

Risk in the Ryukyu Islands: Joint Planning for Okinawa

A Monograph

by

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Abstract

Risk in the Ryukyu Islands: Joint Planning for Okinawa: by Maj Gabriel L. Diana, United States Marine Corps, 53 pages.

Operation Iceberg, the campaign to seize positions within the Ryukyu Islands, signified the pinnacle of joint expeditionary power projection within the Pacific Theater of War. The campaign provides a useful case study in how shared understanding and acceptance of operational risk enabled people to work together and coordinate air, sea, and land forces to seize key locations within the Ryukyu Islands and develop bases there for future operations against Japan. The operational decision to land forces near Hagushi on the western side of Okinawa provided the shortest and most direct route to the strategic objectives of Kadena and Yontan Airfields, and the Naha Port facility. The immediate capture of these objectives provided the Allies an opportunity to more quickly establish bases to increase the sustained heavy bombing and air-sea blockade against Japan. Despite these benefits, the decision incurred greater risk of effective Japanese air and naval operations against Allied shipping due to the limited maneuver space on the western waters of the Ryukyu Islands.

The decision to recognize the benefits associated with the Hagushi landings, considering the potential consequences, displayed sound operational leadership and judgement by the joint force commanders. Mutual understanding of the operation's strategic purpose, nature of the threat, and available options facilitated the necessary discussion to properly assess opportunities and risk. The accepted operational risk became the unifying variable across the joint force to produce an operational approach to exploit the benefits of the Hagushi landings and overcome its associated risks.

Contents

Abstract.....	iii
Acknowledgements.....	v
Acronyms.....	vi
Illustrations.....	vii
Tables.....	vii
Introduction.....	1
Literature Review.....	2
Terms.....	6
Strategic Context.....	12
Nature of the Japanese Threat.....	19
Cost-Benefit Analysis and Decision.....	26
Cost Analysis.....	30
Operational Approach.....	34
Assessment.....	42
Conclusion.....	50
Bibliography.....	53

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Acronyms

ADRP	Army Doctrine Reference Publication
CINCSWPA	Commander-in-Chief, Southwest Pacific Areas
JCS	Joint Chiefs of Staff
JRAM	Joint Risk Analysis Methodology
JWPC	Joint War Plans Committee

Illustrations

1	Operational Art.....	9
2	Status of Japanese Forces 1 February 1945.....	23
3	Okinawa Gunto.....	30
4	Operation Icebergs Phase I.....	36
5	Hagushi Landing Beaches 1 April 1945.....	39
6	Radar Picket Stations at Okinawa.....	44
7	Sinking of the Yamato by TF 58.....	45
8	Operation Icebergs Progress 1-8 April.....	50

Tables

1	Evaluation of Risk, Benefits, and Opportunities for Allied Commanders.....	33
2	Operation Icebergs Functional and Geographic Decisive Points.....	38
3	Japanese Aircraft Employment Against Allied Forces during Operation Icebergs.....	43
4	Operation Icebergs Geographic Decisive Points and Associated Date of Capture.....	48

Introduction

Today, as in the past, joint force commanders must balance audacity and imagination with risk and uncertainty to create opportunities to seize, retain, and exploit the initiative, and achieve decisive results. They must apply their judgment, intellect, and experience to examine cost-benefit relationships, risks, and trade-offs associated with broad options to achieve their strategic purpose. The mark of a good commander will remain the willingness to embrace calculated risk in the face of ambiguity, fluidity for the potential of greater reward towards their mission. Historical research and campaign assessment afford the military practitioner the best lens to examine operational risk, and the leadership necessary to successfully integrate air, land, and sea capabilities to achieve a strategic purpose.

Operation Iceberg, the campaign to seize positions within the Ryukyu Islands, signified the pinnacle of joint expeditionary power projection within the Pacific Theater of War. The campaign provides a useful case study in how shared understanding and acceptance of operational risk enabled people to work together and coordinate air, sea, and land forces to seize key locations within the Ryukyu Islands and develop bases there for future operations against Japan. The operational decision to land forces near Hagushi on the western side of Okinawa provided the shortest and most direct route to the strategic objectives of Kadena and Yontan Airfields, and the Naha Port facility. The immediate capture of these objectives provided the Allies an opportunity to more quickly establish bases to increase the sustained heavy bombing and air-sea blockade against Japan. Despite these benefits, the decision incurred greater risk of effective Japanese air and naval operations against Allied shipping due to the limited maneuver space on the western waters of the Ryukyu Islands.

The decision to recognize the benefits associated with the Hagushi landings, considering the potential consequences, displayed sound operational leadership and judgement by the joint force commanders. Mutual understanding of the operation's strategic purpose, nature of the

threat, and available options facilitated the necessary discussion to properly assess opportunities and risk. The accepted operational risk became the unifying variable across the joint force to produce an operational approach to exploit the benefits of the Hagushi landings and overcome its associated risks. The purpose of this monograph is to examine how the joint force worked together in a complex forcible entry operation to identify, assess, and manage operational risk, and created and exploited opportunities during the Ryukyu campaign.

This monograph analyzes a single historical joint amphibious campaign in depth to better understand the role risk played in the operational decision making during the Ryukyu campaign, and how it unified the joint force's actions across the air, land, and sea domains. It examines Operation Iceberg through the lens of operational art doctrine to achieve this objective. The monograph consists of five sections. The first provides a literature review and examination of risk in within the context of war, operational art, doctrine, and military decision making. The second section discusses the American operational planner's shared understanding of the strategic aim and nature of the Japanese threat within the Ryukyu Campaign. The third section examines the discourse and collaboration necessary to make a high-risk decision and develop an operational approach that unifies the joint force's actions across the air, land, and sea. The fourth section examines Operation Iceberg's operational approach, and provides an assessment of its execution. And, the final section provides the conclusion and implications for operational level commanders and planners conducted joint forcible entry operations.

Literature Review

The history of the Ryukyu Campaign is a topic that has been extensively studied by both historians and military professionals and possesses a voluminous list of primary and secondary sources to aid in research. Several memoirs, reminiscences, and autobiographies by American and Japanese officers provide insights into key decisions throughout the planning, preparation, and execution of Operation Iceberg. *The Battle for Okinawa: A Japanese Officer's Eyewitness Account*

of the *Last Great Campaign of World War II*, written by Colonel Hiromichi Yahara, the senior staff officer in charge of operations of the 32d Japanese Army on Okinawa provides an essential enemy perspective on the defensive planning and preparation within the Ryukyus Islands, and key decision made throughout the campaign. This manuscript also includes Colonel Yahara's prisoner of war interrogation report produced shortly after the cessation of combat operations on Okinawa as a primary source document within the appendix of the book.¹ Captain Rikihei Inoguchi, Commander Jakajima Tadashi, and Roger Pineau's *The Divine Wind: Japan's Kamikaze Forces in World War II* delivers a firsthand account of the training, indoctrination, and employment of Japanese kamikaze forces in the Battle of Leyte Gulf and Battle of Okinawa.²

Naval historian E.B. Porter's books *Nimitz* provides a biographical narrative of Admiral Nimitz career, and provides candid discussion on the planning and execution of the campaign Operation Iceberg.³ *Admiral Raymond Spruance, USN: A Study in Command*, also offers an in depth account of Admiral Spruance's life, and detail discussion on the context and execution of combat operations in the Pacific Theater and the Ryukyu Campaign.⁴ *Seven Stars: The Okinawa Battlefield Diaries of Simon Bolivar Buckner and Joseph Stilwell* presents a unique primary source of both Tenth Army Commanders and the challenge of commanding large unit operations within the Ryukyu Campaign.⁵

¹ Colonel Hiromichi Yahara, *The Battle for Okinawa: A Japanese Officer's Eyewitness Account of the Last Great Campaign of World War II*, trans. Roger Pneau and Masatoshi Uehara (New York City, NY: John Wiley & Son, Inc., 1995).

² Inoguchi, Pikihei, Captain, Tadashi Nakajima, Commander, Former Japanese Imperial Navy, and Roger Pineau, *The Divine Wind: Japan's Kamikazi Forces in World War II* (Annapolis, MD: Naval Institute Press, 1958).

³ E.B Porter, *Nimitz* (Annapolis, MD: Naval Institute Press, 1976).

⁴ E.P. Forrestel, Vice Admiral, United States Navy, *Admiral Raymond A. Spruance, USN: A Study in Command* (Washington, DC: Department of Naval History, 1966).

⁵ Simon B. Buckner, Jr., and Joseph Stilwell, Nicholas E. Sarantakes, ed., *Seven Stars: The Okinawa Battlefield Diaries of Simon Bolivar Buckner and Joseph Stilwell* (College Station, TX: Texas A&M University Press, 2004).

The United States Army, Navy, and Marine Corps' official histories are widely recognized as the definitive study of the Pacific Theater of Operation and the Ryukyu Campaign. The United States Army Center for Military History's *Okinawa: The Last Battle* provides a comprehensive examination of the strategic context of Operation Iceberg, and the planning, preparation, and execution of combat operations to secure the Ryukyus Islands. In this volume, Army historians Roy E. Appleman, James M. Burns, Russell A. Gugeler, and John Stevens provide eyewitness accounts of combat on Okinawa, and rely extensively on manuscript histories of the major Army and Marine units participating in the action, naval intelligence and planning documents, interviews with senior commanders and their staffs, and official records that include Japanese records and prisoners of war interviews to thoroughly outline the details of this campaign.⁶

Marine Corps historians, Chas S. Nichols and Henry I. Shaw's *Okinawa: Victory in the Pacific* also provide an inclusive study from both the American and Japanese perspectives on the preliminary preparations and assault of Okinawa to include a detailed account of key battles throughout the campaign. The book is packed with government maps, documents, letters, charts, and photographs that aid the reader.⁷ Navy Admiral, and Harvard University professor, Samuel Eliot Morison's *Victory in the Pacific 1945* is part of fifteen-volume series that chronicles naval operations in both the European and Pacific theaters of war. In this specific volume, Morison illustrates the United States Navy's participation in campaigns to capture Iwo Jima and Okinawa. He also devotes one chapter to examine the logistics challenges of supplying fleets and armies over extended sea lines of communication.⁸

⁶ Roy E. Appleman, et.al., *Okinawa: The Last Battle* (Washington, DC: US Army Center of Military History, 1948).

⁷ Nichols S. Chas Jr., Major United States Marine Corps and Henry I. Shaw, Jr., *Okinawa: Victory in the Pacific, Marine Corps Monographs Series* (Washington DC: U.S. Government Printing Officer, 1955).

⁸ Samuel Eliot Morison, Admiral United States Navy, *Victory in the Pacific, History of United States Naval Operations in World War II, Volume XIV* (Boston, MA: Little, Brown and

The works of several authors stand out as definitive historical examinations of the preparation and conduct of Operation Iceberg from both the American and Japanese perspectives. George Feifer's *Tennozan: The Battle of Okinawa and the Atomic Bomb* covers everything from the context of the battle, including Japanese and American culture, values, and traditions, to close infantry combat in graphic detail.⁹ Simon Foster's *Okinawa 1945: Final Assault on the Empire* offers an equally powerful account of the naval engagements surrounding the land campaign.¹⁰ In more general studies of the Pacific Theater of War, Isely and Philip A. Crowl's *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific* serves as a seminal study on the development of amphibious warfare theory, doctrine and practice during the interwar period and World War II. The study also provides a detailed account of joint amphibious operations in the Ryukyu Islands and lessons learned during the campaign.¹¹ In more recent scholarship, Sharon Tosi Lacey's *Pacific Blitzkrieg: World War II in the Central Pacific* offers an examination of joint operations and learning within the Pacific Theater of Operations to include a thorough examination of the training, planning, and execution of Operation Iceberg at the acme of inter-service cooperation during the war. While her study presents an excellent account of ground operations within the Ryukyus; it falls short in discussing the integration of air, land, and sea operations to provide the reader a more comprehensive understanding of the joint campaign.¹²

Company, 1975). It is important to note that Morison also participated in Operation Iceberg as an active duty Navy officer.

⁹ George Feifer, *Tennozan: The Battle of Okinawa and the Atomic Bomb* (New York, NY: Ticknor & Fields, 1992).

¹⁰ Simon Foster, *Okinawa 1945: Final Assault on the Empire* (London, UK: Arms & Armour, 1995).

¹¹ Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific* (Princeton, NJ: Princeton University Press, 1951).

¹² Sharon Tosi Lacey, *Pacific Blitzkrieg: World War II in the Central Pacific* (Denton, TX: University of North Texas Press, 2013).

The critique of Lacy's work serves as a consistent theme within the larger body of historical assessment of Operation Iceberg and the Ryukyu Campaign. The omission of essential details regarding the synchronization of air, sea, subsurface, and land operations throughout the planning, preparation, and execution of Operation Iceberg creates a significant gap in scholarship. This study aims to bridge that gap by examining how shared understanding and acceptance of operational risk enabled people to work together and coordinate air, sea, and land forces to achieve their strategic aim during Operation Iceberg.

Terms

Critical to understanding the research question is to define key terms and concepts. These fundamental concepts include the nature of war, risk, operational art, and the commander's role in decision making. An examination of doctrine's current explanation of risk in military operations is also important to this monograph.

War is a violent clash between two hostile, independent, and irreconcilable wills, each trying to impose itself on the other.¹³ All actions in war take place in an atmosphere of uncertainty, chance, and friction. War involves an estimation and acceptance of risk by commanders. In *On War*, Carl Von Clausewitz explains that the "objective nature of war makes it a matter of assessing probabilities," where "no other human activity is so continuously or universally bound up with chance."¹⁴ To further expound upon uncertainty, chance, and risk in war, he states:

If we now consider briefly the subjective nature of war—the means by which war has to be fought—it will look more than ever like a gamble....In short, absolute, so called mathematical factors never find a firm basis in military calculations. From the very start there is an interplay of possibilities, probabilities, good luck and bad that weaves its way throughout the length and breadth of the tapestry. In the whole range of human activities, war most closely resembles a game of cards.¹⁵

¹³ Marine Corps Doctrinal Publication (MCDP) 1, *Warfighting* (Washington, DC: Government Printing Office, 1997), 3.

¹⁴ Clausewitz, *On War*, 85-86.

¹⁵ *Ibid.*

The role of uncertainty, chance, and friction is amplified at the strategic and operational levels of war and incurs greater risk to mission. The consequence of failure at the operational level is much more serious than at the tactical level, and may result in irreversible conditions that lead to defeat. On the other hand, the potential benefits at the operational level may provide decisive results that lead to victory within a campaign.¹⁶ Therefore, risk is related to gain and the greater potential for reward often requires a higher-degree of risk tolerance.

