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Manpower and Personnel IWAR 2000: Aging the Force

Carol S. Moore • Heidi L. W. Golding • Henry S. Griffis

Center for Naval Analyses
4825 Mark Center Drive • Alexandria, Virginia 22311-1850

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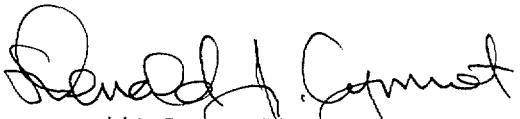

Donald J. Cymrot, Director
Workforce, Education and Training Team
Resource Analysis Division

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Manpower and Personnel IWAR 2000: Aging the Force

Carol Moore
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Henry Griffis

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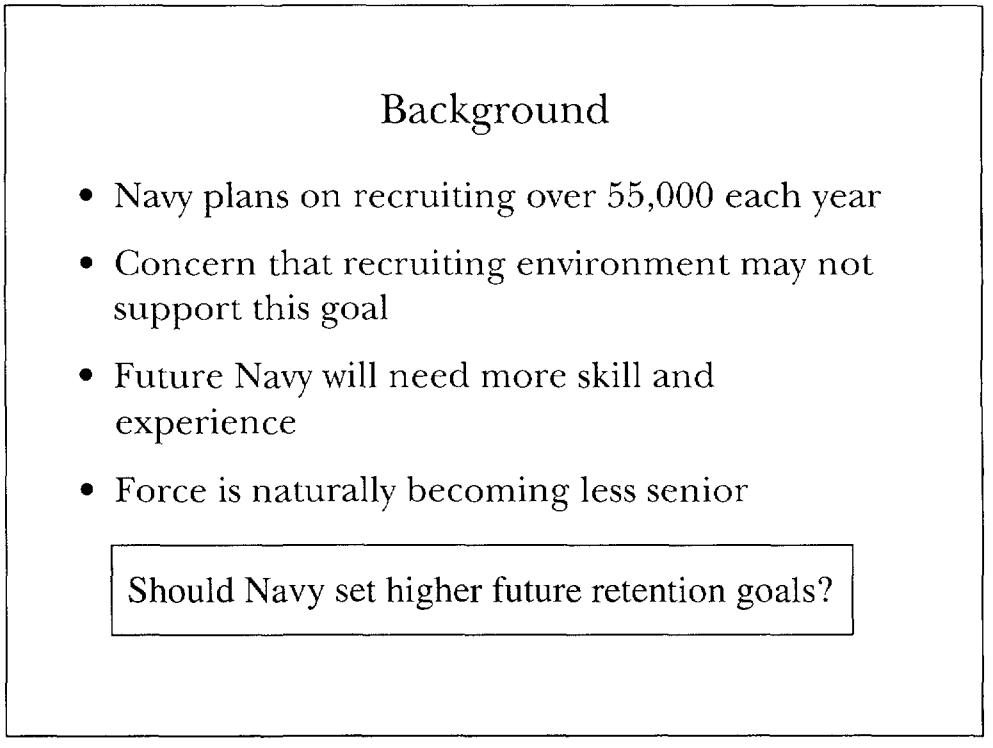
The Integrated Warfare Architectures (IWARs) are a part of the Navy's annual planning process. This year's Manpower and Personnel IWAR focuses on increasing retention and the appeal of naval service. As part of this effort, N813 asked CNA to describe and evaluate alternative retention possibilities available to the Navy.

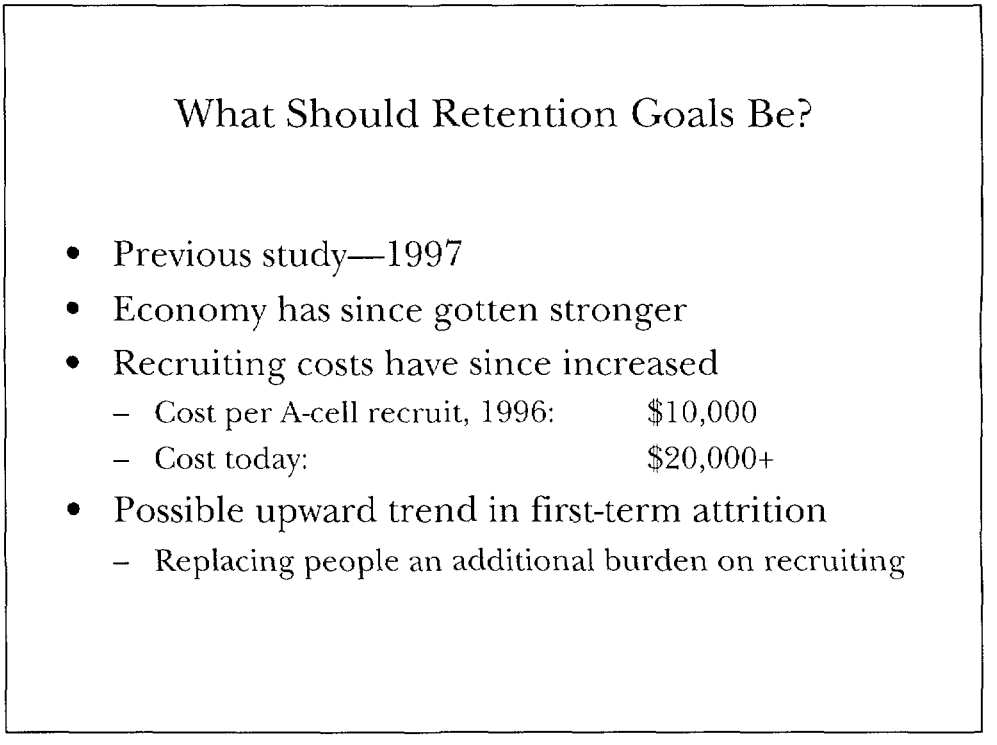


The Navy plans to recruit more than 55,000 youth into its active enlisted force each year for the foreseeable future. However, decision-makers fear that recruiting difficulties will continue and that this goal—recently revised downward from 58,000—is not feasible.

In a study conducted for last year's Manpower and Personnel IWAR [1], CNA predicted that the recruiting market is unlikely to improve much over the next decade. The military will surely benefit from the significant growth in the population of 17- to 26-year-olds that is expected over the next decade. However, the declining veteran share of the population and rising DOD recruiting goals work against recruiting.

The expectation of continued recruiting challenges has heightened interest in retention. Because the services meet requirements with a mix of new recruits and experienced sailors, one strategy for dealing with a difficult recruiting environment is to age the force—that is, to substitute retention for recruiting.

The interest is reinforced by predictions that the Navy will need more highly skilled, experienced sailors in the future [2] and by evidence that readiness improves with the seniority of the force [3]. However, despite the mixed recruiting outlook, the enlisted force is expected to grow less senior over the next several years [4]. If policy-makers want to counteract this trend, they will need to take deliberate steps to increase retention.



A 1997 CNA study [4] found that it is usually not cost-effective to age the force, except in a handful of ratings. Unless the readiness benefits of greater seniority were exceptional, an across-the-board aging strategy would be expensive.

However, several things have changed, which led us to revisit the force-aging issue. Aging the force yields savings of recruiting and training dollars. In 1996, the marginal cost of one A-cell recruit was $9,470. According to recent estimates from the Lewin Group, that figure has increased to about $20,000. Other estimates are as high as $40,000. This change may tip the balance in favor of a more senior force.

Trends in first-term attrition could do the same. A recent study [5] found that, among sailors with 4-year enlistment contracts: "(1) Attrition has been increasing steadily for at least 15 years, (2) various efforts over time have met with some short-term success before the upward trend resumed, (3) first-term attrition among the most recent cohorts now tops 40 percent, and (4) the attrition rate of the cohorts currently in their first term appears likely to remain at the historically high levels."

Decision-makers don't like the implication—that recruiting dollars are spent replacing people who, for one reason or another, did not complete the work to which they had agreed. An alternative is to do a better job of retaining those who finish their terms.

