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Executive Registry
7-5335

The Director
Central Intelligence Agency



Washington, D.C. 20505

10 AUG 1977

Ms. Rosemary De Carlo
Office of Assistant Librarian
Room 110, Main Building
Library of Congress
Washington, D.C. 20540

Dear Ms. De Carlo:

Enclosed is my authorization for the Library of Congress to retain and utilize the recording of my presentation to Congressional Interns in the Coolidge Auditorium on 13 July 1977.

I hope that the views I expressed are useful to future researchers and I would be delighted to respond to any inquiries which may be directed to the Library dealing with the substance of this recording.

Yours sincerely,

STANSFIELD TURNER

Enclosure

Distribution:

- Original - Addressee w/encl.
- ① - ER w/encl.
- 1 - Acting DDCI w/encl.
- 1 - DCI w/encl.
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EXECUTIVE REGISTRY FILE *Congress*

PERMISSION TO RECORD IN THE
LIBRARY OF CONGRESS

I, STANSFIELD TURNER

(Name)

hereby grant to the Library of Congress the right to record my
presentation on 13 July 1977 and to use this
(Date)
recorded material for reference, research, and for cultural and
educational purposes.

I authorize the Library of Congress to provide single
copy reproductions of it at cost in response to requests from
educational and cultural institutions.

This permission is specifically limited to the use
described above. I reserve to myself all other rights which I
possess in this recorded material.



(Signature)

10 AUGUST 1977

(Date)

Executive Registry
77-5335/L

OLC 77-2878/1

MEMORANDUM FOR: Director of Central Intelligence

VIA : A/DCI/PA

FROM : George L. Cary
Legislative Counsel

SUBJECT : Library of Congress Request for Tape-
Recording of DCI Briefing of Congressional
Interns (13 July 1977)

1. Action Requested: It is requested that you authorize the Library of Congress to retain, as a public record, a tape-recording of the talk before the Congressional Interns on 13 July 1977.

2. Background: On 13 July 1977, you appeared before a group of 600 Congressional Interns at the Library of Congress Coolidge Auditorium to discuss "The CIA." The Library of Congress has informed us, after the fact, that the entire session was tape-recorded as is their customary practice for all such Congressional Intern briefings in the Coolidge Auditorium. The Library of Congress is now seeking your approval to place that recording into the public domain.

3. Staff Position: We have reviewed the tapes and recommend that they be released to the Library of Congress as the public record. The copies which were given to us for review will be forwarded to A/DCI/PA for retention.

4. Recommendation: It is requested that you sign the attached authorization form and covering note for transmittal to the Library of Congress.

George L. Cary

STAT

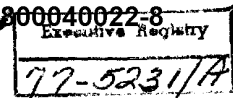
Attachment:
As stated

APPROVED: Director of Central Intelligence

DISAPPROVED:

The Director of Central Intelligence

Washington, D.C. 20505



*W2F
where?*

10 AUG 1977

The Honorable Les Aspin
House of Representatives
Washington, D. C. 20515

Dear Les:

Thanks for providing a copy of your analysis of Soviet Shipbuilding Forecasts. It has, of course, been provided to the appropriate people in the CIA. I trust that you have provided the study to the Department of Defense which was the source of much of your basic data.

It is clear--in retrospect--that many of the estimates you cite have proven to be considerably inaccurate. Where the Intelligence Community is involved in making these estimates and projections we shall continue our efforts to improve their quality and better describe the basis for our projections and our confidence in them.

There is, however, no high likelihood that the accuracy of Defense or CIA projections will be constantly improving over time. This is a dynamic affair and as we improve our collection capability on the one hand the Soviets take actions to deny information on the other. This is not to say that we are complacent about poor quality, however. We should try to refine our estimating capability based on lessons learned and better data.

I appreciate your interest in intelligence collection and analysis.