Extant joint doctrine does not properly articulate the relationship between opportunity and risk in military operations. Instead, it largely focuses on processes and procedures to mitigate risk throughout planning and execution cycles. The Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms, defines risk as the “probability and severity of loss linked to hazards.”¹⁷ The Chairman of the Joint Chiefs of Staff Manual on Joint Risk Analysis Methodology (JRAM) further defines military risk as “the estimated probability and consequence of the Joint Force’s projected inability to achieve current or future military objectives (risk-to-mission), while providing and sustaining sufficient military resources (risk-to-force).”¹⁸ The joint planning process is designed to align military activities and resources to achieve national objectives. It enables commanders to examine the potential for failure based on a subjective evaluation of the probability for failure or success for a decision. The joint planning process also assists in analyze the cost-benefit relationships, risks, and trade-offs to aid in development of an operational approach.¹⁹

¹⁶ Milan Vego, “On Operational Leadership,” *Joint Forces Quarterly* 77 (2nd Quarter 2015): 67-68.

¹⁷ United States Joint Chiefs of Staff, “Joint Publication 1-02 Department of Defense Dictionary of Military and Associated Terms February 2016.” *Joint Electronic Library*, 206, accessed 25 March 2017, http://www.dtic.mil/doctrine/new_pubs/jp1_02.pdf.

¹⁸ United States Joint Chiefs of Staff, “Joint Risk Analysis 14 October 2016,” *Chairman Joint Chiefs of Manual* (Washington, DC: U.S. Joint Chiefs of Staff, March 22, 2010), C-8.

¹⁹ JP 3-0, II-5-II-8.

The Marine Corps' maneuver warfare philosophy is most descriptive in explaining the relationship between risk and opportunity in military operations. Maneuver warfare seeks to “shatter the enemy's cohesion through a series of rapid, violent, and unexpected actions which create a turbulent and rapidly deteriorating situation with which he cannot cope.”²⁰ It is based on acceptance of risk and opportunistic maneuver to create these conditions and exploit fleeting opportunities on the battlefield.

The Marine Corps Operating Concept further expands on the concept of risk and opportunity by explaining:

Risk is a military virtue. He who dares not risk cannot win and victory belongs to the bold capture the spirit of moral courage that must animate the character of joint leaders. Calculated risk is not reckless, it is the recognition that in war nothing is assured and that friction and chance can radically influence events; yet advantage can be gained through relentless efforts to generate, recognize and exploit opportunity in a timely manner. Risk calculation and acceptance is a complex problem that confronts commanders in both the intellectual and moral dimensions. Risk cannot be eliminated, nor in pursuit of the utopian battlespace should we seek to do so. Risk is a component of resolve, and inherent to the entrepreneurial spirit promoted by Mission Command embraces calculated risk to generate opportunity.²¹

The philosophy and operating concept further acknowledges that risk is inherent in every mission, and further warns it is equally common to action and inaction on the battlefield.

The relationship between operational art and risk is the next key component to properly frame this study. Joint doctrine defines operational art as the “cognitive approach by commanders and staffs—supported by their skills, knowledge, experience, creativity, and judgment—to develop strategies, campaigns, and operations to organize and employ military forces by integrating ends, ways, and means,” while accounting for risk.²² The use of operational art provides commanders a

²⁰ *Warfighting*, 73.

²¹ George F. Flynn, Lieutenant General, USMC, *Marine Corps Operating Concepts: Assuring Littoral Access... Winning Small Wars*, 3rd ed. (Quantico, VA: Marine Corps Combat Development Command, 2010), 25.

²² United States Joint Chiefs of Staff, “Joint Publication 5-0 Joint Operations Planning August 2011.” *Joint Electronic Library*, III-1-III-2, accessed 12 February 2017,

framework to sequence and synchronize tactical actions within campaigns and major operations to pursue strategic objectives.



Figure 1. Operational Art, “Operational Warfare,” briefing slides with script commentary, National Defense University, Washington, DC, accessed on 25 March 2017, indianstrategicknowledgeonline.com/web/JPOC-04_Overview_Internet.ppt.

Operational art further promotes unified action by assisting commanders and staffs in the integration of joint capabilities throughout the air, land, and sea domains to achieve the strategic and operational objectives. Its absence in planning and execution results in a series of disjointed and wasteful tactical actions that may not directly contribute to the strategic aim. The application of operational art also infers that risk is identified, accepted, and nested across the joint force from the tactical to the strategic levels of war.

The commander’s judgement and will remains the most critical aspect in acceptance of operational risk. Joint and service doctrines explicitly articulate the central role of the commander’s intellect, foresight, instinct, and experience in identifying, assessing, and accepting risk during

military operations.²³ The uncertainty of war dictates that risk is everywhere, and implies that commanders must constantly assess where they will accept it. The commander's role is important because when they "accept risk, they create opportunities to seize, retain, and exploit the initiative and achieve decisive results."²⁴

Commanders must also "balance audacity and imagination with risk and uncertainty to strike at a time and place and in a manner wholly unexpected by enemy forces"²⁵ In *Defeat into Victory: Battling Japan in Burma and India, 1942—1945*, Field-Marshal Slim stated, "when in doubt as to two course of action, a General should choose the bolder."²⁶ He also indicated the key to his resurgence in combat effectiveness is a result of "his willingness to accept risk....to stretch his means to achieve his aim."²⁷ The practice of concentrating combat power toward the decisive effort necessitates the commander's willingness to accept risk in other places.

The operational commander's ability to make high-risk decisions becomes increasingly important when one considers that war creates an environment where risk, uncertainty, and fleeting opportunities are omnipresent.²⁸ Willingness to accept risk is an element of the moral courage and boldness required of operational commanders. The commander who lacks the determination and

²³ Ibid., III-2-III-5; and General James N. Mattis, Joint Forces Command, "Vision for a Joint Approach to Operational Design," 6 October 2009.

²⁴ Army Doctrine Reference Publication (ADPR) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2011), 4-9.

²⁵ Ibid.

²⁶ William Slim, Field-Marshal Viscount, *Defeat into Victory: Battling Japan in Burma and India, 1942-1945* (New York, NY: Cooper Square Press 2000), 121.

²⁷ Ibid., 118-121.

²⁸ Milan Vego, "On Operational Leadership," *Joint Forces Quarterly* 77 (2nd Quarter 2015): 67-68.

strong will to accept risk invites defeat. As Napoleon once stated, “War is waged only with vigor, decision, and unshaken will; one must not grope or hesitate.”²⁹

The commanders and staffs’ ability to properly conduct a cost-benefit assessment and accept operational risk derives from mutual understanding of the strategic aim, friendly capabilities, nature of the threat, and available options. Estimates on these items provide the conceptual construct to facilitate an iterative dialogue to properly frame and articulate opportunities and associated risks. From this discussion, commanders assess the probability of success and impact of success on the strategic and operational aims. It also provides a better idea to the level of uncertainty associated with the risk estimate, and informs the joint force commander’s tolerance to accept it.

Commanders must know the bounds of the information they possess and assess the potential impact of the gaps in that knowledge. As Clausewitz wrote “three quarters of the factors on which war is based are wrapped in a fog of greater or lesser uncertainty.”³⁰ He further expresses:

Since all information and assumptions are open to doubt , and with chance at work everywhere, the commander finds that things are not as he expected....If the mind is to emerge unscathed from this relentless struggle with the unforeseen, two qualities are indispensable: first an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth; and second, the courage to follow that faint light wherever it may lead, *coup d’oeil*; the second is determination....Action can never be based on anything firmer than instinct, a sensing of the truth.³¹

This implies that effective assessment of opportunities and risk requires a level of *coup d’oeil*, commander’s intuition and judgement, to properly evaluate and determine a course of action to achieve their aims.³²

34. ²⁹ Jay Luvass, “Napoleon on the Art of Command,” *Parameters* XV, No. 2 (Winter 1985):

³⁰ Clausewitz, *On War*, 101.

³¹ *Ibid.*

³² *Ibid.*, 100-112, 578. Clausewitz defines *coup d’oeil* as the inward eye of the commander;

Strategic Context

The previous section argued that shared understanding of the strategic aim, and nature of the threat aid commanders in accepting operational risk to create opportunities to seize, retain, and exploit the initiative and achieve decisive results. Sound estimates coupled with the Allied commanders' judgement and experience facilitated an iterative dialogue to properly frame and articulate opportunities and associated risks during the planning for Operation Iceberg. Through discussion, the commanders and staffs enhanced their mutual understanding of cost-benefit relationships, risks, and trade-offs to inform their operational approach and unify actions across the air, land, and sea in pursuit of the strategic purpose.

Operation Iceberg's strategic aim encompassed the capture of key objectives within the Ryukyu Islands to serve as bases for further escalation of the bombing campaign, sever sea and air lines of communication between Japan, Formosa, Malaya, and the East Indies, and act as a forward base for the potential invasion of Japan. The most vexing problem for the Allies included gaining control of the air and sea within the target area, and logistically sustaining a large ground force over a prolonged period so far from friendly bases.

The war of final victory against Japan gained momentum in the fall of 1944. American B-29s from the Marianas airfields began the strategic bombing of the Japanese homeland, and General MacArthur returned to the Philippines by invading Leyte on 17 October, 1944.³³ Nonetheless, the plans for 1945 remained uncertain. During the 1943 SEXTANT Conference in Cairo, the Allies established the basic strategic offensive framework for prosecution of the Pacific War with Japan. Both President Franklin D. Roosevelt and Prime Minister Winston

the quick recognition of the truth in the face of uncertainty and danger. He further expresses "when all is said and done, it really is the commander's *coup d'oeil*, his ability to see things simply, to identify the whole business of war completely with himself, that is the essence of good generalship."

³³ Allan R. Millett and Williamson Murray, *A War to be Won: Fighting the Second World War* (Cambridge, MA: The Belknap Press of Harvard University Press, 2000), 503-508.

Churchill agreed to coordinated advance along two axes of advances with mutually supporting attacks converging on the Luzon-Formosa-China coast triangle in spring of 1945. General Douglas MacArthur, Commander-in-Chief, Southwest Pacific Areas (CINCSWPA) would advance northwesterly from the Solomon Islands through New Guinea and into the Philippines. Concurrently, Admiral Chester W. Nimitz's forces would move northwesterly through the Gilberts, Marshalls, and Marianas.³⁴ These amphibious operations served as the preliminary objectives for subsequent actions to seize key terrain on Formosa (Taiwan) and the south China coast that would serve as operational bases in preparation for the invasion of Japan. They also represented the successive steps necessary to gradually attack the Japanese industrial base in Honshu through submarine blockade and strategic bombing.³⁵

The strategic approach assumed that the Allies would likely have to invade Japan and seize its capital to end the war in the Pacific.³⁶ The Joint Chiefs of Staff (JCS) forecasted an intensive strategic bombing campaign and coordinated air, surface, and submarine operations to interdict sea lines of communication between the Dutch East Indies and Japan prior to an invasion. The plan also assumed that the Allies would have to secure one major port along the south China Sea coast, and establish airfields in east China to best support strategic bombing objectives. By early 1944, The JCS believed that Formosa represented one of the most vital strategic objectives in the Pacific Theater of War.³⁷ On 12 March 1944, the JCS directed Nimitz to initiate planning for Operation

³⁴ Ibid., 336-340; Isely and Crowl, *The U.S. Marines and Amphibious War*, 193, 314.

³⁵ Gerhard L. Weinberg, *A World at Arms: A Global History of World War II* (New York, NY: Cambridge University Press, 1994), 650-651; Roy Appleman, et al., *Okinawa: The Last Battle*, 2.

³⁶ William Manchester, *American Caesar: Douglas MacArthur, 1880-1964* (Boston, MA: Little, Brown and Company, 1978), 431.

³⁷ Robert Ross Smith, "Luzon Versus Formosa," in *Command Decisions* (Washington DC: Center of Military History United States Army, 2006), 462-463.

Causeway, the amphibious assault of Formosa, scheduled for execution in early 1945. They also informed MacArthur to prepare for the recapture Luzon as a precursor to Operation Causeway.³⁸

Although Causeway was well on the way to implementation, many senior officers believed that an invasion of Formosa was unnecessary, too costly, and unsupportable. The logistical considerations alone made Causeway unfeasible to support until late February 1945 and repositioning of assets from the European Theater of Operations, causing the Allies to lose momentum and tempo within the Pacific Theater of Operation. Allied forces also fell short 77,000 to 200,000 troops required to successfully execute the Formosa campaign. They lacked the necessary aircraft to neutralize Japanese airbases capable of influencing the Formosa operation, and potentially threatening control of the air and sea domains. In addition, the Japanese offensive in China threatened the probability of constructing air and naval facilities on the China Coast as advance bases to support the bombardment and invasion of Japan.³⁹

Admiral Nimitz grew increasingly tepid about the impending operation to seize Formosa, and believed that preceding operations to seize advance naval bases in the Central Philippines would create the possibility of a more direct advance to Japan through the Ryukyus and Bonins.⁴⁰ Lieutenant General Robert C. Richardson, Commanding Officer, US Army Forces, Pacific Ocean Areas, agreed with Nimitz assessment, and postulated that the next steps in Pacific campaign should lead to the timeliest accomplishment of the strategic aim to invade Japan. He believed the Formosa invasion was not economical, and recommended a two-axis advance along the Luzon-Ryukyus, and Marianas-Bonins axes.⁴¹

³⁸ Benis M. Frank, *Okinawa” Capstone to Victory* (New York, NY: Ballantine Books, Inc., 1969), 8.

³⁹ Smith, “Luzon Versus Formosa,” 470-471.

⁴⁰ Morison, *Victory in the Pacific*, 3-5; Walter R. Borneman, *The Admirals: Nimitz, Halsey, Leahy, and King—The Five-Star Admirals Who Won the War at Sea*, (New York, NY: Little, Brown, and Company, 2012), 380-383.

⁴¹ Roy Appleman, et al., *Okinawa: The Last Battle*, 3.

Lieutenant General Millard F. Harmon, Commanding Officer, US Army Air Forces, Pacific Areas, also concurred with Nimitz and Richardson's assessment, and sought to seize air bases to bomb Japan from with the least effective cost of men and material.⁴² Moreover, Nimitz's purposed airfield construction sites in southern Formosa offered no range advantage for strategic bombing of Japan relative to Luzon or the Mariana Islands.⁴³ Thus, Harmon favored bypassing Formosa, and capturing Luzon, Iwo Jima, and Okinawa to prevent the loss to momentum against Japan. He argued airfields on Okinawa would allow B-29 bombers to increase the intensity of the bombing campaign focused on Japan by reducing fuel loads, increasing bomb loads, and providing fighter escort for missions. Fighter escort operations enabled the bombers to approach targets at a lower altitude that correspondingly increased the accuracy of the bombardment. The seizure of airbases on Okinawa also decreased the range between bases and Japan that allowed medium bombers to operate against targets on the main land, adding additional depth to the bombing campaign.⁴⁴

Admiral Raymond Spruance, Commander Officer, Fifth Fleet, and selected as the overall commander for Causeway, adamantly disagreed with operations on Formosa, and favored sequencing action to seize positions in the Central Philippines, Iwo Jima, and Okinawa. Occupation of the Ryukyu Islands allowed the Allies to effectively interdict sea lines of communication between the Dutch East Indies, China, and Korea. Moreover, he argued that Okinawa provided suitable anchorage to control the South China Sea, and ideally suited airfields to enhance strategic bombing efforts against Japan.⁴⁵

Lieutenant General Buckner, Commanding General, Tenth Army, and Commander of Landing Forces for Causeway, objected to the Formosa campaign due to shortfalls in logistics and

⁴² Ibid., 4.