This Is a Steady-State Analysis

- Establish baseline steady-state force, using
  - Planned endstrength
  - Recent continuation rates, adjusted for advancement
- No gapped billets
  - Experience, not manning, to drive readiness
- Near-term retention requirements may differ
  - Must replace losses one for one
  - Readiness improved by filling gapped billets

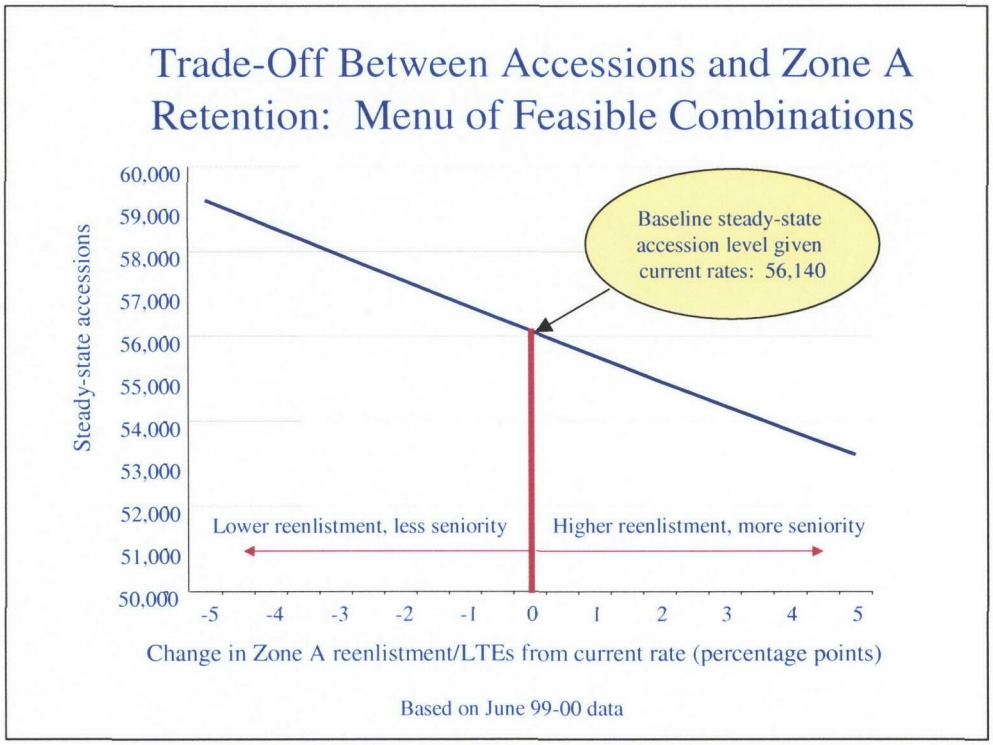
Our procedure is to simulate the effects of various retention rates on the Navy's steady-state accession level. In a steady state, the same number of people enter and leave the Navy each year. Endstrength is fixed, and retention rates remain constant at each point in the year-of-service (YOS) distribution. Thus, each combination of retention-accessions we present represents a distinct steady state.

The first step is to establish what the steady-state force would look like given today's retention rates and future endstrength. We use the endstrength expected in FY05, 311,761. We also established baseline steady-state retention in each YOS cell. We did so by using June 1999-June 2000 rates and adjusting for feedback between advancement and retention. The result is a steady-state length-of-service (LOS) profile in which, each year, the same number of people enter each cell as leave it.

Because we concentrate on the steady state, our analysis implicitly assumes that the number of people in the Navy is always the same, and that the fleet is never overmanned or undermanned. By assumption, no scenario has gapped billets. Only the *mix* of people changes, and any variations in readiness are due entirely to changes in seniority mix. The average experience of the force affects not only personnel readiness but also training readiness and material condition [3].

Similarly, our analysis does not address short-term accession requirements. In the short term, sustaining endstrength requires one accession for every loss: in other words, the required rate of replacement of retention for accessions is 1 to 1. In the steady state, one additional reenlistment can replace *more than one* accession. And, in the short term, the Navy can improve readiness by filling billets that are now gapped.

Steady-state analysis agrees with the long-run planning assigned to the IWARs.



Suppose the Navy wanted to cut accessions by a certain amount. How much would reenlistments need to increase to maintain a given endstrength each year? This chart shows a menu of feasible combinations. All will meet a fixed endstrength of 311,761, the goal for FY05.

We developed a model to solve for steady-state accessions under a variety of reenlistment and attrition scenarios. Here, we use the term "reenlistment" to refer to reenlistments and long-term extensions (LTEs). For the purposes of our analysis, the distinction between the two is less important than the *total* number of people continuing in the Navy after they have reached the end of their obligations. We obtained recent rates of reenlistment and attrition from BUPERS and adjusted them to reflect feedback between advancement and retention. If those rates continued, the Navy's steady-state accession level would be 56,140.

If the Navy wanted to age the force, it would cut accessions and increase reenlistment. Conversely, if it wanted to move toward a less senior force, it would increase accessions and reduce reenlistment. The chart above shows combinations of accessions and changes in reenlistment/LTEs that meet the (same) endstrength goal.

Here, we have assumed that the percentage-point changes in reenlistment/LTEs apply evenly to every year in Zone A (LOS 2 through 6). For instance, if the Navy wanted to cut accessions to 53,200, and there were no other changes, the percentage of personnel reenlisting or extending would need to increase by 5 percentage points.

The baseline steady-state force averages 6.01 YOS. The force with 53,200 accessions averages 6.26 YOS, and a force with 59,200 accessions would average 5.75 YOS. Though the changes in the average are small, they represent significant shifts in the overall seniority distribution of the force.

Cutting Attrition Relieves Pressure on Recruiting With Fewer Reenlistments

Example: ways to cut accessions by about 2,900

Decrease Zone A attrition by...	...*and* increase Zone A reenlistment/LTE	Change number of Zone A reenlistments/LTEs	Change average YOS
0 point	5 points	+2,100	+.25
1.5 points	2 points	+1,000	+.21
2.5 points	0 point	+200	+.19

If first-term attrition continues to worsen, the burden on reenlistment will intensify. But, if the Navy can limit first-term attrition, a given endstrength goal can be met with fewer reenlistments.

The previous chart held attrition constant, but the Navy could combine reenlistment and attrition strategies. This table provides an example in which the Navy decides to cut accessions by 2,900 relative to the baseline. A backup slide makes the same point in graphical form.

With no change in attrition, the Navy would need a 5-percentage-point increase in Zone A reenlistments/LTEs to replace the lost accessions. If the Navy can cut attrition in Zone A by 1.5 percentage points (all else equal), the same steady-state accession level could be achieved, and the needed change in the reenlistment/LTE rate would decline to 2 points. If the Navy can cut attrition by 2.5 points instead, it could meet endstrength with no increase in reenlistments/LTEs. Lower attrition would mean that more sailors would reach the end of their terms; the *number* of reenlistments/LTEs would increase without any change in the percentage (that's why the number reenlisting is 200 higher than in the baseline case).

Attrition cuts, however, would age the force less than would increases in Zone A retention. To the extent that the Navy values the readiness benefits of a more experienced force, it should focus on buying additional

retention. Unfortunately, the costs of cutting attrition are not known. The best strategy would probably involve some combination of accession cuts, reduced attrition, and increased retention.

Here we have dealt with Zone A attrition—changing boot camp attrition only has effects of similar size. A backup slide illustrates how much the Navy could cut accessions if it returned to the rates of boot camp and post-training attrition of the 1980s.