Yours sincerely,

STANSFIELD TURNER

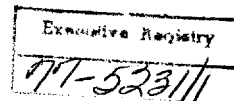
P.S. Look forward to going into these matters in detail & working together in general on SPSCAT
~~(EXECUTIVE REGISTRY FILE - Congress)~~

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THE DIRECTOR OF CENTRAL INTELLIGENCE

WASHINGTON, D. C. 20505



National Intelligence Officers

DCI/NIO 1932-77
4 August 1977

MEMORANDUM FOR: Director of Central Intelligence

VIA : George L. Cary
Legislative Counsel

FROM : Robert R. Bowie
Deputy to the DCI for National
Intelligence

SUBJECT : Aspin Study of Soviet Shipbuilding
Forecasts

REFERENCE : Letter from Congressman Aspin to DCI, dated
27 July 1977 transmitting subject study

1. Action Requested. Representative Aspin forwarded by personal letter several copies of a study of Soviet Shipbuilding Forecasts and asked that they be passed to appropriate people in CIA. No response was requested but a brief acknowledgement is considered in order and a proposed response is attached.

2. Background. The study using intelligence projections from '69 through '73 analyzes the quality of the estimates compared with actual production levels in such a manner as to allow the study to be unclassified. It evaluated projections: by category--major surface combatants (>1000 tons), large amphibious ships, SSNs, SS--for deliveries in 1970 through 1975; and by numbers of years into the future projections were made (e.g., 1-, 2- or 3-year projections). Finally, it compares the projections to straight-line projections. The study concludes:

a. Without regard to time (value or range), the estimate was accurate 29 percent of the time, overestimated 57 percent of the time and underestimated the remaining 14 percent. (Data in the estimates were presented as the 75 percent confidence level.)

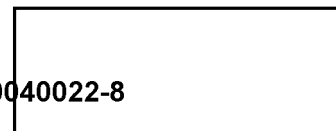
b. Only the diesel submarine category had a balance of "over" and "under" estimates of Soviet production and the US was not seeking funds for diesel submarine procurement during this time.

25X1

UNCLASSIFIED When Removed
From Attachment A.

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c. Without regard to time, in terms of the calculated percentage inaccuracy the "overestimates" were from 2.5 to 4.5 times greater than the "underestimates."

d. The 1-, 2- and 3-year projections do not improve in quality over time but rather their quality deteriorates.

e. Though not advocated, that a straight-line projection would have been four times as accurate as those made for all categories but the diesel submarine projection which was more accurate than straight-line projection.

f. The proclamation that we underestimate Soviet programs (Keegan, Team B, Wohlstetter) is not supported by the facts.

g. If we continue to overestimate Soviet shipbuilding, we overestimate Soviet naval capability.

3. Staff Position. The NIO (Conventional Forces) with the support of the Naval Branch of OSR has reviewed the study. The study has some deficiencies and there are some reasons for the poor quality of the estimates. These are outlined in Attachment A.

Though Representative Aspin refers to DIA as the source of data for the years '69 and '70, the estimates were "national" vice "defense" estimates and responsibility for error is not exclusively that of the Defense Department.

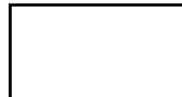
4. Recommendation. A reply be made to Representative Aspin which:

--acknowledges the study;

--expresses a commitment to improve quality of Community products but recognizes some realistic impediments;

--but does not evaluate the study or excuse the error.

A proposed reply (Attachment B) is attached for your consideration.



Robert R. Bowie

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Attachments:

(A)-Comment on the Aspin study of Soviet Shipbuilding Forecasts

(B)-Draft reply to Representative Aspin

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Distribution: NIO 1932-77

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1 - Mr. Cary, LC w/atts

1 - D/DCI/NI w/atts

1 - ER w/atts

1 - NIO Reg w/atts

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Comments on the Aspin
Study of Soviet Shipbuilding Forecasts

1. The study refutes statements by Team B, Wohlstetter and Keegan that the US regularly underestimates Soviet forces--referring to Strategic Forces in the main--by analyzing and proving that our projection of non-strategic shipbuilding has been consistently overestimated.

