

AD-A018 632

AMPHIBIOUS WARFARE SCENARIO

J. Victor Rowney

Stanford Research Institute

Prepared for:

Office of Naval Research

October 1975

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ADA018632

Research Memorandum
NWRC-RM-86

October 1975

AMPHIBIOUS WARFARE SCENARIO

364212

By: J. VICTOR ROWNEY

Prepared for:

OPERATIONAL DECISION AIDS PROJECT (CODE 431)
OFFICE OF NAVAL RESEARCH
DEPARTMENT OF THE NAVY
ARLINGTON, VIRGINIA 22217

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AMPHIBIOUS WARFARE SCENARIO

INTRODUCTION

The amphibious warfare scenario presented herein is a follow-on project from the strike warfare scenario. Both are purely hypothetical in the sense that no specific countries, islands, or geographical locale of the world were used as a basis for Grey, Orange, ONRODA Island, or Mid-Ocean Island. Grey is aligned with Blue and most of her weapon systems were manufactured in the Blue nation, while Orange is aligned with Red and most of her weapon systems were manufactured in the Red nation. The time is the 1980's: 198X, about two years after the ONRODA strike scenario. This background summary is presented in Section I.

The purpose of this scenario development is to provide specific decision situations that are based on a specified data base describing credible forces at war, geography and geometry, environment, and other pertinent factors. The scenario is meant to support the ONR Operational Decision Aids (ODA) community in both the development of decision aids, and the evaluation of the use of the aids in simulated task-force command decision situations.

The forces involved in this warfare scenario and the environment in which they are operating are described by the command directives and the

Task Force Commander's Operation Order in Section II. The decisions that are made by the commanders in this report (actually by the author) are made on an assumed data base, very meager in scope, but perhaps representative of the situation in the fleet today. The decisions made in this operation are of the type described in The Naval Task Force Decision Environment (Table 5).

It is anticipated that many different decisions can easily be posed based on the data base or any changes therein. A more detailed data base could be generated for the development or evaluation of a specific decision aid. The type of decisions required will remain the same. The following decisions and deliberations are a summary of the types of decisions in the current presentation and those that may be needed in any task force operation:

Preliminary Planning Phase

- Preliminary decisions on courses of action (COAs)
- Use of other forces
- How to present plan
- Information gathering
- Personnel decisions.

Planning Phase

- Selection of COA including:
 - allocation of major resources
 - establishment of policies and guidance
 - selection of weapons and tactics

Execution Phase

- **Changes in planning or timing due to unforeseen events**
- **Resolve conflicts in execution**

Evaluation Phase

- **Changes needed in**
 - **procedures**
 - **equipment**
 - **personnel**
- **Evaluate performance of**
 - **personnel**
 - **equipment**
 - **weapon systems**

The types of decisions and the data base are presented in Section III for the Supporting Naval Forces part of the amphibious plan. The decisions and data base formats are used to construct the scenario decision formulation for the Supporting Naval Force Commanders in the Transit and Assault phases of the operation. From his estimate of the situation the commander attempts to predict the outcome of each operation in numbers of own losses and enemy losses. Actual events that happen in the execution phase are assumed in order to show how the actual outcome may differ from a predicted outcome. The readers are invited to adopt the Execution phase events as necessary to demonstrate a decision aid useful to decision makers during this phase of operations.

The scenario presented in this document should be considered to be dynamic during the course of the ONR Operational Decision Aids Project in the sense that none of the researchers should hesitate to consider

changes that might enhance the development of their own research. Whenever such changes are contemplated a dialogue with the author should be initiated to ensure that no inconsistencies are being introduced. The author will notify ONR and all of the contractors whenever changes are incorporated.

I BACKGROUND

A. Review of ONRODA Affair

Grey and Orange have been ideologically opposed and hostile toward each other for a long time. In 197X Orange supported rebel activities in Grey. ONRODA Island was politically aligned with Grey, but had a significant segment of Orange sympathizers. When Grey's military capability was diminished Orange responded by more active support of the rebels in Grey and by capturing ONRODA Island. Blue previously indicated that this was an unacceptable action, supported Grey's appeal to the UN, and asked for congressional approval for unilateral support of Grey if favorable UN reaction was not immediate. At the same time Blue ordered the fleet to prepare to stabilize the military situation in the area and prevent Orange from using ONRODA Island as a base for future military action against Grey. Red, who has supplied Orange with most of her combat systems, also has a naval force in the area. A Blue carrier task force was formed and given the mission: "When directed, begin operations to neutralize Orange forces and facilities on ONRODA Island in order to defend Grey."

In January 197X the Blue carrier task force launched her planned strikes against ONRODA when preempted by an Orange ONRODA air attack against Grey. The second day the Blue task force was attacked by 12 Orange

Badgers from the Orange mainland escorted by 12 MIG-21 escorts from the mainland that refueled at ONRODA. Most of the Orange attackers were shot down by the F-14 defense but 3 F-14's were lost and some ship damage was sustained. An Orange submarine tried unsuccessfully to penetrate the Blue ASW defense during this air attack. The Blue task force refueled on the fifth day and then on the sixth day it steamed to a new position to mount an air blockade and TARCAP over ONRODA Island.

The outcome of the ONRODA campaign was summarized as follows:

Blue losses

Aircraft equivalents over ONRODA	=	36
Aircraft equivalents during defense	=	21
Ships damaged during Orange attacks	=	2.85

Orange Losses

Aircraft at ONRODA	=	130
Aircraft during Grey raids	=	62
Aircraft attacking Blue TF	=	23

Orange sorties to Grey	=	241
------------------------	---	-----

(90 day potential = 15,100)

B. Events Since ONRODA

During the years since ONRODA Orange has successfully upgraded her military forces with the help of Red. There has been a buildup in OSA class missile boats, P6 torpedo boats, and "Whiskey" class submarines. The submarines have all been refitted and modernized. The old MIG-17 and 19 fighters have been replaced by the newer MIG-21 Fishbed J. The SU-7 Fitters have been replaced by newer aircraft of the same model. The

TU-16 Badger capability has been doubled with added capabilities of the antishipping missile version and the reconnaissance/ECM Badger. The Orange army has a personnel strength of 100,000 men and it is a fully mechanized force including air support squadrons.

Politically Orange has been making overtures to Yellow and has, in fact, conducted some military exercises in the vicinity of Yellow City. In Grey the Greyhawks have been active dissenters to the Grey government and have been openly favorable to Orange ideology.

In the last year a political split has developed between Red and Orange. Apparently the Orange president felt that Red's military presence was becoming overbearing and that many Red military instructors and politicians were "living it up" in Orange at Orange expense. The Orange president ended the affair by ordering all Red personnel out of the country.

In the mean time Blue has been working in the United Nations sessions for some means of stopping the near-to-war conflict between Orange and Grey. Blue has kept her two-carrier task force based at Mid-Ocean Island and they have conducted war games near ONRODA Island from time to time.

The political split between Orange and Red played right into the hands of Blue and its UN appeal. Red suddenly withdrew its continued stream of vetoes and the Blue UN proposals are now looked upon with favor.

II CURRENT SITUATION

A. Political Military Situation

The recent stepped-up Orange activity in Yellow has caused a flow of intelligence reports in Blue and much concern in Grey.

Grey has had its hands full with the Greyhawk revolts within its country. The Greyhawks have captured territory near the Grey/Yellow border and are believed to be assisting Orange in an invasion attempt of Grey. Orange has been conducting full fledged war games near Yellow City and it is reported that several minor bases have been established near the Grey border.

Blue's new-founded success with UN appeals, due to Red's sudden policy reversal, has resulted in a UN contingency plan to intervene in the Orange-Grey situation. This plan is to oppose an Orange invasion of Grey with a UN amphibious force, defeat the Orange aggressor forces in Grey and set up a UN demilitarized zone near the Grey/Yellow border. The Blue fleet commander has been ordered to draw up a contingency amphibious loading plan for a Blue Marine force and a composite UN force.

On Dec 27 198W Orange forces crossed the Grey/Yellow border, joined with the Greyhawks, and started the invasion of Grey. The Orange forces were estimated to be two mechanized infantry divisions, complete with tanks, artillery, air defense, reconnaissance units and air support units.

The air units were reportedly using grass fields just inside the Yellow border as refueling fields. Grey offered light resistance to this force but made a determined stand at the Grey river bridge. By the turn of the year, however, the Orange forces had entered Greyport and had secured the airfield.

Upon word of the Orange invasion the UN ordered the amphibious contingency plan put into effect. Information on Orange movements were being obtained from Grey but were also confirmed by reconnaissance units from the Blue carrier task force. The Blue fleet commander was instructed to issue the initiating fleet directive and to appoint the amphibious task force commander (CATF). Since amphibious planning on this scale usually takes about three months, and the loading plans had been started about the first of December, the UN asked for a "D day" date, compatible with the background and environmental factors of the operational area, about 1 March.

B. Current Data

These operational area details, geographical, national (including political, economic, and forces involved) and environmental data that have not already been presented in this scenario are best presented in the various operation orders drawn up by the Blue commanders. The op-orders are outlined in the following sections of the report.

These "op-orders" are in the format of a letter of instruction stating:

- The forces involved
- The geographic and national situation
- The mission of the task force
- The method of execution
- The administration and logistic features
- The command instructions

The major details of the op-orders are given in Annexes. These are usually arranged as follows:

- Annex A. Task Organization
- Annex B. Concept of Operations
- Annex C. Intelligence
- Annex D. Movement Plan
- Annex E. Communication Plan
- Annex F. Logistic and Medical Plan
- Annex G. The Landing Force Plan
- Annex H. The Supporting Naval Force Plan

The details of data of the enemy forces are usually included in the Intelligence Annex. The details of support and direction are spread throughout the annexes. Of course, the Logistic Annex provides the logistic support plan and the Communication Annex provides the communications support, but directions are found in all of the plans. An example of direction is found in the order "Operate in Accordance with ATP-1." In this order the commander is specifying a certain tactic to be used that is written up in a tactical manual, ATP-1. Own Force details are

usually not listed. Composition is shown, to an extent, in the organization and concept, but is more likely to be used in describing an actual plan. Characteristics are not listed specifically but are used in the assignment of the assets to various tasks and subtasks. Such data as composition, characteristics, requirements, constraints, tactics, options, and schedules are used in detail by the commander in developing the "estimate of the situation". In the estimate the commander tests various alternative courses of action to accomplish his mission in order to decide which is most suitable, feasible, and acceptable. The best course of action is called the "DECISION." This course of action is developed into a plan called the op-order. The general concept of the plan is presented in the "Concept of Operations" annex.

C. Initiating Fleet Directive

FROM: Commander, Blue Fleet
TO: Commander, Amphibious Forces Blue Fleet
SUBJECT: Letter of Instruction COMBLUEFLT 1-8X
REF: Letter of Instruction COMBLUEFLT 11-8W

1. SITUATION

a. During the years since the ONRODA Affair, intelligence reports have described active Orange military movements at Orangeport, Pier City, and Yellow City. In Grey the Greyhawks have been mobilizing near the Grey/Yellow border. Grey has suspected some move against them and has reinforced Greyport.

b. Blue, during these years has been working at the UN for approval to use a UN force to stop this type of aggression in Grey. The UN has agreed to oppose this type of aggression by establishing a demilitarized zone near the Yellow/Grey border if Grey is invaded. Blue has offered Carrier Task Force Seven (TF-7) and Blue amphibious ships to support this UN operation.

c. My ref. LOI ordered the commencement of a contingency amphibious loading plan for a Blue MAB and a follow-on UN force.

d. During the last week of December the Orange and Greyhawk forces moved against Greyport and captured it in five short days.

2. MISSION

a. This letter is authority to establish Amphibious Task Force Six (ATF-6) under your command.

b. The mission of ATF-6 is to establish a beachhead by amphibious assault flanking the Grey/Orange FEBA west of Greyport, defeat the Orange forces in Grey, and establish a demilitarized zone near the Grey/Yellow border.

3. EXECUTION

a. The general operational plan is to establish a beachhead by amphibious assault flanking the Grey/Orange FEBA west of Greyport, coordinate attacks with Grey Army, seize the Greyport Naval Base and airfield, land the UN force administratively at the Naval Base by D+5, fly in the Marine Air Group by D+10, capture the Grey river bridge and thereby defeat the Orange forces in the vicinity of Greyport using the Grey river bridge as a choke point.

b. Landing force one will be Blue Marine Amphibious Brigade #1 (MAB #1) commanded by Brigadier General HO. This force will be composed of Marine Amphibious Units #1 and #2 reinforced by Unit #3 from Blue west coast. A follow-on landing will be made by 12,000 UN troops under command of Major General DIAS, Lavender Army, to be landed by D+5. No SATS airfield will be planned. Arrangements have been made to allow the Marine Air Group to use Industrial Airport from D-2 to D+12. After the

seizure of Greyport airfield, elements of the Marine air group will be flown in. It is essential that this operation be completed by D+10

c. Carrier Task Force Seven (CTF-7) is assigned to provide air defense during the MAB transit phase; air superiority, air defense and air support during the preassault, assault, and land campaign phases of the plan.

d. The amphibious objective area (AOA) is defined as a square, 200 nmi on a side, with the Grey/Yellow border and its extension as the eastern boundary, and the Greyport River mouth in the center of the top sector (see Area Chart, Fig. 1).

e. This amphibious operation is code named "ORANGE SQUASH" and D day is set 1 March 198X.

f. Conduct a rendezvous with TF-7 on D-5 day at a position 500 nmi west of Mid-Ocean Island, a point outside of Orange bomber range.

4. SPECIAL INSTRUCTIONS

No nuclear weapons are to be used without directives from higher authority.

5. COORDINATING INSTRUCTIONS

a. Preliminary intelligence information will be provided by COMBLUEFLT.

b. Logistical support will be provided by COMSERVGRUONE based at Mid-Ocean Island.

c. CATF-6 will provide liaison to CG Grey Army in order to coordinate attacks against Orange forces.

d. This operation will terminate when aggressor forces have been driven from the AOA and the UN demilitarized zone is proclaimed. Estimated time is 60 days.

e. Orange forces in Yellow or Orange including their respective air spaces are considered in sanctuary.

Admiral BN
Commander, Blue Fleet

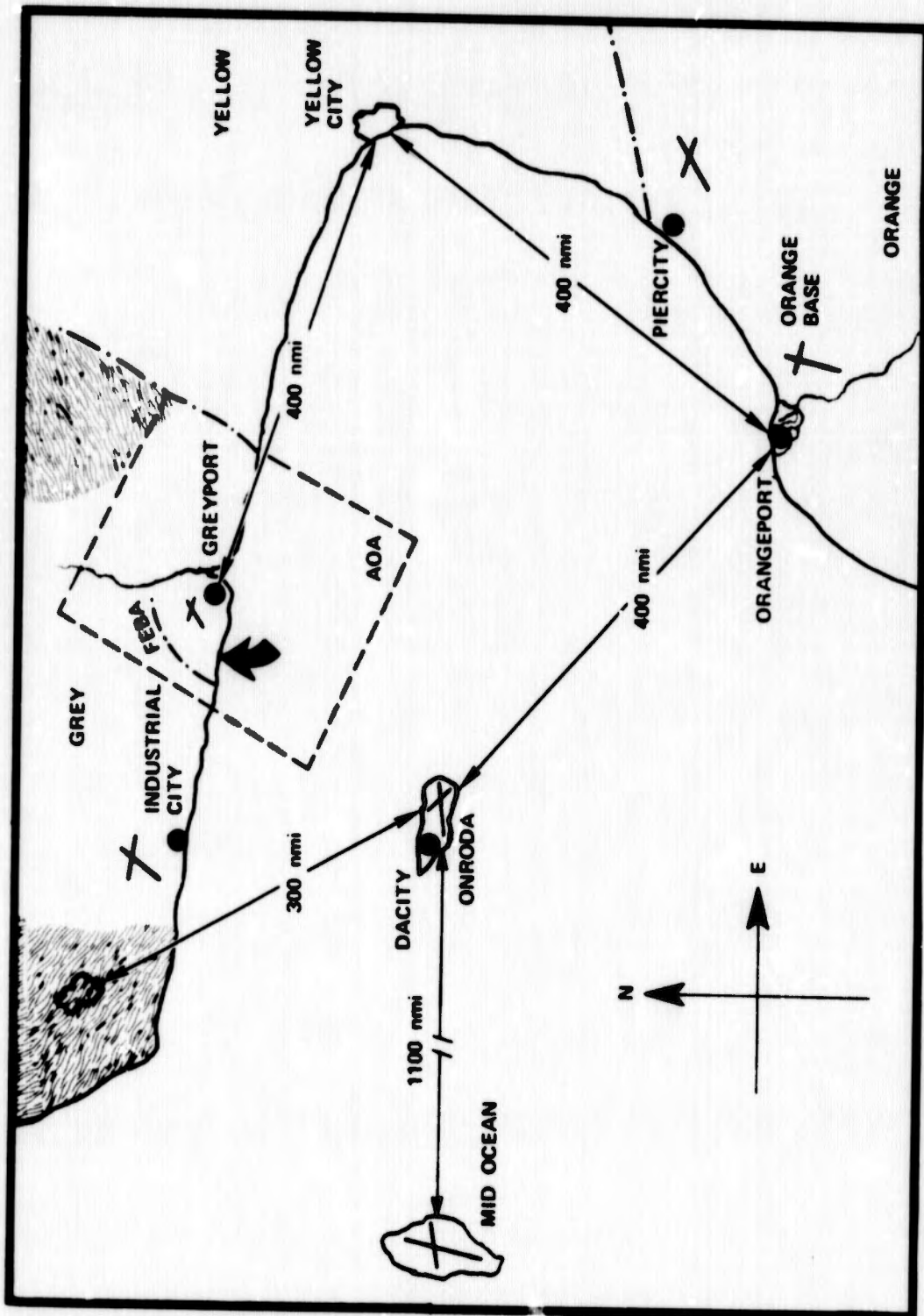


FIGURE 1 AREA CHART

D. CATF PLANNING DIRECTIVE

**BLUE FLEET
TF-6 Amphibious Force
and COMPHIBBLUE
B.S. BLUE MOUNTAIN (LCC 100)
at sea
DTG 021200R Jan 198X**

**OPERATION PLAN
COMPHIBBLUE NO. 1-8X
REF (a) NWP 16
(b) NWP22
(c) COMBLUE LO1 1-8X**

Zone Time: R

Task Organization (See ANNEX A for more detailed list)

TF 6	Amphibious Task Force	COMPHIBBLUE
TG 6.1	Special Forces	SENIOP CO
TG 6.2	Maritime Air Patrol	COMPATWINGS BLUE
TG 6.3	Logistic Support Group	COMSERVGRU ONE
TG 6.4	Cruiser-Destroyer Group	COMSURFGRU ONE
TG 6.5	Carrier Group	COMCARGRU ONE
	TG 6.5.1 Carrier Group ONE	COMCARGRU ONE
	TG 6.5.2 Carrier Group TWO	COMCARGRU TWO
TG 6.6	Amphibious Group	COMPHIBBLUE
	TG 6.6.1 Amphibious Group ONE	COMPHIBGRU ONE
	TG 6.6.2 Amphibious Group TWO	COMPHIBGRU TWO
TG 6.7	Transport Group	COMTRANSGRU ONE
	TG 6.7.1 Transport Group ONE	COMTRANSGRU ONE
	TG 6.7.2 Transport Group TWO	COMTRANSGRU TWO
TG 6.8	Landing Force	C.G. MAB#1/C.G. UN Force
	TG 6.8.1 Landing Force ONE	C.G. MAB #1
	TG 6.8.2 Landing Force TWO	C.G. UN Force

1. SITUATION

During December two Orange reinforced motorized infantry divisions invaded Grey by way of Yellow City and captured Greyport with the help of Greyhawk insurgents. The UN authorized a counter force to stop this aggression and to set up a demilitarized zone on the Grey/Yellow border. The objective for this force is to seize Greyport airport and naval base, defeat the Orange forces in Grey, and establish the demilitarized zone. The target date for this operation is 1 May 198X. The code name of this operation is ORANGE SQUASH.

a. Enemy Forces (see ANNEX C - Intelligence)

b. Friendly Forces

- (1) Grey army units (about one division) presently located 25-50 nmi west of Greyport airfield.
- (2) Blue air force units (VF squadrons) on Mid-Ocean Island
- (3) Blue navy units (Com Service Forces and P-3 squadrons) on Mid-Ocean Island.
- (4) Blue Military Airlift Command will provide strategic airlift of reinforcing units, if required.

c. Assumptions

- (1) Amphibious shipping is available for transporting the MAB to the objective area (approximately 35 Blue and 18 UN ships).
- (2) Carrier air is tasked to gain air superiority during the preassault phase and has the capability to provide air support to the MAB.
- (3) There will be advance force operations consisting of UDT operations and CH-53 mine sweeping.
- (4) According to preliminary intelligence reports mine fields are not extensive.
- (5) The Orange Army is equipped with Red materiel which is one generation behind that predicted for the Red Army in the mid-range. There is a small amount of Orange shipping traffic into Greyport supporting the Orange army.

