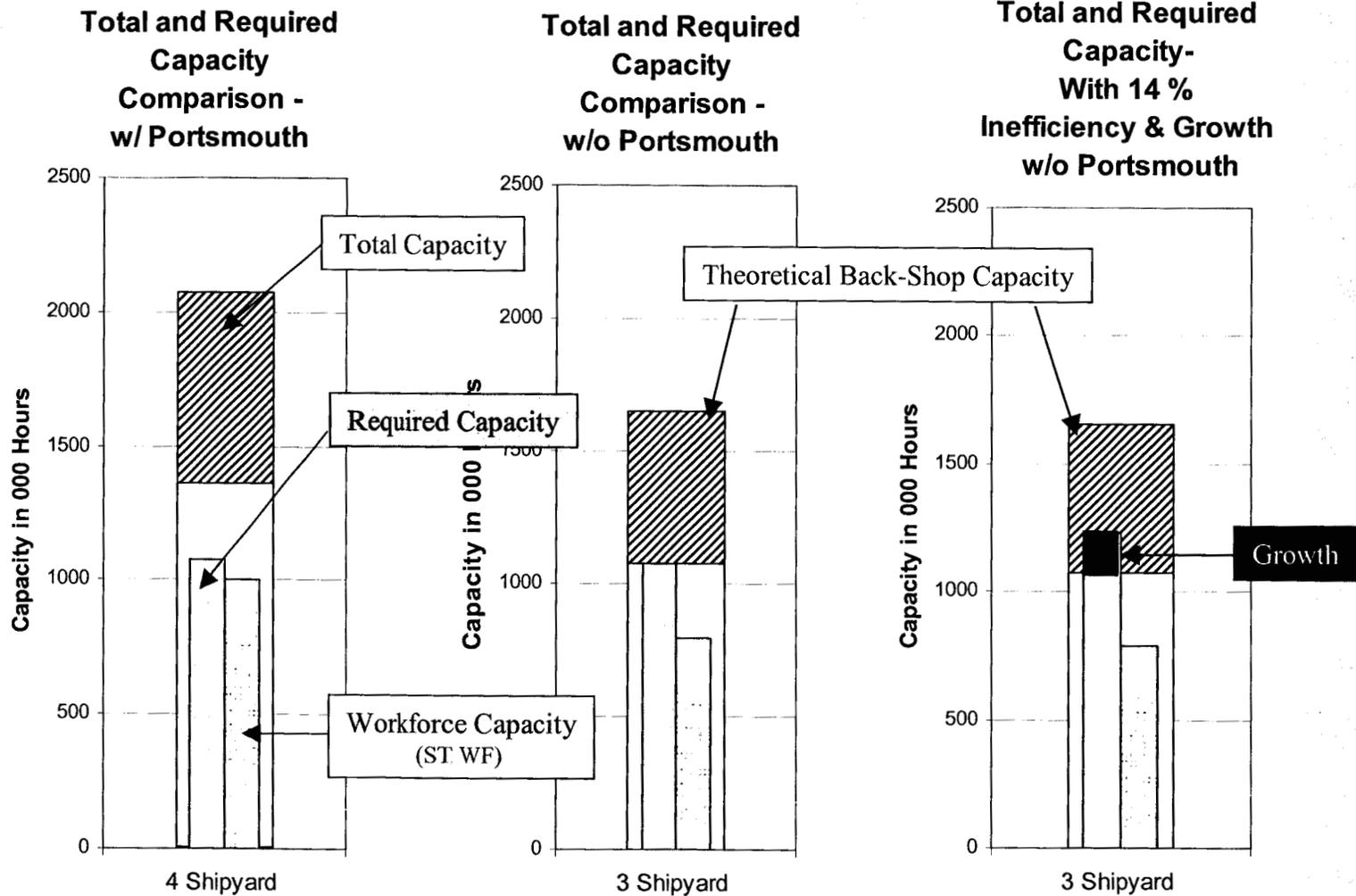


<u>Shortage without PNS workforce</u>	<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	75.3%	557	483
ST WF compared to Required Capacity + Growth	99.8%	738	664

Inside Machine Shop Capacity Discussion

- Total Capacity DoD = 423,700 hours
- Staffing Capacity = 212,300 hours
- Actual Execution FY 2005 = 232,000 hours
 - Requires ~9% Overtime
- Conclusions:
 - Total Capacity compared to Staffing Capacity is 98% Over-stated
 - Total Capacity compared to Actual FY 05 Execution is 83% Over-stated

Inside Machine



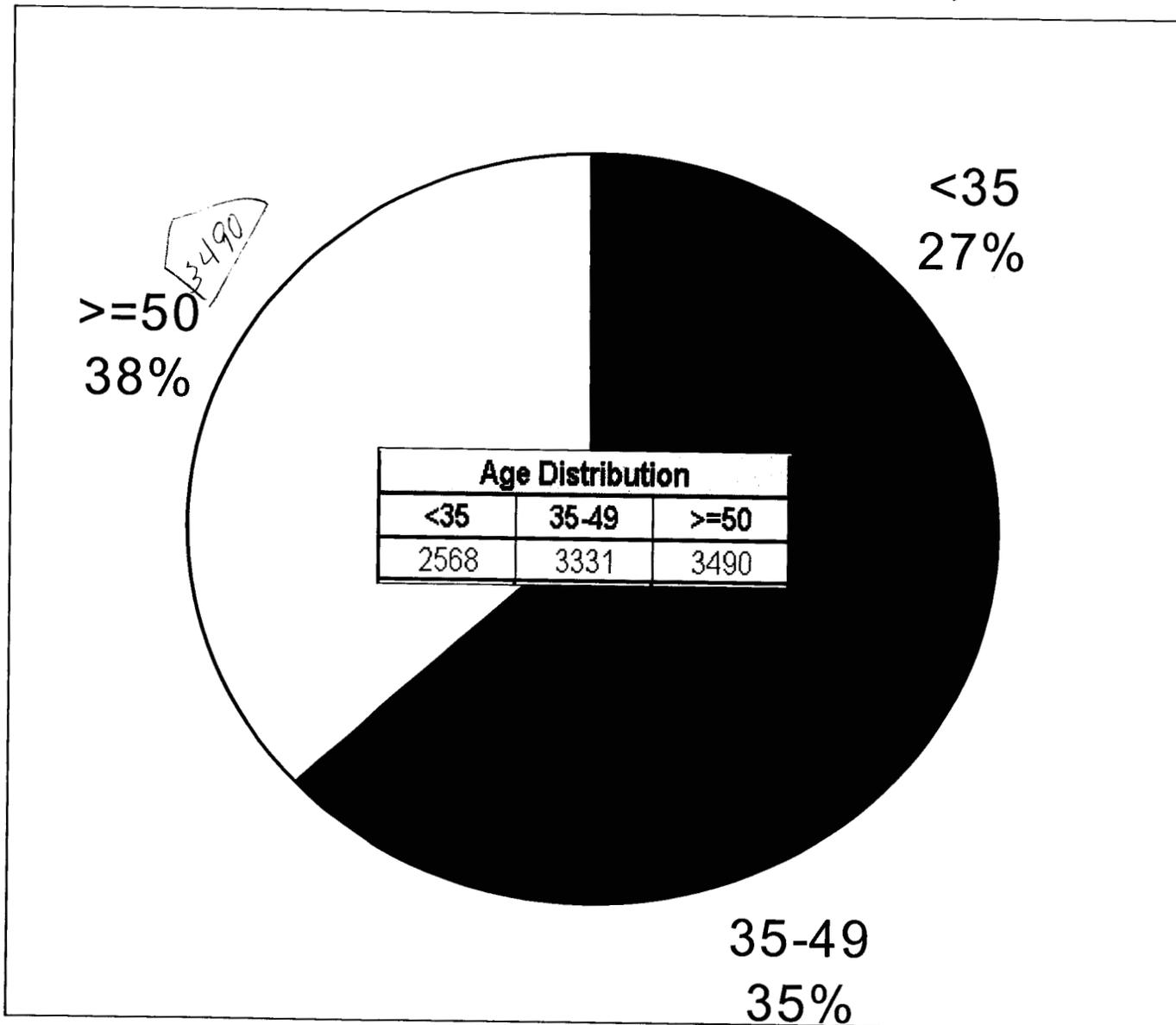
<u>Shortage without PNS workforce</u>	<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	36.0%	236	170
ST WF compared to Required Capacity + Growth	55.1%	360	295