2. For the years 1969 and 1970, which are used by Representative Aspin, the Intelligence Projection for Planning was a National estimate vice a Defense estimate, therefore, responsibility for error is not exclusively that of the Defense Department. The errors were, however, smaller in those years and they tend to create a base from which estimates have somewhat deteriorated. This is not a point made or even implied by Rep. Aspin; it just happens to be so.

3. The implication in the study that projections in the diesel submarine category were most accurate because Defense did not need to exaggerate this category since no funds were sought for diesel submarines possesses faulty logic. The Soviet diesel submarine would not justify US diesel submarines but does constitute a threat which would affect US requirements for ASW weapons, sensors and systems. Though not as important as the SSN threat, this diesel threat is, nevertheless, important.

4. Some computation methods are inherently biased.

a. The method of computing error in an estimate as a percent of actual will always show overestimates as larger than underestimates for a fixed value of error.

Example: Assume an estimate of ten units and an error of two. The overestimate of two produces an inaccuracy percent of $2/8 = 25\%$, the underestimate of two produces an inaccuracy percent of $2/12 = 16.6\%$.

b. In the evaluation of one, two and three-year projections, the ratio of projected to actual is unnecessarily inverted to "weigh each type of error equally." This will always produce a larger ratio for overestimates than underestimates for a given value of error and the larger the error, the larger the bias.

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Example: For an actual production of ten units and an error of two in the estimate, the overestimate case produces a ratio of $10/12 = .83$ while the underestimates case produces a ratio of $8/10 = .8$. If the projection error was 4, the ratios would be .71 and .6, respectively.

- c. Where a range of values at the .75 confidence level were expressed in the estimate, to describe the value of the error as the difference between the actual and the mid-point of the range is not proper and exaggerates the error.
5. The actual numbers in the study have not been verified because CIA does not have copies of the same data base.
6. The projections of Soviet shipbuilding for the categories evaluated were, in fact, generally overestimated. CIA analysts cite many reasons for overestimating Soviet navy shipbuilding forecasts, none of which were deliberate. They include:
 - a. Expectation that the new classes of submarines, the Alfa and Pap, would follow previous classes. In fact these programs terminated with a combined total of seven SSNs;
 - b. Expectation that SSBN building would taper off and capacity would shift to SSNs;
 - c. Expectation that a relatively modern shipyard--GORKY--would not lay nearly idle;
 - d. The rising tide of the Red Navy with their CNO on Time magazine's cover, his extensive writing and the impressions of the increased Soviet perception of a Navy's value and the analysts' perceptions of its likely continued rapid growth;
 - e. Failure of analysts to appreciate that as the Soviet ships increased in tonnage there would be a comparable decline in numbers delivered;
 - f. Failure to project Soviet manpower and overhaul limitations;
 - g. Conservative nature of military planners to avoid unpleasant surprises.

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I will tell OLC (Joan)
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EXECUTIVE SECRETARIAT

Routing Slip

TO:		ACTION	INFO	DATE	INITIAL
1	DCI		✓	2 AUG 1977	<i>[Handwritten initials]</i>
2	DDCI				
3	D/DCI/IC		✓		
4	DDS&T				
5	DDI		✓		
6	DDA				
7	DDO				
8	D/DCI/NI	✓	✓		
9	GC				
10	LC		✓		
11	IG		✓		<i>[Handwritten initials]</i>
12	Compt			2 AUG 1977	
13	D/Pers				
14	D/S				
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17	AO/DCI				
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19	DCI/SS				
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SUSPENSE *[Handwritten]*
Date

Remarks:
To 10: Please prepare DCI response in coordination with D/DCI/NI

[Handwritten Signature]
Date

EXECUTIVE SECRETARIAT

Routing Slip

TO:		ACTION	INFO	DATE	INITIAL
1	DCI		✓		
2	DDCI				
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Remarks:

To 10: Please prepare DCI response in coordination with D/DCI/NI.