2. MISSION

The mission of ATF-6 is to establish a beachhead by amphibious assault between the Grey/Orange FEBA and Greyport in order to seize Greyport airport and naval base, defeat Orange forces in Grey, and establish a UN demilitarized zone near the Grey/Yellow border.

3. EXECUTION

This force will conduct an amphibious assault west of Greyport in order to neutralize Orange forces in Grey and establish a UN demilitarized zone.

a. Supporting Naval Forces (CTF-7)

- (1) Provide air, surface, and subsurface defense of the ATF during the transit phase.**
- (2) Provide air striking forces, naval gunfire forces, air reconnaissance, air superiority, and air defense during the preassault phase.**
- (3) Provide the above functions (in (2)) to conform to a supporting arms plan for the landing force including close air support to supplement the Marine air group.**
- (4) After the arrival of the Marine air group in the AOA continue to support the AOA with a strong air defense, long range air strike and air reconnaissance functions.**

b. The Landing Force (CTF-9)

- (1) Prepare the embarkation planning and conduct the embarkation of troops.**
- (2) Organize the landing force and conduct the amphibious assault including the ship to shore movements of troops.**
- (3) Conduct the land campaign and the organization of the UN demilitarized zone.**
 - (a) Coordinate attacks with the Grey army**
 - (b) Seize Greyport naval base and airfield**
 - (c) Assist UN force to land administratively**
 - (d) Capture Grey river bridge**
 - (e) Defeat Orange forces in Grey.**

c. Coordinating Instructions

- (1) The commanders of the above task forces prepare detailed planning directives in the form of ANNEXES G and H and submit to CATF-6 by the dates listed below:

	<u>PLAN</u>	<u>DATE DUE</u>	<u>BY</u>
ANNEX G	The Landing Force Plan Embarkation, Assault, Ship to Shore Movement, Land Campaign	1 Feb 198X	CTF-9
ANNEX H	Supporting Naval Force Plan Transit, Preassault, Air & Naval Gunfire Support	14 Feb 198X	CTF-7

4. ADMINISTRATION AND LOGISTICS

- a. Emergency repairs and replacement aircraft are available at Mid-Ocean Island.
- b. Conduct underway replenishment in accordance with Logistic Plan (Annex F).

5. COMMAND AND SIGNAL

- a. Communications in accordance with Communication Plan Annex E.
- b. Commander Task Force Seven, RADM JIM, in BIGSHIP, second in command.
- c. The Commander Landing Force and CTF-9 will be CG of MAB ONE, BrigGen HO, until relieved by CG of UN forces, MajGen DIAS, on or about D+5.

d. Commander Amphibious Task Force Six and COMPHIB'BLUE,
officer in tactical command, in BLUE MOUNTAIN.

A.B. BOB

Vice Admiral BN
CATF-6 Commander Amphibious Task Force
and COMPHIBBLUE

Authenticated:

I.A. Small
Lt.Cdr. BN
Flag Secretary

ANNEXES

- A. TASK ORGANIZATION
- B. CONCEPT OF OPERATION
- C. INTELLIGENCE (outlined)
- D. MOVEMENT PLAN (not shown)
- E. COMMUNICATION PLAN (not shown)
- F. LOGISTICS AND MEDICAL (not shown)
- G. LANDING FORCE PLAN (to be submitted by CTF-9) (outlined)
 - Embarkation
 - Assault
 - Ship to Shore Movement
 - Land Campaign
- H. SUPPORTING NAVAL FORCE PLAN (Naval Air & Ships) (to be submitted by
CTF-7)
 - Transit
 - Preassault
 - Air and NGF Support

BLUE FLEET
TF-6 Amphibious Force
and COMPHIBBLUE
B.S. BLUE MOUNTAIN (LCC 100)
at sea
DTG 021200R Jan 198X

OPERATION PLAN
COMPHIBBLUE No. 1-8X
REF (a) NWP 16
(b) NWP 22

ANNEX A
TASK ORGANIZATION

TF 6	Amphibious Task Force	<u>VADM BOB</u> COMPHIBBLUE
TG 6.1	Special Forces	
	TU 6.1.1 Pick Unit	Senior CO
	6.1.2 Deception Unit	Senior CO
	6.1.3 TASS Unit	Senior CO
	6.1.4 Com Sec Unit	Senior CO
TG 6.2	Maritime Air Patrol	COMPATWINGS BLUE
TG 6.3	Logistic Support Group	COMSERVGRU ONE
TG 6.4	Cruiser-Destroyer Group	COMSURFGRU ONE
TG 6.5	Carrier Group	COMCARGRU ONE
	TG 6.5.1 Carrier Group ONE	COMCARGRU ONE
	TU 6.5.1.1 Carrier Unit Plane Guard	CO BIGSHIP
	TU 6.5.1.2 Carrier Screen	Senior Commander
	TU 6.5.1.3 Surface Action Unit	COMSURFGRU ONE
	TG 6.5.2 Carrier Group TWO	COMCARGRU TWO
	TU 6.5.2.1 Carrier Unit Plane Guard	CO BIRDSHIP
	TU 6.5.2.2 Carrier Screen	Senior Commander
	TU 6.5.2.3 Surface Action Unit	COMSURFGRU TWO

TG 6.6 Amphibious Group	COMPHIBBLUE
TG 6.6.1 Amphibious Group ONE	COMPHIBGRU ONE
TU 6.6.1.1 Group Flagship (LHA)	CO
Plane guard	
TU 6.6.1.2 Screen	Senior Commander
TG 6.6.2 Amphibious Group TWO	comphibgru two
TU 6.6.2.1 Group Flagship (LHA)	CO
Plane guard	
TU 6.6.2.2 Screen	Senior Commander
TG 6.7 Transport Group	COMTRANSGRU ONE
TG 6.7.1 Transport Group ONE	COMTRANSGRU ONE
TU 6.7.1.1 Screen	Senior Commander
TG 6.7.2 Transport Group TWO	COMTRANSGRU TWO
TU 6.7.2.1 Screen	Senior Commander
TG 6.8 Landing Force	C.G. MAB #1/C.G. UN Force
TG 6.8.1 Landing Force ONE	C.G. MAB #1
TG 6.8.2 Landing Force TWO	C.G. UN Force

TASK ORGANIZATION (Administrative)

CTF-6	COMMANDER AMPHIBIOUS FORCE	COMPHIBBLUE
CTF-7	COMMANDER CARRIER TASK FORCE	COMCARGRU ONE
CTF-9	COMMANDER LANDING FORCE	{ C.G. MAB ONE C.G. UN FORCE

A. B. BOB

Vice Admiral BN
CATF-6 Commander Amphibious Task
Force and COMPHIBBLUE

Authenticated:

I.A. Small

Lt.Cdr. BN
Flag Secretary

BLUE FLEET
TF-6 Amphibious Force
and COMPHIBBLUE
B.S. BLUE MOUNTAIN (LCC 100)
at sea
DTG 021200R Jan 198X

OPERATION PLAN
COMPHIBBLUE No. 1-8X
REF (a) NWP 16
(b) NWP 22

ANNEX B

CONCEPT OF OPERATIONS

1. MISSION

The mission of the landing force is to establish a beachhead by amphibious assault in order to flank the Orange FEBA, seize the Naval Base and airport, defeat the Orange aggressor forces in Grey, and establish a UN demilitarized zone in Grey near the Yellow border.

2. SCOPE

Operation ORANGE SQUASH provides for the following operations of the amphibious task force, ATF-6.

- a. Embarkation of Marine Amphibious Brigade ONE (MAB #1) at the eastern seaboard ports after military airlift of Marine Amphibious Unit THREE, needed to complete the MAB. Sailing date is D-9.
- b. The overseas movement of the MAB in approximately twenty amphibious and transport ships escorted by Carrier Task Force SEVEN commencing at the designated rendezvous point on D-5 to the Greyport amphibious objective area.

- c. The preassault air strikes by CTF-7 starting D-2 to establish air superiority in the AOA. Air reconnaissance and air defense are other essential elements of this operation. The MAG will commence operations from Industrial Airport by D-2 to assist in the preassault phase.
- d. Advanced force operations and mine sweeping operations are required. UDT teams and CH-53 mine sweepers will be used.
- e. A tactical deception operation commencing D-1 will make a feint landing to an eastern beach 50 nmi east of the Grey River.
- f. The amphibious assault by MAB #1 on D day with the physical objectives to flank the Orange FEBA, seize the airport and the naval base in order to assure administrative landings by the UN forces by D+5.
- g. The land campaign to seize Greypoint and the Greypoint airfield so as to accommodate the Marine air group by D+10 and then to defeat Orange forces in order to establish a UN demilitarized zone near the Yellow border.

2. SUPPORTING NAVAL FORCES

The supporting naval forces are composed of the ships and aircraft of Carrier Task Force SEVEN, Carrier Groups ONE and TWO, whose mission will be to provide naval air and ship support throughout the three combat phases of the operation: Phase I Transit, Phase II Preassault, Phase III Assault and Land Campaign (see ANNEX H).

- a. Phase I Transit. CTF-7 will provide air defense, surface defense and ASW defense for the ATF commencing D-5, its rendezvous date. Combat air patrols, ASW ship screens and air patrols, and air surface search will be conducted as described and scheduled in ANNEX H.
- b. Phase II Preassault. During the preassault phase commencing D-2, CTF-7 will provide air strikes on Orange aircraft at Greyport airfield and other Orange support airfields within Grey. Fighter sweeps will be required in order to establish air superiority over Grey territory. A strong air, surface, and subsurface defense of the ATF and AOA is also required at this time. Orange attacks may originate not only from Greyport but from Yellow City and Orangeport (see ANNEX C Intelligence). Blue aircraft are prohibited from penetrating the 12-mile limit of both Orange and Yellow. Attacks on Orange forces in Grey, particularly in Greyport and Greyport airfield, must use care not to cause needless damage and destruction to Grey populous areas and facilities. It is of particular importance that the Grey river bridge remain intact.
- c. Phase III Assault and Land Command. During this phase CTF-7 will provide air, surface, and subsurface defense of the AOA and close air support, air reconnaissance, and deep air strikes in support of the landing force. Some air support duties will be assumed by the Marine air group after its establishment on D-2 at Industrial airfield. Naval gunfire ships will be required during the assault and subsequent campaign ashore.

3. THE LANDING FORCE

The landing force will be composed of two forces: Landing Force #1, the Blue MAB; and Landing Force #2, the UN division. The MAB is one-third of a division-wing team, completely mechanized with air support,* and composed of about 15,000 troops. This force is made up of three Marine amphibious units (MAU's) two of which are ready forces near at hand, while the third MAU must be airlifted to the embarkation port. Embarkation should be completed by D-9. Landing Force #2 is composed of 12,000 UN troops that will be formed and embarked in Lavender. They will have a mechanized force with no air support forces attached.

Landing Force #1 will be landed on D day in an amphibious assault operation against Orange forces located in Grey. It's mission will be to seize beaches and heliports, and the naval base in Greyport then to assist Landing Force #2 in making an administrative landing to be completed by D+5. Close air support, deep air support, and air reconnaissance will be provided by naval air wings. No SATS base will be established. The MAG will be ready to operate from Industrial Airport by D-2. Upon landing the commanding general of Landing Force #2 will assume command of both landing forces (CTF-9) complete the seizure of Greyport and Greyport airfield, defeat the Orange forces in Grey, and establish a UN demilitarized zone near the Grey/Yellow border. After the recapture of Greyport airfield about D+10 the Marine air group will be transferred from Industrial City. It is estimated that operation ORANGE SQUASH will be completed by D+60. (See ANNEX G).

* Note: About 30 attack, 12 fighters, 19 recon, 64 assault heloes (heloes aboard ship).

D day is set for 1 March 198X and H hour is tentatively set as
0600 R.

A.B. BOB

Vice Admiral EN
CATF-6 Commander Amphibious Task Force
and COMPHIBBLUE

Authenticated:

I.A. Small
Lt.Cdr. EN
Flag Secretary

BLUE FLEET
TF-6 Amphibious Force
and COMPHIBBLUE
B.S. BLUE MOUNTAIN (LCC 100)
at sea
DTG 021200R Jan 198X

OPERATION PLAN
COMPHIBBLUE No. 1-8X
REF (a) NWP 16
(b) NWP 22

ANNEX C

INTELLIGENCE

1. Meteorological Appendix 1
2. Hydrographic
3. Terrain
4. Beaches Appendix 2 (Fig. 2)
5. Enemy Forces Appendix 3
 - Naval vessels
 - Aircraft
 - Army
6. Organization and Deployment (omitted)
7. Location of enemy forces and (Fig. 3)
- 7a. Enemy Ground Objectives "
8. Logistic Support Available "
9. Political "
10. Strategy and Tactics "
11. Enemy Capabilities "
12. Maps "
13. Photographs "
14. Data on Ports "
15. Medical Cognizance "

A.B. BOB

**Vice Admiral BN
CATF-6 Commander Amphibious Task Force
and COMPHIBBLUE**

Authenticated:

**I.A. Small
Lt.Cdr. BN
Flag Secretary**

APPENDIX 1 - Summary of Grey's Environmental Data

1. Meteorological and Astronomical. The climate of Grey is maritime and characterized by warm to hot temperatures and high humidity throughout the year. Persistent northwesterly trade winds help prevent weather conditions from becoming too uncomfortable. During Feb., March, and April Grey is experiencing a relatively dry season. Cloud cover does not vary greatly throughout the year, except for a slight increase during the wet season. Maximum cloudiness generally occurs in the afternoon and is usually cumuliform, with cloud bases seldom below 2,000 feet or tops above 9,000 feet. Low visibility is infrequent, occurring fewer than 20 days a year in most places with the greatest frequency inland during the early morning hours from December through January. Surface winds are generally from the northwest throughout the year and average from five to fifteen knots. However slightly stronger land and sea breezes occur on the coast.

2. Physical Environment. Grey is slightly larger than the Blue states of "T" and "O" combined. About 40 percent of the country consists of dense forests, rugged hills and mountains, or extensive areas of marsh and swamp. The largest area suited for mobile operations is the dry, flat, unforested coastal lowland areas north and east of Greyport. The great interior grassy plains of central Grey are favorable for military operations. There are many sites available for major amphibious landings along the coast east of Greyport Bay (see Fig. 2).

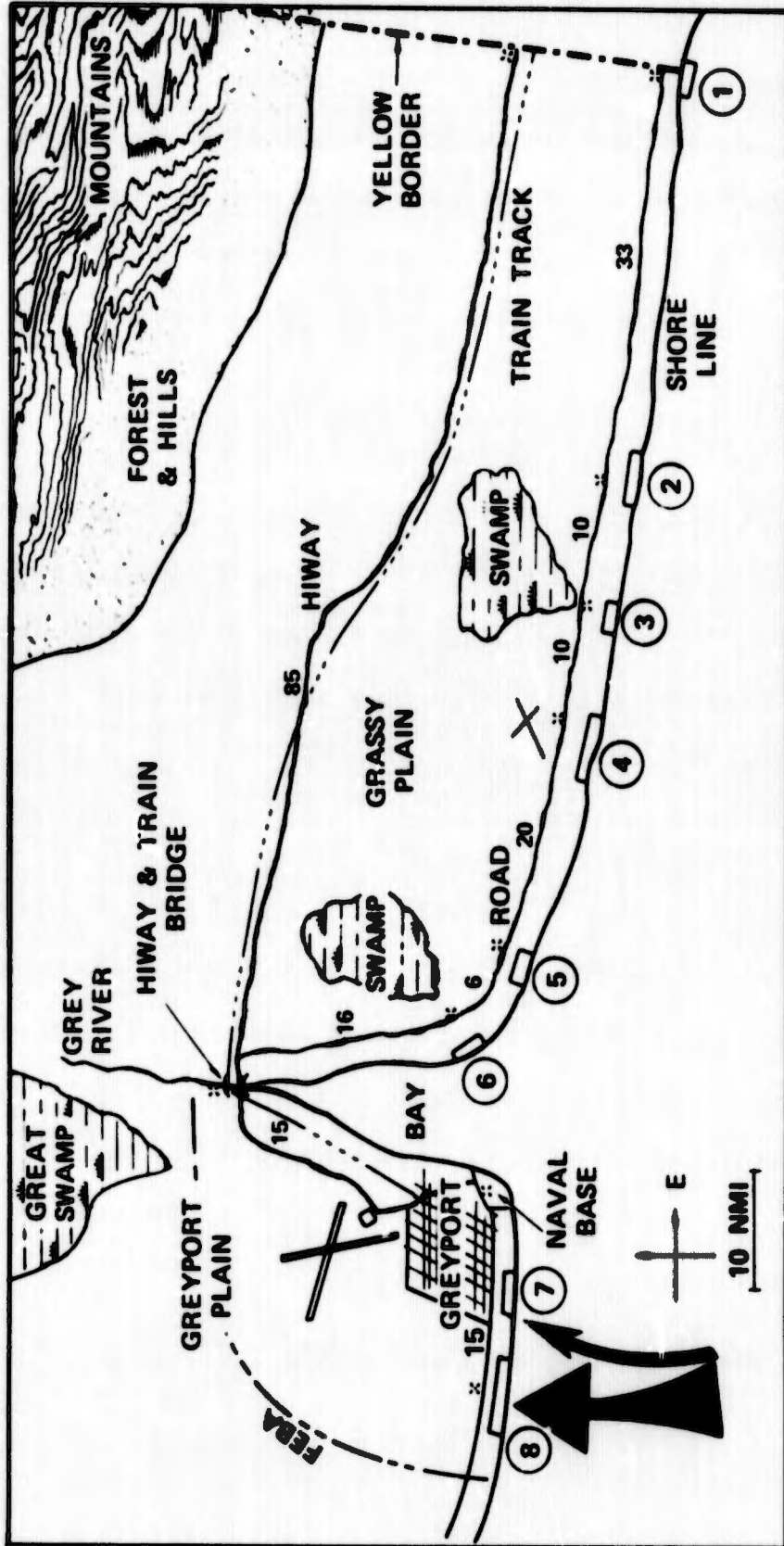


FIGURE 2 LANDING BEACHES

There are pronounced contrasts in the land forms, vegetation and climate in this country. In the southeast coastal lowlands, the terrain is flat, vegetation is sparse and the climate is generally dry from February through April. The northeastern and northwestern areas are highland zones with densely forested hills and mountains and some brush or scrub. The Greyport Plain is flat and grassy, but with extensive areas of marsh. The central interior of Grey is generally flat but is inundated most of the time from May through November.