⁴³ Smith, "Luzon Versus Formosa," 474.

⁴⁴ Nichols and Shaw, *Okinawa: Victory in the Pacific*, 15.

⁴⁵ Forrestel, *Raymond A. Spruance*, 163-164.

support troops that rendered the operation unsupportable. He also believed operations in the Central Philippines reduced the requirement to invade Formosa. Buckner supported operations directed against the Ryukyus because it supported the strategic bombing campaign at the least cost of manpower and material, and served as the closest base to project land combat power into Japan.⁴⁶

Other events altered the strategic situation and assisted the Allied leadership's decision-making in choosing a course of action. A major offensive by the Kwantung Army precluded the construction of airfields in China capable of supporting the strategic bombing of mainland Japan. The seizure of airbases within the Marianas provided adequate basing to support initial long-range strategic bombing. Additionally, the inability of the Nationalist Chinese Army to secure key terrain along the Chinese coast prevented a ground threat on the Chinese mainland. These evolving strategic considerations, coupled with the unavailability of ground forces from the European Theater of War, caused senior Allied leaders to abandon the invasion of Formosa.⁴⁷

On 29 September 1944, King met with Nimitz in San Francisco, California to voice concerns regarding the lack of sufficient resources in the Pacific Ocean Area to execute Causeway, and discuss alternative options to achieve the strategic aim. On 2 October, King concurred with Nimitz's assessment and recommendation to secure Iwo Jima and Okinawa as precursor to eventual operations on Formosa once additional combat power became available from the European Theater.⁴⁸ On 5 October, Nimitz informed his staff that Causeway was canceled, and to

⁴⁶ Roy Appleman, et al., *Okinawa: The Last Battle*, 4.

⁴⁷ Ian Gow, *Okinawa 1945: Gateway to Japan* (Garden City, NY: Doubleday and Company, 1985), 15-16; Weinberg, *A World at Arms: A Global History of World War II*, 842-843. Per Weinberg, the collapse of the Chinese Nationalist, continuation of war in Europe, and unavailability of necessary logistics, troops, and transports made the Formosa invasion impractical.

⁴⁸ King remained convinced that isolation of Japan required the eventual elimination of air and naval based on Formosa, and subsequent seizure of maritime lodgments in north China.

initiate detailed planning to secure Iwo Jima on 20 January 1945, and positions within the Ryukyu on 1 March, following MacArthur's invasion of Luzon in late December of 1944.⁴⁹

On 6 November 1944, the Joint War Plans Committee released the *Plan for Seizure of the Ryukyus* that established Operations Iceberg's strategic aim as:

To seize and develop such islands in the RYUKYUS as can be utilized most profitably for basing air and naval forces, in order to intensify the sea and air blockade of JAPAN; to maintain and extend air and naval pressure; to support the pre-invasion aerial softening of KYUSHU, and to augment the aerial neutralization of FORMOSA.⁵⁰

It expressed the operation's strategic ends as "airfields from which approximately 1700 aircraft may ultimately" operate from; "a large fleet anchorage and forward base at NAKAGUSUKU WAN, OKINAWA Island;" and, "the port of NAHA in Okinawa."⁵¹ The Joint War Plans Committee estimated the increased intensification of bombardment of Kyushu within fifteen to twenty days of the initial landings on Okinawa.⁵² It further defined the logic and purpose of Operation Iceberg by stating:

Key RYUKYU positions in Allied hands will enable severing Japanese lines of communication in the EAST CHINA SEA, will seriously disrupt Japanese sea communications in the YELLOW and JAPAN SEAS, will enable introduction of U.S. Fleet units into, and Allied domination of, the EAST CHINA SEA, and will provide land areas from which air attacks may be delivered against the Japanese homeland.⁵³

The operational mission assigned to the Joint Expeditionary Force by CINCPAC follows:

The Tenth Army, as Expeditionary Troops, initially under command of the Commander Joint Expeditionary Force, will assist in the capture, occupation, defense, and development of Okinawa Island and establishment of control of the sea and air in NANSEI SHOTO (RYUKYU) Area; with the eventual aim of extending control of the NANSEI SHOTO by capturing, defending, and developing additional positions.⁵⁴

⁴⁹ Roy Appleman, et al., *Okinawa: The Last Battle*, 4.

⁵⁰ Joint War Plans Committee (JWPC), "Plan for Seizure of the Ryukyu," (Washington, DC, Joint War Plans Committee: 6 November, 1944), 1.

⁵¹ *Ibid.*, 2.

⁵² *Ibid.*

⁵³ *Ibid.*, 19.

⁵⁴ United States Army, Tenth Army, "Tenth Army: Action Report: Ryukyus, 26 March to 30 June, 1945," (LaCrosse, WI: Brookhaven Press, 2002), 1-O-3.

Other specific operational objectives provided to the Joint Expeditionary Force included:

- (1) The establishment of airfields. Aircraft operating from these bases will:
 - (a) Provide local defense
 - (b) Interdict enemy air and shipping of the main island of JAPAN to the south and west.
 - (c) Provide reconnaissance of Japanese-held areas and sea routes.
 - (d) Provide fighter escort for bombing of JAPAN from LUZON and the RYUKYUS.
 - (e) Assist in the reduction of enemy air and ground defenses preparatory to an amphibious assault against southern KYUSHU.
- (2) The establishment of advance naval anchorages.
- (3) The tightening of the sea and air blockade of JAPAN.
- (4) The acquisition of bases which will permit an amphibious assault against KYUSHU, objectives on the CHINA Coast, and FORMOSA.
- (5) The denial of these islands to the Japanese.⁵⁵

The various joint force commanders supported the decision to secure key positions within the Ryukyu Islands for different reasons based on the self-interests of each service. The navy—Nimitz, Spruance, and Turner—envisioned the Ryukyu Islands as an advanced naval base to further support the maritime blockade of Japan and attack on Japanese lines of communication, allowing it to “die on the vine.”⁵⁶ The Army, MacArthur in particular, believed that the Japanese would not capitulate until the capture of their home islands occurred. Therefore, Okinawa served as a staging base for the final invasion of Japan. The Air Forces desired the capture of the Ryukyu Islands to establish airbases in support of the strategic bombing of Japanese cities.⁵⁷ Nonetheless, all joint force commanders understood that the Ryukyu Islands, specifically Okinawa, provided the most direct method to attack Japan and bring the war to an end.

⁵⁵ Ibid., 20.

⁵⁶ Buell, *The Quiet Warrior: A Biography of Admiral Raymond A. Spruance*, 330-336.

⁵⁷ Manchester, *American Caesar: Douglas MacArthur 1880-1964*, 364, 405.

Nature of the Japanese Threat

In addition to strategic purpose, the Allied commanders also possessed shared understanding of the nature of the Japanese threat that facilitated the necessary discourse to properly assess opportunities and risk. To defend the Ryukyu Islands, the Japanese envisioned an all-out attack by air, sea, and land forces to repel the Allied amphibious force. The Allied commanders understood that the Japanese air power—specifically, the Kamikazes suicidal attacks introduced months prior during the Battle of Leyte Gulf in October 1944—served as the most serious threat to the landings within the Ryukyu Islands. In addition to the Okinawa airfields, the Japanese possessed numerous bases on the Kyushu Islands, Formosa, at Sakishima, and on the Chinese mainland within range of the objective area. Operation Iceberg served as the only major operation occurring during this period, which allowed the Japanese to concentrated their air strength against the Allied force. The purpose of this section is to outline the Japanese strategic context and aim, and examine the Allied commander's understanding of the nature of the threat possessed to Operation Iceberg.

The strategic value of Ryukyu Islands dramatically increased following the Allied seizure of Saipan, a critical link in the Japanese inner defensive belt that placed American heavy bombers in range of Japanese home islands.⁵⁸ Following the defeats at Iwo Jima and Leyte Gulf, Emperor Hirohito replaced Prime Minister Kaniaki Koiso with Kantaro Suzuki who recommitted his nation and people to the mission of national suicide. His war policy, known as Ketsu-Go, envisioned a mass summoning of Japanese citizens and military personnel to participate in suicide attacks to defend the home islands against Allied invasion.⁵⁹

⁵⁸ Yahara, *The Battle for Okinawa: A Japanese Officer's Eyewitness Account of the Last Great Campaign of World War II*, 29-34.

⁵⁹ James D. Hornfisher, *The Fleet at Flood Tide: America in Total War in the Pacific, 1944-1945* (New York: NY, Penguin Random House LCC), 398-400.

By January 1945, many senior officer within the Imperial Japanese Army and Imperial Japanese Navy no longer believed it possible for Japan to win the war. These officers envisioned a strategy of erosion to cause as many Allied casualties, and create more favorable conditions for a negotiated peace. Thus, the Japanese strategic aim during the defense of the Ryukuy Islands included producing as much human and materiel loss as possible while producing more time to prepare the main islands for Allied invasion. Moreover, the operational approach at Okinawa intended for the Americans to abandon their stated position of “unconditional surrender” and opt for a less rigid termination of the war.⁶⁰

In January 1945, the Japanese Imperial Headquarters envisioned a new strategy to create conditions for a negotiated peace with the Allies. The planners developed TEN-Go (Heavenly Operation) to defend an advance on the Ryukyu Islands that envisioned an all-out attack by air, sea, and land forces to repel the Allied amphibious force. Conventional and Kamikaze aircraft, launched from Kyushu Islands, Formosa, at Sakishima, and on the Chinese mainland, served as the decisive effort to achieve the most material and personnel damage. These efforts were augmented by suicide motor boats operating from sites on Okinawa and the Kerima Islands. The plan also called for the Japanese heavy battleship *Yamato*, with nine other surface ships, to conduct a deliberate suicide attack upon the Allied forces operating within the Kyushu Islands. The role of the 32nd Army on Okinawa served to “lure and hold the American invader within range of the suicides, airborne and seaborne vessels,” and inflict as many casualties as possible on the Americans.⁶¹

⁶⁰ Saburo Hayashi, in collaboration with Alvin D. Coox, *Kogun: The Japanese Army in the Pacific War* (Quantico, VA: The Marine Corps Association, 1959), 151-168; Yahara, *The Battle for Okinawa: A Japanese Officer's Eyewitness Account of the Last Great Campaign of World War*, 3-28.

⁶¹ James H. Belote and William M. Belote, *Typhoon of Steel: The Battle for Okinawa* (New York, NY: Harper and Row, Publishers, 1970.), 32; Yahara, *The Battle for Okinawa: A Japanese Officer's Eyewitness Account of the Last Great Campaign of World War II*, 3-26.

On 6 February 1945, a joint Army-Navy Air Agreement provided the following guidance regarding TEN-Go:

In general Japanese air strength will be conserved until an enemy landing is actually underway or within the defense sphere. The Allied invasion force will then be destroyed, principally by Special Attack [Kamikaze] units...The main target of Army aircraft will be enemy transports, and of Navy aircraft, carrier attack forces.⁶²

Rear Admiral Toshiyuki Yolo, the Commander of the 25th Air Flotilla based on southern Kyushu, further outlined the strategic purpose and role aviation played in the defense of Okinawa in his May 1954 Proceedings journal article:

When the enemy penetrates the defense zone, a campaign of attrition will be initiated to reduce his preponderance in ships, aircraft and men, to obstruct the establishment of advance bases, to undermine enemy morale, and thereby to seriously delay the final assault on Japan...Preparation for the decisive battle will be complete in Japan proper in the early fall of 1945. In general, Japanese air strength will be conserved until an enemy landing is actually under way on or within the defense sphere.⁶³

The number of land based aircraft provided the Japanese a significant advantage over the Allied carrier based aircraft. Toshiyuki further expressed in his Proceedings article:

Okinawa is 1,000 miles from Leyte and 1,200 miles from the Marianas, too great a range for land planes to operate, so the United States Navy would probably have to commit all of its carrier strike force in order to cover the landings. On the other hand, it should be comparatively easy for the defending Japanese to maintain supply lines to the Japanese mainland, only 350 miles distance. These circumstances promised good opportunity to bring air power to bear in striking a serious blow at the enemy task force.⁶⁴

Toshiyuki believed the Japanese could exploit these vulnerabilities if the land-based planes were properly employed against the landing force.

The Commander of the 32nd Army, Lieutenant General Mitsuru Ushijima, supported by his Operations Officer Colonel Yahara Hiromichi, developed the defensive strategy on Okinawa to

⁶² Ibid., 31.

⁶³ Toshiyuki Yolo, Rear Admiral, Imperial Japanese Navy, "Kamikazes and the Okinawa Campaign" *Proceedings* LXXX (1954), accessed on 12 March 2017, <https://www.usni.org/magazines/proceedings/1954-05/kamikazes-and-okinawa-campaign>.

⁶⁴ Ibid.

support Ten Go's air and sea operations by delaying the ground assault.⁶⁵ Yahara recommended to Ushijima that the 32nd Army should focus its combat power south of the Ishikawa Isthmus to deny the Americans strategically important terrain and delay their preparations for the invasion of Japan. While the complex terrain in the north favored the defender, it did not support the strategic aim to deny the invading forces use of Okinawa as an advanced naval and air base for future operations against Japan.⁶⁶

Yahara also advocated to deviate from the 32nd Army's operational doctrine of "decisive battle" where the defender stalled the amphibious landing at the beach and counterattacked with its reserve. Yahara argued that during previous island defenses, beach fortifications and reserves were easily destroyed by superior American fire support, causing the Japanese forces to lose cohesion and the ability to conduct a coherent and coordinated effort to repel the amphibious invasion. Instead, he proposed that the 32nd Army allow the Americans to land unopposed on the beaches and move inland, where they would face well-established fortifications arranged on along the high ground. The static fortified positions served as protection from the lethal Allied supporting arms, and afforded the Japanese a relative position of advantage over the invaders. Ushijima concurred with Yahara's assessment, and focused the 32nd Army's combat power in southern Okinawa, defending along the line Naha, Shuri, Yonabaru.⁶⁷

⁶⁵ Thomas M. Huber, *Japan's Battle for Okinawa, April-June 1945* (Fort Leavenworth, KS: Combat Studies Institute, Leavenworth Paper #18, 1990), 21-24.

⁶⁶ Ibid., 19-21; Belote Belote, *Typhoon of Steel: The Battle for Okinawa*, 30-31.

⁶⁷ Yahara, *The Battle for Okinawa: A Japanese Officer's Eyewitness Account of the Last Great Campaign of World War II*, 3-26.