LES ASPIN
1ST DISTRICT, WISCONSIN

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Congress of the United States
House of Representatives
Washington, D.C. 20515

July 27, 1977

Admiral Stansfield Turner
Director
Central Intelligence Agency
Washington, D.C.

h

Dear Stan:

Enclosed are several copies of a study I did recently on Soviet ship-building forecasts.

Please pass it on to those at the CIA who follow this sort of thing.

Sincerely,

h
Les Aspin
Member of Congress

MS

IA/kc
Enc.

7/27/77

~~Copy to~~ *DDI*

*Did not see notation
this, apparently!
Yes, in the Press.*

EXECUTIVE REGISTRY FILE

Congress

SOVIET SHIPBUILDING FORECASTS:
HOW INTELLIGENT IS U.S. INTELLIGENCE?

A STUDY BY
REP. LES ASPIN

JULY 19, 1977

The U.S. intelligence services are under attack not only for assassination plots and assorted other dirty tricks but also for their estimates of what the Soviets are up to.

The most recent example is the "Team E" criticisms of the CIA's interpretation of what motivates the Russians.

Before that, Albert Wohlstetter argued in a series of articles in Foreign Policy that past estimates of Soviet strategic forces had consistently underestimated the pace of Russian expansion.

Then there is Maj. Gen. George I. Keegan, who, since his retirement as chief of Air Force intelligence in January, has fired innumerable salvos at our intelligence output. "The United States, with rather remarkable consistency, has underestimated the Soviets in almost every major field of science, weaponry and force development," he recently wrote in the Christian Science Monitor.

This is not just a bureaucratic spat. The estimates of what the Soviet military is doing today and the projections of what it will do tomorrow are key points that the Congress and the public look at during the annual budget debate.

This is certainly true in the annual debate over the Navy's ship-building budget request. The Administration is requesting, and Congress is appropriating, funds for vessels to be built in future years based on what intelligence says the Russian Navy will have in future years. These estimates come from the Defense Intelligence Agency (DIA) and are a product of the military intelligence system.

There is little doubt as to their importance. The Defense Department has taken the position that a "basic" factor in determining the requirement for the size and composition of the U.S. Navy is "the threat expressed as intelligence estimates of future Soviet maritime capabilities."¹ Similarly, the chief of naval operations, Adm. James Holloway,

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has testified that the "accuracy of the intelligence estimates of future Soviet maritime capabilities" is one of the "three basic factors" determining future force requirements.²

Therefore it is important to check the quality of our projections. This study gathers the estimates of Soviet ship output made in past years and compares them with actual Russian production when those years rolled around.

METHODOLOGY

This analysis is based on official projections made in the five years 1969-1973³ for the number of Soviet warships to be delivered in the years 1970 through 1975, as shown in Table I.

Table I. Format of Shipbuilding Estimates

Year Projection Made	Year of Delivery					
	1970	1971	1972	1973	1974	1975
1969	x-y	x-y	x-y	x-y	x-y	x-y
1970		x-y	x-y	x-y	x-y	x-y
1971			x-y	x-y	x-y	x-y
1972				x-y	x-y	x-y
1973					x-y	x-y
Actual Production:	z	z	z	z	z	z

The DIA's estimates were usually expressed as a range (a low of x to a high of y), although sometimes single point predictions were made. Letters are used in the table for illustrative purposes since actual forecasts of Soviet production remain classified.

The projections examined were for each of four categories of general purpose ships: major surface combatants of 1,000 tons or more⁴; large amphibious ships; nuclear-powered attack submarines; and diesel-powered attack submarines. As Table I demonstrates, there were 20 estimates in each category. With four categories, we are dealing with 80 estimates.

I. ACCURACY OF ESTIMATES

Table II shows whether the actual production (z in Table I) fell above, below or within the range (x - y) of each of the 80 individual projections.