Human Capacity Conclusions:

- Reduced Workforce by 66% since 1988
- Commodity Data development and calculations flawed
 - Back-shop capacity grossly over-stated
 - Back-shop and Drydock/pier data not directly additive
- Navy has not performed comprehensive analysis of Commodity Capacity (data doesn't compute $B+C \neq D$)
- DoD concludes excess Commodities while Corporate performance degrading due to large skills shortages
- Based on DoD certified data
 - 4000 to 8000 worker shortage with Portsmouth closure
- Workforce demographics adding risk to future Commodity Capacity and Capabilities

There is NO excess Human Capacity.

Naval Shipyard (11 Critical Trade Commodities)



Workforce Demographics

- ~38% of the Total workforce is greater than 50 years old
- Current Naval Shipyard collective workforce is ~24,000
 - Without Portsmouth number drops to ~20,000
- If 38% of 20,000 decide to retire in next 5 years:
 - 7,600 skilled, experienced workers are lost
 - Another 3,600 Portsmouth workers may need to be reconstituted
 - Result would be >11,000 workers (>50%) would have to be hired and trained
- Cost would be exorbitant, and not factored into conclusions
- Infrastructure for training would be over capacity
- Quality, Schedule and Cost problems would dramatically increase

Industrial Capacity Conclusions:

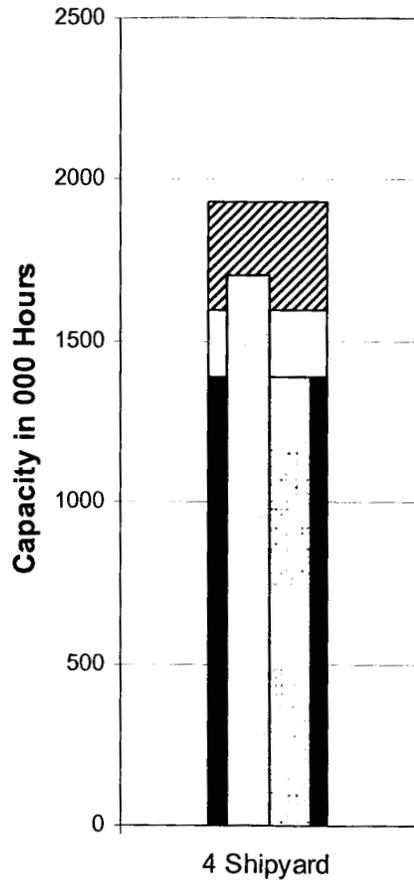
- Reductions since 1988
 - Submarines 45%
 - Total Fleet 50%
 - Shipyards 50%
 - Workforce 66%
- Navy has not performed comprehensive analysis of Commodity or Drydock capacity
- Maintenance does not reduce for 15+ years
- Future Force Structure still unclear
- Op tempo and age of ships increasing
- Workforce demographics adding risk to Commodity Capacity and Capability

There is NO excess Industrial Capacity.

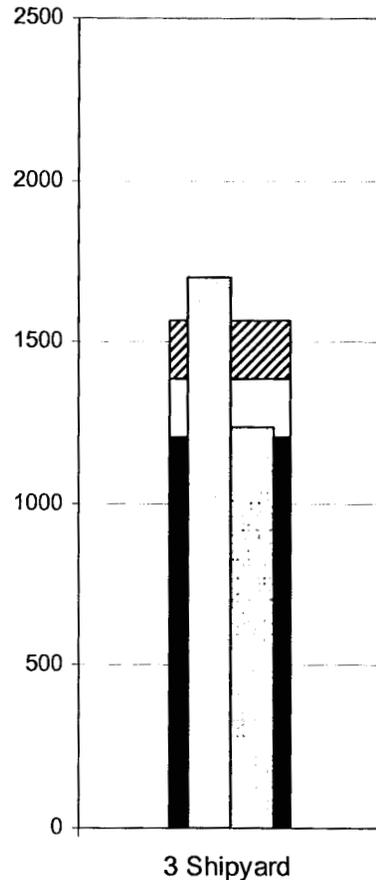
Backup

Cranes and Rigging

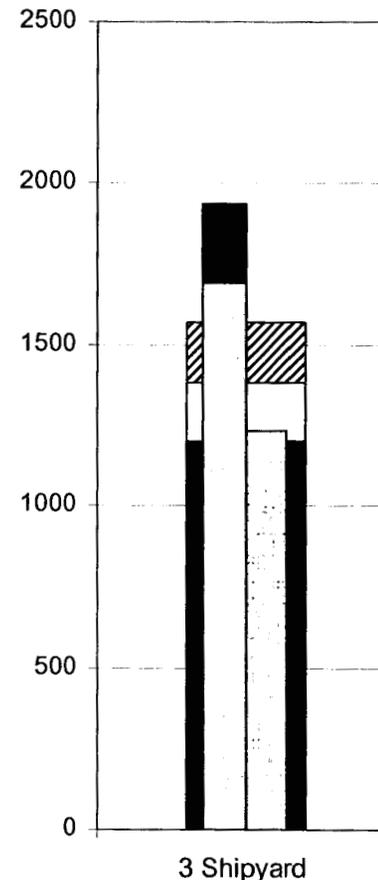
Total and Required Capacity Comparison- w/ Portsmouth