There are two major improved roadways from the Yellow border to a common highway and train bridge that spans the Grey River. The coastal road parallels the SE coast and eastern side of Grey Bay. The northern road is the most direct route to the Yellow border from Greyport and follows the railroad right of way. The northern road is an all weather highway while the beach road is unimproved near the Yellow border.

3. Hydrography

The ocean bottom is relatively flat in this area with depths ranging from 1000 to 1500 fathoms over about 20 miles from shore. To the southwest of the Grey coast the ocean becomes deeper, ranging between 2000 and 2500 fathoms. Underwater sound conditions during January through March are poor for surface sonars (sonar detection ranges less than 2000 yards) because of a severe temperature gradient at a 200 to 250-foot depth. The first convergence zone range is 25 to 30 miles.

The tide is usually less than 7 feet.

4. Daylight and Darkness Table

NS° LAT, EW° LONG

	<u>1 Jan</u>	<u>15 Jan</u>	<u>1 Feb</u>	<u>15 Feb</u>	<u>1 Mar</u>	<u>15 Mar</u>	<u>1 Apr</u>	<u>15 Apr</u>
Nautical Twi-AM	0440	0430	0425	0400	0405	0355		
Civil Twi-AM	0605	0548	0545	0520	0510	0501		
Sunrise	0645	0630	0615	0600	0546	0531		
Sunset	1715	1713	1745	1800	1814	1829		
Civil Twi-PM	1825	1830	1832	1835	1848	1853		
Nautical Twi-PM	1945	1955	2003	2010	2015	2020		

Note: All times are local.

APPENDIX 2 - The Landing Area and Beaches

Beaches of southeastern Grey are presented in National Intelligence Survey 78 (NIS 78) Grey, Section 22, dtd August 1973.

a. Major Beaches

(1) The NIS 78 lists six major beaches east of Greypoint and two beaches west of Greypoint (see Fig. 2).

(a) The one designated (#8) is 15 nmi west of the Greypoint Naval Base, is slightly concave, moderate slope, with a usable length of 2.5 kilometers and a width of 15 to 25 meters at high water; 7 miles by improved road to Greypoint. There is a level grass field north of the beach.

(b) The next beach to the east designated (#7) is 550 meters long (all usable) with a moderate to steep slope and a width 10 to 40 meters at high water. The approach is partly obstructed by a sand-covered reef 400-600 meters offshore and a damaged jetty extending about 225 meters from the east side of the beach. The off-shore approach is clear. The sand and gravel beach is firm. This beach is within the environs of Greypoint.

(c) Beach (#4) is 43 nmi east from the Grey River Bridge, is slightly concave, moderate slope, with a usable length of 1,200 meters and a width of 15 to 25 meters at high water; 57 miles by improved road to Greypoint. There is a small airfield north of the beach.

(d) The next beach to the southeast designated (#3) is 500 meters long (all usable) with a moderate to steep slope and a width 10 to 40 meters at high water. The approach is partly obstructed by a sand-covered reef 400-600 meters offshore. The off-shore approach is clear. The sand and gravel beach is firm. There is a lagoon about 150 meters behind the center of the beach. Hard surface highway skirts the northern edge of this beach and the distance to Greyport is approximately 67 miles.

(e) Beach (#2) a 950 meters long concave beach, moderately steep of soft sand, about 15 to 35 meters wide at high waters is located 10 nmi east of #3. The offshore approach is clear but the nearshore approach is partly obstructed by shoals and bars. The beach is approximately 77 miles over all weather roads to Greyport.

(2) There are three other beaches of lesser desirability #6 and #5 near the mouth of Greyport Bay and #1 at the Yellow border.

(a) Beach (#1) is located at the border; this positions the beach about 95 miles east of Greyport over poor roads. The beach is only 200 meters long and five to 10 meters wide at high water.

b. Minor Beaches

There are no minor beaches in the area around the Naval Base at Greyport.

c. Landing Places

(Beaches of marginal suitability, piers, bathing enclosures, and quays where at least two small craft can beach or lie alongside.)

(1) There are two piers inside the Naval Base that will accommodate eight 20,000 ton ships.

(2) There is another landing place just about a mile north of the Naval Base.

(3) There are two landing places between beaches (5) and (6), across the bay from the Naval Base.

(4) West of the Greyport there are eleven landing places.

d. Helo Landing Sites

The flat and level land near the coastal highway offers adequate landing sites for helicopters.

APPENDIX 3 - Information on Orange Forces

A. Orange Naval Forces

The current Orange combat vessels are:

<u>No.</u>	<u>Type</u>	<u>Class</u>
4	Destroyers	Skory
18	Missile boats	OSA
6	Missile boats	KOMAR
12	Torpedo boats	P6
2	Minesweepers	T-43
5	Amphibious craft	VYDRA
6	Submarines	W

It is noted, in comparison with Orange naval forces two years ago, there has been a buildup in missile boats, torpedo boats, and submarines. The old "Whiskey" class submarines have all been refitted and modernized with the help of Red. The OSA missile boats have been increased by twelve new boats from Red. These boats have four launchers for the SS-N-2A missile which has a range of 23 nmi. The OSA boat has an 800 nmi range at 25 knots, whereas the Komar's are only one-half that range.

B. Orange Air Forces

The current Orange inventory of combat aircraft is:

<u>Number</u>	<u>Type</u>
144	MIG-21 (Fishbed D)
72	MIG-21 (Fishbed J)
72	SU-7 (Fitter)
24	TU-16 (Badger A)
12	TU-16 (Badger B, Kelt antishipping missile)
12	TU-16 (Badger, RECCE/ECM)

This air force has been upgraded with many more modern replacements since the ONRODA Affair. MIG 21's have replaced the antiquated MIG-19's and BADGERS have replaced the Beagle bomber. The use of the BADGER for anti-shipping reconnaissance and ECM are new ventures for Orange. It is probable that ECM equipments will be limited to employment of jammers and chaff.

C. Orange Ground Forces

The Orange army has a personnel strength of 100,000 divided in the following major units.

- 5 Infantry divisions
- 1 Tank division
- 1 AA/SAM division
- 3 Artillery brigades
- 1 Reconnaissance brigade

The latest intelligence reports that two Orange mechanized divisions complete with air support have occupied Grey near Greypoint deployed as in Figure 3. This force is composed of:

- 2 Infantry divisions (20,000 men)
- 1 Tank regiment
- 1 AA/SAM regiment (6 Batt, SA-2)
- 1 Artillery brigade
- 1 Reconnaissance regiment
- 72 Fishbed D (MIG 21)
- 24 Fitter A (SU-7)

BLUE FLEET
TF-6 Amphibious Force
and COMPHIBBLUE
B.S. BLUE MOUNTAIN (LCC 100)
at sea
DTG 021200R Jan 198X

OPERATION PLAN
COMPHIBBLUE No. 1-8X
REF (a) NWP 16
(b) NWP 22

ANNEX G

THE LANDING FORCE PLAN

I EMBARKATION PLAN

A. Organization for embarkation

ships, men, ports, equipment

B. Planning:

1. Shipping requirements
2. Assignment of troops, equipment, supplies to each ship
3. Loading plans and schedules
4. Assembly of ships to various ports
5. Assignment of troops to embarkation points
6. Availability of harbor service
7. Availability of suitable storage facilities
8. Availability of suitable protected anchorage or roadstead
9. Adequacy of road nets and space available for processing supplies and equipment
10. Suitability of beaches to beach landing craft and ships

II CONCEPT OF OPERATIONS ASHORE

- A. The mission of the landing force**
 - 1. The objectives of the ATF**
 - 2. Terrain objectives**

- B. The nature and extent of the designated landing area**
 - 1. Naval considerations**
 - a. Ability of the naval forces to support the landing and subsequent operations**
 - b. Degree of shelter from unfavorable sea and weather**
 - c. Hydrographic features of the beach approaches**
 - d. Hydrographic features of the offshore areas**
 - e. Extent of mineable waters**
 - f. Conditions affecting the ability of the enemy to defeat mine countermeasures**
 - g. Conditions affecting the practicability of improving unloading facilities**
 - h. Hostile capabilities and dispositions**
 - i. Possibility of early seizure of port and air facilities**
 - j. Relative desirability of the landing areas from the naval viewpoint.**

 - 2. Landing Force Considerations**
 - a. Suitability of landing area for attainment of the final ground objective**
 - b. Hostile capabilities**
 - c. Configuration of the coast line**
 - d. Selection of landing beaches**
 - (1) The landing force concept of operations ashore**
 - (2) Capacity for landing supplies and equipment**

- (3) Suitability for beaching landing ships, landing craft and amphibious vehicles.
- (4) Beach trafficability.
- (5) Suitability of offshore approaches.
- (6) Number, location and suitability of beach support areas and beach exits.
- (7) Location, type and density of beach obstacles, including underwater obstacles.
- (8) Nature of the terrain immediately inland from the beaches.
- (9) Suitability of communications facilities, including roads, railroads and waterways.
- (10) Suitability of the beach from the standpoint of expected weather and tidal conditions.

e. Selection of helicopter landing zones.

- (1) The landing force concept of operations ashore.
- (2) Enemy capabilities and dispositions, particularly the location, type and density of enemy anti-aircraft installations.
- (3) Nature of the terrain over which the helicopter-landed forces contemplate operations after landing.
- (4) Requirements for logistic support.
- (5) Requirements for air, naval gunfire artillery fire support.
- (6) Available helicopter routes to and from the landing zone, and restrictive effects on the employment of air, naval gunfire and artillery fire support of other forces.
- (7) Ease of identification from the air.

f. Selection of fixed-wing aircraft landing zones and drop zones for airborne and air-transported operations.

g. Principal factors in the selection of the tentative - -

(1) Date for landing

- Availability of forces
- Readiness of forces
- Present and projected enemy situation
- Seasonal conditions in the area under consideration
- Local conditions of weather, tide, current, phase of moon (duration of darkness and daylight)
- Designation of limiting dates by a higher authority
- Coordination with preliminary operations

(2) Hour for landing

- Known enemy routine
- Duration of daylight
- Need for tactical surprise
- Concept of operations ashore of the landing force
- Favorable conditions of wind, tide, & phase of moon
- Requirements for conducting certain operations during hours of darkness
- Most effective employment of air and naval gunfire support

3. Air Considerations

- a. Ability of air forces to support the landing and subsequent operations.
- b. Hostile capabilities and dispositions, particularly the location of enemy airfields coastal defense installations and SAM sites.
- c. Nature, extent and location of airfields, airfield sites and air control and warning sites.

- C. The Enemy Capabilities**
- D. The Friendly Forces Available**
- E. The Assault Plan**
 - 1. Ship to Shore Movement**
 - 2. Landings and drop zone schedules**
 - 3. Ground operations to seize strategic points**
 - 4. Provisions for logistic, air and naval gunfire support**
 - 5. Plan for landing the follow-on force.**

iii THE LAND CAMPAIGN

- A. Mission**
- B. Objectives**
- C. Enemy Capabilities**
- D. Plan of Attack**

Logistic air and NGF support

Appendix 1

ANNEX G

FORCES IN LANDING FORCE

			<u>Personnel</u>	<u>Cu.Ft. Space</u>
ATF-6	Flagship	1LCC	200	
TG 6.6.1	Amphibious Group ONE			
		1LHA	1800	
		1LPD	900	
		2LSD	300	
		2LST	350	
		2LKA	200	
	TU 6.6.1.2 Screen	4DD		
TG 6.6.2	Amphibious Group TWO			
		1LHA	1600	
		2LPD	800	
		2LSD	300	
		2LST	350	
		2LKA	200	
	TU 6.6.2.2 Screen	4DD		
TG 6.7.1	Transport Group ONE	5LPA	6500	
	TU 6.7.1.1 Screen	3DD		
TG 6.7.2	Transport Group TWO (UN Force)	10LPA	12000	
	Screen	8DD		
		<hr/>		
		52 ships	}	33 Amphibious
				19 DD

Personnel/Aircraft

TG 6.8 Landing Force

**TG 6.8.1 Landing Force ONE
Blue MAB #1
Marine Air Group**

**15,000
12 VF, 30 VA
19 Recon, 64 HS**

**TG 6.8.2 Landing Force TWO
U.N. Force**

12,000

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ANNEX H

SUPPORTING NAVAL FORCES PLAN

I TRANSIT PLAN

1. **What CV deck loading needed for transit tasks.**
2. **How to assign carrier groups to protect amphibious forces**
 - Task group movements**
 - Ship formations**
3. **Selection of ASW defense**
 - Assignment of aircraft stations**
 - Surface Screen**
 - Screen commander**
 - Control of aircraft and helo**
 - Rules of engagement/threat**
4. **Selection of AAW defense**
 - Assignment of aircraft stations**
 - Surveillance range needed**
 - Possible threat**
 - Alert interceptors needed**
 - Rules of engagement**
5. **Electronic warfare considerations**
6. **Cover and deception plan**
7. **Communication requirements**
8. **Adequacy of forces - projection of losses**

II PREASSAULT PLAN

A. Striking Force Considerations

- 1. Sufficient forces for destruction of defenses ashore, preparation of sea areas and beach approaches, beach reconnaissance, isolation of objective area, attainment of local air superiority, and the gathering of intelligence data.**
- 2. Enemy air, surface and subsurface attack capabilities**
- 3. Requirements for beach and landing zone preparation**
- 4. Number, type and priority of targets to be attacked**
- 5. Requirements for mine sweeping operations and underwater demolition operations.**
- 6. Provisions for continuous development utilization and dissemination of new intelligence and target information obtained from visual, photographic and electronic reconnaissance.**

III SUPPORTING ARMS PLAN (less artillery)

A. Air Support

1. Establish a centralized control system for all aircraft operating in AOA.
2. Achieve local air superiority in AOA and establish air defense system
3. Interdiction of the objective area
4. Destruction of enemy aircraft
5. Spotting naval gunfire
6. Antisubmarine warfare
7. Search and rescue
8. Reconnaissance
9. Harassment and propaganda
10. Pre-H hour neutralization
11. Defense of helicopter operations
12. Close air support
 - a. Select target and weapons as guided by the landing force commander
13. Provide for transfer of airspace control

B. Naval Gun Fire

1. Sufficient ships and spotting aircraft to accomplish mission
2. Sufficient munitions to maintain volume of fire
3. Adequate sea room and suitable hydrographic conditions in the area

4. Maintenance of local air and naval superiority
5. Positive observation of the naval gunfire target areas
6. Separate communication currents between ships, troops ashore, and ground spotters.
7. Sufficient time to affect essential destructive fires
8. Designation of targets, provision for damage assessments and acquisition of target intelligence
9. Provision for spotting aircraft
10. Coordination with minesweeping, UDT and air operations
11. Provisions for recording target information and reporting intelligence data.

A.B. BOB

Vice Admiral BN
CATF-6 Commander Amphibious Task Force
and COMPHIBBLUE

Authenticated:

I.A. Small
Lt.Cdr. BN
Flag Secretary

Appendix 1

ANNEX H

TASK FORCE SEVEN SHIPS

CARRIER GROUP ONE

<u>Type</u>	<u>Name</u>	<u>Class</u>
CV 1	Bigship	Kitty Hawk
CG 1	Cruone	Albany
DDG 1	Guidedog	Charles F. Adams
DD 11	Turby	Spruance
DD 12		Gearing (Fram I)
DE 11		Knox (with BPDMS and LAMPS)
DE 12		Know (with BPDMS and LAMPS)

CARRIER GROUP TWO

CV 2	Birdship	Forrestal
CLG 2	Crutwo	Converted Cleveland
DLG 2	Frig	Leahy
DD 21	Turbtwo	Spruance
DD 22		Gearing (Fram I)
DD 23		Gearing (Fram I)
DE 21		Knox (with BPDMS and LAMPS)

CARRIER DECK LOADINGS (CV CONCEPT)

	Transit	Pre-assault	Land Campaign
Fighters	12 F-14	12 F-14	12 F-14
Attack/Fighter	12 F-18	18 F-18	12 F-18
	12 A-18	12 A-18	18 A-18
All wx attack	12 A-6	12 A-6	12 A-6
Tanker	4 KA-6	4 KA-6	4 KA-6
EW	4 EA-6	4 EA-6	4 EA-6
Recce	6 RF-14	6 RF-14	6 RF-14
AEW	5 E2C	5 E2C	5 E2C
Helo	3 SH-3	3 SH-3	3 SH-3
Log	1 C-1	1 C-1	1 C-1
ASW	<u>12 S-3</u>	<u>6 S-3</u>	<u>6 S-3</u>
	83	83	83

Appendix 2

ANNEX H

SUPPORTING NAVAL FORCES
CONCEPT OF OPERATIONS

Task Force SEVEN will escort and support a United Nation's Marine Amphibious Force (MAF) during its approach, landing and seizure of Grey territory occupied by Orange in the vicinity of Greypoint.

The objectives of the MAF are to stop the Orange/Grey war by ejecting Orange from Grey territory and then to establish a UN demilitarized zone on the Grey/Yellow border. The MAF will be composed of a Blue MAB plus a follow-on UN force. Plans are to land to the west of Greypoint, seize the airport and naval base, defeat the Orange forces in Grey and set up a demilitarized zone.

Task Force SEVEN has been ordered to escort the MAB, eastward to its objective area, from a point 500 nmi west of Mid-Ocean Island. (Beyond Orange Badger range.) The amphibious task force (ATF) will be made up of two movement groups, the MAB group containing 22 amphibious ships and a destroyer screen, and the UN force following in about 5 days.

The CV deck loading concept will be used in this operation in the progression of warfare phases that are required. A number of decisions may be required in employing this concept. For the transit phase the CV loading will be defensive in nature; for the pre-assault phase the CV loading will be offensive (air superiority) in nature; and for the post-

landing phase the CV loading will be attack (close air support) oriented. Annex H Appendix 1, shows an example of possible deck loadings.

Red units may be sighted during the transit and in the objective area. It is a low probability that Red will initiate hostile action towards the UN force or towards Blue units. Red is expected to use their harassing tactics and surveillance capability. Orange units may also harass and surveill Blue forces. Submarines and Badgers can be expected during the transit phase at about 1000 nmi from the AOA. Blue forces are ordered not to take preemptive hostile action against such activities but to defend themselves by return fire if fired upon. Orange submarines that penetrate the outer screen in a submerged position will be considered hostile and will be fired upon. Orange aircraft will be warned away from our formations and will be fired upon if they do not change course within 100 nmi of the outer screen.