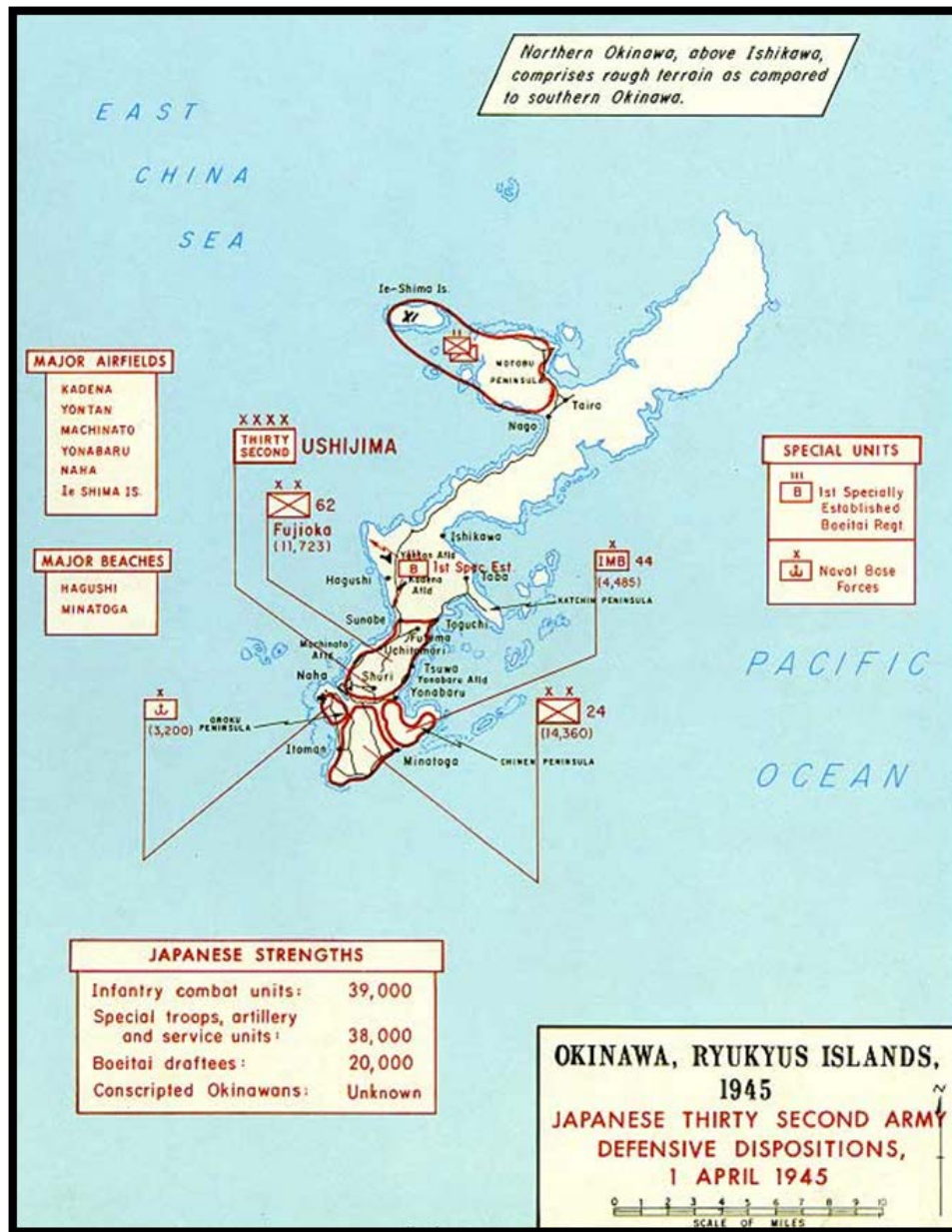


Figure 2. Status of Japanese Forces 1 February 1945, United States Military Academy, West Point, Department of History, accessed on 25 March 2017, <http://www.westpoint.edu/history/SiteAssets/SitePages/World%20War%20II%20Pacific/ww2%20asia%20map%2048.jpg>.

The Allied commanders and staffs remained highly apprehensive of the enemy air threat, and the adverse impacts it may have prior to securing airfields on Okinawa. These commanders universally recognized the air threat remained the greatest threat to mission and force during Operation Iceberg. The Japanese ability to range the objective area from land based airfields

coupled with the fact that Operation Iceberg served as the only major operation occurring at the time allowed the Japanese to mass their airpower on the joint force. The Allied commanders also believed that the Japanese would continue to develop and employ the effective Kamikaze techniques first experienced during the Battle for Leyte Gulf in October 1944.⁶⁸

Nimitz and Spruance expected enemy air power to play a vigorous part in opposing the landings within the Ryukyu Islands. Nimitz suggested that the Japanese forces, cut off from their homeland and resources, may direct 3,000 to 4,000 aircraft employing Kamikaze tactics against the joint force.⁶⁹ When the first kamikaze attacks began in the Philippines in late 1944, Spruance viewed their use as “very sound and economical war and a form especially suited to the Japanese temperament.”⁷⁰ Within his Operations Order, Spruance stated “that the operation will cause violent enemy air reaction from his air bases in Japan proper, China, Nansei Shoto (Ryukyu Chian), Formosa, and from carriers.”⁷¹ Despite the relative defeat of the Imperial Japanese Navy, both Admirals remained concerned with the remaining naval forces located within the home island waters. Throughout the planning and execution of Operation Iceberg, Nimitz and Spruance’s first concern focused on gaining and maintaining control of both the air and sea around the objective area to enable the invasion of Okinawa, and sustain the landing forces once ashore.

Turner and his staff believed the enemy would employ air power in great numbers, actively patrol the waters surrounding the Ryukyu Islands with submarines, employ the remaining naval

⁶⁸ Morison, *History of United States Naval Operations in World War II: Victory in the Pacific*, 1945, 87.

⁶⁹ Porter, *Nimitz*, 368-369.

⁷⁰ Thomas B. Buell, *The Quiet Warrior: A Biography of Admiral Raymond A. Spruance* (Annapolis, MD: Naval Institute Press), 344.

⁷¹ George C. Dyer, Vice Admiral, USN (Ret), *Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*, Volume II (Washington, DC: US Government Printing Office, 1954), 1100-1101.

surface fleet, and reinforce the Okinawan garrison before and during the invasion.⁷² Within his Operations Order, he anticipated the important role Japanese airpower would play in the campaign by stating the following:

Strong and persistent attacks by Japanese aircraft based in the EMPIRE, FORMOSA, and NANSEI SHOTO must be expected, with intensification of recent employment of suicide tactics...The network of enemy airfields within relatively short distance of the target make it reasonably certain that continuous air searches with a six or seven hundred mile radius will be maintained from FORMOSA, CHINA, The EMPIRE, and from the other islands of the NANSEI SHOTO.⁷³

Turner's greatest concern for the operation involved gaining and maintaining control of the air and sea around the Ryuku Islands.⁷⁴ Agreeing with Nimitz and Spruance's viewpoints, Turner remained determined to neutralize the Japanese air and sea threat before it could adversely impact the seizure of Okinawa.

The Allied commanders collectively understood that the Ryukyu Island's proximity to Japanese airbases represented significant risk to the mission and force, and provided the Japanese a relative position of advantage during the initial stages of the invasion. In addition to the Okinawa air fields, the Japanese possessed numerous bases in Formosa, at Sakishima and on the Chinese mainland capable of adversely affected the joint force. Operation Iceberg also remained the only major operation occurring during this time, allowing the Japanese to mass aircraft against the campaign.

⁷² United States Navy, Pacific Fleet Task Force 51, "Operations Plan No. A1-45," (San Francisco, CA: Task Force Fifty-One, U.S. Pacific Fleet, Pacific, 1945), B-1-B-16. The Intelligence Annex stated the following: "Strong and persistent attacks by Japanese aircraft based in the EMPIRE, FORMOSA, and NANEI SOTO must be expected, with intensification of recent employment of suicide tactics;" [naval surface units] possess "sufficient forces remaining operative to require us to maintain strong surface cover at the objective;" and "attempted reinforcement of the OKINAWA garrison from other islands of the NANSEI SHOTO, particularly AMAMI O SHIMA and MIYAKO JIMA can be expected."

⁷³ Pacific Fleet Task Force 51, "Operations Plan No. A1-45," Annex B—Intelligence Plan.

⁷⁴ Porter, *Nimitz*, 368.

In total, Allied commanders believed the Japanese may launch 4,000 aircraft to oppose the initial invasion of Okinawa. This inferred that Allied carrier-based aircraft must provide the preponderance of support until the landing force secured and established airdromes within the Ryukyu Islands to augment areal interdiction operations. The 32nd Army's decision to move inland, and occupy well-established fortifications along defensible terrain also indicated a prolonged ground campaign that may increase the vulnerability of amphibious shipping supporting the operation. Additionally, the remnants of the Imperial Japanese Navy posed a limited threat to the landings. The Allied commanders' mutual understanding of the nature of the Japanese threat facilitated the necessary discussion to properly assess opportunities and risk associated with Operation Iceberg.

Cost-Benefit Analysis and Decision

The joint force commanders' shared understanding of Operations Iceberg's strategic purpose and nature of the Japanese threat allowed them to evaluate the cost and benefits of available options to achieve its strategic purpose. The operational decision to land forces on the southwestern beaches instead of on the eastern beaches of Okinawa provided the shortest and most direct route to the strategic objectives of Kadena and Yontan Airfields, and the Naha Port facility. The immediate capture of these objectives provided the Allied an opportunity to more quickly establish bases to increase the sustained heavy bombing and air-sea blockade against Japan.

Despite these benefits, the decision incurred greater risk of effective Japanese air and naval operations against the Allied shipping due to the limited maneuver space on the western side of the Ryukyu Islands. The understanding and acceptance of shared risk allowed the joint force to work together and develop an operational approach that exploited this opportunity, and mitigated its associated risk to mission and force. The purpose of this section is to evaluate the physical terrain of the Ryukyu Islands, discuss the joint force's options to achieve its purpose, and examine the discussion that produced the operational decision to land at the Hagushi beaches.

The Ryukyu Islands are part of the Nansei Shoto group of islands and stretch approximately 800 miles between Formosa and Japan. Economically, the islands were of little significance to Japan; however, their location in respect to Formosa, China, and Japan made them strategically significant to Japanese efforts to sustain the war. Okinawa, the largest and most significant island within the Ryukyu Island archipelago, is located southwest of Japan and northeast of Formosa and the Philippines. Okinawa is 60 miles long and ranges between two and eighteen miles in breadth, encompassing a total land mass of 485 square miles. It is also surrounded by smaller islands, including the Kerama Islands and Ie Shima.⁷⁵

At the time, Okinawa possessed two major fleet anchorages and five major airfields, not including the one located on the island of Ie Shima, two miles off its west coast. Kadena and Yontan Airfields, located within the southwestern portion of Okinawa, represented the two most strategically important airdromes within the campaign. These established airfields lied less than 350 nautical miles from the Japanese island of Kyushu, placing American aircraft within close-range of strategic and operational targets on the mainland. The Naha Port facility also resided within the southwestern sector of the island and afforded the Allied naval forces a key base of operation to sever sea lines of communication between Japan and its units located in Formosa, Korea, and China.⁷⁶ Additionally, seizure of Okinawa offered the Allies interior lines of communication, and a 900-mile straight line distance to Leyte Gulf, the closest major logistics hub, and 3,300-miles to Espiritu Santo, the location of the only strategic reserve in the theater.⁷⁷

Okinawa supported plans for a major ground campaign despite complex terrain that made tactical level combined arms maneuver difficult, especially within the northern portions. The

⁷⁵ Nichols and Shaw, *Okinawa: Victory in the Pacific*, 9.

⁷⁶ JWPC, "Plan for Seizure of the Ryukyus," 14-16; Isely and Crowl, *The U.S. Marines and Amphibious War: Its Theory, and Its Practice in the Pacific*, 532-533.

⁷⁷ Dyer, *Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*, 1066.

island is characterized by two sharply contrasting types of terrain separated by the Ishikawa Isthmus that bisects the island. The northern two-thirds of the island is heavily wooded by oak and pine forests, and extremely rugged and mountainous with peaks rising to fifteen hundred feet. The Motobu Peninsula extends to the west and is also rugged and possesses two mountain chains separated by a cultivated valley. The rugged terrain precluded the establishment of airfields or port facilities within the north. Additionally, the beaches in the north were dominated by a central ridgeline that excluded them as suitable landing sites for the amphibious force.⁷⁸

To the south, the remaining third of the island represented the most significant military features exemplified by five airfields, the port of Naha, the naval anchorage of Nagusuku, most advantageous landing beaches, and relatively flat terrain in some areas to establish large logistics bases.⁷⁹ The terrain was typified by rolling hills broken by ridges and ravines that presented numerous natural obstacles that favored the defense.⁸⁰ Additionally the south represented the most densely populated area with nearly 450,000 local Okinawans with their family burial sites covering the country side, which served to reinforce the Japanese defensive positions.⁸¹

The southern portion of Okinawa presented three primary beaches large enough to support the landings and sustainment of the Tenth Army. Minatogo and Nakagusuku Bay provided the most suitable options for amphibious operations on the east side of Okinawa. These beaches allowed the joint force greater maritime maneuver space and protection for its transports supporting the landing force. They also provided the greatest degree of flexibility in choosing the landing dates due to weather and tidal considerations, and offered an element of surprise due to the

⁷⁸ Roy Appleman, et al., *Okinawa: The Last Battle*, 7-9; Nichols and Shaw, Jr., *Okinawa: Victory in the Pacific*, 6-7.

⁷⁹ JWPC, "Plan for Seizure of the Ryukyus," 14-16.

⁸⁰ Ibid., 14-16, 75-78 (and Annex C to Appendix D); Roy Appleman, et al., *Okinawa: The Last Battle*, 10.

⁸¹ Gow, *Okinawa 1945: Gateway to Japan*, 22.

Japanese anticipation of Allied landings on the western side of the island. The relative long distance over arduous terrain to the strategic objectives of Naha Port, and Kaden and Yonton Airfields served as the primary disadvantage of landing on the eastern side of Okinawa. Other shortcomings included narrow beach length and inhospitable terrain within the beachhead that prevented the massing of combat divisions in the initial wave and inability to establish logistical bases near the lodgment.

On the western side of Okinawa, Hagushi provided the alternative beach landing sites. The Hagushi beach provided the most direct route to secure Naha Port, and Kaden and Yonton Airfields. It also supported the Allies force's ability to land four division abreast in the initial landing wave. The terrain near the beachhead provided flat ground to support the establishment of logistical bases to support subsequent combat operations. The limited maritime maneuver space on the western side of the Kuysu Islands under the threat of heavy mining, and strong air, surface, and subsurface opposition served as the primary drawback to landing at Hagushi.

Two small satellite island chains of Kerama Retto and Keise Shima also play a key role in understanding the available options for the invasion of Okinawa. Kerama Retto, twenty miles west of Okinawa, provided partially sheltered anchorage that could facilitate logistics support to the operation. In total, it supported forty-four shipping berths and facilities for a floating repair base, a sea plane base, and an ammunition transfer point.⁸² Keise Jima, a small group of islands approximately eight miles west of Okinawa, also provided an opportunity to serve as a logistical hub and fire support based for the main invasion.

⁸² Dyer, *The Amphibians Came to Conquer*, 1069.