Replacement of Recruits with Reenlistments: Rules of Thumb

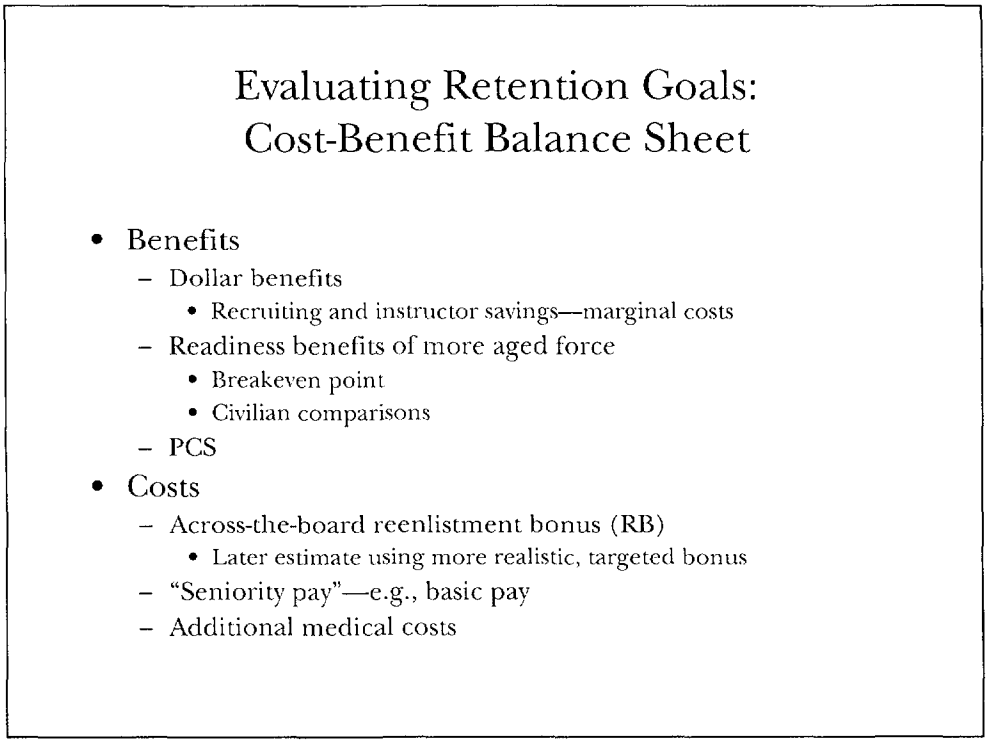
- Holding endstrength constant, 1 extra first-term reenlistment can replace between 1.4 and 2 accessions
- Actual estimate depends on relationship between reenlistment and attrition
  - If each 1-point increase in reenlistment is followed by a .3-point cut in attrition, use 1 : 2
  - If attrition is independent of changes in reenlistment, use 1 : 1.4

The following rules of thumb summarize the menu of reenlistment and accession combinations.

Holding endstrength constant, 1 extra first term reenlistment (or LTE) can replace between 1.4 and 2 accessions. We can express this using more realistic numbers: 1,000 additional reenlistments can replace between 1,400 and 2,000 accessions. Note that the replacement rate is not 1:1 because our analysis is steady state.

The actual replacement rate depends on the relationship between reenlistment and attrition. We have assumed that the two variables are not causally linked, as previous research has assumed [4, 6].

Earlier, we showed how increasing Zone A reenlistment by 2 points shapes the force. The results depend on the assumption we make about the causal relationship between reenlistment and attrition. For example, reference [6] calculated a rate of replacement of 2 instead of 1.4. In our example, this would mean that accessions could be cut to 1,720 instead of 1,190.



So far, we have laid out the Navy's alternatives. The next step is to weigh the benefits of each option against the costs.

Fewer accessions mean avoided accession and training costs. In estimating these savings, we count marginal costs only and exclude overhead expenditures, such as schoolhouses and rent for recruiting centers. The marginal costs of recruiting include recruiter salaries, advertising, enlistment bonuses, and educational benefits. The marginal costs of training are instructor salaries and fewer dollars for students in the Individuals Account of the MPN budget (Student IA).

We do not have a direct estimate of the dollar value of the readiness benefits of seniority. While several studies relate the average age of the enlisted force to readiness measures, the dollar value of that readiness is not known. One approach [6] is to calculate break-even readiness growth, beyond which it worthwhile to age the force. Another is to estimate the productivity growth associated with experience in similar civilian jobs.

We place PCS spending in the "benefits" category. In reality, however, PCS spending may either increase or decrease as we age the force.

The most important point about our reenlistment bonus (RB) in this example is that we only consider an *across-the-board bonus*—one that is generic with respect to skill. It is not the same as the Selective Reenlistment Bonuses

(SRBs). It is more like the Regular Reenlistment Bonus (RRB) currently under discussion. Why do we take this approach? The 1997 analysis [4] showed that, to achieve accession cuts of the magnitude that the Navy is now considering, it would need to expand the bonus offering beyond the typical high-tech ratings.

None of this means that targeting specific ratings is not important; in fact, aging the force would require some form of targeting. Working out a specific SRB plan, however, would require a stand-alone analysis.

Example of Cost-Benefit Balance Sheet: Increase Zone A Reenlistment 2 Points

- Benefits: $36 million/year + extra readiness
  - Recruiting: $14.7 million
  - Instructors: $1 million
  - Student IA: $19.3 million
  - PCS: $1.2 million
  - Average YOS: increase 1.2 months
  - Readiness: ?
- Costs: $78 million to $169 million/year
  - Reenlistment bonuses: $66 million to $157 million
  - Medical: $3.9 million
  - Seniority: $7.9 million

This slide provides an example of a cost-benefit balance sheet for a force-aging scenario, assuming no change in attrition. Here, we have estimated the returns to increasing Zone A reenlistments by 2 percentage points. The nature of the results is the same for increases of any size.

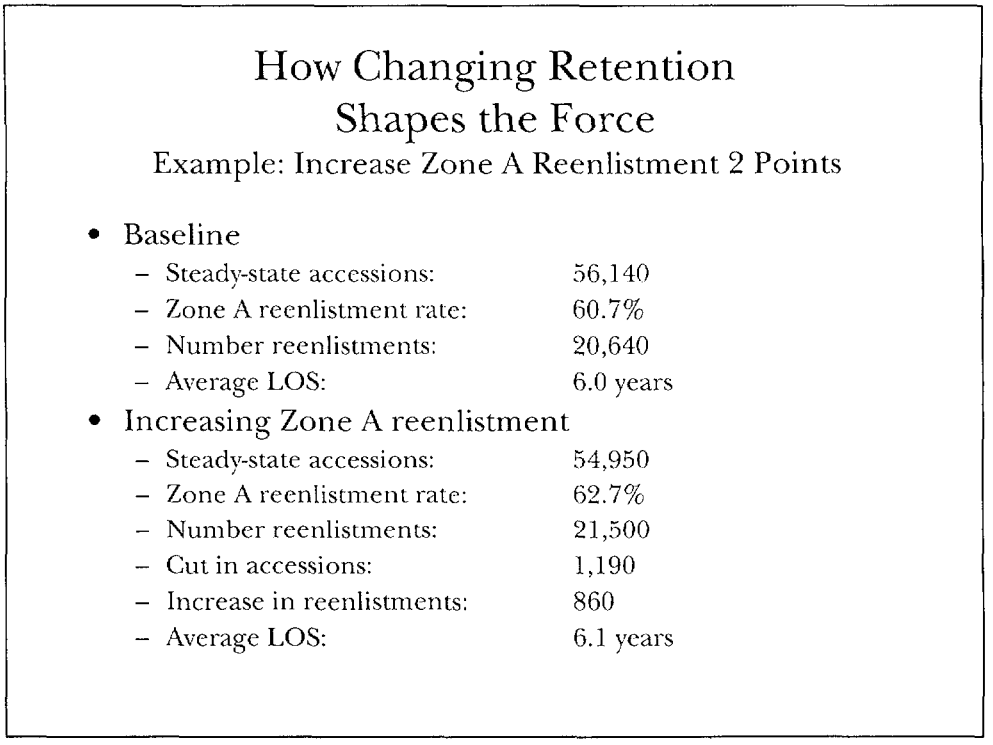
In this scenario, the Navy can cut accessions by about 1,190 relative to the baseline. Recruiting savings are substantial—$14.7 million per year. This calculation assumes that the marginal cost of a high-quality recruit is $19,275; medium quality, $5,000; and low quality, $3,960. The Lewin Group provided these figures.