It is planned to escort the ATF movement group in a disposition as shown in Fig. 4. Twenty-two amphib ships will be oriented at fleet center supported by a surface screen of nine destroyers in the close support circle at six miles. The AAW axis will be oriented to the south with the inner AAW surface ships at 16 miles and the outer AAW surface ships at 20 miles. The carrier groups will be oriented at $045^{\circ}/16$ miles (CV-1) and $135^{\circ}/16$ miles (CV-2). The ASW axis will be 090° . Three P-3 stations will be oriented at $045^{\circ}/25$ miles, $090^{\circ}/25$ miles, and $135^{\circ}/25$ miles.

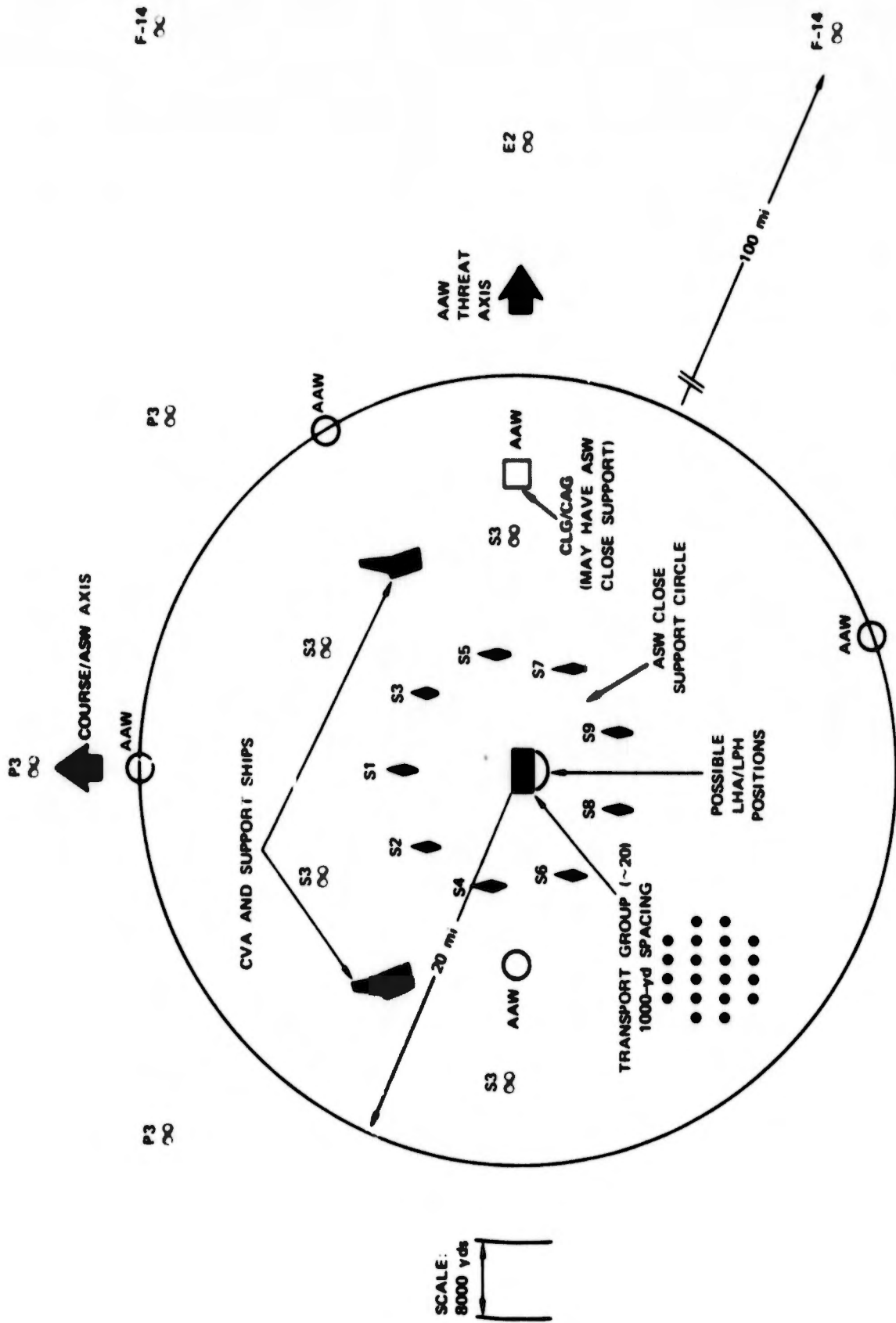


FIGURE 4 ATF MOVEMENT GROUP--VITAL AREA DISPOSITION

Four S-3 stations will be 000°/6-18 miles, 060°/6-18 miles; 120°/6-18 miles and; 180°/6-18 miles. The AAW air stations will be two F-14 single aircraft stations and one E-2 station. The F-14's will be 150°/100 miles and 210°/100 miles. The E-2 station will be 180°/50 miles. When the Surface CAP is airborne it will orbit at the E-2 station.

There will be three phases of defense to correspond to a high intensity expected threat, mid intensity threat, and low intensity threat. These phases are described as follows:

a. High intensity threat

Airborne CAP - 1 E2C 2F-14 day (1 F-14 at night) VF at 100 nmi
F-18 deck alert, 5 min 2 A-7 SUCAP at 50 nmi

Inner and outer ASW air screen
outer screen 25 nmi 3P-3 at 3 stations
inner screen 6-18 nmi 4 S-3 at 4 stations
lamps at 30 sec deck alert

ASW surface screen
Nine escort DD around amphibious ships at
6 miles circle
DD's of each CV group screen each CV

b. Mid intensity threat

CAP - 1 F-14 at 100 nmi

ASW Air - inner screen 2 S-3 at 2 stations 6-18 nmi
lamps 30 sec deck alert

ASW surface - surface screen same
TASS unit to outer screen

c. Low intensity threat

CAP - VF deck alert
E-2 airborne

ASW air inner screen 1 S-3 at one station
lamps 30 sec deck alert

ASW surface - surface screen same

It is expected that during the first day of the transit (D-5) a low profile defense will be used, followed by a mid-defense on D-4 and high-defense from D-3 through D day.

Normal AAW and ASW weapons will be loaded on all ships and aircraft ready for use.

The organization of forces and assignment of tasks are shown in Annex A of the Supporting Naval Forces plan (not included in this report).

On D-2 the preassault phase of the operation will commence with heavy air schedules from the carriers. A four day strike effort through D+1 will be conducted with four alpha strike per day launched against Greyport airfield, naval base, and general area. An alpha strike is defined as 6 A-18, 6 A-6, 6 F-14, 6 F-18, 1 E-2, 1 EA-6 and 3 KA-6. Strike tactics are outlined in Appendix I to Annex E of my Op Order No 1-7X. Primary target are Orange aircraft, in air or on ground, SAM and AA batteries, artillery and mobile defenses, etc. Special caution should be used not to damage any Grey facilities.

From D day to D+10 a fighter CAP will be kept over the beachhead or its advancing FEBA. This CAP, the CAP in defense of the ATF, and the fighters escorting the strike groups have the primary task of establishing and maintaining air superiority in the AOA. An armed reconnaissance team of A-18's or A-6's will interdict Orange traffic and supplies moving on the roads east of Greyport (to the Yellow border) with flight coverage every

6 hours or as required by the Landing Force Commander. Four attack aircraft will be assigned Close Air Support (CAS) duties beginning D day with a back up of four additional attack aircraft on deck alert. COMSURFGRU ONE will provide naval gunfire ships for duty during the assault and land campaign as required by the Landing Force Commander.

III DECISION FORMULATION

A. Supporting Naval Force Plan

The processes of decision formulation by the TFC and his staff are presented in this section as an example of how decisions are arrived at from the task and the data base or in this case, an assumed data base. It is anticipated that many different decisions could be made for one task dependent upon changes in the data base. A different data base could be developed and substituted in this section and the resulting decisions may change. The types of decisions that are listed here (from Ref. 1) will probably remain the same for any naval task. In order to reduce the scope of this problem only the Supporting Naval Forces Plan is presented from the Transit phase through the Land Campaign phase of the CATF plan.

1. The CATF's Mission and Tasks

The CATF's mission is to:

- Establish a beachhead by amphibious assault
- Defeat Orange forces in Grey
- Establish a demilitarized zone near Grey/Yellow border

His major tasks under this mission are to:

- Embark the landing force in assigned ships
- Transit the ATF safely to the AOA
- Establish air superiority in AOA
- Strike enemy forces in AOA
- Establish beachhead by amphibious assault
- Coordinate attacks with Grey Army
- Seize Greyport naval base and airfield

Land UN force administratively
Fly in MAG
Capture Grey river bridge
Defeat Orange forces in Grey
Establish a demilitarized zone near the Grey/Yellow border
Coordinate logistic support for forces assigned.

In his plan the CATF organized his forces and assigned the above major tasks to his subordinate commanders. Each of these tasks could be thought of as a sub-mission and they are usually combined to form the plan of the appropriate subordinate commander

For instance, the Supporting Naval Forces Commander would develop a plan with a mission to "defend the ATF during transit and provide air support and naval gunfire support during the assault and the land campaign." The Landing Force Commander would develop a plan with a mission "to establish a beachhead by amphibious assault in order to defeat Orange forces in Grey." Other tasks such as seize the Greyport naval base and airfield and capture the Grey river bridge would be classed as objectives in the campaign. The coordination of logistic support for the ATF should remain a task of the CATF.

Each of the subordinate commanders in developing his sub plan might go through the same procedure in planning as the Amphibious Force Commander. The same types of decisions and data base are faced except perhaps the specific data is different.

The following sections of the report are devoted to the formulation of the decisions made by the Supporting Naval Forces commander for the transit and assault phases of the operation. The types of data are outlined accompanied by some of the specific data that influences his

decisions. Another section lists the types of decisions made by the TFC paralleled by the specific decisions made in this scenario, the factors influencing the decisions, the alternatives, and the uncertainties which may affect the outcome.

2. The Data Base

The types of data base are arranged in four sections; Operations Area, Enemy Forces, Support/Direction, and Own Forces as shown in Tables 1, 2, 3, and 4. The Operation Area includes geographic and national background both location and characteristic. In addition this area includes all elements of the environment complete with predictions, estimates, location, and changing events.

Enemy Forces data includes the composition, characteristics and capabilities of enemy weapons systems along with enemy objectives, constraints, tactics, options, schedules, and assignments of their anticipated warfare modes. Foreseeable events or actual events that happen are included in the data as they affect changes in plans or timing and changes in performance and status of weapons systems.

Support/Direction data includes intelligence; (other than enemy forces) reports from other commands; other op-orders, plans, contingencies, operating procedures, and rules of engagement; logistic arrangements and plans; and a overview of other operations going on in the area of interest

Own Forces data is divided into Planning data, Execution data and Evaluation data having to do with force composition, characteristics,

and capabilities plus the affects of requirements, constraints, tactics, options, schedules, and assignments. Additional data in planning is the selection of a course of action from the considered alternatives. Evaluation data is a comparison of performance to desired capability and the need for training and research to reach these goals.

This data format as presented in this report is the result of study of other data presentations in References 2, 3, and 4. The format resembles the Grumman work overall but suggested changes have been made in Enemy and Own Force Data formats.

Tables 5, 6, 7, and 8 present the scenario data arranged as much as possible in order of the data format tables. This information was collected from References 5, 6, and 7 and is unclassified.

Table 1

OPERATIONS AREA DATA FORMAT

1. Background

Location, Characteristic

a. Geographic

Area - restrictions, corridors

**Features - topography
vegetation
demography**

b. National

Political

Civil/Commercial

Economic

Resources

Forces

Facilities

Equipment

2. Environment

Events, Predicted, Estimated, Location

a. Meteorologic

Air

Fog

Clouds

Storm

Wind

b. Hydrographic

Sea state

Bottom

Sound

Noise

c. Astronomic

Solar

Lunar

d. Electromagnetic

Ionosphere

Earthfield

Table 2

ENEMY FORCES DATA FORMAT

- 1. Composition, Characteristics, Capabilities**
 - a. Ships, submarines, aircraft, helos, bases, targets**
 - personnel
 - weapons
 - sensors
 - support
 - supply
 - maintenance
 - b. Objectives, constraints, tactics, options, schedules, assignments**
 - attacking task force air surface, subsurface
 - defending bases
 - surveillance
 - attacking other targets
 - logistics
- 2. Events**
 - a. Changes in plans or timing**
 - b. Performance of enemy**
 - Ships, subs, aircraft, helos, bases, targets**
 - personnel
 - weapons
 - sensors
 - support
 - supply
 - maintenance
 - c. Status**
 - Damaged or destroyed

Table 3

SUPPORT/DIRECTION DATA FORMAT

1. Intelligence (other than Enemy Forces)
 - a. Total Ocean Surveillance
 - b. Weather
 - c. Other
2. SITREPTS
 - a. Reports from other commands
3. Other Op-orders, plans
 - a. National Contingency Plans
 - b. Mission
 - c. Rules of Engagement
 - d. Joint or Allied Forces
4. Logistics
 - a. Replenishment (URG)
 - ships
 - aircraft
 - facilities
 - spares
 - stores
 - consumables
 - fuel
 - munitions
 - b. Maintenance
 - ships
 - aircraft
 - facilities
5. Other Operations

Table 4

OWN FORCES DATA FORMAT

1. Planning

a. Composition, Characteristics, Capabilities

ships, submarines, aircraft, helos

personnel

weapons

sensors

support

supplies

maintenance

b. Requirements, constraints, tactics, options, schedules, assignments

AAW

ASW

Strike

Surface

c. Selection of course of action from alternatives

Comparison of own forces and enemy forces

Predicted outcome of alternatives (win/lose estimates)

2. Execution

a. Events

Change of plans

Change timing of
plans

Resolve conflicts

b. Performance

Ships, Subs, Aircraft
Helos

personnel

weapons

sensors

supporting systems

supplies

maintenance

c. Status

Damage

Malfunction

Availability

3. Evaluation

a. Changes in procedures or doctrines, equipment, weapons, or personnel

Table 4 (cont.)

3. Evaluation (continued)

**b. Comparison of performance to capability
ships, submarines, aircraft, helos**

**personnel
weapons
sensors
support
supplies
maintenance**

c. Need for training and research

Table 5

OPERATIONS AREA, SCENARIO DATA

<u>FORMAT</u>	<u>DATA</u>
1. Background	
Location, Characteristic	
a. Geographic	
Area - restrictions, corridors	AOA, demilitarized zone, Yellow and Orange sanctuary. Fig. 1 area chart
Features - topography vegetation demography	} Annex C - Appendix 1
b. National	
Political	Grey, Yellow, Orange, Greyhawk situation
Civil/Commercial	Blue in UN. Orange invades Grey
Economic	
Resources	
Forces	Blue Force and UN Force
Facilities	Greyport Naval Base and Airport Industrial Airport
Equipment	
2. Environment	
Events, Predicted Estimated, Location	
a. Meteorologic	Annex C - Appendix 1
Air	
Fog	
Clouds	
Storm	
Wind	
b. Hydrographic	Annex C
Sea state	
Bottom	
Sound	
Noise	
c. Astronomic	NA
Solar	
Lunar	

Table 5 (cont.)

	<u>FORMAT</u>		<u>DATA</u>
d.	Electromagnetic		
	Ionosphere	NA	
	Earthfield		

Table 6

ENEMY FORCES, SCENARIO DATA

1. TOTAL ORANGE FORCES

	Composition	Characteristics	Capability
<u>SHIPS:</u>			
Destroyers	4	Skory	Skory
Missile boats	18	OSA	OSA
Missile boats	6	KOMAR	KOMAR
Torpedo boats	12	P6	P6
Minesweepers	2	T-43	T-43
Amphibious craft	5	VYDRA	VYDRA
Submarines	6	Whiskey	Whiskey

AIRCRAFT:

Fishbed D (MIG-21)	144
Fishbed J (MIG-21)	72
Fitter A (SU-7)	72
Badger A	24
Badger B	12
Badger, Recce	12

2. ORANGE FORCES IN GREY

2 Infantry divisions with tanks AA/SAM, artillery, and reconnaissance

72 MIG-21

24 Fitter A (SU-7)

Table 6 (cont.)

"SKORY" CLASS (DD)

Displacement, tons	2,600 standard; 3,500 full load
Length, feet	395
Beam, feet	39
Draught, feet	15
Guns, surface	4-5.1 in (130 mm), 2 twin
Guns, AA	2-3.4 in (85 mm) 1 twin 8-37 mm (4 twin) formerly 7-37 mm single
A S weapons	4 DCT
Torpedo tubes	10-21 in (533 mm)
Mines	80 capacity
Main engines	Geared turbines; 2 shafts 60,000 shp
Boilers	4 high pressure
Speed, knots	33
Range, miles	3,900 at 13 knots
Complement	260

RADAR -- Search: Strut Curve and unknown S Band.

Fire Control: Obsolescent X Band. Square Head.

ARMAMENT -- Modernised ships have five 57 mm single, five torpedo tubes and two 16-barrelled ASW rocket launchers.

Table 6 (cont.)

"OSA I and II" CLASS

Displacement, tons	165 standard; 200 full load
Dimensions, feet	129 x 25 x 6
Missile launchers	4 in two pairs abreast for "SS-N-2A" (range 25 nmi)
Guns	4-30 mm; (2 twin, 1 forward, 1 aft)
Main engines	3 diesels; 13 000 bhp = 32 knots
Range, miles	800 at 25 knots
Complement	25

"KOMAR" CLASS (MISSILE BOATS)

Displacement, tons	70 standard; 80 full load
Dimensions, feet	84 x 20 x 5
Missile launchers	2 for "SS-N-2A" system (range 25 nmi)
Guns	2-25 mm AA (1 twin forward)
Range, miles	400 at 30 knots
Main engines	4 diesels; 4 shafts; 4,800 bhp = 40 knots

"P 6" "P 8" "P 10" CLASSES (TORPEDO BOATS)

Displacement, tons	66 standard; 75 full load
Dimensions, feet	84 x 20 x 6
Guns	4-25 mm AA
Tubes	2-21 in (or mines, or depth charges)
Main engines	4 diesels; 4 shafts; 4,800 bhp = 43 knots
Range, miles	450 at 30 knots
Complement	25

Table 6 (cont.)

"WHISKY" CLASS

(Patrol Submarines)

Displacement, tons	1,030 surface; 1,180 submerged
Length, feet	240
Beam, feet	22
Draught, feet	15
Torpedo tubes	6-21 in (4 bow, 2 stern); 18 torpedoes carried (or 40 mines)
Main engines	Diesel-electric, 2 shafts Diesels 4 000 bhp Electric motors: 2,500 hp
Speed, knots	17 surface, 15 submerged
Radius, miles	13,000 to 16,500
Complement	60

Table 6 (cont.)

Total Orange Air Force							
Number	Type	Sortie Rate	Armament		Maximum Speed at Sea Level (kts)	Combat Radii	
			Bombs (pounds)	Guns		Hi-Lo-Hi nmi	Lo-Lo-Hi nmi
216	MIG 21 Fishbed	1.2	4-1100 4-550 2-550 + Exfuel	guns guns	650 650 650	230- 260- 480	160- 200- 320
72	SU-7 Fitter	1.2	4-1100 2-1100 2-550	guns guns guns	625	350	200
48	Badger A, B, D	1.0	10,000 (freefall)		475	1550	

Possible Strikes Against Task Force

From Orange (via Yellow City)

From Greyport

- 12 Badger A, B, D
- 12 SU-7*
- 12 OSA and Komar missile boats
- 6 W class submarines

- 24 SU-7*
- 24 MIG 21 escort*

* Expect that Orange aircraft have no in-flight refueling capability.

Table 6 (cont.)