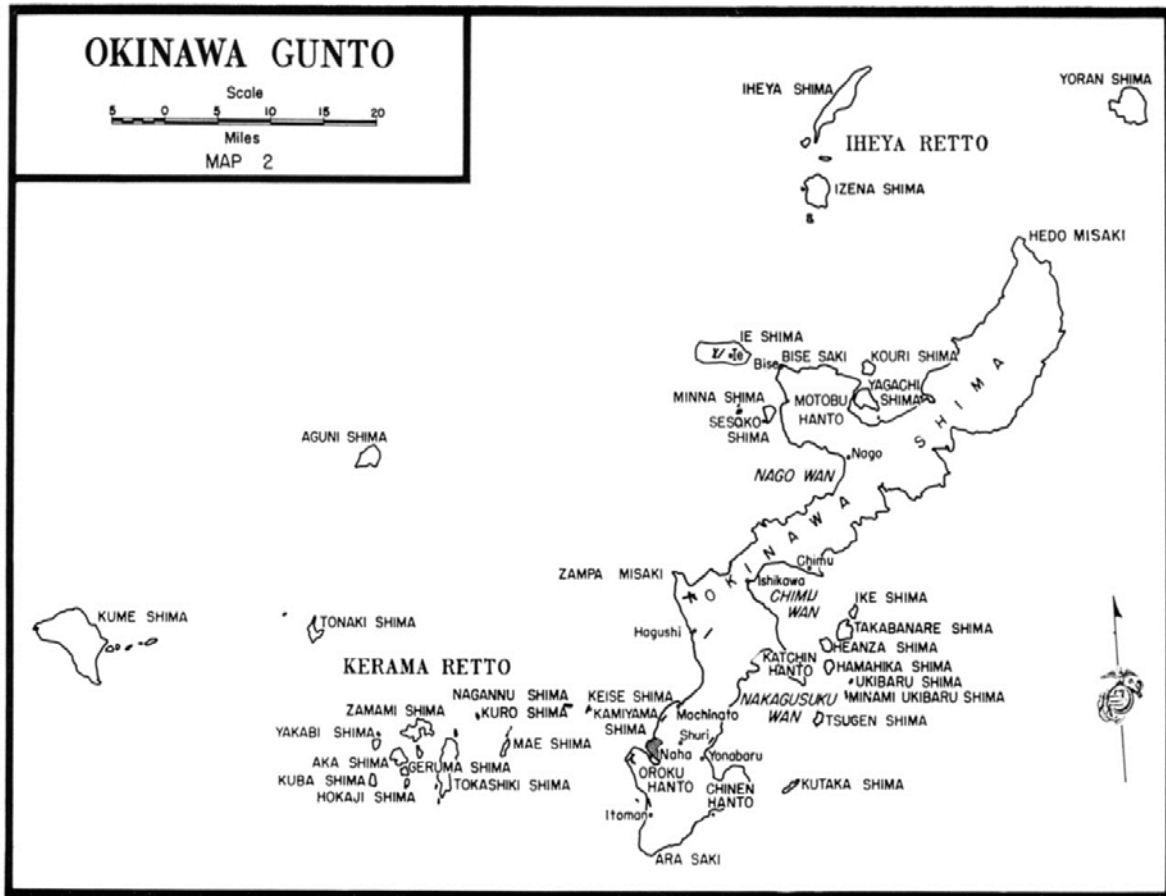


Figure 3. Okinawa Gunto, Nichols and Shaw, Jr., *Okinawa: Victory in the Pacific*, 3, accessed 25 March 2017, <http://ibiblio.org/hyperwar/USMC/USMC-M-Okinawa/maps/USMC-M-Okinawa-2.jpg>.

Cost Analysis

Buckner, and his Tenth Army staff, concluded that the best beaches on Okinawa resided on the western side of Okinawa in vicinity of Hagushi because it supported simultaneous landings of four divisions and placed them near their strategic objectives of Naha Port, and the Kadena and Yonton Airfields. The Tenth Army staff named the landing plan at Hagushi “Plan Fox,” and deemed it as the primary course of action. Due to weather considerations and potential for other

unforeseen circumstances, the Tenth Army staff also developed an alternative plan that used the eastern beaches of Minatoga and Nakagusuku Bay. This proposal was named “Plan Baker.”⁸³

Turner, and his Task Force 51 staff, preferred the eastern landings sites because they believed the seas off the western beaches offered limited maritime maneuver space for hundreds of ships to mitigate the air, submarine, and mine threat. They expressed the strong northeastern winds on the windward side of the island would create unfavorable surf conditions for landing craft.⁸⁴ In the discussion, Turner also identified the requirement to seize smaller islands prior to the invasion of Okinawa to serve as safe anchorage for damaged ships and resupply points for the large naval force.

Buckner and his staff countered Turner’s argument, contending that the distance from the eastern landing sites to their primary objectives provided significant risk to the joint force’s ability to achieve their strategic purpose in a timely manner. They also pointed out the commanding terrain in vicinity of the beaches at Minatogo and Nakagusuku Bay may limit the landings force’s ability to quickly establish a beachhead.⁸⁵ In contrast, the Tenth Army staff argued that the landing sites near Hagushi were the only beaches “adequate to take an assault force of four divisions abreast and handle sufficient tonnage of supplies to the operation.”⁸⁶ They reasoned that the western sites provided “firm coal, adequate beach exits, gently rolling terrain inland for supply dumps, and proximity to the airfields.”⁸⁷

⁸³ Pacific Fleet Task Force 51, “Operations Plan No. A1-45,” Appendix III to Annex (A) to COMPHIBSPAC OP Plan A1-45: Landing Force Alternate Plan.

⁸⁴ Belote and Belote, *Typhoon of Steel: The Battle for Okinawa*, 10-26.

⁸⁵ *Ibid.*, 24-27.

⁸⁶ *Ibid.*, 26. This quote is taken from the Tenth Army’s supply officer that conducted several detailed calculations to support the decision to land on the western beaches.

⁸⁷ *Ibid.*

Despite the risk to the amphibious force on the western side of the Ruykyu Islands, Buckner pointed that the Hagushi landings afforded the Tenth Army the ability to quickly seize Kadena and Yonton Airfields. The speedy capture of these airfields provided the benefit of ground based planes to augment the fast-attack carriers task with naturalizing the Japanese air threat. It also guaranteed the more immediate expansion of Kadena and Yonton Airfields to support the strategic bombing of mainland Japan. Turner eventually concurred with Buckner's assessment, and agreed to the landings at Hagushi with one caveat to seize Kerama Island as an advance naval base prior to the invasion of Okinawa.

Through discussion and a sound understanding of the strategic purpose and nature of the threat, the joint force commanders properly evaluated the cost, benefits, and opportunities associated with the available options. Despite increase risk to the force, the operational decision to land forces near Hagushi provided the most direct method to achieve Operation Iceberg's strategic aim. The accepted and shared risk allowed people to work together in developing and executing an operational approach that exploited opportunities associated with landing on the southwestern side of Okinawa and mitigated its associated risk to mission and force. The chart on the following page frames the risk, benefits, and potential opportunities associated with each beach landing site.

Table 1. Evaluation of Risk, Benefits, and Opportunities for Allied Commanders

Option	Risk	Benefits	Opportunity
Hagushi Beach (Western Beaches)	<ul style="list-style-type: none"> • Limits maneuver space for Allied maritime vessels supporting the landing force <ul style="list-style-type: none"> – increased likelihood of mine, submarine, and aerial attack • Limits surprise due to Japanese anticipation of Allied most likely landing sites <ul style="list-style-type: none"> – increases likelihood of organized resistance at the beach • Increases potential for civilian casualties • Decreases flexibility in date of invasion due to weather and tides 	<ul style="list-style-type: none"> • Allows Allied force to land four division simultaneously • Provides most direct route to strategic objectives of Kendena and Yonton Airfields, and Naha Port Facility • Enables quickest way to establish airbases to support carrier based aircraft isolate the Ryukyu Islands from Japanese air attack • Allows quickest way to establish logistics bases and buildup of supplies 	<ul style="list-style-type: none"> • Provides most direct and quickest route to secure the strategic objectives of Naha Port, and Kadena and Yonton Airfields
Minatoga and Nakagusuku Bay (Eastern Beaches)	<ul style="list-style-type: none"> • Limits Allied forces ability to simultaneously mass combat power on Okinawa due to narrow beaches • Increases length of time to secure strategic objectives due to distance and terrain • Limits Allied forces ability to establish logistics bases, buildup supplies, and sustain the landing force 	<ul style="list-style-type: none"> • Allows for maneuver space of Allied maritime vessels supporting the landing force • Allows most flexibility in date of invasion due to weather and tides • Facilitates surprise due to Japanese anticipation that the Allied force would land on the west side of Okinawa 	<ul style="list-style-type: none"> • Provides the greatest force protection for the Allied force due to maritime maneuver space but increases risk to mission accomplishment due to time, distance and terrain to reach strategic objectives

Source: Author.

Operational Approach

Unified through shared understanding and acceptance of risk, the joint force under Spruance's leadership developed a plan to exploit the opportunities provided by the Hagushi landing sites, and mitigated the threat of Japanese air attack on the landing force and transport vessels. Through this understanding, the Allied force created an operational approach characterized by a coordinated air, land, and sea attack to gain and maintain air and sea control within the East China Sea, isolate the Ryukyu Islands, project ground combat power and seize key terrain within Okinawa and its smaller surrounding islands, and establish air and naval bases in support of subsequent operations.⁸⁸ The most prevalent elements of operation art that unified the joint force's actions during Operation Iceberg included lines of operation, phasing, decisive points, and objectives. The purpose of this section is to examine the broad actions envisioned by the Allied commanders and staffs to achieve their strategic aim.

The joint forces available to Spruance during Operation Iceberg included two Carrier Strike Forces: Task Force 57, a British carrier force commanded by Vice Admiral Bernard Rawlings, and Task Force 58, and an American Fast Carrier Strike Force commanded by Vice Admiral Mark A. Mitscher. Two additional task groups, a Search Reconnaissance Group and Antisubmarine Warfare Group, also supported Spruance's maritime operations. Task Force 51, the Joint Expeditionary Force, commanded by Turner, responsible for the seizure of Okinawa and its surrounding islands accounted for the largest part of Spruance's command. Task Force 51 possessed the following sub-task groups:

⁸⁸ United States Joint Chiefs of Staff, "Joint Publication 3-18 Joint Forcible Entry Operations 2012." *Joint Electronic Library*. I-1-I-5, accessed 21 March 2017, http://www.dtic.mil/doctrine/new_pubs/jp3_18.pdf. The line of operation for Operation Iceberg closely follows the principles for extant joint forcible entry operations: Achieve surprise, control of air, control of space, electromagnetic spectrum management, operations in the information environment, sea control, isolate the lodgment, gain and maintain access, neutralize enemy forces within the lodgment, expand the lodgment, manage the impact of environmental factors, and integrate supporting operations.

- (1) Task Group 51.1, the Western Island Attack Group, commanded by Rear Admiral Kiland, with 77th Infantry Division embarked.
- (2) Task Group 51.2, the Demonstration Group, commanded by Rear Admiral Wright, with the 2d Marine Division embarked.
- (3) Task Group 51.3, the Floating Reserve, commanded by Commodore McGovern, with the 81st Infantry Division embarked.
- (4) Task Force 52, the Amphibious Support Force, commanded by Rear Admiral Blandy, with all amphibious landing craft supporting Operation Iceberg.
- (5) TF 53, the Northern Attack Force, commanded by Rear Admiral Reifsnider, with III Amphibious Corps embarked.
- (6) TF 54, the Gunfire and Covering Force, commanded by Rear Admiral Deyo, with all ships providing naval gunfire support to Operation Iceberg.
- (7) TF 55, the Southern Attack Force, commanded by Rear Admiral Hall, with XXIV Corps embarked.
- (8) TF 56, Expeditionary Troops, commanded by Lieutenant General Buckner.⁸⁹

The line of operation for Operation Iceberg included gaining and maintaining air and sea control within the East China Sea, isolating the Ryukyu Islands, projecting ground combat power and seizing key terrain within Okinawa and its smaller surrounding islands, and establishing air and naval bases in support of subsequent operations against Japan. To achieve this aim and line of operation, the commanders and staff planned and executed the Ryukyu Campaign in three phases:

Phase I: Capture southern Okinawa and the nearby islands of Kerama Retto and Keise Jima.

Phase II: Capture north Okinawa to include the Motobu Peninsula, and the island of Ie Shima, if not complete in Phase I.

Phase III: Establish air and naval base infrastructure on Okinawa and designated Islands, and capture other smaller islands within the Ryukyus to include Okino Daito Jima, Kume Jima, Miyako Jima, and Kikai Jima.⁹⁰

⁸⁹ Pacific Fleet Task Force 51, "Operations Plan No. A1-45," 1-30.

⁹⁰ *Ibid.*, 31-33.

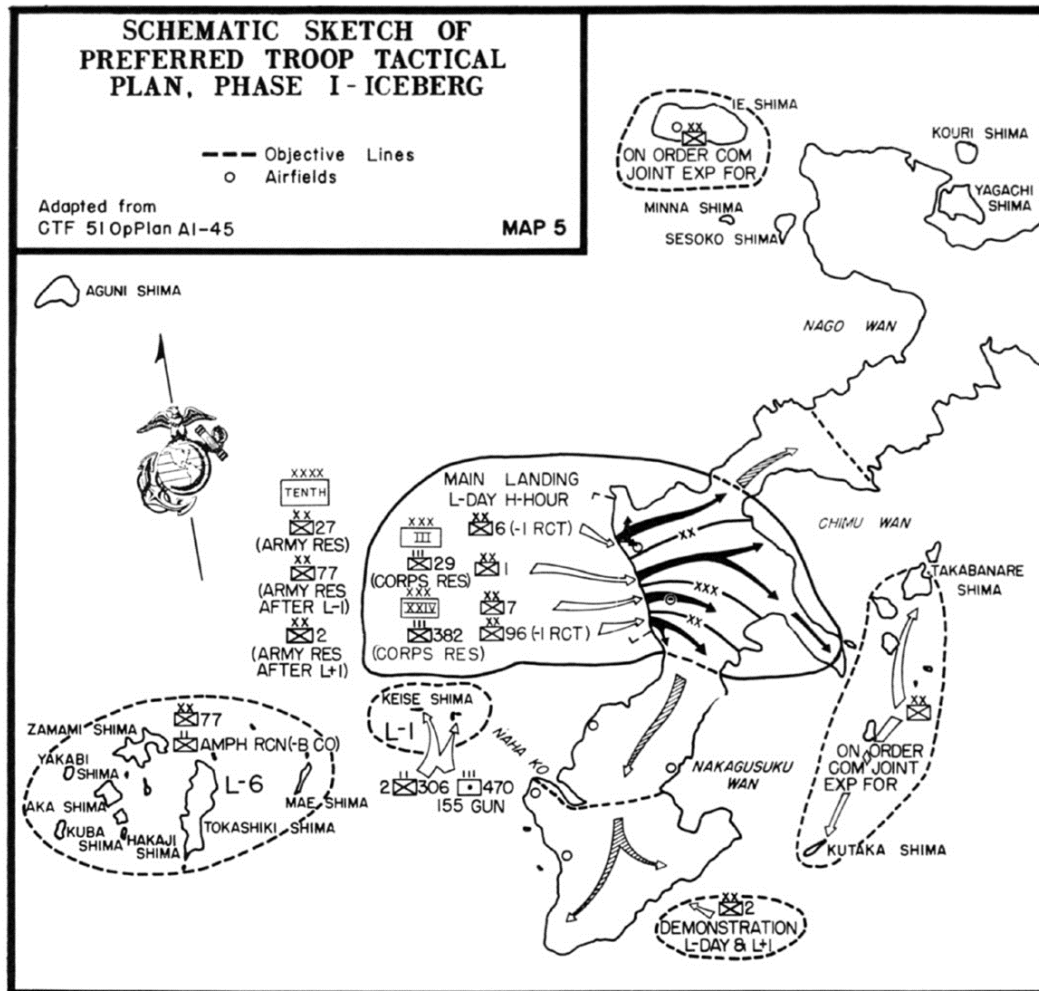


Figure 4. Operation Icebergs Phase I, Nichols and Shaw, Jr., Okinawa: Victory in the Pacific, 22, accessed 25 March, 2017, <http://ibiblio.org/hyperwar/USMC/USMC-M-Okinawa/maps/USMC-M-Okinawa-5.jpg>.