Reducing accessions also saves spending on instructors, Student IA, and PCS. To estimate the savings, we used the same procedures as in the 1997 study, adjusting only for inflation.

We have no direct evidence of the readiness value of aging the force. Later, we consider whether the force-shaping that comes out of this scenario would be worth it to the Navy.

The costs of aging the force are additional spending on seniority (e.g., base pay), health care, and reenlistment bonuses. Ranging from $66 million to $157 million, additional RB costs dominate the balance sheet. The additional RB is distributed to *everyone* who reenlists, not just to the additional 860. People who would have stayed at a lower bonus level, or received no bonus, are all getting paid at a higher level. Payments to people who would stay anyway is an inevitable feature of any bonus (including the SRB program), accounting for many of their costs.

A backup slide explains how we estimated the RB cost range.



How would this strategy shape the force—in other words, what would the Navy be buying?

Steady-state accessions would fall by about 1,190. An increase in the reenlistment rate to 62.7 percent would lead to 860 additional reenlistments each year. In keeping with the rule of thumb, we see that the replacement rate is approximately 1.4 (1,190/840 = 1.38).

This example assumes that attrition and reenlistment rates are independent. In contrast, the 1997 study on aging the force [4] assumed that increased reenlistment has a secondary effect of decreasing attrition.

Will the Readiness Increase Be Worth It?

Example: Increase Zone A Reenlistment 2 Points

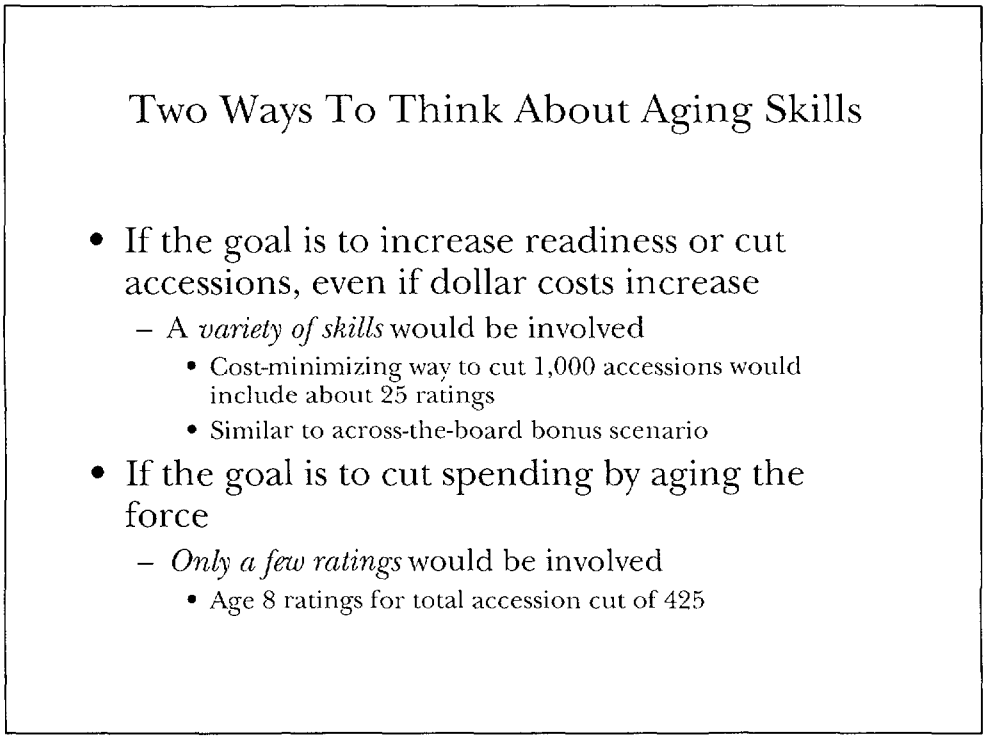
- Value of readiness needs to be at least
  - Lower bound: $42 million, or $135/sailor
  - Upper bound: $133 million, or $427/sailor
- Average seniority would increase 1.2 months
- On average, Navy now pays $140 for 1.2 extra months of seniority (or $1,400 per year)

For aging the force to be worthwhile, the value-of-readiness benefit should equal or exceed the net (dollar) cost. In our scenario, net costs range from $42 million to $133 million, depending on which RB estimate we use. On a per-endstrength basis, net costs range from $135 per sailor to $427 per sailor.

The source of any readiness benefit is the increase in sailors' average seniority. In our example, average YOS increases by 1.2 months.

Note that the Navy now pays about $140 for an extra 1.2 months of seniority per sailor—about $1,400 per additional year of service. In this sense, the extra seniority is worth it to the Navy. For the sake of argument, let's say that the readiness value of the additional seniority is, in fact, $140 per sailor. This benefit exceeds the lower bound net cost of $135 per sailor, so aging the force is worth it. However, the benefit is far lower than the upper bound net cost estimate. Using this method of assigning a value to the readiness benefit, we would say that it falls short throughout most of the range of net costs.

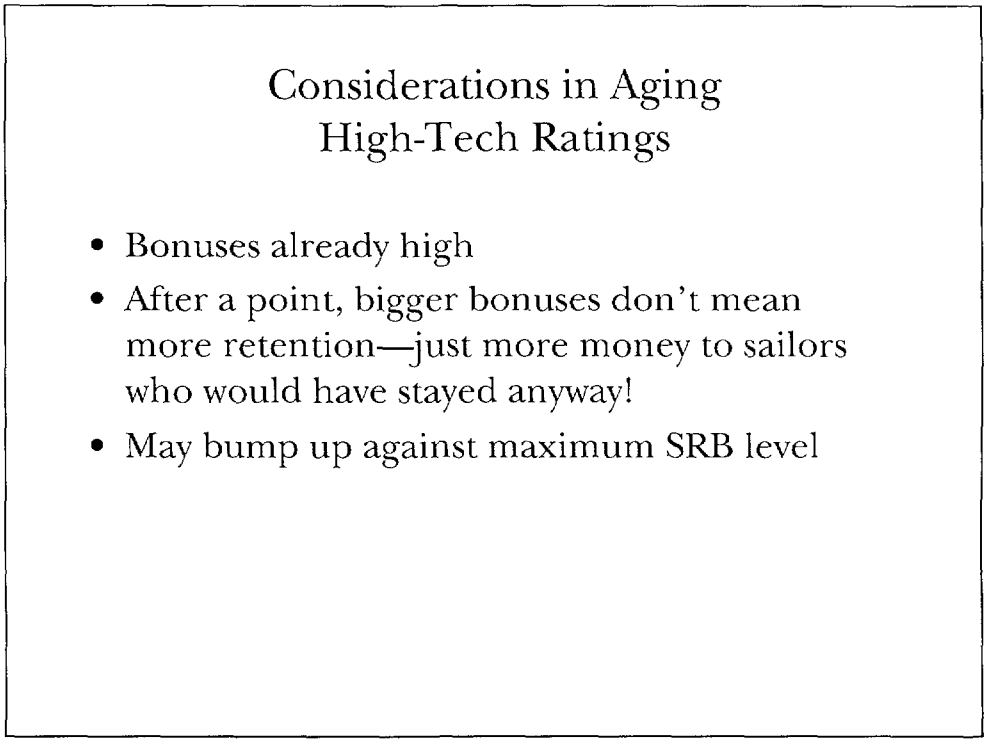
We estimated what the Navy pays for seniority by estimating average MPN rates for each YOS, which depend on the paygrade/YOS distribution of FY99 work-years. Between YOS 0 and 31, the MPN rate increases by an average $1,400 per year of service. Changes are largest in the first several years of service and then even out.



So far, we have considered aging the force as an across-the-board strategy. Several insights from [4] are relevant to deciding which ratings would be involved and the magnitude of possible accession cuts.