Total and Required Capacity Comparison w/o Portsmouth



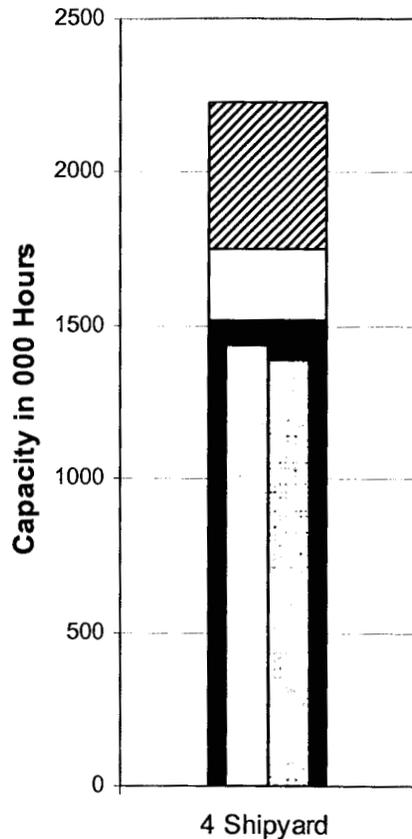
Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth



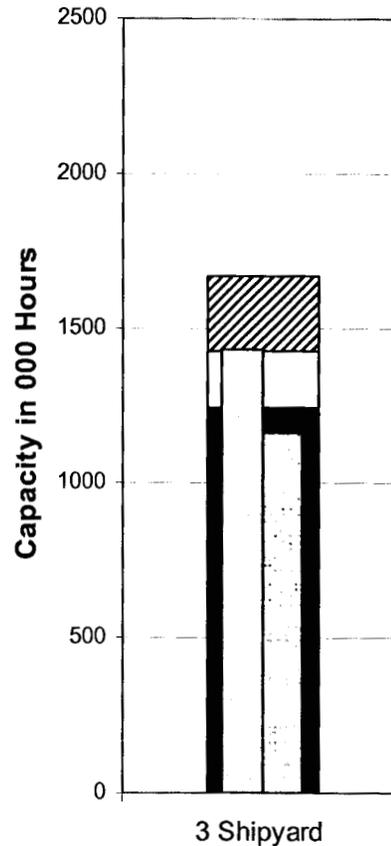
<i>Shortage without PNS workforce</i>	<u>Percent</u>	<u>MPD</u>	<u>@ 10 % OT</u>
ST WF compared to Required Capacity	37.7%	385	283
ST WF compared to Required Capacity + Growth	56.9%	583	480

Heavy Fabrication - Shipfitting

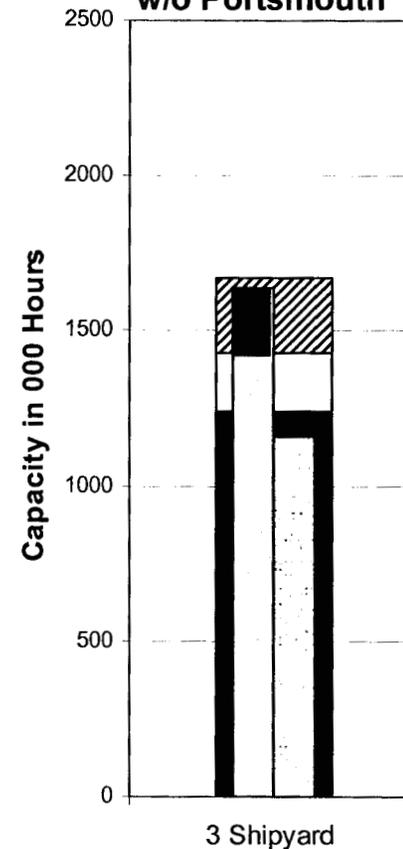
Total and Required Capacity Comparison - w/ Portsmouth



Total and Required Capacity Comparison - w/o Portsmouth



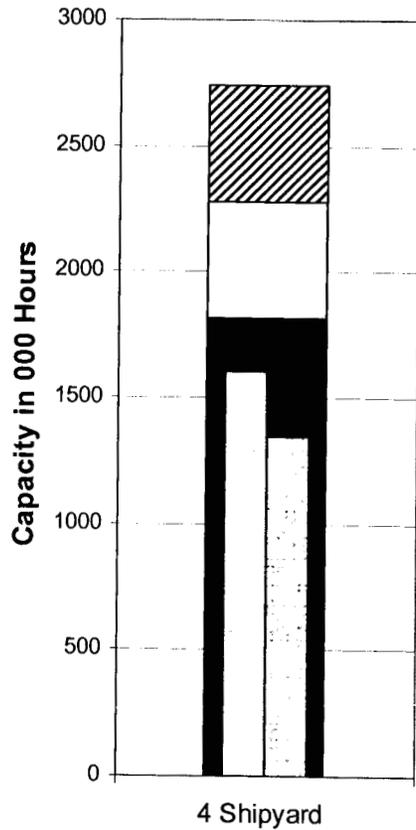
Total and Required Capacity- With 14 % Inefficiency & Growth w/o Portsmouth



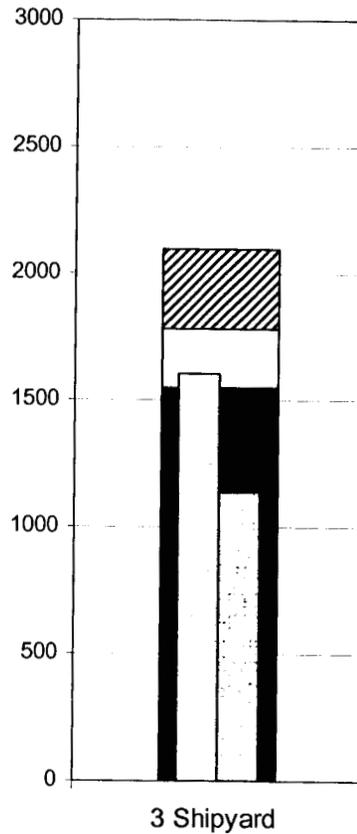
<i>Shortage without PNS workforce</i>	<i>Percent</i>	<i>MPD</i>	<i>@ 10 % OT</i>
ST WF compared to Required Capacity	23.4%	225	129
ST WF compared to Required Capacity + Growth	40.7%	391	295