Table II. Accuracy of Projections of Soviet Output

Ship Category	Overestimates (Output lower than estimated range)	True Estimates (Output within estimated range)	Underestimates (Output higher than estimated range)
Major Surface Warships	11	7	2
Amphibious Ships	12	5	3
Nuclear Attack Submarines	19	0	1
Diesel Attack Submarines	4	11	5
Total (as % of all)	46 (57%)	23 (29%)	11 (14%)

Table II shows that the DIA overestimated actual Soviet production more than half the time and in three of the four ship categories; only diesel sub production fell within the range of predictions in the majority of instances. And half of all the underestimates are in the diesel sub category.

The table shows that only 29% of the forecasts turned out to be accurate. This record is particularly remarkable in light of DIA claims of a 75% probability that the actual production figure will fall within the range predicted.

Of course, we cannot expect our intelligence services to forecast Soviet output perfectly. Some errors are unavoidable. But the key point illustrated by Table II is the direction of the inaccuracy: the errors were overestimates four times as often as they were underestimates. Again, only in the diesel attack submarine category do we find that the errors fall relatively equally into overestimates and underestimates.

The United States has not produced any diesel subs for years and did not produce any during the time period of this analysis. It is interesting and perhaps coincidental that relative accuracy and an even balance of under- and overestimates were achieved only in that category for which the Defense Department was not trying to convince Congress of the need for funds.

II. MEASURING THE INACCURACY

The analysis shown in Table II has its limits. A prediction is an error even if the prediction was off by only one ship, e.g., if the forecast were for 8 to 10 ships and the actual production was 11.

A fair assessment requires that we measure the degree of inaccuracy. To do this, the actual ship output has been compared with the midpoint of the predicted range (or the point estimate where no range was provided) in all of those cases where output fell outside the range predicted.

The degree of inaccuracy was then calculated by dividing total errors by the total actual output for each category. If the DIA predicted 6 ship deliveries in a given year and only 4 were delivered, the error is 2. The degree of inaccuracy (error divided by actual output) is 2 divided by 4 or 50%. Similarly, if the DIA had underestimated output by 2 ships when actual production was 4, the error is 50%.

Table III shows the error rate associated with each type of inaccurate prediction (the 46 over- and 11 underestimates in Table II) made by the DIA.

Table III. Degree of Error in Projections of Soviet Output

Ship Category	Overestimates		Underestimates	
	#	Inaccuracy (error as % of actual output)	#	Inaccuracy (error as % of actual output)
Major Surface Warships	11	64%	2	14%
Amphibious Ships	12	380%	3	100%
Nuclear Attack Submarines	19	150%	1	33%
Diesel Attack Submarines	4	163%	5	71%
Overall:	46	108%	11	40%

Table III shows that the errors in the DIA estimates are substantial.

In the case of overestimates, the midpoint of the average prediction was 108% higher than actual output. In the case of underestimates, the midpoint of the average prediction was 40% lower than actual output. In every category, the error associated with the overestimates was substantially higher than that associated with the underestimates.

The results of Table II and III can be summarized by considering a hypothetical case. If, for a given year, the DIA predicted that 11-14 ships of a given type would be built:

- 29% of the time actual Soviet production would have been between 11 and 14 ships;
- 14% of the time the Soviets would have built more than 11 to 14 ships, and on the average would have built seven more or 21 ships;
- 57% of the time the Soviets would have built fewer than 11 to 14 ships and on average would have built five fewer, or 6 ships.

Forecasts of this level of accuracy are not very useful.

III. HAS LEARNING OCCURRED?

Analyzing the errors by ship category is one way of looking at the predictions. Another is to consider the accuracy of the estimates over time. A natural question is whether there has been any improvement over the years. Does the DIA learn from past mistakes?