We learned that there are two ways to think about aging the force, and each involves different mixes of skills. If the Navy wants to cut the accession goal by a specific amount (e.g., in response to the difficult recruiting environment), it is likely that a variety of ratings would be involved. The same would be true if the Navy wanted to achieve the readiness benefits of a more senior force. In both cases, we suppose that the Navy is not as interested in saving dollars as in meeting certain goals at the lowest possible increase in cost. Selecting the right mix of skills is a way to keep costs down. In our 1997 study, cutting accessions by 1,000 involved 27 ratings/NECs. Most were high tech, but not all of them. FC was in the group, but so was BU (builder). To achieve cuts in a way that minimizes costs, the Navy should not focus on boosting retention in just a few ratings, such as FC. We will discuss why in a subsequent slide.

If the goal is to save money (or, alternatively, to get the extra readiness benefits of an aged force without changing spending), only a handful of ratings would be involved. In the 1997 study, we found that the Navy could save money by boosting retention in 8 ratings/NECs and cutting accessions by up to 425. Larger accession cuts would increase net spending.



Many people are surprised to learn that the best way to achieve large accession cuts is to age many ratings a little bit—not to age only a few ratings significantly. After a point, bigger bonuses don't translate into higher retention—just more money to sailors who would have reenlisted anyway! And, in general, the higher retention is initially, the more difficult improvement becomes.

Furthermore, the desired bonus may exceed the SRB currently allowed under law.

Costs and Benefits of Aging Skills
(Enough for 100-Accession Cut)

	Retention and Seniority Costs ($M)	Recruiting and Training Savings ($M)
High-tech sample (AT, ET, FC, CTM)	6.8	5.0
Mid-tech sample (AD, EM, GSE, GSM, MM)	6.0	3.5
Low-tech sample (AK, SK, MS)	7.8	2.7

Readiness benefits, costs, and savings from aging are likely to be skill specific. As a result, the issue should be examined in some rating-specific fashion—not simply in the aggregate. We can also use indicators from the civilian labor market to estimate the readiness benefits of aging certain skills. As a first step, we estimate the dollar costs and benefits—extra spending on retention and seniority, and savings from recruiting and training.

We selected ratings that have been matched to civilian equivalents [7]. We divided them into three groups: high-tech (AT, ET, FC, and CTM), mid-tech (AD, EM, GSE, GSM, and MM), and low-tech (AK, SK, MS). For each group, we analyzed the steady-state costs and savings of increasing reenlistment rates enough to generate a steady-state accession cut of 100 per year, a simulation that allows us to compare results across groups.

Retention and seniority costs vary. As we have seen, where bonuses and retention are already high, it costs more to use bonuses to increase retention. This explains why the mid-tech group has the lowest cost—its initial reenlistment rates are much lower than either of the other two groups. What differentiates the high-tech cost from the low-tech cost is responsiveness to reenlistment bonuses: these high-tech ratings tend to have higher pay elasticities than these low-tech ratings.

Recruiting and training savings vary more widely across the groups. The high-tech group draws almost exclusively from the high-quality A-cell recruits (high school diploma graduates with above-average test scores), who are much more expensive to recruit than others. They are also more expensive to train, as a direct function of the length of their training pipelines.

Costs and Benefits of Aging Skills
(Plus Productivity)

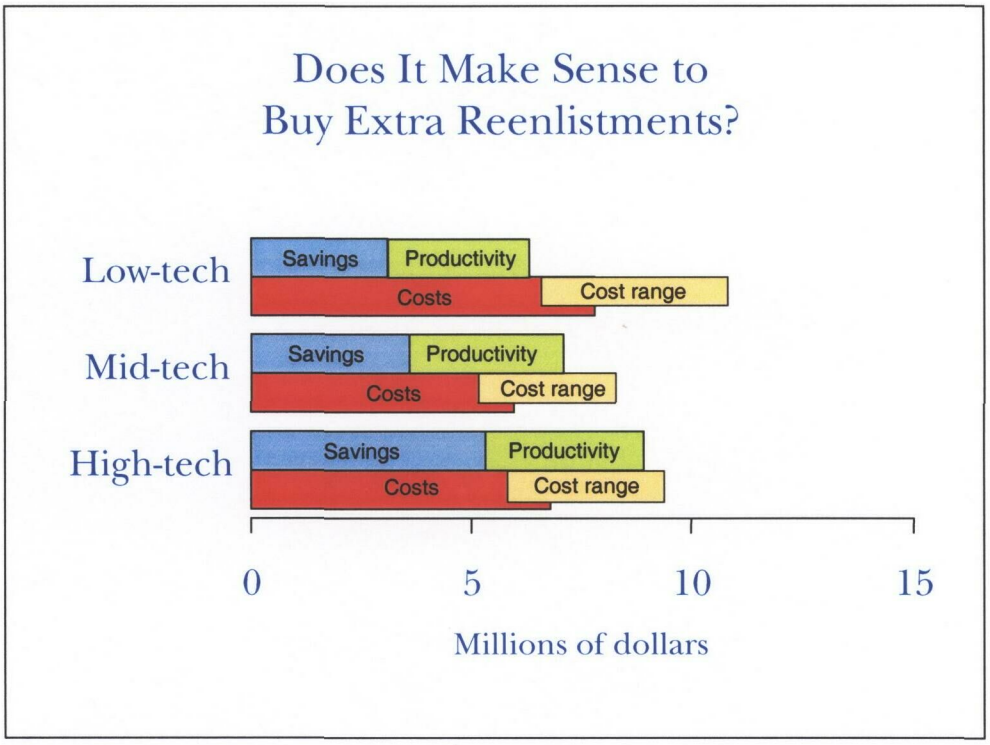
	Retention and Seniority Costs ($M)	Recruiting and Training Savings ($M)	Annual Increase in Productivity (%)
High-tech sample (AT, ET, FC, CTM)	6.8	5.0	3.6
Mid-tech sample (AD, EM, GSE, GSM, MM)	6.0	3.5	3.3
Low-tech sample (AK, SK, MS)	7.8	2.7	2.6

Even for the high-tech group, the costs of force aging exceed the savings in the steady state. This is in keeping with our across-the-board scenario. Now we factor in the readiness benefits of seniority.

In the Navy, these benefits can be understood as a sailor's contribution to readiness; more generally, we call it productivity. It is likely that the readiness benefit of seniority is greater in the high-tech than the low-tech group. In the low-tech group, we expect a learning curve that flattens out early in the career. In the high-tech group, we expect each year of experience to have a significant effect on a sailor's contribution to readiness.

To test this idea, we made the assumption that similar returns to experience or seniority exist in Navy jobs as in their civilian counterparts. Reference [7] includes a matched list of occupations. We used the Current Population Survey (CPS) to estimate the effects of experience on productivity for each of the civilian counterpart occupations. The productivity estimates above are weighted averages of the estimates for each occupation in the group.

Based on their civilian counterparts, one would expect increases in productivity of 3.6, 3.3, and 2.6 percent with every extra year of service in the high-tech, mid-tech, and low-tech rating groups, respectively.



This chart shows the recruiting and training savings and the retention and seniority costs from the previous table. It adds two elements. It quantifies the dollar benefit of the increase in productivity from increasing reenlistments enough to decrease accessions by 100 in each rating group. It also includes a cost range to supplement the point estimate.