Piping

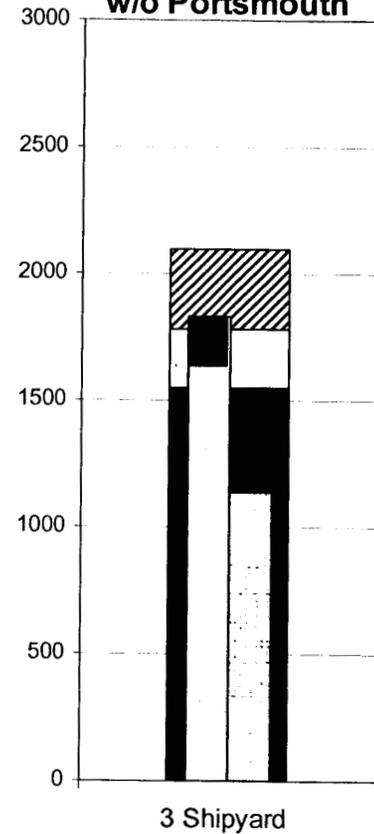
Total and Required Capacity Comparison - w/ Portsmouth



Total and Required Capacity Comparison - w/o Portsmouth



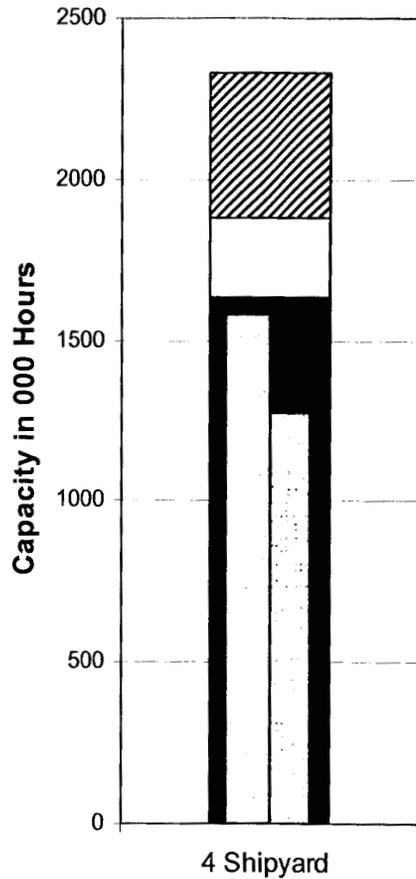
Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth



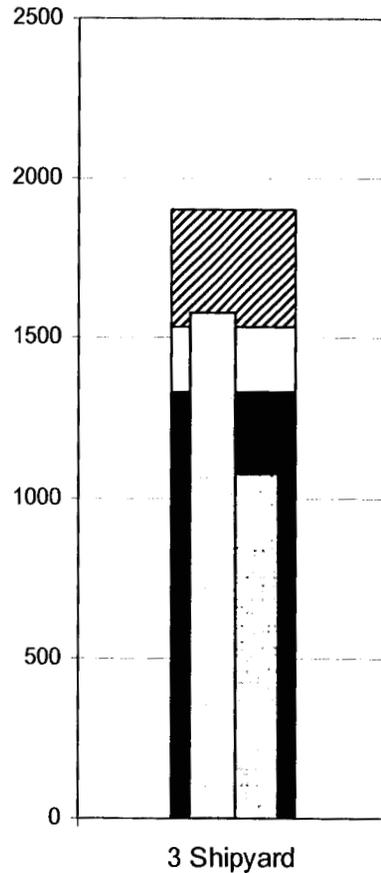
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Welding

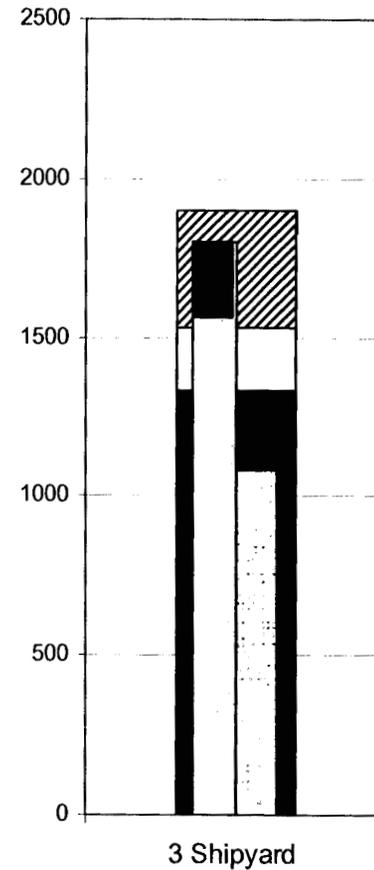
Total and Required Capacity Comparison w/ Portsmouth



Total and Required Capacity Comparison w/o Portsmouth



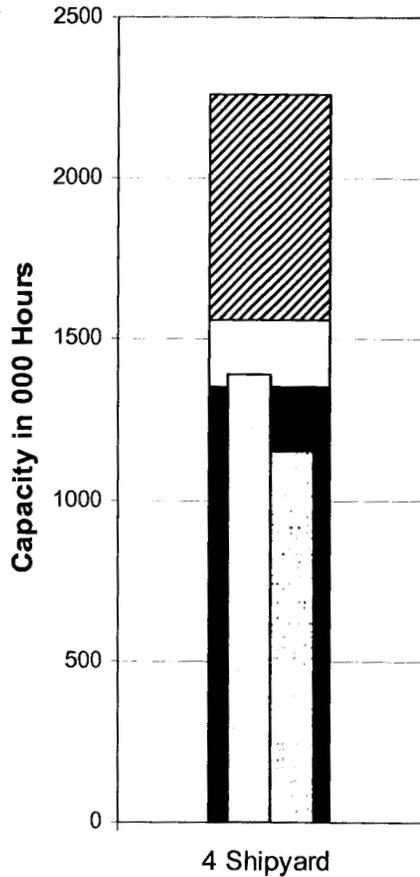
Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth



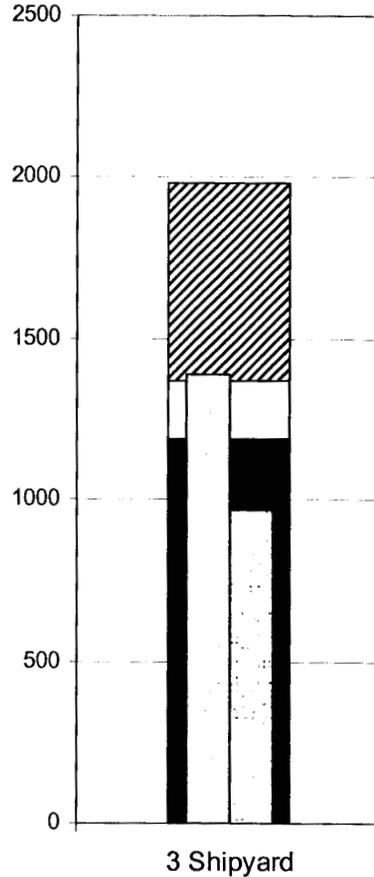
<i>Shortage without PNS workforce</i>	<i>Percent</i>	<i>MPD</i>	<i>@ 10 % OT</i>
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Electrical