NATO designation Soviet designation	FITTER A SU-7B	FISHBED J MIG-21
Status	still operational	operational
Primary operational role(s)	Close air support (CAS) Battlefield interdiction Counter air (CA)	Air superiority in the combat zone Air intercept
Secondary role(s)	-	Counter air (CA) Battlefield interdiction
<u>Performance</u>		
Radius of action..... km (hi-lo-hi/lo-lo-lo)	500/150	900/150
Intercept radius..... km (normal/min.time)	-	250/120
Time to climb to.....min 11,000m	15	8
Service ceiling.....m	15,000	18,000
Max. speed at..... Mach 11,000 m altitude	1.6	2.1
Max. speed at SL... Mach	0.9	1.06
Combat cruise at... Mach SL	0.7	0.9
Takeoff/landing..... m distance to/from 15 m	3,200	800/550
Max. endurance..... h	1.8	2.5
<u>Armament</u>		
Cannon(s)	2NR-30 mm with 70 rds each in wing roots	1 23 mm twin MG pack with 200 rds under fuselage
External stores stations	4 (2 fuselage, 2 wing)	4 (4 fuselage, 1 wing)

Table 6 (cont.)

NATO designation	FITTER A	FISHBED J
<u>Soviet designation</u>	<u>SU-7B</u>	<u>MIG-21</u>
<u>Armament (cont.)</u>		
Bombs	2x750 kg and 2x500 kg 1,100 kg (normal) or	2x500 kg and 2x250 kg or 4x16 57 mm rockets
Rockets	4x16 57 mm rockets or 10x160 mm rockets or 4x240 mm rockets	or 4x240 mm rockets or
Guided missiles	2xAS-6 Kerry	2xAA-2 1R-Atoll, 2AA-2 Radar-Atoll

Table 6 (cont.)

TUPOLEV Tu-16

NATO Code Name: "Badger"

This Tupolev bomber made its first public appearance in some numbers in 1954. Versions of the Tu-16 are identified by unclassified NATO code names, as follows:

"Badger-A". Basic bomber with glazed nose and internally-stowed free-fall bombs. In service with Soviet Air Force. Supplied to Iraqi and Egyptian Air Forces. Those supplied originally to Egypt were destroyed in the war of June 1967; but "Badgers" with both Soviet and Egyptian Air Force markings have been seen subsequently over units of the U.S. fleet in the Mediterranean. It is possible that they all remain part of the Soviet Naval Air Force and are flown by Soviet crews, from Cairo-West airfield.

"Badger-B". Similar to "Badger-A" but able to carry two swept-wing anti-shiping missiles (NATO code-name "Kennel") under wings. In service with Soviet Naval Air Force and, since July 1961, Indonesian Air Force (two squadrons). "Kennel" has been followed by the rocket-powered "Kelt" of similar configuration. Missile range 80-90 nmi.

"Badger-C". Missile-carrier first seen at 1961 Soviet Aviation Day display. Large stand-off bomb (NATO code-name "Kipper"), similar in configuration to North American Hound Dog, carried under fuselage and stated to be for anti-shiping use. Radar in wide nose radome.

"Badger-D". Maritime reconnaissance version. Nose radome similar to that of "Badger-C". Two blister fairings in tandem over equipment mounted under centre-fuselage.

Table 6 (cont.)

TUPOLEV Tu-16

TYPE: Twin-jet medium bomber.

WINGS: Cantilever high mid-wing monoplane with slight anhedral and with 37° of sweep. Thickness/chord ratio 12½%.

FUSELAGE: All metal semi-monocoque structure of circular cross-section.

TAIL UNIT: Cantilever all metal structure, with sweepback on all surfaces. Trim-tabs in rudder and each elevator.

LANDING GEAR: Retractable tricycle type. Twin-wheel nose unit retracts rearward. Main four-wheel bogies retract into housings projecting beyond the wing trailing-edge.

POWER PLANT: Two Mikulin AM-3M turbojet engines, each rated at about 20,950 lb (9,500 kg) st at sea level. Fuel in wing and fuselage tanks with total capacity of approx. 10,000 Imp gallons (45,450 litres). Provision for underwing auxiliary fuel tanks and for flight refuelling. Tu-16 tankers trail hose from starboard wing-tip; receiving equipment is in port wing-tip extension.

ACCOMODATION: Crew of about seven, with two pilots side-by-side on flight deck and navigator in glazed nose ("Badger-A" and "B"). Manned tail position plus lateral observation blisters in rear fuselage under tailplane.

ARMAMENT: Forward dorsal and rear ventral barbettes each containing two 23 mm cannon. Two further cannon in tail position controlled by an automatic gun-ranging radar set. Seventh, fixed, cannon on starboard side of nose. Bomb load of up to 19,800 lb (9,000 kg) delivered from bomb bay about 21 ft (6.5 m) long. Naval versions can carry air-to-surface winged stand-off missiles.

Table 6 (cont.)

TUPOLEV Tu-16

**ELECTRONICS AND
EQUIPMENT:**

Radio and radar aids probably include HF and VHF R/T equipment, as well as IFF and a radio-compass and radio altimeter. A radome under the nose of "Badger-A", "B" and "F" contains scanner-type radar. Equipment of other versions differs according to role.

DIMENSIONS, EXTERNAL:

Wing span	110 ft 0 in (33.5 m)
Length overall	120 ft 0 in (36.5 m)
Height overall	35 ft 6 in (10.8 m)

AREA:

Wings, gross approx-1,820 sq ft (169 m²)

WEIGHT:

Normal T-O weight approx. 150,000 lb (68,000 kg)

PERFORMANCE (estimated at max T-O weight):

Max level speed at 35,000 ft (10,700 m)
510 knots (587 mph; 945 kn/h)
Service ceiling 42,650 ft (13,000 m)
Range with max bomb load
2,605 nm (3,000 miles; 4,800 km)
Range at 417 knots (480 mph; 770 km/h) with
6,600 lb (3,000 kg) bombs
3,451 nm (3,975 miles; 6,400 km)

Table 6 (cont.)

ENEMY FORCES, SCENARIO DATA

OBJECTIVES	AIR	SURFACE	SUB SURFACE
Surveil Blue Shipping	Badger		Whiskey Subs
Attack ATF in Transit			
(1) about 1,000 nmi from AOA	Badger		Subs
(2) about 100 nmi from beachhead	MIG 21 SU-7 Badger	Missile boats	Subs
Defense of Greyport Area	MIG 21 SU-7		

Table 7

SUPPORT/DIRECTION, SCENARIO DATA

<u>FORMAT</u>	<u>DATA</u>
1. Intelligence (other than Enemy Forces)	
a. Total Ocean Surveillance	SOSUS, SSSC, Blue Fleet
b. Weather	
c. Other	
2. SITREPTS	
a. Reports for higher commands	Blue Fleet
3. Other Op-orders, plans	
a. National Contingency Plans	
b. Mission	Initiating directive, CATF op-order
c. Rules of Engagement	Initiating directive, CATF op-order
d. Joint or Allied Forces	Grey army
4. Logistics	
a. Replenishment (URG)	
ships	} COMSERVGRU ONE forces
aircraft	
facilities	
spares	} Requirements of Task Force
stores	
consumables	
fuel	
munitions	
b. Maintenance	
ships	} Requirements of Task Force
aircraft	
facilities	
5. Other operations	

Table 8

OWN FORCES, SCENARIO DATA

1. Planning

a. Composition, Characteristics, Capabilities

	Ships	Subs	Aircraft	Helos
personnel				
weapons				
sensors				
support				
supplies				
maintenance				

b. Requirements, constraints, tactics, options, schedules, assignments

AAW
ASW
strike
surface

c. Selection of course of action from alternatives

comparison of own forces and enemy forces
predicted outcome of alternatives (win/lose estimates)

2. Execution

a. Events

change of plans
change timing of plans
resolve conflicts

b. Performance

	Ships	Subs	Aircraft	Helos
personnel				
weapons				
sensors				
support				
supplies				
maintenance				

c. Status

	Ships	Subs	Aircraft	Helos
damage				
malfunction				
availability				

Table 8 (cont.)

OWN FORCES, SCENARIO DATA

3. Evaluation

- a. Changes in procedures or doctrines, equipment, weapons, or personnel
- b. Comparison of performance to capability

	Ships	Subs	Aircraft	Helos
personnel				
weapons				
sensors				
support				
supplies				
maintenance				

- c. Need for training

Table 8 (cont.)

TASK FORCE SEVEN SHIPS

CARRIER GROUP ONE

<u>Type</u>	<u>Name</u>	<u>Class</u>
CV 1	Bigship	Kitty Hawk
CG 1	Cruone	Albany
DDG 1	Guidedog	Charles F. Adams
DD 11	Turby	Spruance
DD 12		Gearing (Fram I)
DE 11		Knox (with BPDMS and LAMPS)
DE 12		Knox (with BPDMS and LAMPS)

CARRIER GROUP TWO

CV 2	Birdship	Forrestal
CLG 2	Crutwo	Converted Cleveland
DLG 2	Frig	Leahy
DD 21	Turbtwo	Spruance
DD 22		Gearing (Fram I)
DD 23		Gearing (Fram I)
DE 21		Knox (with BPDMS and LAMPS)

Table 8 (cont.)

ATTACK AIRCRAFT CARRIERS (CVA, CV)
"KITTY HAWK" CLASS

Name	Kitty Hawk
No.	CV 63
Builder	New York Shipbuilding Corp. Camden, N.J.
Laid down	27 Dec 1956
Launched	21 May 1960
Commissioned	29 Apr 1961
Displacement, tons	60,100 standard; 80,800 full load
Length, feet	990
Kitty Hawk	1063
Beam, feet	
Kitty Hawk	130
Draft, feet	36
Flight deck width, feet	249 maximum
Catapults	4 steam
Aircraft	approx 85 in Kitty Hawk
Missile launchers	2 twin Terrier surface-to-air launchers (Mk 10) in Kitty Hawk
Main engines	4 geared turbines (Westinghouse) 280,000 shp, 4 shafts
Boilers	8--1 200 psi (83.4 kg/cm ²) (Foster Wheeler)
Speed	35 knots
Complement	2,795 (150 officers, approx 2,645 enlisted men) plus approx 2,150 assigned to attack air wing for a total of 4,950 officers and enlisted men per ship
Electronics	All four ships of this class have highly sophis- ticated electronic equipment including the Naval Tactical Data System (NTDS).
Missiles	The three Terrier-armed ships have an Mk10 Mod 3 launcher on the starboard quarter and a Mod 4 launcher on the port quarter.

Table 8 (cont.)

ATTACK AIRCRAFT CARRIERS (CVA/CV)
"FORRESTAL" CLASS

Name	Forrestal
No.	CVA 59
Builder	Newport News SB & DD Co.
Laid down	14 July 1952
Launched	11 Dec 1954
Commissioned	1 Oct 1955
Displacement, tons	
Forrestal	59,650 standard; 78,000 full load
Length, feet	990
Forrestal	
Beam, feet	130
Draft, feet	37
Flight deck width, feet	260 maximum
Catapults	4 steam
Aircraft	approx 85
Guns	4--5 inch (127 mm) 54 cal DP (single) removed from Forrestal
Missile launchers	1 Basic Point Defense Missile System (BPDMS) launcher with Sea Sparrow missiles in Forrestal
Main engines	4 geared turbines (Westinghouse) 4 shafts 260,000 shp in Forrestal 280,000 in others
Boilers	8--615 psi (42.7 kg/cm ²) in Forrestal 1,200 psi (83.4 kg/cm ²) in others (all Babcock & Wilcox)
Speed, knots	33
Complement	2,790 (145 officers, approx 2,645 enlisted men) plus approx 2,150 assigned to attack air wing for a total of 4,940 + per ship

Table 8 (cont.)

"FORRESTAL" CLASS (cont.)

Electronics

The primary radars installed in these ships are SPS-43, SPS-30, and SPS-10 search radars, and SPN-10 navigation radar. Small TACAN navigation pods top the masts of these ships.

SPS-58 radar being installed to detect low-flying aircraft and missiles.

Naval Tactical Data Systems (NTDS) is installed in all four ships.

Table 8 (cont.)

GUIDED MISSILE CRUISERS (CG)
"ALBANY" CLASS

Name	Albany
No.	CG 10 (ex-CA 123)
Builder	Bethlehem Steel Co. (Quincy)
Laid down	6 Mar 1944
Launched	30 June 1945
Commissioned	15 June 1946
CG Comm.	3 Nov 1962
Displacement, tons	13,700 standard, 17,500 full load
Length, feet	664
Beam, feet	70
Draft, feet	27
Missile launchers	2 twin Talos surface-to-air launchers; 2 twin Tartar surface-to-air launchers
Guns	2--5 in (127 mm) 38 calibre dual-purpose
A/S weapons	1 ASROC 8-tube launcher, 2 triple torpedo tubes (Mk 32)
Helicopter	utility helicopter carried
Main engines	4 geared turbines (General Electric) 120,000 shp, 4 shafts
Boilers	4 (Babcock & Wilcox)
Speed, knots	33
Complement	1,000 (60 officers, approx 940 enlisted men)
Electronics	These ships are fitted with SQS-23 sonar which is linked to the ASROC fire control system. The Naval Tactical Data System (NTDS) is fitted in the Albany and Chicago. The radar arrangements differ slightly; the Albany has SPS-48 three-dimensional and SPS-10 search radars on her forward "mack", an SPS-43 radar on her second "mack" and an SPS-30 on the after platform (no SPS-30 atop bridge structure)

Table 8 (cont.)

GUIDED MISSILE LIGHT CRUISERS (CLG):
 CONVERTED "CLEVELAND" CLASS

Name	Galveston
No.	CLG 3 (ex CL 93)
Builder	Cramp Shipbuilding (Philadelphia)
Laid down	20 Feb 1944
Launched	22 Apr 1945
CLG Comm.	28 May 1958
Displacement, tons	10,670 standard, 14,600 full load
Length, feet	600
Beam, feet	66
Draft, feet	25
Missile launchers	1 twin Talos surface-to-air launcher (Mk 7 Mod 0)
Guns	6--6 in (152 mm) 47 calibre 6--5 in (127 mm) 38 calibre dual-purpose
Helicopters	utility helicopter carried
Main engines	4 geared turbines (General Electric) 100,000 shp, 4 shafts
Boilers	4 (Babcock & Wilcox)
Speed	31.6 knots
Complement	1200 officers and enlisted men
	There is a helicopter landing area on the fantail, but only limited support facilities are provided; no hangar.
Electronics	The Talos-armed ships have SPS-43 and SPS-10 radar on their forward mast, and SPS-52 or SPS-39 three-dimensional radar on their after mast, and an SPS-30 on the after platform.

Table 8 (cont.)

GUIDED MISSILE FRIGATES (DLG):
"LEAHY" CLASS

Name	Leahy
No.	DLG 16
Builder	Bath Iron Works Corp.
Laid down	3 Dec 1959
Launched	1 July 1961
Commissioned	4 Aug 1962
Displacement, tons	5,670 standard, 7,800 full load
Length, feet	533 oa
Beam, feet	55
Draft, feet	25
Missile launchers	2 twin Terrier surface-to-air launchers (Mk 10 Mod 5)
Guns	4--3 inch (76 mm) 50 cal anti-aircraft (twin)
A/S weapons	1ASROC 8-tube launcher 2 triple torpedo tubes (Mk 32)
Main engines	2 geared turbines, 85,000 shp, 2 shafts
Boilers ⁴	4 (Babcock & Wilcox in DLG 16-18, Foster Wheeler in DLG 19-24)
Speed, knots	34
Complement	396 (31 officers, 365 enlisted men) including squadron staff
	These ships are "double-end" missile frigates especially designed to screen fast carrier task forces. They are limited in only having 3 inch guns in comparison with 5 inch guns on other DLG classes. The DLG 16-18 authorised in the Fiscal Year 1958 new construction programme; the DLG 19-24 in the FY 1959 programme.
Electronics	These ships were fitted with the Naval Tactical Data System (NTDS) during AAW modernisation, SQS-23 bow mounted sonar installed. These ships have SPS-10 and SPS-48 search radars on forward

Table 8 (cont.)

"LEAHY" CLASS (cont.)

**mast (the latter replacing SPS-39 or SPS-52
in some ships) and an SPS-37 search radar on
their after mast.**

Table 8 (cont.)

GUIDED MISSILE DESTROYERS (DDG):
"CHARLES F. ADAMS" CLASS

Name	Charles F. Adams
No.	DDG 2
Builder	Bath Iron Works
Laid down	16 June 1958
Launched	8 Sep 1959
Commissioned	10 Sep 1960
Displacement, tons	3,370 standard; 4,500 full load
Length, feet=	437 oa
Beam, feet	47
Draft, feet	20
Missile launchers	
DDG 2-14	1 twin Tartar surface-to-air launcher (Mk 11 Mod 0)
DDG 15-24	1 single Tartar surface-to-air launcher (Mk 13 Mod 0)
DDG 4 and 13	1 multiple launcher for Chaparral (see Missile notes)
Guns	2--5 inch (127 mm) 54 cal dual-purpose
A/S weapons	1 ASROC 8-tube launcher 2 triple torpedo tubes (Mk 32)
Main engines	2 geared steam turbines (General Electric in DDG 2,3,7,8,10-13,15-22; Westinghouse in DDG 4-6, 9,14,23,23); 70,000 shp; 2 shafts
Boilers	4 (Babcock & Wilcox in DDG 2,3,7,8,10-13,20-22; Foster Wheeler in DDG 4-6,9,14; Combustion Engineering in DDG 15-19)
Speed, knots	
Complement	364 (24 officers, 330 enlisted men)

These destroyers are considered excellent multi-purpose ships. The DDG 2-9 were authorized in the Fiscal Year 1957 new construction programme. DDG 10-14 in FY 1958, DDG 15-19 in FY 1959, DDG 20-22 in FY 1960, DDG 23 and DDG 24 in FY 1961.

Table 8 (cont.)

"Charles F. Adams" Class (cont.)

Electronics

DDG 2-14 have SPS-37 and Sps-10 search radars on tripod mast; DDG 15-24 have SPS-40 and SPS-10. All ships apparently being fitted with antenna associated with SPS-52 radar, but the ships retain SPS-39 system (three-dimensional search antenna on second stack); these ships were completed with SPS-39 radar antenna aft.

Mk-74 guided missile fire control system is provided.

Table 8 (cont.)

DESTROYERS (DD):
 "SPRUANCE" CLASS (FORMERLY DX TYPE)

Name	Spruance
No.	DD 963
Start Erection	27 Nov 1972
Launch	Nov 1973
Commission	late 1974
Displacement, tons	6,900 full load
Length, feet	560
Beam, feet	54
Draft, feet	28
Helicopters	Light Airborne Multi-Purpose System (LAMPS) helicopter
Missile launchers	1 Basic Point Defence Missile System (BPDMS) multiple-launcher for Sea Sparrow missiles
Guns	2--5 inch (127 mm) 54 calibre dual-purpose (Mk 45) (single)
A/S weapons	1 ASROC 8-tube launcher fixed torpedo tubes
Main engines	4 gas turbines (General Electric) approx 80,000 shp; 2 shafts
Speed, knots	30+
Complement	approx 270
Electronics	<p>These ships will have SQS-26 sonar and will be the first US warships with a completely digital command and control system, which will reduce complexity and speed up production. (Most existing systems have a mixture of digital and analog components.) To be fitted with SPS-40A and SPS-55 radars, SQS-26CX sonar, and Mk 116 underwater fire control system. Advanced electronic countermeasure (ECM) equipment will be fitted.</p> <p>The Combat Information Centre (CIC) will provide a centralised location for information and displays for all sensor and weapon systems.</p>

**Table 8 (cont.)
"SPRUANCE" CLASS (cont.)**

**Provision in stern for eventual installation
of SQS-35 Independent Variable Depth Sonar
(IVDS).**

Fire control system for guns is Mk 86.