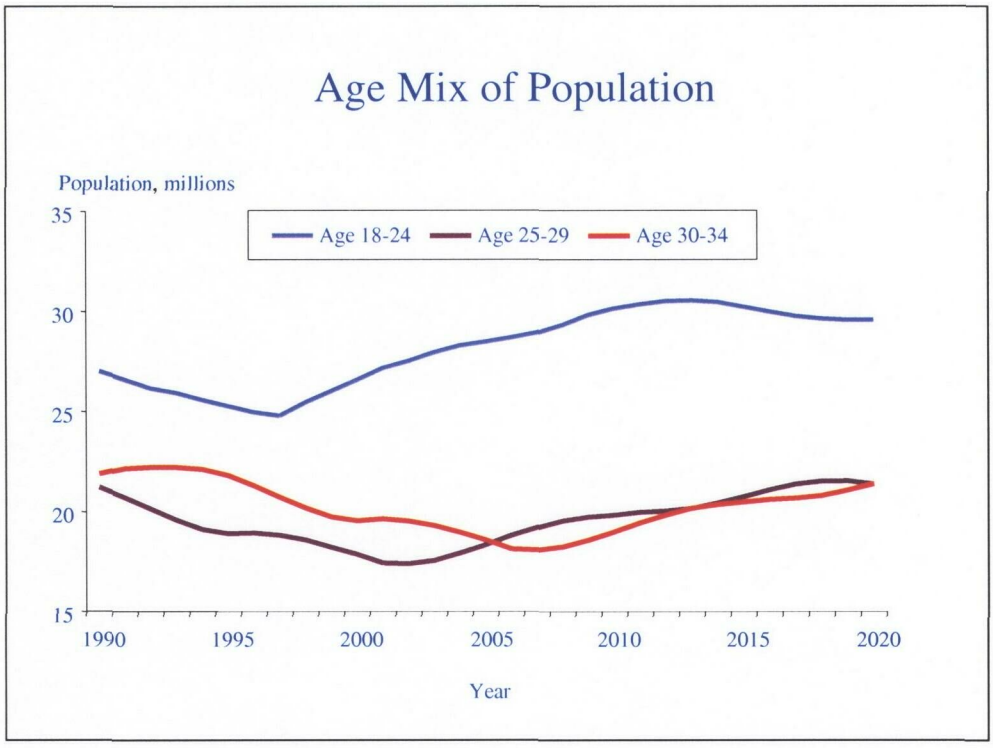
The larger cost bar represents our best estimate of the retention and seniority costs of increasing reenlistment bonuses enough to cut accessions by 100 in each rating group. But one of the factors in the calculation is how responsive sailors are to increases in SRBs. In previous research, a range of estimates was developed. As in our across-the-board analysis, we put in the cost range; the true cost is likely to fall somewhere in the range, but not necessarily at our point estimate.

Factoring in productivity, aging the force using SRBs makes sense for most of the cost range for the high-tech ratings. In the mid-tech rating group, aging the force using SRBs appears to make sense using our best cost estimate, but it is also likely that the costs will exceed the benefits. Aging the low-tech group is not worthwhile, even factoring in the readiness benefit.

Other Relevant Trends

- Age mix of population and labor force
  - New versus more experienced workers
- Job shopping of young workers
  - Limits to careerism

We now consider factors external to the Navy that may affect the long-run feasibility of aging the force. The first is the age mix of the population and labor force. The second is the typical youth career pattern, which may limit the amount of careerism that is possible (or desirable) for the Navy. Our goal is to provide a broader context for decision-making.

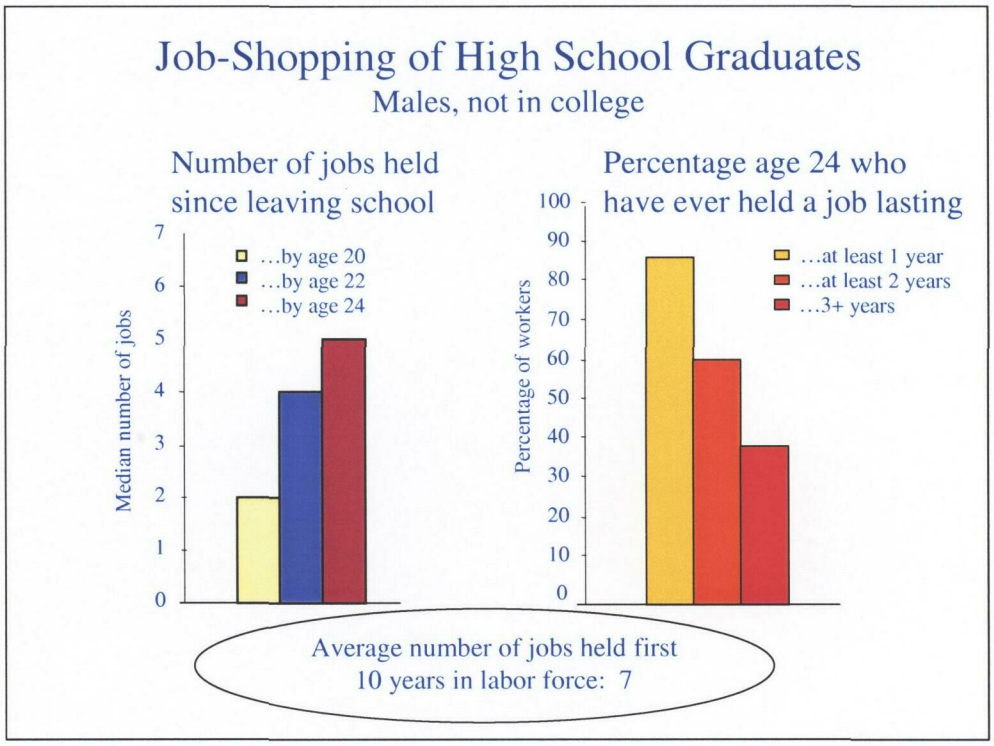


We have already seen that the recruiting forecast is mixed. This conclusion is based on trends in the recruit-age population (18- to 24-year-olds) [1]. To evaluate aging the force, we need to assess competition for more experienced workers, as well, and compare the two markets. Will it continue to seem easier to retain more experienced personnel than to recruit new ones? Is there a risk that aging the force is "solving last year's problem?"

Possibly. An important factor in answering this question is the size and age mix of the population. In 1998, the youth population (about 18 to 24) reached the bottom of a long downward trend. In contrast, the population of more experienced workers (aged 25 to 34) will continue to decline over the next several years.

A backup slide makes the same point using labor force data instead of population data. The age 25 to 34 labor force will shrink through 2008, whereas the age 16 to 24 labor force will grow.

These data come from the Census Bureau [8].



The Navy also needs to determine a competitive career structure. This is a complex issue requiring its own analysis, but we can make a few observations.

Promoting longer careers in the military may be difficult unless the Navy is willing to permit the sort of occupational/career flexibility that youth can find in the civilian labor market. (Of course, more flexibility may be cost-effective regardless of whether the Navy ages the force.)

By age 22, a civilian worker has already held 4 full-time jobs since leaving school. In contrast, for the typical youth who joins the Navy, a standard 4-year enlistment contract would expire when he was 22 years old. By age 24—on the high end of the recruitable age range—he would have held 6 jobs [9].

The frequency of job change is mirrored in the relatively brief span of time with each employer. Only about one-third of 24-year-olds have ever held a job lasting 3 or more years [9]. In contrast, most sea tours of first-term sailors last more than 3 years.

Using time in the labor force instead of age, men hold an average of 7 full-time jobs their first 10 years in the labor force [10].

A backup slide summarizes similar data for workers who left school after completing different levels of education.

We present data about men to facilitate comparisons with the Navy and because women's labor force attachment is unstable (even today). Most studies that characterize "normal" job turnover focus on men.

Main Reason Young Workers Change Jobs

- Job-shopping when young leads to better matches
  - Greater productivity
  - Possibly involves promotion but no direct data on this
- Payoff from changing jobs is relatively high first 10 years in labor force
  - Pay increases 7% by staying at a job another year
  - Increases 12% if change jobs
- Most workers eventually establish long-term employment
  - Payoff to changing jobs declines by mid-20s
  - College grads "settle down" at later ages but soon show same or lower turnover as others

Although some view turnover as undesirable, workers experience benefits from switching employers. For both employer and employee, job separation can improve the "match" between workers and firms. Individuals are able to leave jobs that are not a good fit and seek out others that are more suited to their skills.

This may lead to a more responsible position in the new firm, or it may not. The bottom line is that the worker is more productive with the new employer than with the previous one. We do expect that the improvement in match quality will increase the promotions that the worker may expect in the future.