Phase I included the capture of Kerma Retto six days before the main landings on Okinawa to establish logistics anchorage and seaplane bases. It also involved the seizure of Keise Jima, eight miles west of Naha Port, and the emplacement of twenty-four 155-millimeter howitzers to support the main landings. The key task during this phase comprised the assault and capture of the southern part of Okinawa—the area lying south of the Ishikawa Isthmus, and containing the strategic objectives of Yonton and Kadena Airfields, and the Naha Port facility. The second phase of the operation involved the capture of the Motobu Peninsula and Ie Shima, a small island sitting west of the peninsula. The final phase encompassed the capture of Myako Jima and Kikai Jima,

islands 150 miles to the southwest and 170 miles northeast of Okinawa, respectively.⁹¹ The order also specified that after the assault on Okinawa the joint force would “capture, occupy and defend additional positions for establishing secure sea and air control over the East China Sea.”⁹²

The Tenth Army, responsible for projecting combat power and seizing key objectives within the Ryukyus Islands, served as the decisive effort within the joint force. On L-Day, 1 April 1945, the Tenth Army landed two corps abreast on Okinawa’s western beaches near Hagushi with the III Amphibious Corps to the north and XXIV Corps to the south. Simultaneously, the 2nd Marine Division, conducted a demonstration near Minatoga on the southeast side of Okinawa to confuse the Japanese defenders of the main landing sites.

Using interior lines of operation that originated at Hagushi beaches, the III Amphibious Corps and XXIV Corps possessed well defined objectives to exploit the benefits and opportunities afford by the western approach. Per Turner’s Operation Plan, the Tenth Army possessed the following guidance to inform their maneuver:

Early and important objectives are the capture and activation of YONTAN and KATINA Airfields in order to provide operating facilities for shore-based aircraft; the seizure of ISHIKAWA ISTHMUS in the vicinity of ISHIJA in order to confine the enemy troops to the southern part of the island; and the capture of KATCHIN RANTO to assist in securing NAGAGUSUKU WAN as a naval anchorage and unloading port. Other important objectives for early attainment are the capture of MACHINATO and YONABARU Airfields to provide fields for additional land-based aircraft for control of the air; and the capture of the port of NAHA to expedite the unloading of base development facilities.⁹³

Turner’s direction provided geographic objectives and decisive points for the landing force to effectively link tactical actions to efficiently achieve its strategic purpose. The below chart

⁹¹ Dyer, *Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*, 1075-76.

⁹² Pacific Fleet Task Force 51, “Operations Plan No. A1-45,” 31-34.

⁹³ *Ibid.*, A-6.

presents those functional and geographic decisive points necessary to seize key locations within the Ryukyu Islands and develop bases there for future operations against Japan.

Table 2. Operation Icebergs Functional and Geographic Decisive Points

Functional	Geographic
<ul style="list-style-type: none"> • Establish sea and air control • Isolate the lodgment • Project ground combat power and secure the beachhead • Neutralize enemy forces within the lodgment • Expand lodgment • Establish air, naval, and logistics bases 	<ul style="list-style-type: none"> • Kerama Retto • Keise Shima • Yontan Airfield • Kadena Airfield • Ishikawa Isthmus • Ie Shima • Nagagusuku Wan • Naha Port

Source: Author.

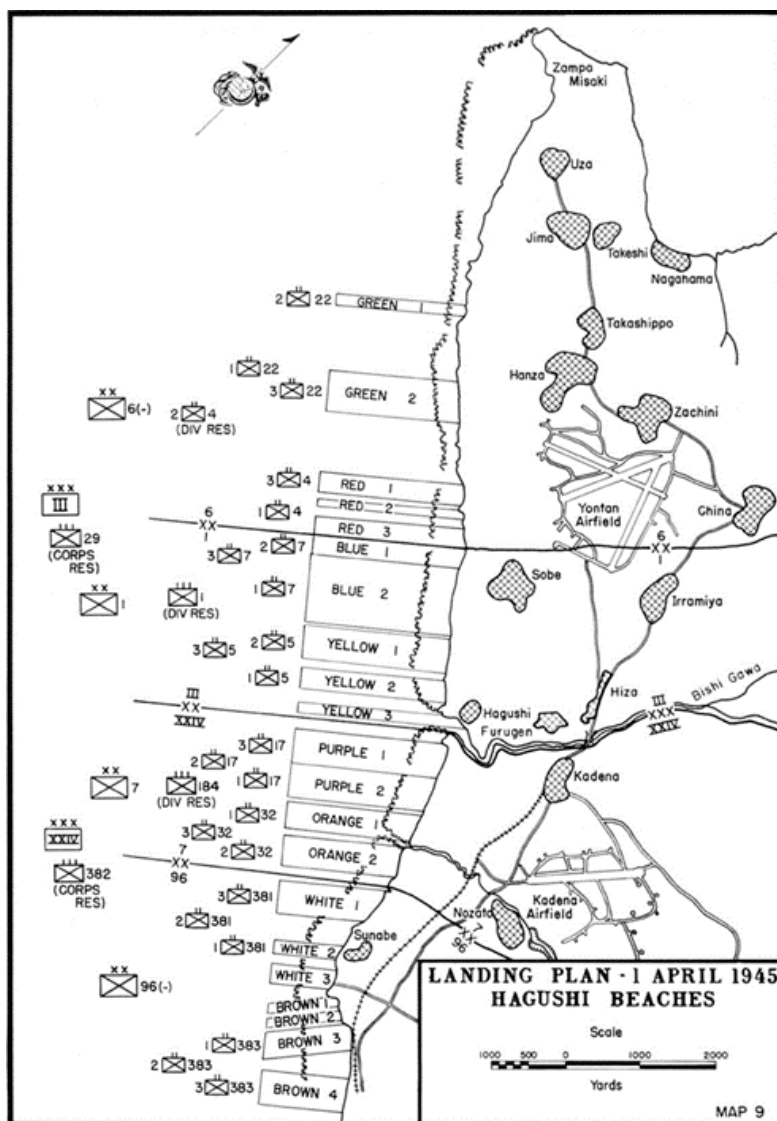


Figure 5. Hagushi Landing Beaches 1 April 1945, Nichols and Shaw, Jr., *Okinawa: Victory in the Pacific*, 8, accessed 25 March, 2017, <https://www.ibiblio.org/hyperwar/USMC/USMC-M-Okinawa/maps/USMC-M-Okinawa-9.jpg>.

As a prerequisite to the main landings on Okinawa, Allied aviation and naval elements conducted significant shaping efforts to gain control of the East China Sea's air and sea domains, and isolate the Ryukyu Islands from Japanese threat. The Fast Carrier Task Forces divided their efforts between striking targets in "FORMOSA, the PESCADORES and SAKASHIMA GUNTO air installations," and providing close air support and air cover throughout the invasion and

subsequent ground operations.⁹⁴ Specifically, Mitscher's TF 58 conducted strike operations against enemy airfields in Japan, the Sakishima Gunto, and Okinawa, while the British TF 57 assisted in the neutralization of Formosa and Bakishima Gunto, and covered the western flank against surface and air threats. The Pacific Fleet's submarine force, in conjunction with Navy land and carrier-based search planes, also conducted reconnaissance to detect Japanese surface and subsurface movement within the objective area. Turner further tasked his Surface Covering Group to "destroy or drive off enemy surface forces which may attempt to attack" the joint tasks force.⁹⁵ These pickets provided a screen to prevent enemy "aircraft, surface ships, submarines, midget submarines, and P.T. boats" freedom of movement within the Ryukyus Islands.⁹⁶

The heavy bombers of the Army's Strategic Air Forces, 21st and 20th Bomber Commands, and 14th Air Force also supported the effort to gain control of the air and sea, and isolate the Ryukyu Islands by destroying Japanese aircraft and neutralizing their airfields prior to the landings on Okinawa. The 20th Bomber Command's B-29, operating from China and the Marianas, conducted strikes against "FORMOSA, LOVE Minus THIRTY to LOVE Minus FIFTEEN with all available sorties."⁹⁷ Concurrently, the 21st Bomber Command focused their efforts on "OKINAWA LOVE Minus THIRTY to LOVE Minus TEN inclusive," and then shifted to "KYUSHU air installations during the period LOVE Minus NINE to LOVE MINUS FIVE

⁹⁴ United States Army, Tenth Army, "Tactical Airforce, Tenth Army, Operations Plan No. 1-45," (Headquarters, Tenth Army, 1945), 4-5.

⁹⁵ Pacific Fleet Task Force 51, "Operations Plan No. A1-45," (K)-(II)-1-3. Annex K encompassed Task Force 51's Protective Plans for Surface Action.

⁹⁶ Ibid.

⁹⁷ Tenth Army, "Tactical Airforce, Tenth Army, Operations Plan No. 1-45," 4-5.

inclusive.”⁹⁸ The 14th Air Force searched along the China Coast for surface and air threats, and supported “Fast Carrier Operations against FORMOSA” during the landings.⁹⁹

The Gunfire and Covering Force, commanded by Rear Admiral Morton L. Deyo, and the Tenth Army’s Tactical Air Force, commanded by Major General Francis P. Mulcahy, provided integrated and continuous tactical fire support to neutralize enemy forces within the lodgment and support the ground force. Their prelanding surface and air bombardment focused on the destruction of Japanese defenses capable of opposing the primary and diversionary landing sites. These fires also concentrated on those Japanese positions that may interfere with the Amphibious Support Force’s extensive minesweeping efforts to clear and mark lanes prior to the landings.¹⁰⁰ In addition to close air support, the Tenth Army’s tactical air force supported air defense, anti-submarine and surface strikes, and reconnaissance missions throughout the campaign with its nine Marine fighter squadrons, ten army fighter squadrons, and sixteen army bomber squadrons.¹⁰¹

To fully exploit the opportunities of the Hagushi landing sites and achieve the strategic purpose, Buckner established Island Command to develop the air, naval, and logistics bases necessary for subsequent operations against Japan. Island Command, under the command of Major General Fred C. Wallace, enjoyed a wide array of unique capabilities to include engineers, antiaircraft artillery, military governance, communications, and supply units. The command possessed thirty-eight army and naval construction battalions to establish the necessary number of bases to support both the Ryukyu Campaign and follow-on operations directed at the Japanese

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ Dyer, *Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner* 1086-1087; Morison, *Victory in the Pacific*, 130-133.

¹⁰¹ Tenth Army, “Tactical Airforce, Tenth Army, Operations Plan No. 1-45,” 4-5.

Empire. In addition to base construction, the command established military governance and defended Kerama Retto, Keise Jima, and Okinawa.¹⁰²

Assessment

The shared understanding and acceptance of operational risk enabled people to successfully work together to seize key locations within the Ryukyu Islands and establish air, naval, and logistics bases for follow on operations against Japan. Although incurring greater risk to the force and mission, the operational decision to land forces on the Hagushi beaches allowed the joint force to more quickly achieve their strategic purpose. Through this common understanding, the Allied force developed an operational approach that effectively integrated air, land, and sea forces to overcome the associated risk of Japanese air and naval attack, and exploit the opportunities afforded by the western beaches. In execution, the joint force successfully linked tactical actions to gain and maintain air and sea control within the East China Sea, isolate the Ryukyu Islands, and project combat power and seized key terrain within Okinawa and its smaller surrounding islands. Most importantly, the unity of effort and arrangement of tactical actions, allowed the Allies to more quickly establish air, naval, and logistics bases within the Ryukyu Islands capable of expanding the war effort directly on the Japanese home islands. The purpose of this section is to provide an assessment of the joint forces operational approach and ability to achieve its strategic purpose.

Supporting efforts by the air and naval components throughout the campaign allowed the joint force to gain and maintain air and sea control within the Eastern China Sea, and isolate the Ryukyu Islands from the Japanese threat throughout the campaign. Pre-operational shaping fires conducted by the American and British carrier task forces, and strategic bombers effectively disrupted the Japanese air threat prior to initiating landing operations within the Ryukyus.

¹⁰² Michael R. Matheny, *Carry the War to the Enemy: American Operational Art to 1945* (Norman, OK: University of Oklahoma Press, 2011), 242-243.

Additional mining operations conducted by B-29s in Shimonoseki Strait also closed the vital supply artery for an entire week before L-Day. These actions prevented the Japanese from employing air and naval forces in defense of the Ryukyu Islands until 6 April, leaving the burden of repelling the Allied invasion to the ground force on Okinawa.¹⁰³

Nonetheless, no amount of radar and destroyer picket lines, and aerial reconnaissance and interdiction operations could prevent the Japanese from employing their aviation assets against the Allied invading force. Beginning on 6 April and ending on 22 June, the US Navy encountered incessant Kamikaze and conventional air attacks against its fleet. The below table shows the number of Japanese aircraft employed each day during Operation Iceberg.

Table 3. Japanese Aircraft Employment Against Allied Forces during Operation Icebergs

Attack Number	Date	Navy	Army	Total Aircraft
1	6-7 April	230	125	355
2	12-13 April	125	60	185
3	15-16 April	120	45	165
4	27-28 April	65	50	115
5	3-4 May	75	50	125
6	10-11 May	70	80	150
7	23-25 May	65	100	165
8	27-29 May	60	50	110
9	3-7 June	20	30	50
10	21-22 June	30	15	45

Source: Samuel Eliot Morison, Admiral United States Navy, *Victory in the Pacific, History of United States Naval Operations in World War II*, Volume XIV (Boston, MA: Little, Brown and Company, 1975). 233.

In total, the Japanese launched approximately 1,900 suicide sorties that sunk 26 ships and damaged another 164, while killing 9,731 officers and men.¹⁰⁴ Despite the great material and personnel damage caused by these attacks, the maritime component's screen and pickets, and Allied land and carrier based air interdiction operations, prevented any serious interruption to ground operations.¹⁰⁵

¹⁰³ Forrestel, *Admiral Raymond A. Spruance, USN: A Study in Command*, 189-190; Morison, Admiral United States Navy, *Victory in the Pacific*, 100-102.