Table 8 (cont.)

MODERNISED "GEARING" CLASS (FRAM 1)

Name	Gearing
No.	DD 710
Builder	Federal SB & DD Co.
Launched	18 Feb 1945
Commissioned	3 May 1945
Displacement, tons	2,425 standard; 3,480 to 3,520 full load
Length, feet	391 oa
Beam, feet	41
Draft, feet	19
Missile launchers	Chaparral surface-to-air missile launcher in <u>Floyd B. Parks</u>
Guns	4--5 in (127 mm) 38 calibre dual-purpose (twin)
A/S weapons	1 ASROC 8-tube launcher 2 triple torpedo tubes (Mk 32) facilities for small helicopter
Main engines	2 geared turbines (General Electric or Westinghouse); 60,000 shp, 2 shafts
Boilers	4 (Babcock & Wilcox and Foster-Wheeler)
Speed, knots	34
Complement	274 (14 officers, 260 enlisted men)
Electronics	These ships have SPS-10 and SPS-40 or SPS-37 search radars on their forward tripod mast; advanced electronic warfare equipment fitted to most ships with an enlarged electronic "stack" atop the helicopter hangar-ASROC magazine structure. Fitted with SQS-23 sonar.
Engineering	Range is 5,800 miles at 15 knots.

Table 8 (cont.)

ESCORT SHIPS (DE):
"KNOX" CLASS

Name	Knox
No.	DE 1052
Builder	Todd Shipyards (Seattle)
Laid down	5 Oct 1965
Launched	19 Nov 1966
Commissioned	12 Apr 1969
Displacement, tons	3,011 standard; 4,100 full load
Length, feet	438 oa
Beam, feet	47
Draft, feet	25
Guns	1--5 inch (127 mm) 54 calibre dual-purpose 1--20 mm Vulcan Phalanx CIWS in <u>Lockwood</u> .
Missile launchers	1 Sea Sparrow BPDMS multiple launcher (being installed)
A/S weapons	1 ASROC 8-tube launcher 4 fixed torpedo tubes (Mk 32) 1 SH-2D LAMPS helicopter being provided
Main engines	1 geared turbine (Westinghouse), 35,000 shp; 1 shaft
Boilers	2--1,200 psi (83.4 kg/cm ²)
Speed, knots	27+
Complement	245 (17 officers, 228 enlisted men); increased to 283 (22 officers, 261 enlisted men) with BPDMS and LAMPS installation; as built 12 ships had accommodations for 2 staff officers.
Electronics	SQS-26CX bow-mounted sonar; installation of SQS-13 Independent Variable Depth Sonar (IVDS) on 36 ships began in 1971. These ships have SPS-40 and SPS-10 search radar antennas on their "mack" structures.

Table 8 (cont.)
CARRIER DECK LOADINGS (CV CONCEPT)

	Transit	Pre-assault	Land Campaign
Fighters	12 F-14	12 F-14	12 F-14
Attack/Fighter	{ 12 F-18 12 A-18	18 F-18 12 A-18	12 F-18 18 A-18
All wx attack	12 A-6	12 A-6	12 A-6
Tanker	4 KA-6	4 KA-6	4 KA-6
EW	4 EA-6	4 EA-6	4 EA-6
Recce	6 RF-14	6 RF-14	6 RF-14
AEW	5 E2C	5 E2C	5 E2C
Helo	3 SH-3	3 SH-3	3 SH-3
Log	1 C-1	1 C-1	1 C-1
ASW	<u>12 S-3</u>	<u>6 S-3</u>	<u>6 S-3</u>
	83	83	83

Table 8 (Cont.)

BLUE AIR CAPABILITY

(2 CV Task Force)

Number	Type	Sortie Rate Sustained/Surge	Flight Time/Payload (hr/lb)		Maximum Endurance (hr)	Loiter Time on Station (hr)	Blockade Loiter Time (hr)
			300 nmi	500 nmi			
24	F-14	1.25/1.7	1/4000	1/4000	4	2]	0]
24/36	F-18					100	400
24/36	A-18	1.2/1.5					
24	A-6E						
24/12	S-3A						
10	E-2C						
8	EA-6						
8	KA-6						
8	SH-3						
2	C-1						
10	RA-5C (offloaded)						

Note: Proposed Alpha Strike

- 6 A-18
- 6 A-6
- 6 F-14 escort
- 6 F-18 sweep
- 1 E-2 strike control
- 1 EA-6 EW
- 3 KA-6 refuelers

Table 8 (cont.)

GRUMMAN TOMCAT
US NAVY F-14

Type	Two-seat carrier-based multi-role fighter	
Wings	Variable-geometry mid-wing monoplane, with 20° of sweep in the fully-forward position and 68° when fully swept. Wing position is programmed automatically for optimum performance throughout the flight regime, but manual override is provided.	
Power Plant	Two Pratt & Whitney TF30-P-412 turbofan engines with afterburning, mounted in ducts which open to provide 180° access for ease of maintenance.	
Accomodation	Pilot and missile control officer seated in tandem.	
Armament	One General Electric M61-A1 Vulcan machine-gun mounted in the port side of forward fuselage. Four Sparrow air-to-air missiles mounted partially submerged in the under-fuselage. Two wing pylons, one under each fixed wing section, will carry both drop tanks and four Sidewinder missiles, the latter being mounted one on either side of each pylon. For Phoenix and later missiles, Grumman has developed a concept in which removable pallets can be attached to the present Sparrow missile positions, the missiles then being attached to the pallets. Max load: six Phoenix missiles	
Electronics	Hughes AN/AWG-9 weapons control system. Kaiser Aerospace AN/AVA-12 vertical and head-up display system.	
Dimensions, external		Fighter Exchange Ratio (Ref. 9)
Wing span: unswept	64 ft 1.5 in	$\frac{\text{MIG 21}}{\text{F-14}} = \frac{4}{1}$
swept	33 ft 2.4 in	
overswept	32 ft 11.5 in	
Length overall	61 ft 10.6 in	$\frac{\text{Enemy Bombers}}{\text{F-14}} = \frac{50}{1}$
Height overall	16 ft 0 in	
Tailplane span	32 ft 8.4 in	Missile kill ratio = $\frac{4 \text{ missiles}}{\text{kill}}$
Weights (estimated)		
Weight empty	36,000 lb	
Max T-O weight(with 4 Sparrow missiles)	53,000 lb	

Table 8 (cont.)

F-18/A-18

Two distinct versions of the Navy's McDonnell Douglas/Northrop F-18 air combat fighter are the initial fighter and an attack version. The fighter and attack versions of the F-18 will have a common engine and airframe but avionics and weapons station changes will be made for each to perform specific missions. Commonality between the fighter escort F-18, the first version, and the attack version will be about 90% for support equipment.

Fighter escort radius	The F-18's radius is 415 naut. mi.
Strike radius	The F-18 has a 655 naut. mi. capability
Maximum Mach	The F-18 assessment is Mach 0.99
Combat ceiling	The F-18 ceiling is 49,300 ft.

Table 8 (cont.)

GRUMMAN HAWKEYE

US NAVY DESIGNATION: E-2

The E-2 Hawkeye is a carrier-borne early-warning aircraft, of which the prototype flew for the first time on 21 October 1960.

E-2C

This version flew for the first time on 20 January 1971. Production began in mid-1971 and the E-2C is scheduled for introduction into US Navy service in 1973. It utilizes an advanced form of the Grumman/General Electric-developed AN/APG-111 radar, capable of detecting airborne targets in a land-clutter environment. E-2Cs will be used in conjunction with E-2B Hawkeyes.

Teams of Hawkeyes are able to circle naval task forces in all weathers, and are capable of detecting and assessing any threat from approaching high-Mach-number enemy aircraft early enough to ensure successful interception. The nerve centre of the intercept-control system is the Airborne Tactical Data System (ATDS), consisting of the auto-detection radar, airborne computers, memory and data-link system. ATDS is linked with the Naval Tactical Data System (NTDS), located in fleet headquarters, which processes, organises and displays information obtained from the aircraft, submarines and land and ship-based radar, to provide an overall picture of the tactical situation.

Dimensions, external (E-2A)

Wing span	80 ft 7 in
Length overall	56 ft 4 in
Height overall	18 ft 4 in
Diameter of AN/APA-143 radome	24 ft 0 in

Area: Wings, gross 700 sq ft

Weights (E-2A)

Weight empty	36,063 lb
Max fuel (internal)	12,133 lb
Max T-O weight	49,638 lb

Table 8 (cont.)

GRUMMAN HAWKEYE (E-2) (cont.)

Performance

(E-2A at max T-O wt.)

Max level speed	over 320 knots
Cruising speed	274 knots
Stalling speed	
(landing configuration)	70 knots
Service ceiling	31,700 ft
Min T-O run	1,205 ft
T-O to 50 ft	2,185 ft
Ferry range	1,654 nm

Table 8 (cont.)

GRUMMAN C-2A GREYHOUND

The C-2A Greyhound was developed from the E-2A Hawkeye specifically to deliver cargo to air groups deployed on carriers of the US Navy. It is compatible with elevators and hangar decks on CVS-10 and CVA-19 carriers, can be launched by catapult, using nose-tow gear, and can make arrested landings.

Many components of the C-2A and E-2A are common, including the complete turboprop power plants, and the Greyhound offers similar all-weather capability to the Hawkeye.

Performance

(at max T-0 weight)

Max level speed at optimum altitude	306 knots
Stalling speed at max arrested landing wt.	78 knots
Rate of climb at S/L	2,330 ft/min
Rate of climb at S/L, one engine out	310 ft/min
Service ceiling	28,800 ft
T-0 to 50 ft	2,560 ft
Landing from 50 ft at max arrested landing weight	1,735 ft
Combat range at average cruising speed of 258 knots at 27,300 feet	1,432 nm

Table 8 (cont.)

GRUMMAN INTRUDER

A-6A

Basic carrier-borne low-level attack bomber designed specifically to deliver nuclear or conventional weapons on targets completely obscured by weather or darkness. Performance is subsonic, but the Intruder possesses outstanding endurance and carries a heavier and more varied load of stores than any previous US naval attack aircraft.

Five weapon attachment points each have a 3,600 lb capacity. Typical weapon loads are thirty 500-lb bombs in clusters of three, or two Bullpup missiles and three 2,000 lb general-purpose bombs.

A-6E

An advanced A-6A featuring multi-mode radar and an IBM computer similar to that currently being tested in the EA-6B. First flight of an A-6E was made on 27 February 1970. Funds for the first 12 A-6Es were requested in the FY 1970 budget, with deliveries scheduled in the second half of 1971.

KA-6D

Grumman modified an A-6A into a flight refueling tanker, with drogue hose and reel in the rear fuselage, and this flew for the first time on 23 May 1966. The KA-6D production model is fitted with TACAN and can transfer more than 21,000 lb of fuel immediately after take-off or 16,000 lb at a distance of 260 nm from its carrier base. In addition, the KA-6D could also act as a control aircraft for air/sea rescue operations or as a day bomber. It was planned to modify four A-6s to KA-6D standard during 1969, and the FY 1970 budget requested funding for 20 more conversions.

EA-6A

First flown in prototype form in 1963, this version retains partial strike capability, but is equipped primarily to support strike aircraft and ground forces by suppressing enemy electronic activity and obtaining tactical electronic intelligence within a combat area. Elements of

Table 8 (cont.)

GRUMMAN INTRUDER (cont.)

the A-6A's bombing/navigation system are deleted and the EA-6A carries more than 30 different antennae to detect, locate, classify, record and jam enemy radiation.

Performance

Max level speed	
EA-6A	538 knots
Normal cruising speed	
A-6A	417 knots
EA-6A	418 knots
Stalling Speed	
(landing configuration)	
A-6A	68.7 knots
EA-6A	72.1 knots
Service ceiling	
A-6A	41,660 ft
EA-6A	38,960 ft
Min T-0 distance	
A-6A	1,630 ft
EA-6A	2,100 ft
T-0 to 50 ft	
A-6A	2,200 ft
EA-6A	2,700 ft
Ferry range	
A-6A	2,800 nm
EA-6A	2,600 nm

Table 8 (cont.)

LOCKHEED MODEL 185 ORION

P-3C Orion

Advanced version with the ANEW system of sensors and control equipment, built around a Univac digital computer, that integrates all ASW information and permits retrieval, display and transmission of tactical data in order to eliminate routine log-keeping functions. This increases crew effectiveness by allowing them sufficient time to consider all tactical data and devise the best action to resolve the problems. First flight of this version was made on 18 September 1968 and the P-3C entered service in 1969.

Performance (P-3B/C at max T-0 weight, except where indicated otherwise)

Max level speed at 15,000 ft at AOW of 105,000 lb	411 knots
Econ cruising speed at 25,000 ft at AOW of 110,000 lb	328 knots
Patrol speed at 1500 ft at AOW of 110,000 lb	206 knots
Stalling speed, flaps up	133 knots
Stalling speed, flaps down	112 knots
Rate of climb at 1,500 ft	1,950 ft
Service ceiling	28,300 ft
Service ceiling, one engine out	19,000 ft
T-0 run	4, 240 ft
T-0 to 50 ft	5,490 ft
Landing from 50 ft at design landing wt.	2,770 ft
Max mission radius (no time on station) at 135,000 lb	2,070 nm
Mission radius (3 hr on station at 1500 ft)	1,346 nm

Table 8 (cont.)

LOCKHEED S-3A

The S-3A is intended for operation from aircraft carriers and will have a crew of four, comprising a pilot, co-pilot, tactical co-ordinator (Tacco) and acoustic sensor operator (Senso). The pilot will maintain command of the aircraft, while the Tacco formulates strategy and instructs pilots on the necessary manoeuvres for a successful submarine attack. In addition to flying duties, the co-pilot will be responsible for the non-acoustic sensors (such as radar and infrared) and navigation: the Senso will control the acoustic sensors.

Performance (estimated)

Max level speed	over 430 knots
Max cruising speed	over 350 knots
Loiter speed	160 knots
Stalling speed	84 knots
Rate of climb at S/L	4,800 ft
Service ceiling	above 35,000 ft
Ferry range	more than 3,000 nm

Table 8 (cont.)

FORCES IN LANDING FORCE

			<u>Personnel</u>	<u>Cu. Ft. Space</u>
ATF-6	Flagship	1LCC	200	
TG 6.6.1	Amphibious Group ONE			
		1LHA	1800	
		1LPD	900	
		2LSD	300	
		2LST	350	
		2LKA	200	
	TU 6.6.1.2 Screen	4DD		
TG 6.6.2	Amphibious Group Two			
		1LHA	1600	
		2LPD	800	
		2LSD	300	
		2LST	350	
		2LKA	200	
	TU 6.6.2.2 Screen	4DD		
TG 6.7.1	Transport Group ONE			
		5LPA	6500	
	TU 6.7.1.1 Screen	3DD		
TG 6.7.2	Transport Group TWO (UN Force)			
		10LPA	12000	
	Screen	3DD		
		<hr/>		
		52 ships	{	33 Amphibious
				19 DD

Personnel/Aircraft

TG 6.8 Landing Force

TG 6.8.1 Landing Force ONE
Blue MAB #1
Marine Air Group

15,000
12 VF, 30 VA
19 Recon, 64 HS

TG 6.8.2 Landing Force TWO
U.N. Force

12,000

Table 8 (cont.)

AMPHIBIOUS COMMAND SHIPS (LCC)
"BLUE RIDGE" CLASS

Name	Blue Ridge
No.	LCC 19
Builder	Philadelphia Naval Shipyard
Laid down	27 Feb 1967
Launched	4 Jan 1969
Commissioned	14 Nov 1970
Displacement, tons	19,290 full load
Length, feet	620 oa
Beam, feet	82
Main deck width, feet	108
Draft, feet	27
Guns	4--3 in (76 mm) 50 cal AA (twin)
Helicopters	Utility helicopter carried
Main engines	1 geared turbine (General Electric); 22,000 shp; 1 shaft
Boilers	2 (Foster Wheeler)
Speed, knots	20
Complement	732 (52 officers, 680 enlisted men)
Flag accommodation	688 (217 officers, 471 enlisted men)

These are the first amphibious force flagships of post-World War II design. They can provide integrated command and control facilities for sea, air and land commanders in amphibious operations

Electronics Fitted with SPS-48 three-dimensional search radar, SPS-40 and SPS-10 search radar, 3 are on "island" structure. After "tower" does not have large antenna sphere originally intended for these ships.

Tactical Aircraft Navigation (TACAN) pod tops mast.

Table 8 (cont.)

"BLUE RIDGE" CLASS (cont.)

Both ships fitted with Naval Tactical Data System (NTDS). Antennas adjacent to helicopter landing area swing out for flight operations.

Table 8 (cont.)

AMPHIBIOUS ASSAULT SHIPS (LHA)
"TARAWA" CLASS

Name	Tarawa
No.	LHA 1
Start	15 Nov 1971
Launch	Dec 1973
Commission	1975
Displacement, tons	39,300 full load
Length, feet	820 oa
Beam, feet	106
Draft, feet	27.5
Guns	3--5 inch (127 mm) 54 cal DP (single) 6--20 mm AA (single)
Missile Launchers	2 Basic Point Defence Missile System (BPDMS) launchers
Aircraft	approx 30 troop helicopters; possibly AV-8 V/STOL close support aircraft in place of some helicopters
Main engines	Geared turbines; 70,000 shp; 2 shafts
Boilers	2
Speed, knots	approx 22 sustained; approx 24 max
Troops	1,825 (163 officers, 1,662 enlisted men)
	This is a new class of large amphibious warfare ships combining the characteristics of several previous designs including a full-length flight deck, a landing craft docking well, a large garage for trucks and armoured vehicles, and troop berthing for a reinforced battalion.
Electronics	Radars planned for these ships are the SPS-52 three dimensional search, and SPS-10 and SPS-40; advanced communications and helicopter navigation equipment provided. Each ship also will have an Integrated Tactical Amphibious Warfare Data

Table 8 (cont.)

"TARAWA" CLASS (cont.)

System (ITAWDS) to provide computerized support in control of helicopters and aircraft, shipboard weapons and sensors, navigation, landing craft control, and electronic warfare. SPN 35-aircraft navigation radar fitted on after end of "island" structure.

Table 8 (cont.)

AMPHIBIOUS ASSAULT SHIPS (LPH)
"IWO JIMA" CLASS

Name	Iwo Jima
No.	LPH 2
Builder	Puget Sound Naval Shipyard
Laid down	2 Apr 1959
Launched	17 Sep 1960
Commissioned	26 Aug 1961
Displacement, tons	17,000 light, 18,300 full load
Length, feet	592 oa
Beam, feet	84
Draft, feet	26
Flight deck width, feet	105 maximum
Helicopters	20-24 medium (CH-46) 4 heavy (CH-53) 4 Observation (HU-1)
Guns	8--3 in (76 mm) 50 cal AA (twin) except 6 guns in <u>Okinawa</u>
Missile launchers	1 Basic Point Defence Missile System (BPMS) launcher firing Sea Sparrow missiles in <u>Okinawa</u>
Main engines	1 geared turbine, 23,000 shp; 1 shaft
Boilers	2-655 psi (Combustion Engineering Babcock & Wilcox)
Speed, knots	20 (sustained)
Complement	528 (48 officers, 480 enlisted men)
Troops	2,090 (190 officers, 1,900 enlisted men)
Electronics	These ships have SPS-40 and SPS-10 search radars, and SPN-10 navigation radar; TACAN pod tops mast; advanced electronic warfare equipment fitted.