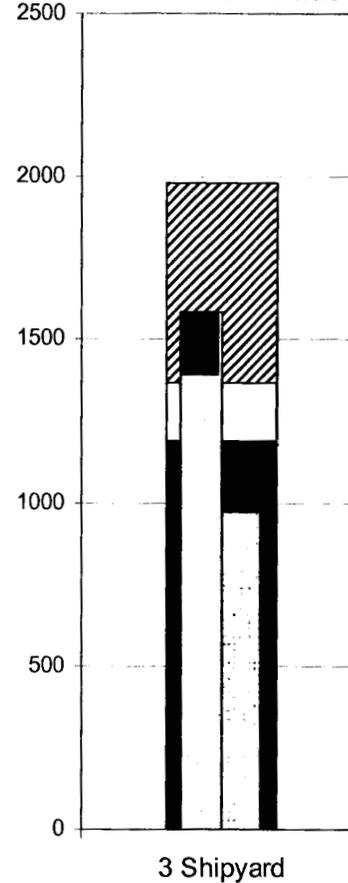
Total and Required Capacity Comparison - w / Portsmouth



Total and Required Capacity Comparison w/o Portsmouth

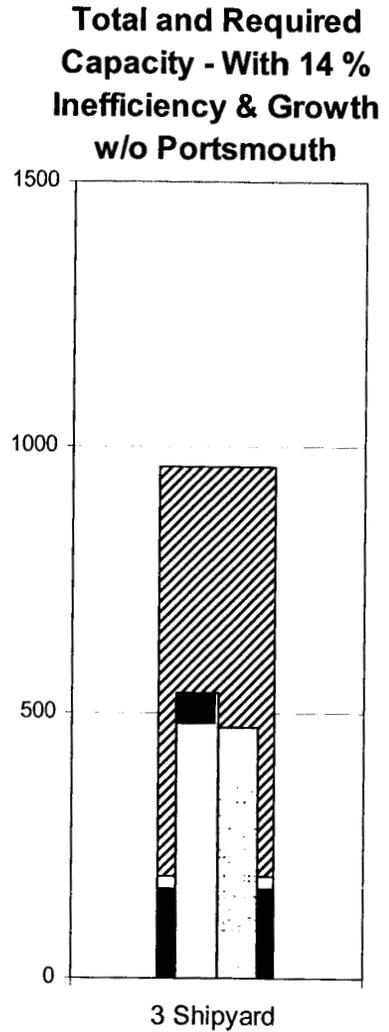
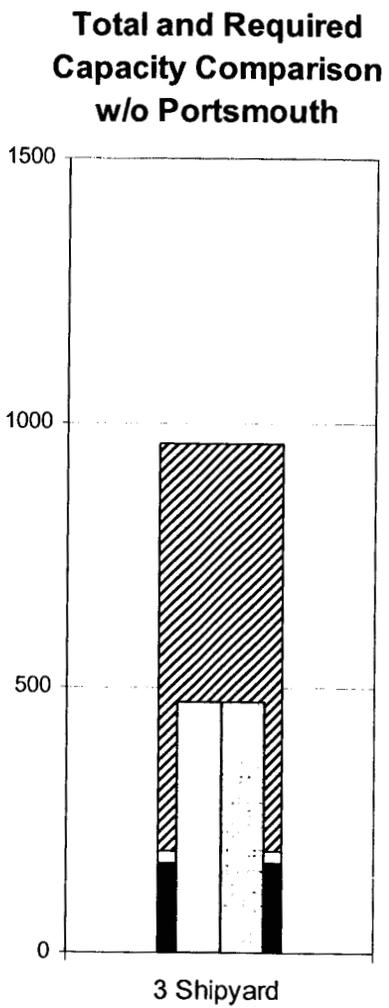
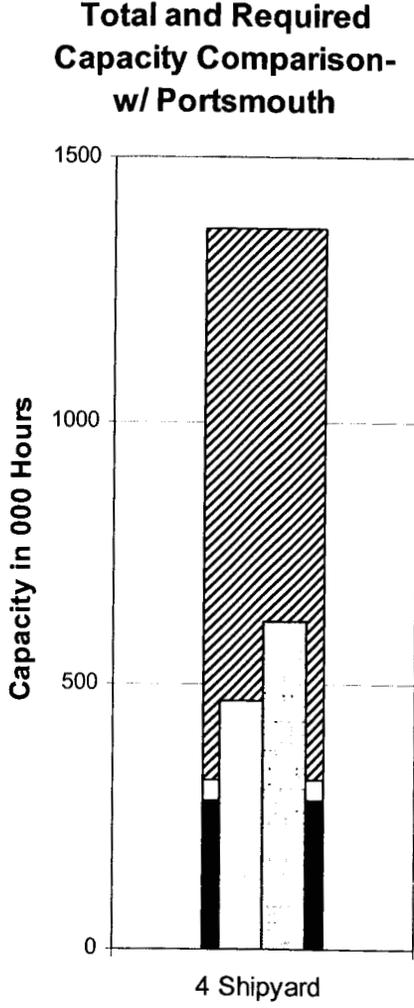


Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth



<i>Shortage without PNS workforce</i>	<i>Percent</i>	<i>MPD</i>	<i>@ 10 % OT</i>
ST WF compared to Required Capacity	43.3%	348	268
ST WF compared to Required Capacity + Growth	63.4%	509	429