¹⁰⁴ Morison, Admiral United States Navy, *Victory in the Pacific*, 233.

¹⁰⁵ Isely and Crowl, *The U.S. Marines and Amphibious War*, 558; Dyer, *Amphibians Came*

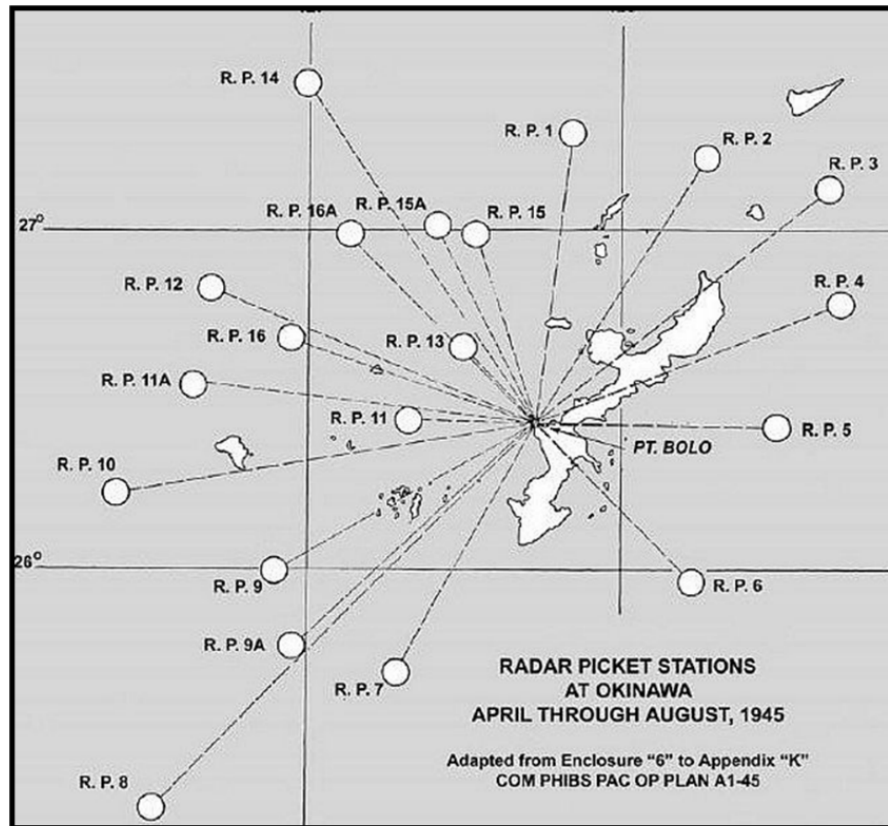


Figure 6. Radar Picket Stations at Okinawa, “Battle Experience Radar Pickets and Methods of Combating Suicide Attacks Off Okinawa, March-May 1945,” (Washington DC: United States Fleet Headquarters of the Commander and Chief, 20 July, 1945), accessed 25 March, 2017, <http://ibiblio.org/hyperwar/USN/rep/Kamikaze/BatExp-Okinawa/img/SpecAttack-3-2.jpg>.

Early in the campaign, the maritime component also defeated the Imperial Japanese Navy’s final effort to penetrate the East China Sea and destroy the Allied amphibious force around Okinawa. On 6 April, in conjunction with a large Kamikaze attack, the Japanese launched a naval task force that consisted of the battleship *Yamato*, the light cruiser *Yahagi*, and eight destroyers to conduct a coordinated attack against the Fifth Fleet. The American submarines *Threadfin* and

to Conquer: The Story of Admiral Richmond Kelly Turner, 1100-1101. On page 1101, Dyer presents Turner’s remarks regarding the effectiveness of the Kamikaze attacks. Turner states: “One of the things that was very fortunate for the transports and the troops was that the Japanese suicide airplanes, as soon as they began to be attacked by our outlying fighters, would themselves deliver attacks on our pickets instead of trying to penetrate our screen to attack our transports. It was tough on the pickets, but the Japanese themselves thus contributed to the successful defense of the vulnerable element of the Amphibious Force.”

Hackleback, deliberately positioned at the Bungo Strait to detect enemy fleet movement into the East China Sea, quickly reported the *Yamato*'s advance south towards Okinawa.¹⁰⁶ On 7 April, Mitscher's TF 58 detected the Japanese naval task force and directed its carrier based aircraft to destroy it. By the end of the day, Mitscher's force destroyed the *Yamato*, *Yahagi*, and four destroyers. TF 58's actions ensured Allied sea control within the Eastern China Sea, and denied the Japanese navy's ability to interfere with the decisive ground operation. It also allowed Turner's amphibious force to maintain continuous naval gun fire, logistics, and offensive and defensive air support to the Tenth Army on Okinawa. The destruction of the *Yamato* marked the end of any serious Imperial Japanese involvement in the war.

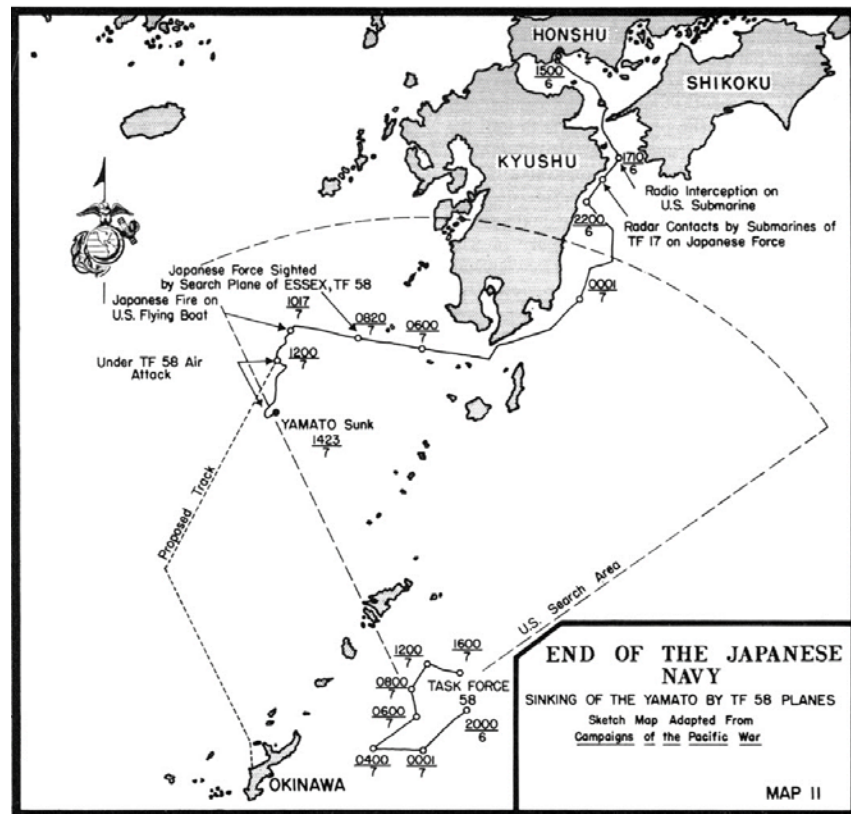


Figure 7. Sinking of the *Yamato* by TF 58, Nichols and Shaw, Jr., *Okinawa: Victory in the Pacific*, 84, accessed 25 March, 2017, <https://www.ibiblio.org/hyperwar/USMC/USMC-M-Okinawa/maps/USMC-M-Okinawa-11.jpg>

¹⁰⁶ Belote and Belote, *Typhoon of Steel: The Battle for Okinawa*, 106-113.

The joint force also successfully projected combat power and seized key terrain within Okinawa and its smaller surrounding islands in pursuit of its strategic aims. On 26 March, six days prior L-Day, the 77th Infantry Division, under the cover of Mitscher's carrier-based aircraft and Deyo's naval gunfire support, seized the Kerama Islands to serve as a seaplane base, fleet anchorage, and logistics hub for the main invasion of Okinawa. Within two days of the landings, the Navy began fueling and ammunition replenishment at the anchorage sites, and one day after that, they began to fly seaplane reconnaissance missions from Kerama Retto. The development of an advance naval base at the Kerama Islands proved essential to sustaining the intensive pre-landing naval bombardment plan and subsequent ground campaign on Okinawa.

During Operation Iceberg, these islands allowed the safe transfer of nearly 3,000 tons of ammunition between vessels, and served as a repair base for the numerous ships damaged by the Kamikaze attacks.¹⁰⁷ Additionally, the early capture of the Kerama Islands prevented the Japanese use of 350 suicide boats hidden for employment against the landing force. Five days after the capture of Kerama Retto, elements of the 77th Infantry Division seized Keise Shima to serve as a fire support base. The capture of both Kerama Islands and Keise Shima, as supporting objectives, also enabled the Navy to increase the intensity of their mine sweeping operations and preparatory bombardment of the Hagushi beaches in support of the main landings.¹⁰⁸

On 1 April 1945, the Tenth Army landed two corps along the Hagushi beaches under the cover of the largest preparatory barrage of the war. In addition to the limited maneuver space for naval vessels, the Allied commanders believed the Japanese would vigorously defend the beaches and airfields as they did in previous operations. Nonetheless, the Japanese only left a token force

¹⁰⁷ Dyer, *Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*, 1101; Isely and Crowl, *The U.S. Marines and Amphibious War*, 555.

¹⁰⁸ United States Army, Tenth Army, "Tenth Army: Action Report: Ryukyus, 26 March to 30 June, 1945," (LaCrosse, WI: Brookhaven Press, 2002), 7-II-2 to 7-II-3.

to resist the landings, and opted to mass forces in more defensible terrain inland to support a prolonged campaign of attrition. Both the Marine and Army corps moved quickly inland towards their objectives. By 1116 on 1 April, the Marines secured Yontan Airfield, while the Army captured Kadena Airfield at 1240 the same day. Allied tactical air support disrupted the Japanese efforts to destroy the airfields shortly before their capture by Marine and Army units.¹⁰⁹

At the completion of L-Day, the Tenth Army controlled both Yontan and Kadena Airfields, landed more than 50,000 troops ashore, and expanded the forward line of troops 4,000-5,000 yards from the beachhead along an eight-mile front.¹¹⁰ Spruance expressed satisfaction with the first day achievement by stating in his after-action report:

Naturally, all attack commanders were highly elated with this unexpected situation. The fierce fighting and heavy casualties considered unavoidable in taking this area had not materialized due to the sudden withdraw of the unpredictable Japanese.¹¹¹

The Tenth Army's immediate results on the first day of the ground offensive validated the sagacity of the joint force's decision to accept risk to mission and force to maximize the opportunities presented by the western beaches. According to naval historian Rear Admiral Samuel Eliot Morison, the "prompt seizure of the airfields constituted victory on Okinawa."¹¹²

The limited resistance allowed the Tenth Army to rapidly advance to the east coast of Okinawa and clear the shore line of Chimu Wan and, the strategically important, Nakagusuku Wan by 7 April. As the Operation Iceberg progressed, the Japanese resistance increased to fanatical levels, and the ground campaign slowed and became more methodical to reduce casualties. When questioned about the slow advance in the south, Buckner replied "we didn't need

¹⁰⁹ Tenth Army, "Tenth Army: Action Report: Ryukyus, 26 March to 30 June, 1945," 7-III-2

¹¹⁰ Ibid.

¹¹¹ Dyer, Vice Admiral, USN (Ret), *Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*, 1094.

¹¹² Morison, *Victory in the Pacific*, 91.

to rush forward because we had secured enough airfields to the execute our development mission.”¹¹³ Nonetheless, the stubborn defense delayed the capture and opening of the ports of Naha and Yonabaru for approximately forty days after the invasion. The below chart presents the campaign’s geographic decisive points, and the dates the Allied landing force secured them.

Table 4. Operation Icebergs Geographic Decisive Points and Associated Date of Capture

Geographic Decisive Point	Secured
Kerama Retto	24 March, 1945
Keise Shima	31 March, 1945
Yontan Airfield	1 April, 1945
Kadena Airfield	1 April, 1945
Ishikawa Isthmus	5 April, 1945
Nagagusuku Wan	7 April, 1945
Ie Shima	21 April, 1945
Naha Port	27 May, 1945

Source: Author.

The arrangement of the above tactical actions allowed the joint force to immediately begin construction of air, naval, and logistics bases to support subsequent operations against Japan. Specialized Seabee and Army construction battalions arrived directly behind the assault troops on L-Day, and initiated the improvement of Yontan and Kadena Airfields that day.¹¹⁴ As a testament to the planning and effectiveness of Island Command, the Tenth Army Tactical Air Force flew its first fighter units onto Okinawan airfields within six days of the invasion. These units augmented the carrier-based aircraft providing close air support and air defense for the ground forces. By 1 May, the joint force based 270 Corsairs and 80 Thunderbolts at Yontan, Kadena, and Ie Shima,

¹¹³ Buckner and Stilwell, *Seven Stars: The Okinawa Battlefield Diaries of Simon Bolivar Buckner and Joseph Stilwell*, 80.

¹¹⁴ Morison, *Victory in the Pacific*, 276-277.

and conducted 3,521 tactical sorties from these sites.¹¹⁵ As the ground campaign progressed, the air forces flying from eighteen newly constructed airstrips within the Ryukyu Islands, gradually shifted their focus from direct tactical support of the Tenth Army to the intensification of strategic bombing directed at the Japanese mainland.¹¹⁶

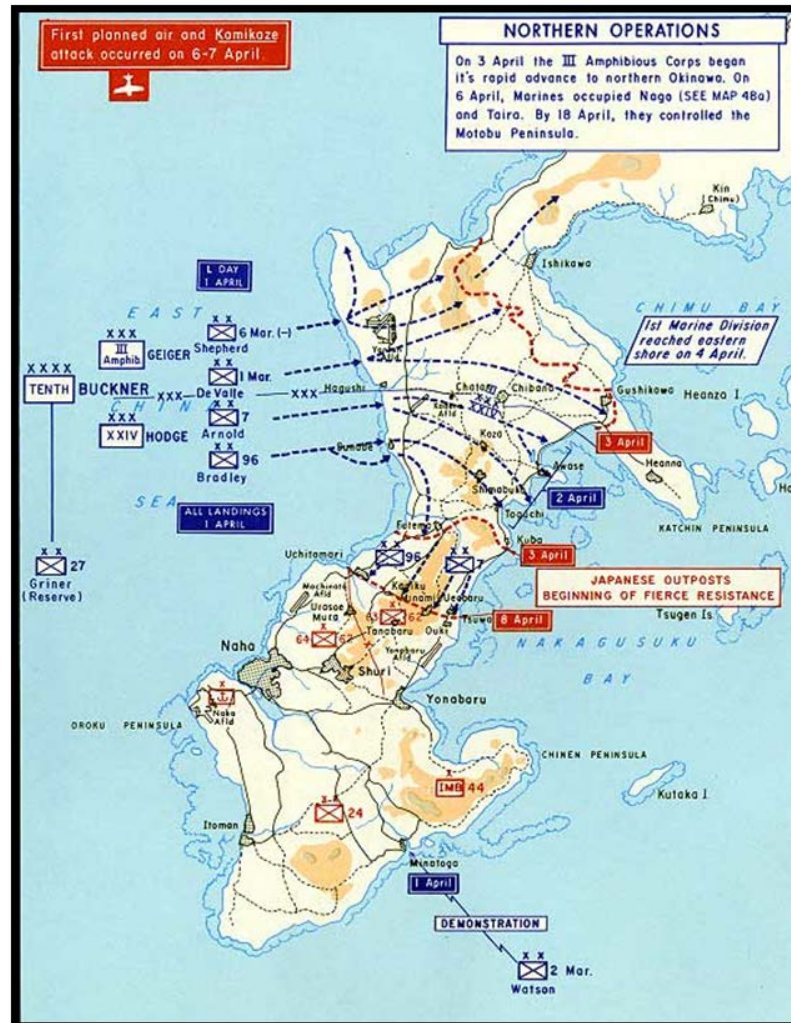


Figure 8. Operation Icebergs Progress 1-8 April, United States Military Academy, West Point, Department of History, accessed 25 March, 2017, <http://www.westpoint.edu/history/SiteAssets/SitePages/World%20War%20II%20Pacific/ww2%20asia%20map%2049.jpg>.