Table 8 (cont.)
 AMPHIBIOUS TRANSPORTS (SMALL) (LPR)
 CONVERTED DE TYPE

Name	Laning
No.	LPR 55 ex DE 159
Launched	4 July 1943
Commissioned	1 Aug 1943
Displacement, tons	1,400 standard, 2,130 full load
Dimensions, feet	300 wl, 306 oa x 37 x 12.6
Guns	1--5 in (127 mm 38 cal DP 4--40 mm AA (twin) in modernised ships 8--40 mm AA (twin) in others
ASW weapons	2 triple torpedo launchers (Mk 32) in modernised ships; depth charges in others
Main engines	Geared turbines (General Electric) with electric drive; 12,000 shp; 2 shafts--23.6 knots
Boilers	2 ("D" Express)
Complement	204 (designed wartime, 12 or 15 officers, 189 or 192 enlisted men, depending on DE type)
Troops	162 (12 officers, 150 enlisted men)

Table 8 (cont.)

AMPHIBIOUS TRANSPORT DOCKS (LPD)
"AUSTIN" CLASS

Name	Austin
No.	LPD 4
Laid down	4 Feb 1963
Launched	27 June 1964
Commissioned	6 Feb 1965
Displacement, tons	10,000 light; 16,900 full load
Length, feet	570
Beam, feet	84
Draft, feet	23
Guns	8--3 in (76 mm) 50 cal AA (twin)
Helicopters	Up to 6 UH-34 or CH-46
Main engines	2 steam turbines (De Laval); 24,000 shp; 2 shafts = 20 knots sustained
Boilers	2 (Babcock & Wilcox)
Complement	490 (30 officers, 460 enlisted men)
Troops	930 in LPD 4-6 and LPD 14-16; 840 in LPD 7-13
Flag accommodations	Approx 90 in LPD 7-13

Table 8 (cont.)

AMPHIBIOUS TRANSPORT DOCKS (LPD)
"RALEIGH" CLASS

Name	Raleigh
No.	LPD 1
Laid down	23 June 1960
Launched	17 Mar 1962
Commissioned	8 Sep 1962
Displacement, tons	8,040 light, 13,900 full load
Length, feet	500wl, 522 oa
Beam, feet	84
Draft, feet	21
Guns	8--3 in (76 mm) 50 cal AA
Helicopters	up to 6 UH-34 or CH-46
Main engines	2 steam turbines (De Laval); 24,000 shp; 2 shafts = 20 knots sustained
Boilers	2 (Babcock & Wilcox)
Complement	490 (30 officers, 460 enlisted men)
Troops	930

The amphibious transport dock was developed from the dock landing ship (LSD) concept but provides more versatility. The LPD replaces the Amphibious Transport (LPA) and in part the Amphibious Cargo Ship (LKA) and dock landing ship. The LPD can carry a "balanced load" of assault troops and their equipment, has a docking well for landing craft, a helicopter deck, cargo holds, and vehicle garages

Table 8 (cont.)

DOCK LANDING SHIPS (LSD)
"ANCHORAGE" CLASS

Name	Anchorage
No.	LSD 36
Laid down	13 Mar 1967
Launched	5 May 1968
Commissioned	15 Mar 1969
Displacement, tons	8,600 light, 13, 700 full load
Dimensions, feet	553 oa x 84 x 19
Guns	8--3 in (76 mm) 50 cal AA (twin)
Main engines	Geared turbines (De Laval); 24,000 shp; 2 shafts = 20 knots sustained
Boilers	2 (Foster Wheeler except Combustion Engineering in <u>Anchorage</u>)
Complement	317 (21 officers, 376 enlisted men)
Troops	376 (28 officers, 348 enlisted men)

Improved dock landing ships, slightly larger than previous class; designed to replace earlier LSDs which are unable to meet 20-knot amphibious lift requirement. Similar in appearance to earlier classes but with a tripod mast. Helicopter platform aft with docking well partially open; helicopter platform can be removed. Docking well approximately 430 x 50 feet can accommodate three LCU-type landing craft. Space on deck for one LCM, and davits for one LCPL and one LCVP. Two 50-ton capacity cranes.

Table 8 (cont.)

TANK LANDING SHIPS (LST)
"NEWPORT" CLASS

Name	Newport
No.	LST 1179
Laid down	1 Nov 1966
Launched	3 Feb 1968
Commissioned	7 June 1969
Displacement, tons	8,342 full load
Dimensions, feet	522 oa x 69.5 x 15
Guns	4--3 inch (76 mm) 50 cal AA (twin)
Main engines	6 die. ls (Alco); 2 shafts, 16,000 shp = 20 knots sustained
Complement	213 (11 officers, 202 enlisted men)
Troops	379 (20 officers, 359 enlisted men)

These ships are of an entirely new design larger, and faster than previous tank landing ships. They operate with 20-knot amphibious squadrons to transport tanks, other heavy vehicles, engineer equipment, and supplies which cannot be readily landed by helicopters or landing craft.

Table 8 (cont.)

AMPHIBIOUS CARGO SHIPS (LKA)
"CHARLESTON" CLASS

Name	Charleston
No.	LKA 113
Laid down	5 Dec 1966
Launched	2 Dec 1967
Commissioned	14 Dec 1968
Displacement, tons	20,700 full load
Dimensions, feet	575.5 oa x 82 x 25.5
Guns	8--3 inch (76 mm) 50 cal AA (twin)
Main engines	1 steam turbine; 22,000 shp; 1 shaft = 20+ knots
Boilers	2 (Combustion Engineering)
Complement	334 (24 officers, 310 enlisted men)
Troops	226 (15 officers, 211 enlisted men)

These ships are designed specifically for the attack cargo ship role; they carry 18 landing craft (LCM) and supplies for amphibious operations. Design includes two heavy-lift cranes with a 78.4-ton capacity, two 40-ton capacity booms, and eight 15-ton capacity booms; helicopter deck aft.

Table 8 (cont.)

AMPHIBIOUS TRANSPORTS (LPA)
"PAUL REVERE" CLASS

Name	Paul Revere (ex-Diamond Mariner)
No.	LPA 248
Launched	13 Feb 1954
Commissioned	3 Sep 1958
Displacement, tons	10,709 light; 16,838 full load
Dimensions, feet	563.5 oa x 76 x 27
Guns	8--3 inch 50 cal AA (twin)
Main engines	geared turbines (General Electric); 22,000 shp; 1 shaft = 22 knots
Boiler	2 (Foster Wheeler)
Complement	414 (35 officers, 379 enlisted men)
Troops	1,657 (96 officers, 1,561 enlisted men)

Table 8 (cont.)

MARINE AIR GROUP

CH-53D

The Ch-53D for the US Marine Corps, the first of which was delivered on 3 March 1969, is an improved version of the CH-53A with two T64-GE-412 or T64-GE-413 engines. The former has a military rating of 3,695 shp, and the latter a maximum rating of 3,925 shp. A total of 64 troops can be carried in a high-density arrangement. An integral cargo handling system makes it possible for one man to load or unload one short ton of palletised cargo a minute. Main rotor and tail pylon fold automatically for carrier operation.

Performance:

Max level speed at S/L	170 knots
Cruising speed	150 knots
Max rate of climb at S/L	2,180 ft/min
Service ceiling	21,000 ft
Hovering ceiling in ground effect	13,400 ft
Hovering ceiling out of ground effect	6,500 ft
Range, with 4,076 lb fuel, 10% reserve at cruising speed and 2 min warm-up	223 nm

A-4F Skyhawk

Attack bomber with J52-P-8A turbojet (9,300 lb = 4,218 kg st), new lift-spoilers on wings to shorten landing run by up to 1,000 ft, nosewheel steering, low-pressure tyres, zero-height zero-speed ejection seat, additional bullet- and flak-resistant materials to protect pilot, updated electronics contained in fairing "bump" aft of cockpit.

A-4M Skyhawk

Basically similar to A-4F, but with J52-P-408A turbojet (11,200 lb = 5,080 kg st) and braking parachute standard, making possible combat operation from 4,000 ft fields and claimed to increase combat effectiveness by 30%.

Dimensions, external:

Wing span	27 ft 6 in
Wing chord at root	15 ft 6 in

Table 8 (cont.)
MARINE AIR GROUP (cont.)

A-4M Skyhawk (cont.)

Length overall (excluding flight refuelling probe)	40 ft 3 $\frac{1}{4}$ in
Height overall	15 ft 0 in
Tailplane span	11 ft 3 $\frac{1}{2}$ in
Wheel track	7 ft 9 $\frac{1}{2}$ in
Areas:	
Wings, gross	260 sq ft
Vertical tail surfaces (total)	50 sq ft
Horizontal tail surfaces (total)	49 sq ft
Weight empty	10, 465 lb
Max T-O weight	24,500 lb
Performance (at design T-O weight)	
Max level speed (with 4000 lb bomb load)	560 knots
Max rate of climb (standard day at sea level)	8,440 ft/min
Max rate of climb (standard day at 25,000 ft)	2,500 ft/min
T-O run (at 23,000 lb T-O wt)	2,700 ft
Max ferry range at 24,500 lb T-O weight with max fuel, standard reserves	1,785 nm

Harrier AV-8A

Single-seat close-support and tactical reconnaissance version for the US Marine Corps.

Performance:

Speed at low altitude	over 640 knots EAS
Mach number (on a dive)	approaching 1.3
Ceiling	over 50,000 ft
Endurance, with one in-flight refuelling	over 7 hr

Table 8 (cont.)

MARINE AIR GROUP (cont.)

Harrier AV-8A (cont.)

Range, with one in-flight refuelling	over 3,000 nm
Ferry range, unrefuelled	approaching 2,000 nm

F-4J Phantom II

Development of F-4B for US Navy and Marine Corps, primarily as interceptor but with full ground attack capability. J79-GE-10 turbojets. Use of $16\frac{1}{2}^{\circ}$ drooping ailerons and slotted tail give reduced approach speed in spite of increased landing weight. Westinghouse AWG-10 pulse Doppler fire-control system. Lear Siegler AJB-7 bombing system 30 kVA generators.

Armament:

Six Sparrow III, or four Sparrow III and four Sidewinder, air-to-air missiles on four semi-submerged mountings under fuselage and two underwing mountings. Provision for carrying alternative loads of up to about 16,000 lb of nuclear or conventional bombs and missiles on five attachments under wings and fuselage. Typical loads include eighteen 750-lb bombs, fifteen 680-lb mines, eleven 150 US gallon napalm bombs, four Bullpup air-to-surface missiles and fifteen packs of air-to-surface rockets.

Weights:

T-O weight (clean)	46,000 lb
Max T-O weight	54,600 lb

Performance:

Max level speed with external stores	over Mach 2
Approach speed	130 knots
Combat ceiling	71,000 ft
T-O run (interceptor)	5,000 ft
Landing run (interceptor)	3,000 ft
Combat radius:	
interceptor	over 781 nm
ground attack	over 868 nm
Ferry range	1,997 nm

Table 8 (Cont.)

OWN FORCES

REQUIREMENTS

1. Transit
Defend the ATF during transit
2. Preassault, Assault and Land Campaign
Provide air support, naval gunfire support during this phase

CONSTRAINTS

1. Sanctuary
Orange forces in Yellow or Orange including their respective air spaces
2. Rules of Engagement
Orange submarines approaching TF in a submerged position
Orange aircraft approaching TF within 100 nmi
Red unit surveilling

TACTICS

ASW	Strike	Air superiority
ASW	Surface warfare	Close air support
		Interdiction
		Deep strikes
		Armed reconnaissance

OPTIONS

Trade-offs of aircraft and weapon depending upon the expected threat or actual threat in order to accomplish mission.

SCHEDULES AND ASSIGNMENTS

Fighter, attack, and ASW squadrons or units may be loaded or off loaded in accordance with the CV concept requirements.

Sample of detailed data needed for tactical plans *

TRANSIT PLAN

Amphibious force SOA
Carrier force SOA
Amphibious force refueling needs
Carrier force refueling needs
Carrier force deck loading
Amphibious force, cruising
dispositions for ASW and AAW
ASW plan
Need for outer screen
Need for inner screen
P-3 performance on outer screen
S-3 performance on outer screen
and inner screen
SH-2D (lamps) performance
Detection and weapons
Capability for P-3, S-3, SH-2D
Surface screen detection and
weapons capability
TASS capability
SOSUS information
Enemy threat and axis
Expected enemy movements and
objectives
Rules of Engagement

NTDS ships available
Link 11 and 14 performance
Rules of CAP engagement
Rules of SAM engagement
EMCON AAW procedures

Surveillance

E-2 performance, air & surface
targets
Surface threat expected, boat
range, missile range
A-7, A-6 SUCAP performance, speed
endurance, weapons capability
Number aircraft available
SSS control net
Ships radars and ECM ranges

* These types of data are required to evaluate necessary trade-offs in selecting the best decision from a group of alternatives. The decisions related to these data belong in the DEVELOPMENT OF PLAN group.

More detailed data of this sort would probably be generated from parameters in the CTEC list.

AAW

Expected enemy threat and axis
Surveillance needed
F-14 CAP and interceptor
F-18 performance and availability
CAP stations needed
Interceptors (deck alert) needed
SAM batteries available
SAM performance
CAP/missile coordination

3. Decisions Made in this Scenario

The major decisions made in this scenario are many and they could be characterized in several different ways. One way, presented in Table 9, is simply to list decisions that are made by the CATF and his superiors. Again these decisions are not made from a vacuum but require many details of the data base and the various tasks to be accomplished within the performance of the total mission. Many of these decisions, made by the CTF superiors, do not follow as strict a format as is followed by the CTF in his planning and execution of a mission. A typical format for types of TFC decisions is shown on Table 10. This format follows the orderly development and execution of a plan as presented in NWP-11 Refs. 1 and 8).

Using the above format and types of decisions, Tables 11 and 12 were prepared to show the decisions made by the Commander of the Supporting Naval Forces (CSNF) in the transit and assault phases of the amphibious operation. For each decision the facts influencing the decision (data base), the possible alternatives, and the estimated uncertainties were listed.

Table 9

DECISIONS MADE BY SUPERIORS

Decisions Made by COMBLUEFLT's Superiors

1. Use a UN counterforce to stop Orange aggression.
2. Establish a demilitarized zone near the Yellow/Grey border.
3. Use CTF-7 and Blue amphibious ships.
4. Decided on objective: seizure of Greyport airport and naval base
defeat the Orange force in Grey
set up UN demilitarized zone.
5. Imposed a Yellow and Orange sanctuary.
6. Decided on D day, 1 March 198X.
7. Decided to provide liaison to Grey army.

Decisions Made by COMBLUEFLT

1. Decided to required contingency loading plan.
2. Established COMPHIBBLUE as CATF-6.
3. Decided to use Blue MAB in amphibious assault flanking the Grey/Orange FEBA.
4. Decided UN force could make administrative landing by D+5 at Greyport Naval Base.
5. Decided on composition of ATF-6 and orders units to report to CATF-6.
6. Decided against use of SATS airfield. Decided to operate MAG from Industrial Airport to augment Navy air support.
7. Decided to seize Greyport airport, naval base, and bridge.
8. Decided on AOA size.
9. Decided on operational code name.
10. Decided on ATF/TF-7 rendezvous point.
11. Decided on intelligence and logistic support.

Decisions Made by COMPHIBBLUE

1. Decided to write Planning directive.
2. Decided on Task Organization.
3. Decided on assumptions and advance force operations.
4. Decided on tasks to assign CTF-7 and CTF-9.
5. Decided to delegate detailed planning (ANNEXES G & H) to CTF-9 and CTF-7
6. Decided on the command structure of the ATF.
7. Decided on the concept of operations

sailing date
preassault air strikes by D-2
tactical deception on D-1
assigned tasks to MAB, UN force
gunfire ships from CTF-7
CG of LF#2 to assume CTF-9
tentatively set H hour

Table 10

TYPES OF TASK FORCE COMMAND DECISIONS

(Course of Action Decision)

1. Select alternative plans
2. Determine suitability, feasibility, and acceptability
3. Decide on best plan

(Development Decisions)

4. Organize forces
5. Identify and assign tasks and subtasks
6. Position forces
7. Decide on weapon configurations
8. Decide on major timing considerations
9. Provide policy and guidance (concept of operations)
10. Resolve command and related problems

(Execution Decisions) (Events)

11. Change plan due to events
12. Change timing due to events
13. Change plan due to performance
Ships, subs, aircraft, helo
(personnel, weapons, sensors, support, supplies, maintenance)
14. Resolve conflicts in execution

(Evaluation Decisions)

15. Recommend changes in:
Procedures or doctrine
equipment, weapons, or personnel
16. Evaluate performance with capability
Ships, subs, aircraft, helos
(personnel, weapons, sensors, support, supplies, maintenance)
17. Recommend training and research.

DECISIONS MADE BY CSNF FOR TRANSIT
(TRANSIT MISSION: Defend the ATF During Transit)

TYPES OF DECISIONS	DECISIONS	FACTORS THAT INFLUENCE DECISIONS	POSSIBLE ALTERNATIVES	UNCERTAINTIES
Course of Action				
1. Select alternatives	Defense for high threat	Degree of threat VS TF SOA	Defend for high intensity threat all days	Orange attack plans vs Blue defense plans
2. Test S.P.A	Defense for medium threat	Best Orange plan with forces available	Use inactive AAW defense (EMCON/ESM)	Creditability of intelligence reports
3. Pick best plan	Defense for low threat. All plans are suitable, feasible & acceptable	Range of Orange weapon systems		Performance of Orange forces
	1st day - low threat	Weapons available in Orange forces	Plan sea routes that reduce attack probability	Performance of Blue forces
	2nd day - medium threat	Capabilities available for ASW and AAW in Blue forces		
	3.45th - high threat			
Development				
4. Organize forces	Routine			
5. Assign Tanks	AAW control, CV-1	If training is weak don't delegate tasks	AAW - Assign AAW to DLG	State of training
	ASW control, CV-2		ASW - Assign ASWAC to surface screen	Degree of performance
	Surface screen	Don't overburden one unit with too many tasks	Surface screen - assign to ComBurtGroupONE	
	CV screen			
	Amphib screen			
	TUG.5.1.2			
	TUG.5.2.2			
	TUG.6.1.2			
	Surveillance SSSC, CG-1		SSSC - Assign to DLG	
	P-3 force CTG 6.2		None	
	TASS unit CTG 6.1.3		None	
6. Position forces	Position amphib in one group at fleet center.	Amphibs total 22 ships plus 11 DD as screen	Position amphib in two groups and assign a CV group to protect each.	Enemy attack: Subs first Air first or Subs and air together
	Assign CV-1 and CV-2 at 045°/16 and 135°/16 respectively.	Force is small enough for one group.		
	Set SOA = 16 hrs. Set AAW and ASW fleet axis.	Two groups are harder to protect but are also hard-er for enemy to attr.		

Table 11 (cont.)