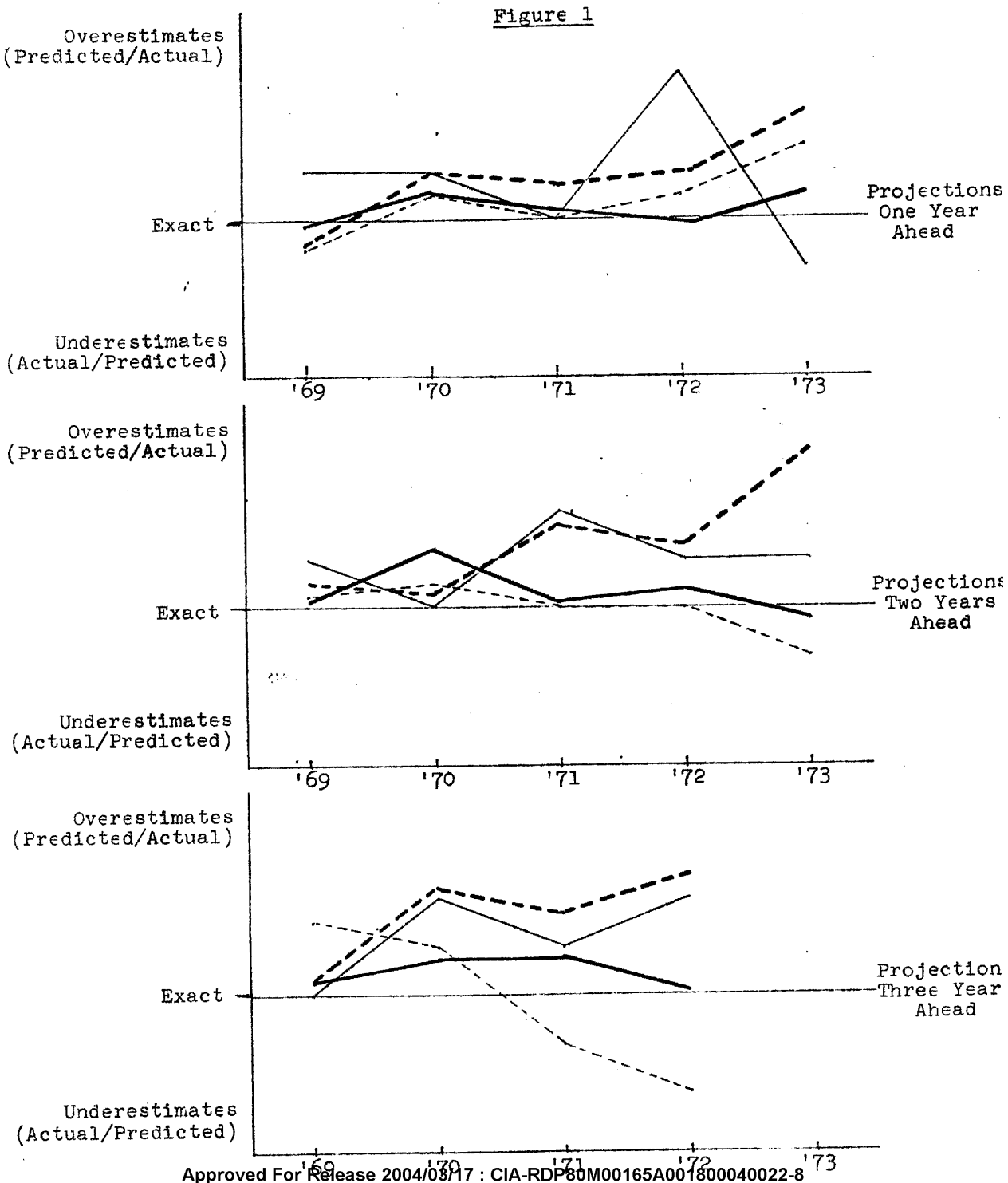
In order to find out, projections made in each year have been compared. However, those made in early years like 1969 cannot be compared in toto with those made later, such as in 1973, because in earlier years estimates extended several years into the future. These are almost surely more speculative and one should not expect them to be as accurate.

To adjust for this problem the projections have been grouped by the number of years into the future for which they were made. Thus, projections for one year into the future made from 1969 to 1973 for each class of ships were plotted out. Then, projections for two years into the future were compared, and so forth.