¹¹⁵ Tenth Army, "Tenth Army: Action Report: Ryukyus, 26 March to 30 June, 1945," 11-IV-13; Isely and Crowl, *The U.S. Marines and Amphibious War*, 555.

¹¹⁶ Morison, *Victory in the Pacific*, 278.

The Navy and Army special construction units also built pontoon Causeways and improved roads to expand the lodgment during the early stages of the invasion. As the Tenth Army secured the eastern shores of Nakagusuku Wan, Island Command initiated base construction operations to establish a port facility. On 10 May, the port began to receive general cargo offloads.¹¹⁷ By mid-June, these efforts transformed Nakagusuku Wan (later called Buckner Bay) into an advanced naval base with seaports, docks and cargo handling facilities capable of intensifying the naval blockade against Japan, and building the necessary stores of supply to invade their home islands. Despite stiff resistance in the south, the Tenth Army eventually secured the Naha Port, and opened to Allied shipping on 7 June.¹¹⁸ In total, Island Command built eighteen airstrips, reconstructed 164 miles of road, opened two major ports, and constructed fifteen bases during the campaign. Based on his eyewitness account of based development, Morison states:

The face of the island was changed more than it had been for thousands of years by multi-lane roads, traffic circles, water points, quonset villages, tank farms, storage dumps and hospitals. And by the end of the war in mid-August base development had progressed to the point where Okinawa could well have performed its original purpose of serving as an advance base for the invasion of Japan proper.¹¹⁹

Conclusion

Operation Iceberg signified the pinnacle of joint expeditionary power projection within the Pacific Theater of War. It also represented the largest and most complex operation, and involved a combined-joint amphibious task force operating across the air, sea, subsurface, and land domains. The campaign employed a combined-joint organization, both in structure and employment, to execute a complex arrangement of tactical actions in multiple domains to achieve strategic aims.

¹¹⁷ Tenth Army, "Tenth Army: Action Report: Ryukyus, 26 March to 30 June, 1945," 11-IV-13.

¹¹⁸ Ibid., AAR 11-IV-15.

¹¹⁹ Morison, *Victory in the Pacific*, 278.

Moreover, the Allies faced an adaptive enemy that employed an operational approach that also combined air, sea, and land components to deny access to the Ryukyu Islands.

In a final assessment of Operation Iceberg, shared understanding and acceptance of risk allowed the joint force to work together and effectively synchronize their actions to achieve the strategic purpose of establishing air, naval, and logistics bases within the Ryukyu Islands for future operations against mainland Japan. The operational decision to land forces near Hagushi on the western side of Okinawa provided the shortest and most direct route to the strategic objectives of Kadena and Yontan Airfields, and the Naha Port facility. The immediate capture of these objectives provided the Allies an opportunity to more quickly establish bases to increase the sustained heavy bombing and air-sea blockade against Japan. Despite these benefits, the decision incurred greater risk of effective Japanese air and naval operations against Allied shipping due to the limited maneuver space on the western waters of the Ryukyu Islands.

Mitscher stated years after the campaign, “every man on the staff knew that the task force was shackled to Okinawa; there was nothing to do but take it—the suicide attacks—and fight back like hell.”¹²⁰ This type of shared purpose across the joint force allowed them to effectively integrate air, land, and sea capabilities to gain and maintain air and sea control within the East China Sea, isolate the Ryukyu Islands, project combat power and seize key terrain within Okinawa and its smaller surrounding islands to achieve its overarching strategic purpose—base development to expand the war effort. The limited resistance encountered at the beaches and immediate capture of Kadena and Yontan Airfields, followed by Nagagusuku Wan demonstrated the sagacity of the joint force’s decision to exploit the benefits of the western approach despite increased risk to the force and mission. Although the maritime component experienced great

¹²⁰ Taylor, *The Magnificent Mitscher*, 279.

materiel and personnel lost, their efforts, combined with areal interdiction and strike operations, prevented the Japanese air threat from impeding decisive operation on Okinawa.

The capture of Okinawa contributed much to ending the war by placing bomber and fighter aircraft within easy range of Formosa, China, Korea, and Japan. Construction of advanced naval bases at Naha and Nakagusuku Wan combined with the destruction of the remaining element of the Imperial Japanese Navy ensured the increased intensification and effectiveness of blockade operations within the East China Sea. The Japanese fanatical and suicidal resistance experienced during the Operation Iceberg provided the greatest contribution to ending the war by informing the decision to employ atomic weapons against Nagasaki and Hiroshima.

Today's joint force commanders must balance audacity and imagination with risk and uncertainty to create opportunities to seize, retain, and exploit the initiative, and achieve decisive results. They must apply their judgment, intellect, and experience to examine cost-benefit relationships, risks, and trade-offs associated with broad options to achieve their strategic purpose. The willingness to embrace calculated risk in the face of ambiguity, fluidity, and uncertainty to generate the potential for greater rewards will remain the mark of good commandership. The study of Operation Iceberg provides a useful example of how joint commanders accepted operational risk and unified their forces to exploit opportunities for greater strategic gains while mitigating the associated threat to mission and force.

Bibliography

- Alexander, Joseph H. *Storm Landings: Epic Amphibious Battles in the Central Pacific*. Annapolis, MD: Naval Institute Press, 1997.
- Army Doctrine Publication 3-0, *Unified Land Operations*, Washington, DC: Government Printing Office, 2011.
- Army Doctrine Reference Publication 3-0, *Unified Land Operations*, Washington, DC: Government Printing Office, 2011.
- Appleman, Roy E., James M. Burns, Russell A. Gugeler, and John Stevens. *Okinawa: The Last Battle*. Tokyo: Charles E. Tuttle Company, 1960.
- Astor, Gerald. *Operation Iceberg: The Invasion and Conquest of Okinawa in World War II-an Oral History*. New York: Donald I. Fine, Inc., 1995.
- Ballendorf, Dirk Anthony, and Merrill Lewis Bartlett. *Pete Ellis: An Amphibious Warfare Prophet, 1880-1923*. Annapolis, MD: Naval Institute Press, 1997.
- Belote, James H. and William M. Belote. *Typhoon of Steel: The Battle for Okinawa*. New York: Harper & Row, Publishers, 1970.
- Bergerud, Eric. *Touched with Fire: The Land War in the South Pacific*. New York: Viking Penguin, 1996.
- Borneman, Walter R. *The Admirals: Nimitz, Halsey, Leahy, and King—The Five-Star Admirals Who Won the War at Sea*. New York, NY: Little, Brown, and Company, 2012.
- Buell, Thomas B. *The Quiet Warrior: A Biography of Admiral Raymond A. Spruance*. Annapolis, MD: Naval Institute Press, 1987.
- Dower, John W. *War Without Mercy: Race and Power in the Pacific War*. New York: Pantheon Books, 1986.
- Dull, Paul S. *A Battle History of The Imperial Japanese Navy, 1941-1945*. Annapolis, MD: United States Naval Institute, 1978.
- Dyer, George C. Vice Admiral, USN (Ret). *Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner, Volume II*. Washington, DC: US Government Printing Office, 1954.
- Feifer, George. *Tennozan: The Battle of Okinawa and the Atomic Bomb*. New York: Ticknor & Fields, 1992.
- Flynn, George F., Lieutenant General, USMC. *Marine Corps Operating Concepts: Assuring Littoral Access... Winning Small Wars*, 3rd ed. Quantico, VA: Marine Corps Combat Development Command, 2010.

- Foster, Simon. *Okinawa 1945: Final Assault on the Empire*. New York: Arms and Armour Press, 1994.
- Frank, Benis M. *Okinawa: The Great Island Battle*. New York: Elsevier-Dutton, 1978.
- Hayashi, Saburo. *Kogun: The Japanese Army in the Pacific War*. Quantico, VA: The Marine Corps Association, 1959.
- Heinl, Robert D. Jr. "The US Marine Corps: Author of Modern Amphibious Warfare." In *Assault From the Sea: Essays on the History of Amphibious Warfare*, edited by Lieutenant Colonel Merrill L. Bartlett, USMC (Retired), 185-194. Annapolis, MD: Naval Institute Press, 1983.
- Hornfisher, James D. *The Fleet at Flood Tide: America in Total War in the Pacific, 1944-1945*. New York: NY, Penguin Random House LCC.
- Inoguchi, Rikihei, Captain, Tadashi Nakajima, Commander, Former Japanese Imperial Navy, and Pineau, Roger. *The Divine Wind: Japan's Kamikaze Force in World War II*. Annapolis: Naval Institute Press, 1958.
- Isely, Jeter A. and Crowl, Philip A. *The US Marines and Amphibious Warfare: Its Theory, and Its Practice in the Pacific*. Princeton, NJ: Princeton University Press, 1951.
- James, Clayton. "American and Japanese Strategies in the Pacific War." In *Makers of Modern Strategy, from Machiavelli to the Nuclear Age*, Edited by Peter Paret, 703-732. Princeton, NJ: University Press, 1986.
- "Joint Publication (JP) 1-02." *Department of Defense Dictionary of Military and Associated Terms*. August 2008.
- "Joint Publication (JP) 5-0." *Joint Operation Planning*. December 2006.
- "Joint Publication (JP) 3-02." *Amphibious Operations*. July 2014.
- "Joint Publication (JP) 3-18." *Joint Forcible Entry Operations*. November 2012.
- Leckie, Robert. *Okinawa: The Last Battle of World War II*. New York: Viking Penguin (Penguin Books USA, Inc.), 1995.
- Matheny, Michael R. *Carrying the War to the Enemy: American Operational Art to 1945*. Norman: University of Oklahoma Press, 2011.
- Manchester, William. *American Caesar: Douglas MacArthur, 1880-1964*. Boston, MA: Little, Brown and Company, 1978.
- Miller, Nathan. *War at Sea: A Naval History of World War II*. New York: Scribner, 1995.
- Millet, Allen R., and Peter Maslowski. *For the Common Defense: A Military History of the United States of America*. New York: The Free Press, 1994.

- Millett Allan R. and Murray, Williamson. *A War to be Won: Fighting the Second World War*. Cambridge, MA: The Belknap Press of Harvard University Press, 2000.
- Millet, Allan R. "Assault from the Sea: The Development of Amphibious Warfare Between the Wars." In *Military Innovation in the Interwar Period*, edited by Williamson Murray and Alan R. Millet, 50-95. Cambridge, UK: Cambridge University Press, 1996.
- _____. *Semper Fidelis: The History of the United States Marine Corps*. New York: MacMillian Publishing Co., 1982.
- Nichols, Chas. S., Jr., Major, United States Marine Corps and Henry I. Shaw, Jr. *Okinawa: Victory in the Pacific*, Marine Corps Monographs Series. Washington, DC: US Government Printing Office, 1955.
- Potter, E.B. *Nimitz*. Annapolis, MD: Naval Institute Press, 1976.
- Slim, William Field-Marshal Viscount. *Defeat into Victory: Battling Japan in Burma and India, 1942-1945*. New York, NY: Cooper Square Press 2000.
- Smith, Robert Ross. "Luzon Versus Formosa," in *Command Decisions*. Washington, DC: Center for Military History United States Army, 2006.
- Ugaki, Matome, Admiral. *Fading Victory: The Diary of Admiral Matome Ugaki, 1941 1945*. Translated by Masataka Chihaya. With a forward by Gordon W. Prange. Pitts burgh: University of Pittsburg Press, 1991.
- US Army Command and General Staff College Second Command Class. *Report on Operation ICEBERG*. Fort Leavenworth, KS: Command and General Staff College, 1946.
- US Department of the Army. Field Manual 31-5, *Landing Operations on Hostile Shores*. Washington, DC: Government Printing Office, 1941.
- U.S Army Forces in the Pacific. *Action Report: Island Command*. Okinawa, June 1945.
- US Army Forces in the Pacific. *Air Support in the Okinawa Operation for the period 1 April to 22 June 1945*, 1945.
- US Army Field Forces. *Report on the Okinawa Operation*. Washington, DC: Hdqrs. Army Ground Forces, 1945.
- US Dept. of the Army. Center of Military History. *Order of Battle of the United States Land Forces in the World War*. Washington, DC: 1988.
- US Tenth Army. *Tenth Army Action Report Ryukyu*. 26 March 1945 to 30 June 1945. 1945.
- US Tenth Army. *Tactical Airforce, Tenth Army, Operations Plan No. 1-45*. 1945.
- US Marine Corps. *Okinawa: Victory in the Pacific*. Washington: GPO, 1955.

- _____. *MCDP 1 Warfighting*. Washington, DC: Headquarters Marine Corps, 1997.
- United States Navy, Pacific Fleet Task Force 51. "Operations Plan No. A1-45." San Francisco, CA: Task Force Fifty-One, U.S. Pacific Fleet, Pacific, 1945.
- US Pacific and Pacific Ocean Areas. *Joint Staff Study: Operation Iceberg*. 23 October 1945, 1945.
- Van der Vat, Dan. *The Pacific Campaign: World War II, the US-Japanese Naval War*. New York: Simon & Schuster, 1991.
- Vego, Milan. "On Major Naval Operations." *Naval War College Review*, 2007: 94-126.
- _____. "On Operational Leadership," *Joint Forces Quarterly*, Vol 77. 2nd Quarter. 2015: 65-69.
- Weinberg, Gerhard L. *A World at Arms: A Global History of World War II*. New York, NY: Cambridge University Press, 1994.
- Yahara, Hiromichi, Colonel. *The Battle for Okinawa: A Japanese Officer's Eyewitness Account of the Last Great Campaign of World War II*. Translated by Roger Pineau and Masatoshi Uehara. With an Introduction and Commentary by Frank B. Gibney. New York: John Wiley & Sons, Inc., 1995.
- Yoloi, Toshiyuki, Rear Admiral, Imperial Japanese Navy. "Kamikazes and the Okinawa Campaign" *Proceedings*, 1954, accessed March 12, 2017:
<https://www.usni.org/magazines/proceedings/1954-05/kamikazes-and-okinawa-campaign>