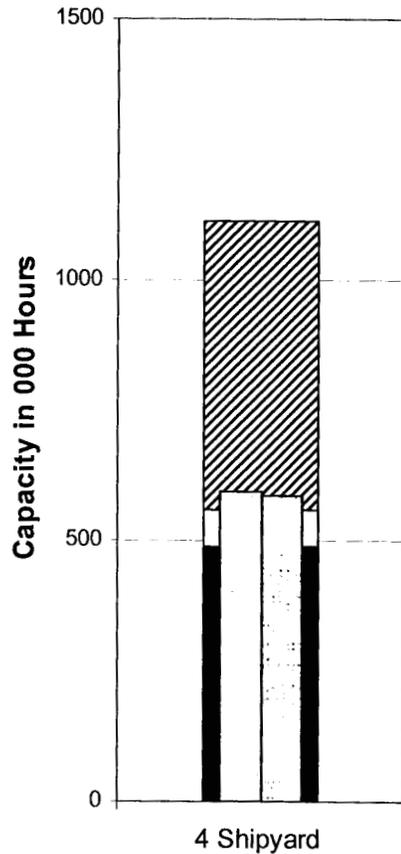
Electronics



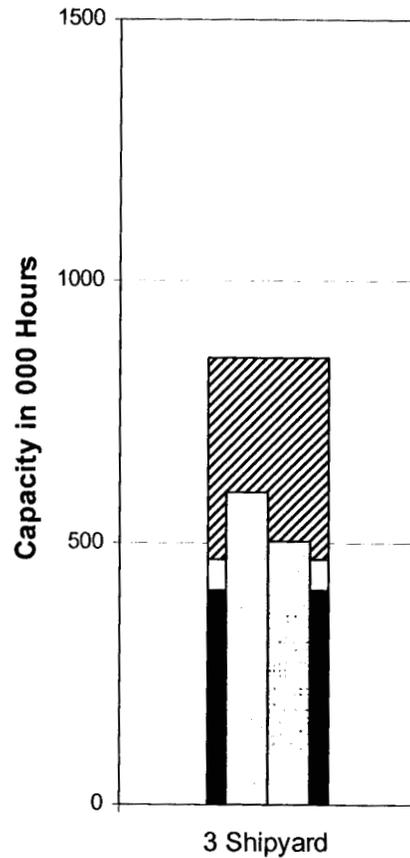
<i>Shortage without PNS workforce</i>	<i>Percent</i>	<i>MPD</i>	<i>@ 10 % OT</i>
ST WF compared to Required Capacity	-0.5%	-2	-41
ST WF compared to Required Capacity + Growth	13.5%	53	14

Sheetmetal

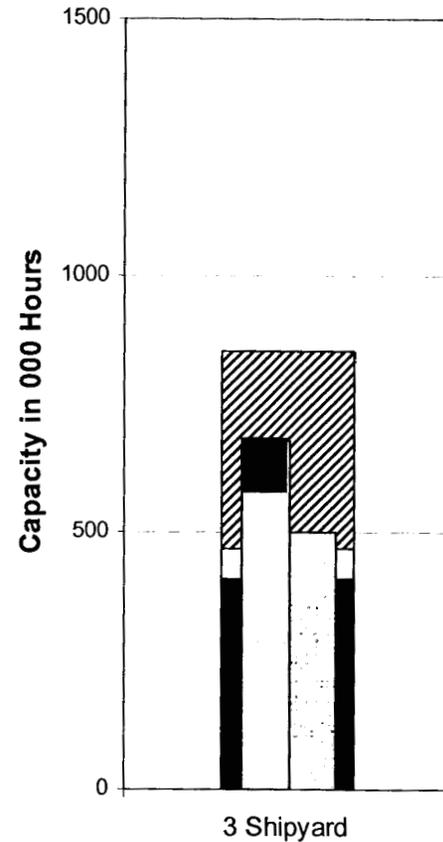
Total and Required Capacity Comparison - w/ Portsmouth



Total and Required Capacity Comparison w/o Portsmouth



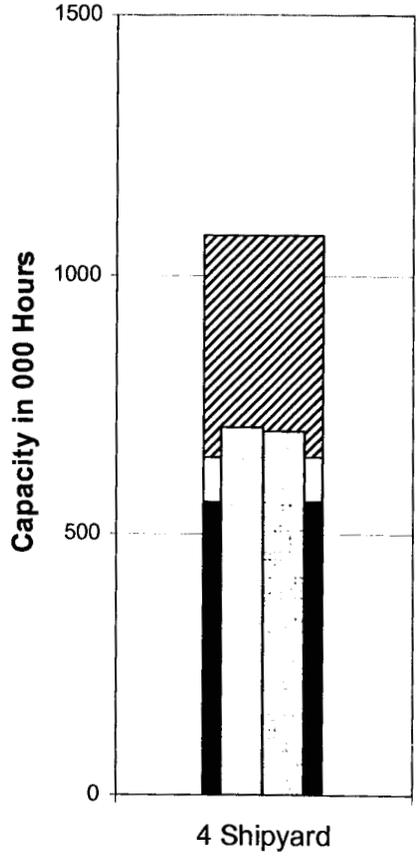
Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth



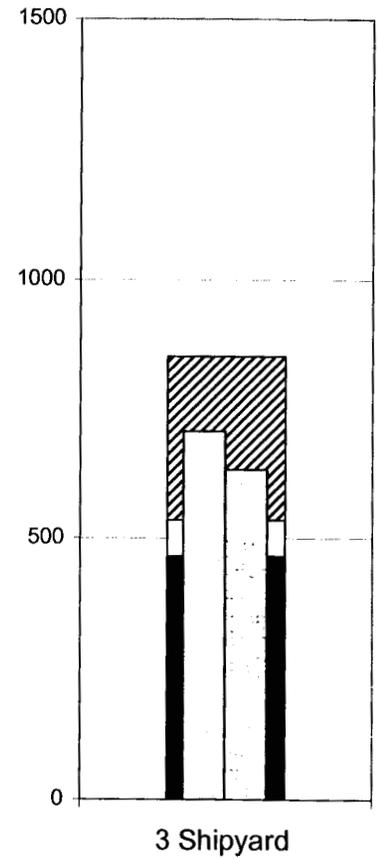
<i>Shortage without PNS workforce</i>	<i>Percent</i>	<i>MPD</i>	<i>@ 10 % OT</i>
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Shipwright

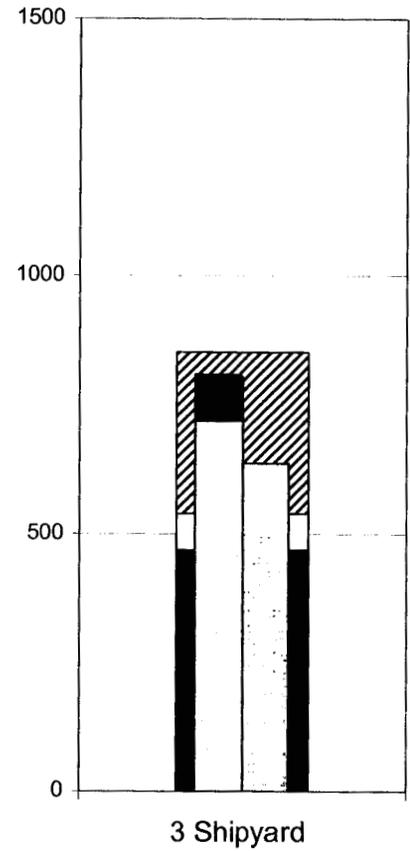
Total and Required Capacity Comparison - w/ Portsmouth