The results are shown in Figure 1, which plots the ratio of the predicted deliveries to the actual number of deliveries. (When a range of deliveries was predicted, the midpoint of the range was used. For overestimates, predicted deliveries were the numerator; for under-

estimates, they were the denominator. This weights each type of error equally.)

The 1:1 ratio is obviously a perfect estimate. If there had been learning, the ratio should move closer to this standard over time. But clearly, this has not happened. Indeed, the estimates are more inaccurate in 1973 than in 1969.



IV. IMPROVING THE ESTIMATES

Could the estimates be improved? The comparative quality of the diesel submarine projections indicates they could. But are we not perhaps demanding more than the state of the art can produce?

The Defense Department clothes its intelligence procedures in an aura of mystery. This prompts us to imagine all sorts of sophisticated analyses being used to come up with these ship production estimates. If the analyses aren't accurate, do we not then need an even more sophisticated system? an even more complex computer? even more intricate software?

For the sake of comparison, let us use not a more sophisticated method of projection, but the crudest method possible -- straight-lining. Simply assume that in the future the Russians produce the same number of ships they are already producing.

Table IV shows that if the DIA had used this method, thereby reducing the number of man-hours needed to produce its projections by about 99% those projections would have been consistently more accurate.

Table IV. Comparison of DIA with Straight-Line Estimates

Ship Category	<u>Straight-Line More Accurate Than DIA</u>	<u>Straight-Line As Accurate As DIA</u>	<u>Straight-Line Less Accurate Than DIA</u>
Major Surface Warships	11	3	6
Amphibious Ships	8	8	4
Nuclear Attack Submarines	19	1	0
Diesel Attack Submarines	5	2	13
Total (as % of all)	43 (54%)	14 (18%)	23 (29%)

As indicated in Table IV, straight-lining would produce more accurate estimates twice as often as it would less accurate ones. In fact, the only category where straight-lining failed to give better

results was in forecasting diesel sub production, the one category which was not a problem in the first place. Other than the diesel sub category, straight-lining produces more accurate results almost four times as often as it produces less accurate ones.

This is not to suggest that we should adopt straight-lining and cease any analysis of Soviet ship programs. But it does suggest that we ought to find an entirely new framework in which to make such analyses.

CONCLUSIONS

Two broad conclusions emerge from this analysis:

- 1) the loudness and frequency of proclamations that we consistently underestimate the Soviets "in almost every major field of science, weaponry and force development" is unsupported by the facts -- shrillness should not be confused for evidence;
- 2) official estimates of Soviet ship production have been grossly inaccurate, misleading both the executive branch and Congress about the extent of the threat that must be countered through our shipbuilding program.

The first conclusion -- that the volume of an argument does not necessarily equal the volume of evidence -- is self-evident. However, no one should generalize from this analysis that other intelligence projections are inherently overestimated. We must not generalize from the particular about overestimates any more than we accept Gen. Keegan's generalization about consistent underestimates.

As for the second conclusion -- that the DIA estimates have been misleading -- one does not need to interview congressmen to see if they have been swayed by inaccurate data; one need only go to the Navy which has pointed to the importance of projections of Soviet shipbuilding. Future ship deliveries are supposed to be a driving factor behind the growth of the Soviet naval threat. But if projections of the number of new vessels continue to be too high, Soviet naval capabilities will certainly grow more slowly than now anticipated.

¹Defense Department response to prepared questions from Sen. John Stennis, Fiscal Year 1978 Authorization, Hearings before the Senate Armed Services Committee, 95 Cong. 1 Sess. (1977), pt. 2, p. 917.

²Military Posture, Hearings before the House Armed Services Seapower Subcommittee, No. 95-4, 95 Cong. 1 Sess. (1977), pt. 4, p. 906.

³Estimates made in 1976, 1975 and 1974 are excluded because: no data for a year following 1976 are available; none were available for years following 1975 when this analysis began; and no official estimate of Soviet production was made in 1974.

⁴This category combines major surface combatants of 1,000 to 3,000 tons and of 3,000 or more tons. The combined pattern is entirely consistent with the experience for these individual groupings.