The productivity increase that accompanies job change is reflected in pay. One of the greatest benefits to job separation is that the majority of wage growth occurs when one switches employers [10]. This is particularly true for workers early in their careers.

Turnover, therefore, is often *necessary* to generate increases in earnings for an individual. As workers gain experience, they are less likely to change jobs and less likely to experience substantial wage growth as a result of job changes. In fact, the returns to changing jobs tend to decline with time in the labor market.

Studies show that the probability of staying with a given employer increases with both prior labor market experience and accumulated job tenure. This is true even today. Many observers have proclaimed a shift away from long-term

employment relations, but most evidence supports the idea that "career jobs" are far from dead [11]. College graduates settle into long-term employment 1 or 2 years later than do workers who stopped their education with a high school degree. Once they settle in, however, college graduates remain with a given employer longer than do less educated workers.

Conclusions

- Can buy higher retention to reduce accessions
- Aging the force
  - Is not a cost-effective way to take pressure off recruiting
  - Can be a cost-effective way to increase readiness
- Cutting attrition
  - Could be less expensive than boosting reenlistment
  - But does less for seniority and readiness
- Optimal mix of recruiting and retention depends on economic and demographic environment

Using recent retention data, we have identified steady-state combinations of recruiting, reenlistment, and retention that the Navy may pursue in the future. As a rule of thumb, one extra first-term reenlistment can replace between 1.4 and 2 accessions. In general, the costs of meeting endstrength with reenlistments will increase with the first-term attrition rate.

Whether the Navy should age the force depends on what it wants to achieve. Aging the force is not a cost-effective way to relieve pressure on recruiting. An across-the-board reenlistment bonus is far more expensive than recruiting. Now, the cost of recruiting each A-cell sailor is just under $20,000. Even if this cost doubled, and the Navy decided to recruit A-cells *exclusively*, the dollar costs of aging the force would still swamp the dollar benefits.

Retaining more sailors, especially those who are highly skilled, will yield readiness benefits that could tip the balance. Aging high-tech ratings is worthwhile. However, a strategy focused on high-tech sailors is unlikely to permit the large accession cuts that would take pressure off recruiting.

To achieve that goal, one of the best things the Navy can do is cut attrition. Reducing attrition, however, has a weaker impact on the seniority does increasing reenlistments. Therefore, it has a lesser readiness benefit.

Overall, a policy that is geared toward readiness will look different from one that is geared toward lowering the recruiting goal. The economic and demographic environment will affect the optimal strategy. The growth of the youth population has only started to recover from a long downward trend. The Navy needs to make sure it is not "solving last year's problem."

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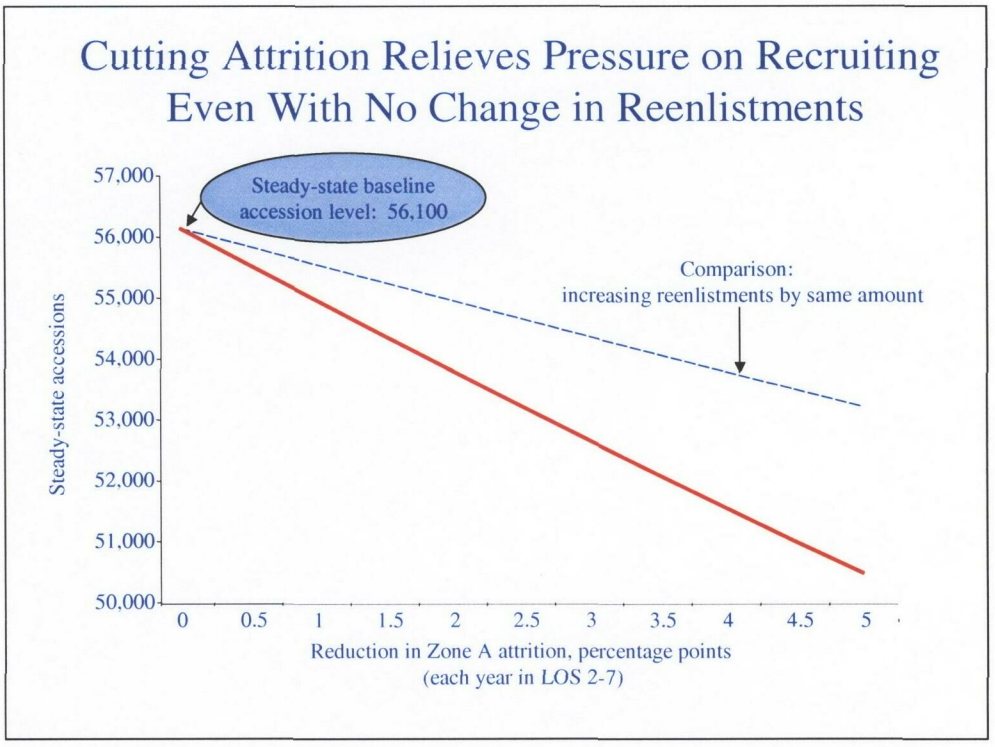
Backup Slides



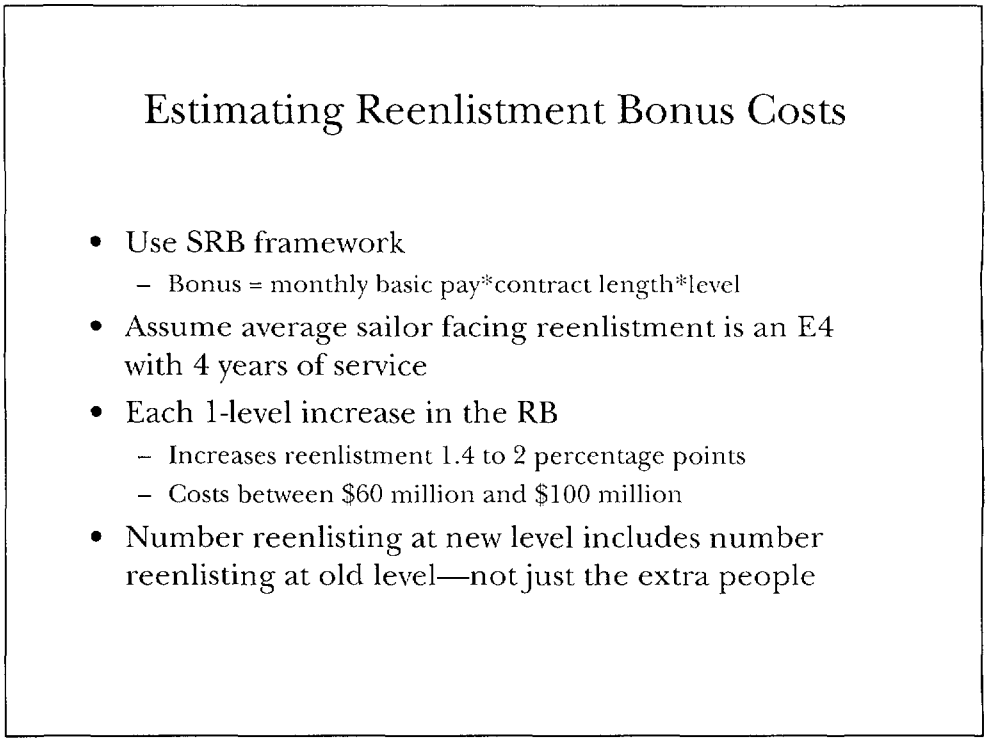
This slide gives a graphical depiction of how attrition affects the reenlistment-recruiting trade-off.

Impact of Returning to Late-80s Attrition

	Steady-state accession reduction
Boot camp attrition from 15 to 12 percent	1,300
Post-training attrition from 8 to 7 percent per year	1,200

To create more concrete scenarios, we asked how many accessions the Navy could cut if boot camp and Zone A attrition return to their pre-drawdown rates.

Boot camp and first-term attrition appear to be better targets of opportunity than reenlistment. If the Navy could get both back to 1980s rates, it would see a significant cut in accession requirements. Of course, achieving these attrition cuts may be costly in today's economy.