Total and Required Capacity Comparison - w/o Portsmouth



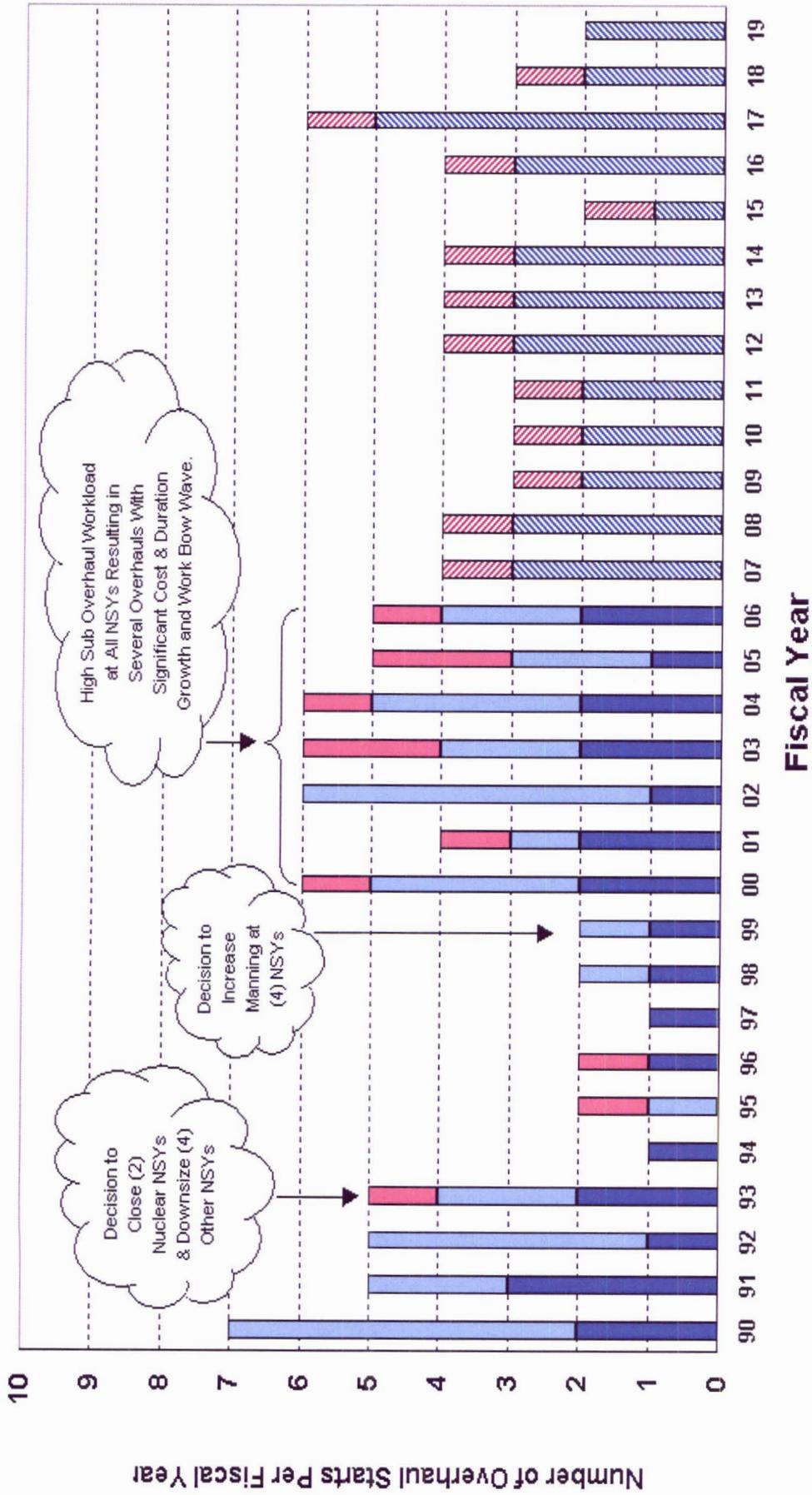
Total and Required Capacity - With 14 % Inefficiency & Growth w/o Portsmouth



Shortage without PNS workforce			
	Percent	MPD	@ 10 % OT
ST WF compared to Required Capacity	11.5%	61	8
ST WF compared to Required Capacity + Growth	27.2%	143	90

Number of Submarine Overhauls Per Year (All Classes)

Note: Virginia & Seawolf Major Depot Availabilities (Starting in Year 2010) Are Not Included