TYPES OF DECISIONS	DECISIONS	FACTORS THAT INFLUENCE DECISIONS (Data Base)	POSSIBLE ALTERNATIVES	UNCERTAINTIES
<u>Development (cont.)</u>				
7. Weapons	Baseline same as COA	same as COA	same as COA	same as COA
8. Major timing	Rules of engagement Orange subs that penetrate surface screen submerged are hostile	Whiskey class are very noisy - can be tracked easily	None	Whiskey subs might penetrate screen silently by letting ATF overrun them
9. Policy & Guidance	Incoming Orange aircraft - warned at 100 nmi Red units - do not initiate hostile action	Orange Badger have AS-5 missile with 90 nmi range OSA/KOMAR missile range 25 nmi Low probability that Red will be hostile	Shoot down aircraft - no warning None	How will missile boats be employed

DECISIONS MADE BY COMF FOR ASSAULT PHASE
(MISSION: Provide Air Support During the Assault and Land Campaign)

TYPES OF DECISIONS	DECISIONS	FACTORS THAT INFLUENCE DECISIONS	POSSIBLE ALTERNATIVES	UNCERTAINTIES
<u>Course of Action</u>				
1. Select alternatives	Strike, defense, VT sweep trade-off	Blue aircraft outnumber Orange aircraft in Grey	Strike Greyport airfield Attack Orange at FEMA Interdict Orange forces on roads	
2. Test SFA	Best results gained by establishing Blue air superiority in AOA Task is suitable, feasible, and acceptable	Blue with flexible carrier forces can prevent Orange aircraft resupply Orange aircraft being resupplied would have to refuel at Yellow City or at grass field on Grey Yellow border.	Fighter sweeps Intercept Orange aircraft resupply Use all fighters to defend tank force	Performance of new F/A-18 may not be up to capability
3. Decide on best plan	Establish air superiority in the AOA by striking Greyport airfield repeatedly. Supplement by fighter sweeps along with the strikes. Intercept any aircraft entering AOA from Yellow City.	Blue fighter can outperform Orange fighters. Exchange ratio 4/1. Missile capability = 4 missiles per kill Attack capability = 2 attacks aircraft per kill		Strength of Orange resupply aircraft at Yellow City is unknown, but not greater than total Orange aircraft.
<u>Development</u>				
4. Organize forces	Routine			Timing of Orange strikes could be embarrassing.
5. Assign tasks	Decide on strike composition & frequency Decide on fighter sweeps Assign targets Decide on AAW and ASW defense Decide on strike launch point, 400 nm	Number of aircraft available Sortie rate and utilization rate of aircraft Weapon carrying capability of aircraft Combat radius of aircraft	More fighters or more attack aircraft Timing of fighter sweeps Position of defense axes Launch point 400 nm, 300 nm, 200 nm	Number of Orange aircraft caught on ground Performance of new F/A-18 may not be up to advertised capability Weather Strength of Orange defenses at Greyport
6. Position forces				

Table 12 (cont.)

TYPES OF DECISIONS DECISIONS FACTORS THAT INFLUENCE DECISIONS POSSIBLE ALTERNATIVES UNCERTAINTIES

Developments (cont.)

6. Position forces

Decide on AAW stations & axis(NE)
 Decide on ASW stations & axis(S)
 Threat capability
 AAW & ASW axis - East towards Yellow City or North towards Greyport

7. Weapons

attack { Routine, except for weather uncertainty
 Laser bombs for good weather
 Rockets for bad weather
 Altitude needed for release of laser bomb, about 6,000 feet release.
 Rockets in low level weapon
 Weather

8. Timing

Strike before expected Orange attack on task force
 Long range of Blue attack aircraft
 Short range of Orange SU-7 aircraft
 Wait until Orange attacks to destroy Orange aircraft airborne
 Assume Orange aircraft do not have refueling capability

9. Policy

Honor sanctuary established over Yellow and Orange
 Ordered by higher command
 Use transit rules of engagement
 Senior commander may consider grassfield attack a disregard of order
 After attack has started shoot down all Orange aircraft not in sanctuary
 Consider grass refueling fields just inside Yellow border as not in sanctuary

4. Predicted Versus Actual Outcomes

From his estimate of the situation in the planning phase, the commander attempts to predict the outcome of each mission or task in numbers of his own losses against the enemy losses. This comparison of forces within the constraints of the operation provides the commander with the tests of suitability, feasibility and acceptability of the course of action selected to accomplish the mission.

Actual events that happen in the execution of the plan may change the predicted outcome. Therefore the commander must carefully monitor actual events, comparing them to predictions, in order to continually update his predicted outcome. Today he does this mentally, with hand written notes and with the help of his staff. He counts heavily on his experience and his judgement to accomplish such comparisons. Tomorrow, it is hoped that computer technology can help solve this problem.

a. Transit Phase - Predicted Outcome

The planned defense of the ATF is described in the Supporting Naval Forces "Concept of Operations", Appendix 2 to Annex H:

1st day (D-5) establish a "low threat" defense

2nd day (D-4) establish a "medium threat" defense

3rd to 5th day (D-3,2,1) establish a "high threat" defense

Expected attacks from Orange submarines and Badger bombers may occur about 1000 nmi from the AOA. With the planned ATF speed of advance (SOA) considered, these attacks would occur on D-3 and D-2 days. A range beyond 400 nmi from Orangeport would preclude OSA missile boat attacks.

Air attacks from SU-7's and MIG-21's may not be expected before D-1 day (or 350 nmi range). (See Table 6.) Therefore expected attacks against the task force may be:

D-3 day	12 Badgers with AS-5	}	coordinated attack
	2-3 W class submarines		
D-2 day	12 Badgers with AS-5	}	coordinated attack
	2-3 W class submarines		

The engagement parameters are listed below:

Fighter exchange ratio	$\frac{\text{MIG 21}}{\text{F-14/18}} = \frac{4}{1}$	(Table 8)
		(Ref. 9)

$\frac{\text{Other enemy aircraft}}{\text{F-14/18}} = \frac{50}{1}$

Blue AAM capability = 4 missile per kill	(Table 8)
--	-----------

Probability of Badger detection at 200 nmi (from TF center)	= 90% (Ref. 10)
---	-----------------

Probability of Badger attack getting through defense	= 2% (Ref. 10)
--	----------------

Probability of enemy missiles getting to ATF ships	= 10% (Ref. 10)
--	-----------------

Number of interceptors (including two CAP) that can engage at 100 nmi or greater	= 5 (Ref. 10)
--	---------------

Number of Blue fighter missiles fired	= 30 (Table 8)
---------------------------------------	----------------

RESULTS:

Number of Badgers killed $\frac{30}{4}$	= 7.5
---	-------

Number of AS-5's fired by Badgers (4 remaining Badgers)	= 8
---	-----

Number of AS-5's getting to target (.10 x 8)	= 1
--	-----

Number of F-14's lost	= 0
-----------------------	-----

It is expected that the Badger reconnaissance aircraft may position three W class submarines on the projected ATF track. These subs could position themselves 10 miles apart and lie in wait until the ATF cruises over them. In this way they would not be detected prior to being positioned for firing. It is estimated that one sub could get a torpedo spread off at the ATF at 5000 yards with the probability of one torpedo hit on one ship. It is a 90% probability that the firing sub would be sunk after firing. (See Table 14 for a listing of the battle outcome.)

b. Preassault and Assault Phase - Predicted Outcome

The Blue fighter sortie requirements during this phase appear to be the following:

Fighter aircraft available (2 CV's)	--	60
CAP and TARCAP requirements		
4 CAP stations	$\left(\frac{24}{3} \times 4\right)$	-- 32 sorties
3 hours on station		
Intercepts expected per day	--	16 sorties
Strikes/sweeps scheduled	--	48 sorties
4/day x 12 aircraft		
TOTAL sorties/day		96 sorties
Sortie rate $\left(\frac{96}{60}\right)$	--	1.6
Estimated endurance at	--	5 days
this sortie rate		
before decreasing to SR = 1.0		

The attack sortie requirements are planned as follows:

Attack aircraft available (until D+5)	A-18 --- 24	
	A-6 --- 24	
Strike requirements	6A-18 } x 4 --- 24 A18 sorties	
	6A-6 } --- 24 A6 sorties	
Armed recco. 2A-6 aircraft x 4 flights	---	8 A6 sorties
CAS 4A-18 x 3 flights	---	12 A18 sorties
SUCAP 2A-18 x 6 flights	---	12 A18 sorties

Total attack sorties required per day are 48 A-18 and 32 A-6.

This is a sortie rate of 2.0 for the A-18 and 1.3 for the A-6. This rate may be scheduled until D+5 when the twelve more A-18 are due from Mid-Ocean Island. During any surface attacks before D day the armed recce and CAS sortie may be diverted to counter surface threats to the task force (20 sorties per day).

The expected attacks against the task force on D-1 and D days are as follows:

- 12 Badger A (bombers)
- 12 SU-7 attack aircraft
- 24 MIG-21 fighters
- 12 OSA or KOMAR missile boats
- 2-3 W class submarines

The engagement parameters used in this phase are as follows:

(Bomber & escort) exchange rate $\frac{\text{Orange aircraft}}{\text{Blue VF}} = \frac{7}{1}^*$ (Table 8)

Blue AAM capability = 4 missiles per kill (Table 8)

Number of Blue VF engaged with missiles = 16/96
(4 CAP + 12 DL1)

* Note: When Orange bombers are escorted by MIG-21 the exchange ratio is calculated as follows:

$$\frac{1}{2} \left(\frac{1}{4} + \frac{1}{50} \right) = .135 \approx \frac{1}{7}$$

RESULTS:

Number of enemy bomber killed $\left(\frac{96}{4}\right) = 24$

Number of Blue fighters lost $\left(\frac{24}{7}\right) = 3.5$

The Blue strikes against Orange aircraft at Greyport are planned to start at 1200 on D-2 (TF distance about 500 nmi). These strikes are planned similar to the ONRODA strikes and the expected outcomes are as follows:

	<u>Blue Strikes</u>		<u>Orange Kills</u>		<u>Blue Losses</u>
D-2 day	24 VF	---	24	---	6
	24 VA	---	6	---	1
D-1 day	48 VF	---	12	---	1
	48 VA	---	9	---	1
D day	48 VF	---	6	---	0
	48 VA	---	9	---	1

c. Actual Outcome

The actual outcomes of a battle are different from the predicted outcomes due to the occurrences of unpredicted events. If each event is used to update the prediction the actual outcome may theoretically be the same as the updated prediction. This process appears to be a most desirable procedure for the task force commander.

The following events occur during the transit of the ATF:

D-4 and | 3 Orange Badgers maintain continual surveillance of the
D-3 day | ATF from beyond 150 nmi range. Blue CAP is launched,
implemented to three F-14's stationed on bearing with
the Badgers at 100 nmi from TF center. The CAP is
directed not to attack unless the Badgers close to
100 nmi.

D-2 0100 The Badger surveillance aircraft are noted to have changed their bearing to the task force by 90° holding their distance to 150 nmi. The CTF decides to keep the CAP on the threat axis rather than following the Badgers with the CAP.

D-2 0500 The E-2 reported 12 bogies at 200 nmi closing at M = .8 altitude 30,000 ft.

D-2 0505 The CTF launched 4 DLI's to intercept the bogies.

D-2 0510 The bogies reversed course and disappear. The "surveillance" Badgers have closed the task force to 90 nmi and fired six AS-5 missiles.

D-2 0530 The F-14 CAP manages to shoot down three AS-5's, a DLG on screening station splashes one AS-5 with a SAM, one AS-5 was a near miss on LHA-1 and the sixth AS-5 hit the flight deck of CV-2 and destroyed two A-18's.

D-2 0535 Torpedo wakes were reported by CV-2 screen and almost immediately a sub contact was picked up by an S-3 aircraft. CV-2 turned to parallel the reported torpedo wakes and avoided being hit.

D-2 0600 The CV-2 screen commander reported that his SAU the S-3, and a lamps helo had succeeded in sinking one W class submarine. The fire on CV-2 flight deck was finally brought under control with no other damage to the ship.

The CTF, reconstructing the events, conceded that he should have spread the CAP to keep the surveillance aircraft under his CAP missiles. The Orange air raid portion was judged very successful since all Badgers returned home to Orange. The commander revised his predicted outcome for D-1 and D day to include Badger missile attacks.

D-2 1200 The first and second strikes were launched from
-1500 the task force CV's for attacks on Orange aircraft
in the vicinity of Greyport. Each strike was
composed of 12 VF and 12 VA, plus other support
aircraft. These strikes were completely success-
ful as Orange did not expect that Blue could
strike from a 550 nmi range. 30 Orange aircraft
were damaged or destroyed at the expense of 4
Blue aircraft.

D-1 0600 At daybreak the ATF set a course towards beach
2, 50 nmi east of Greyport so as to arrive at
a point 50 nmi seaward of this beach by 1800
(amphibious feint). At this same time the third
strike on Greyport airfield was launched with
12 VF and 12 VA. During the launch many air
bogies were reported by the E-2 and NTDS from
several bearings north, east and south. In
addition small surface craft were reported closing
at high speed about 50 nmi from the easterly
screening destroyer. The CTF immediately diverts
the 12VF/12VA strike to implement the VF CAP and
VA SUCAP, and orders the decks respotted for 4
DLI at the forward cats and 4 VA at the waist
cats (on both CV's). The CTF orders the air-
controllers to engage the missile-carrying Badgers
as soon as identified and before they can fire
the AS-5's if possible. The controller implements
the southerly CAP with 6 VF and the three northerly
CAP with 6VF and sends the VA to attack the surface
targets to the east. (see Table 13 "Air Controller's
Log" for air battle details)

D-1 0615 During the air battle the ASW forces were busy
with 4 submarine contacts. Two Orange subs were
sunk and one Blue destroyer was torpedoed.

D-1 0630 The battle ended with the following results:

<u>Orange Attackers</u>	<u>Losses</u>
12 Badger B	12 Badger B
6 Badger A	0
12 MIG's	6 MIG's
12 SU-7	12 SU-7
6 MIG's	5 MIG's
12 OSA boats	12 OSA boats
4 submarines	2 submarines

D-1 (cont.)	0630	<u>Blue Defenders</u> 18 VF 14 VA	<u>Losses</u> 4 VF 1 A-18 1 DD torpedoed
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D-1 0645 The CTF launches the second strike (first strike at 0600 aborted for task force defense) of 12 VF/12 VA and support aircraft for Greyport, hoping to catch the returning Orange aircraft on the ground or refueling.

D-1 1200
 1500 The planned third and fourth strikes were launched on schedule. Strike results for the day were 21 Orange kills to 3 Blue losses. Air targets were becoming harder to find.

D day The planned first and second strikes were launched to coordinate with the movement ashore. Orange activity at Greyport airfield seemed to be at a standstill after the second strike. It seemed that Orange had shifted their air activity to the grass fields near the Grey/Yellow border. Some of their raids on the amphibious craft during the movement ashore were damaging. The third and fourth strikes were canceled and a TARCAP and CAS CAP were established over the beachhead in order to repel MIG raids from below. The results of the day were:

<u>2 Blue Strikes</u>	<u>Orange Losses</u>	<u>Blue Losses</u>
24 VF	10 MIG's	2 VF
24 VA		
<u>TARCAP AND CAS</u>	<u>Orange Losses</u>	<u>Blue Losses</u>
<u> CAP</u>		
24 VF	16 MIG's	3 VF
24 VA	ground targets	
	artillery and	
	facilities	

There were no Orange raids against the task force except the MIG raids against the amphibious ships and boats.

Table 13

AIR CONTROLLER'S LOG, CV-1

<u>Day</u>	<u>Time</u>	<u>Raid</u>	<u>Blue Action</u>
D-1	0601	North raid: 12 MIG's 13 SU-7	Assigned to CAP #1 & #2
		Northeast raid: 6 MIG's	Assigned to CAP #3
		East raid: 12 OSA surface	Assigned to SUCAP #1
		South raid: 6 Badgers	Assigned to CAP #4
	0605	12 OSA boats	SUCAP #1 ordered to attack
	0607	Northeast raid: 6 MIG's	CAP #3 ordered to attack
	0608	South raid reverses course, outbound	CAP #4 ordered to hold position
	0608	North raid - hold one contact, 12 MIG's. Other contact disappeared probably low level.	CAP #1 & #2 ordered to hold fire and search for low flyers
	0609	Bugies reported 120°/200 nos high 240°/200 nos high look like Badgers	CAP #4 split 3VF intercept 240° Bugie BE 3VF intercept 120° Bugie SE 1VF remain on station
	0610	North raid low flyers picked up by CAP #1 & #2	CAP #1 & #2 ordered to engage low flyers, then MIG's
	0610	NE raid OSA boats 6 MIG's	SUCAP #1 (14 VA) reports 12 boats sunk, one A-1E lost, boom expended CAP #2 reports 5 MIG's shot down one F-14 lost
	0612	North raid	CAP #1 & #2 report 10 SU-7 shot down 4 MIG's shot down 2 F-14 lost 2 SU-7 10 MIG's inbound F-14 expended big missile Scramble 2 VF to intercept (CAP #5)
	0615	South E & W raids	CAP #4 NE & SW (3VF each) report 6 Badgers in range ordered to open fire
	0618	South E & W raids	10 Badgers reported shot down 4 AB-5's reported launched at ATF CAP's reported chasing AB-5's inbound
	0618	North raid	CAP #5 reported 2 SU-7 shot down 1 F-14 lost to MIG's 2 MIG's destroyed;
	0622	South E & W raids	CAP #4 NE & SW report 2 AB-5's shot down, 2 AB-5's inbound. Low on fuel. MIG #4 & #5 alerted to take AB-5 with RAM's.

Table 14

PREDICTED AND ACTUAL OUTCOMES

Time	TV Strikes	TV Defense	Orange Attack	Orange Defense	Predicted Outcome		Actual Outcome	
					Blue Losses	Orange Losses	Blue	Orange
TRANSIT								
D-3 day		1E2C 2 F-14 CAP 4 DLJ	12 Badgers		.25 SE ^o	7.5 Badger B	0	0
		P-3 screen B-3 screen surface screen	3 subs		.90 SE	1 sub	0	0
D-2 day		(same)	(same)		.75 SE	7.5 Badger B 1 sub	2 VA	1 sub
D-2 day	24 VF 24 VA etc.			72 MIG SAM	3 VF 1 VA	18 MIG 12 SU-7	2 VF 1 VA	18 MIG 12 SU-7
ASSAULT								
D-1 day		4 F-14 CAP 1E2C 12 DLJ	12 Badger A 12 SU-7 21 MIG-21		6 VF	12 Badger A 12 SU-7	4 VF	12 Badger A 12 SU-7 11 MIG-21
		22 A-1H SU'CAP ASW screens	12 OSA 3 subs		1 VA .90 SE	11 OSA 1 sub	1 VA 1 SE	12 OSA 2 subs
	36 VF 36 VA			50 MIG SAM	2 VF 1 VA	21 MIG		
D day		(same)	(same)		6 VF 1 VA .50 SE	12 Badger A 12 SU-7 11 OSA 1 sub	0	0
	48 VF 48 VA			35 MIG SAM	1 VA	13 MIG	5 VF	26 MIG's
TOTAL					2.50 SE	52 MIG 15 Badger B 24 Badger A 24 SU-7 4 subs 22 OSA	1 SE	55 MIG 12 Badger B 24 SU-7 3 subs 12 OSA

^o Note: SE = ship equivalents
(one DLJ = 1.0)