Even though the reenlistment bonus we work with is across-the-board, we borrow the payment structure from the SRB program. That is, the bonus paid to each person is the product of monthly pay, the term of reenlistment, and the RB multiple (or level). What makes this program across-the-board is that everyone who reenlists gets paid this amount, regardless of skill.

We estimated RB costs by assuming that each 1-level increase in RBs increases retention by between 1.4 and 2 percentage points in the short run. This figure is based on previous statistical research that uses an ACOL (Annualized Cost of Leaving) framework [7]. The more reenlistment responds to pay, the less expensive the RB.

We adjusted the percentage point increases to account for the feedback effect between advancement and retention. With a higher bonus, more people stay in the short run; as a result, the rate of advancement declines. In turn, declining advancement exerts a secondary, negative effect on retention. Ultimately, the system stabilizes. For instance, to achieve a 2-percent increase in reenlistment in the long run, it needs to purchase about 2.2 percentage points in the short run.

Here is an example. To raise steady-state reenlistments/LTEs by 2 percentage points, the Navy needs to pay bonuses high enough to overcome the negative advancement effect. In this case, it is as if the Navy needed to buy 2.2 additional points of retention rather than just 2.0. If each increase in the level will achieve 1.4 percentage points, the Navy will need to increase the bonus level by 1.57 = 2.2/1.4.

Finally, we assume that each level costs between $60 million and $100 million. This is a rough estimate based on the steady-state continuation rates, monthly basic pay, and an assumption that the average reenlistee is an E4 with 4 LOS, who signs on for 4 more years.

The upper bound estimated RB cost assumes that everyone who continued from Zone A to Zone B would be reenlisting. People who would have extended would reenlist instead.

The lower bound estimate adopts the assumption in [4], that each RB level cost $60 million. This is based on the idea that a certain portion of the continuation from Zone A to Zone B would be short-term extensions.

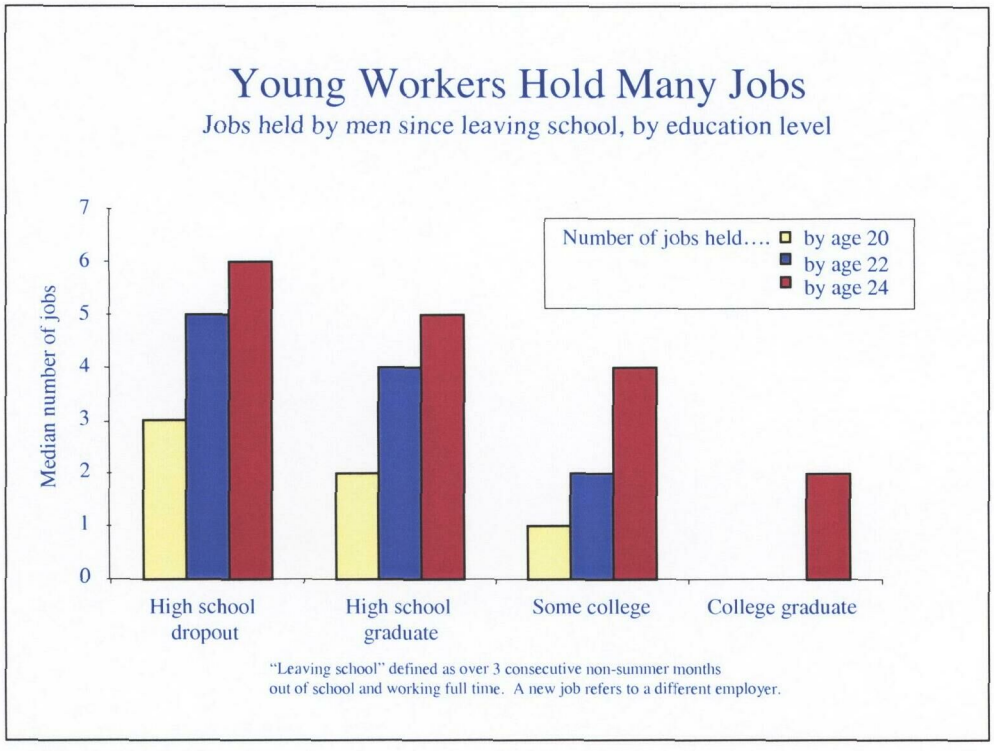
Age Distribution of the Labor Force*

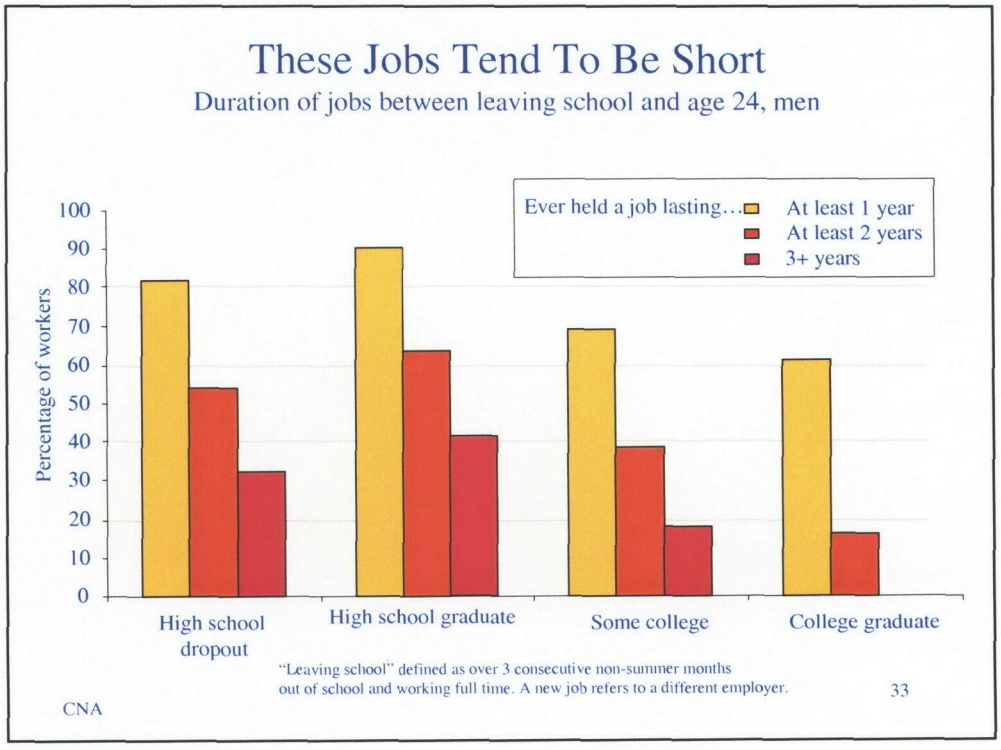
(Percentage of All Workers)

	1978	1988	1998	2008	Change 98-08
16 to 24	24.5	18.5	15.9	16.3	+.4
25 to 34	26.1	29.2	23.8	21.0	-2.8
35 to 44	18.4	24.2	27.3	22.6	-4.7

*Do not sum to 100%; other age groups not included here.

This chart breaks down the age distribution of population between 1978 and 2008, using labor force projections instead of population projections [12]. It points to a similar conclusion: over the next decade, the recruitable age labor force will grow faster than will the population of more experienced workers.


Young Workers Hold Many Jobs
Jobs held by men since leaving school, by education level
Median number of jobs
0
1
2
3
4
5
6
7
Number of jobs held....
by age 20
by age 22
by age 24
High school dropout
High school graduate
Some college
College graduate
"Leaving school" defined as over 3 consecutive non-summer months
out of school and working full time. A new job refers to a different employer.


These Jobs Tend To Be Short
Duration of jobs between leaving school and age 24, men
Percentage of workers
0
10
20
30
40
50
60
70
80
90
100
Ever held a job lasting...
At least 1 year
At least 2 years
3+ years
High school dropout
High school graduate
Some college
College graduate
"Leaving school" defined as over 3 consecutive non-summer months
out of school and working full time. A new job refers to a different employer.
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