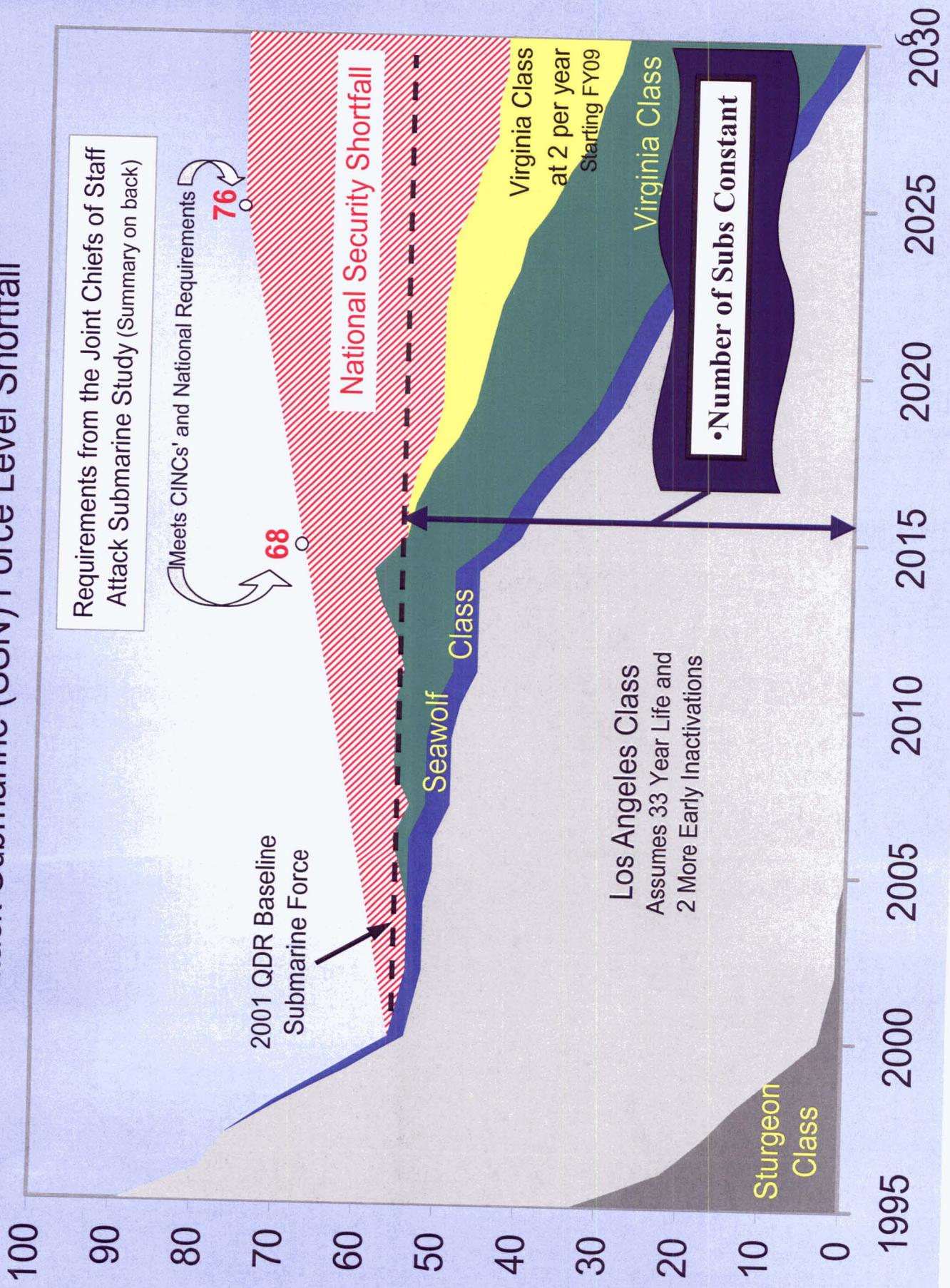


Number of Overhaul Starts Per Fiscal Year

Fiscal Year

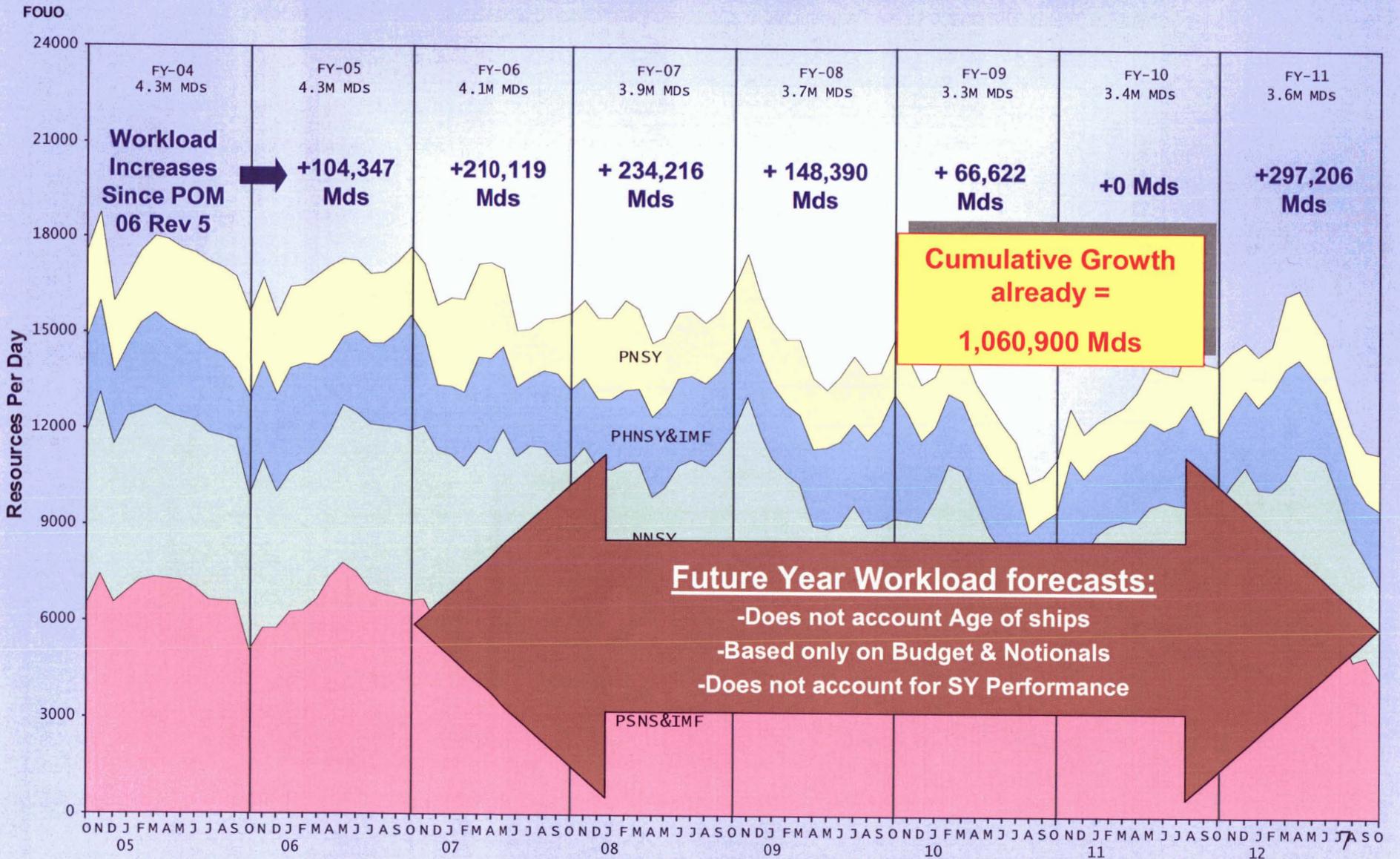
- Completed/Ongoing SSBN Overhauls By PNSY
- Completed/Ongoing SSBN Overhauls By Other NSYS
- Future SSBN Overhauls
- Completed/Ongoing SSN Overhauls by Other NSYS
- Future SSN Overhauls

Attack Submarine (SSN) Force Level Shortfall



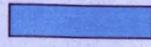
Naval Shipyards - POM 06 REV 5 Workload (Nov 03)

All Public Yards
 Shipyards Layer Graph - POM06-Rev5
 Total Shipyards (Total)



Portsmouth NSY Closure - NNSY Dry Dock

Basis NAVSEA Workload Layercake Graph -- Nov 2003
 WRKLD STUDY: (POM06-Rev5_Ptsmh)
 Total Shipyard (Total)

 PNS AVAILS

DRYDK / BERTH	NORFOLK NSY DRYDOCK/BERTHING REPORT																							
	FY06				FY07				FY08				FY09				FY10				FY11			
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
DD 2	SSN IA				SSN EOH				SSN ERO				SSN DSRA				SSN DSRA				SSN EOH			
DD 3	SSN DSRA				SSN RF				SSN EOH				SSN DSRA				SSN EOH				SSN DSRA			
DD 4	SSGN ERO				SSBN ERO				MTS DEM				SSBN ERO				SSN DSRA				SSBN ERO			
DD 8	CV COH		CVN DPJA		LHD DPMA				LHD DPMA				LHD DPMA				LHA DPMA				LHA DPMA			
IMA	AS DPMA				SSN DSRA				SSN DSRA				OGC				MTS DEM				MTS DEM			

PNS Scheduled East Coast DOCKING SRAs 

- To make the plan work:**
- One EOH changed to April 2008 vice January 2008 start.
 - One SRA changed to November 2007 vice October 2007 start.
 - No Capacity for 6 average emergent East Coast dockings.
 - No Drydock outages for maintenance/certification.

High Risk

Portsmouth NSY Closure – Norfolk Workload

Report: WF-510
Data Date: 11/28/03

