THE REMAINS OF A JAPANESE PLANE AT SALMON LAGOON, KISKA ISLAND, ALASKA

Identification and Condition Assessment

DIRK HR SPENNEMANN
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by

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Figure 73. Interior of the rear cockpit, seen from starboard. Detail. ........................................................................61
INTRODUCTION

This report has been prepared for the United States Fish and Wildlife Service (US FWS) as land managers of Kiska, and for the United States National Park Service (US NPS) in their capacity of providing oversight on cultural heritage management issues and in their role of administering the National Historic Landmarks (NHL) Program.

As will become evident in the discussion (p. 68), there are very few larger sections of Japanese aircraft remaining on Kiska. Moreover, the historic analysis shows that the plane wreck is associated with the first US response to the Japanese landings Kiska (the so-called ‘Kiska Blitz’). Given this association, it was deemed desirable to compile a detailed report on the plane wreck.

Survey and Conditions

The survey of the plane wreck under discussion forms part of the Kiska NHL Battlefield Cultural Landscape Study carried out in 2009, with fieldwork in June of the year. The remains of the plane were noted by the archaeologists Caroline Funk and Brian Hoffmann as they carried out survey work for prehistoric/early historic Aleut sites on the shores of Salmon Lagoon, Kiska Island.

The inspection of the plane wreck occurred on 9 June 2009, in company with Richard Galloway, archaeological technician of the US FWS. The weather conditions on the day were characterised by strong winds, in excess of 30 knots, and driving fog and drizzle. The site was visited late in the fieldwork day and the observations had to be kept to a detailed photographic recording of the site and its contributing elements. Only small sections of the plane were freed from the encroaching tundra vegetation. The lack of waders, combined with the low water temperatures, meant that none of the submerged items, albeit in shallow water, could be inspected more directly.

Acknowledgments

The author is indebted to Caroline Funk and Brian Hoffmann for bringing the plane wreck to my attention during the fieldwork on Kiska, 6 June to 10 June 2009. Brian also provided some images that were taken the day before the author’s inspection. Richard Galloway accompanied the author to the plane wreck.
wreck and also made available his photographs. Rudolf Spennemann assembled the 1/48 scale model used for the visualisation of the extant remains.

The author in particular indebted to Janet Clemens, historian and administrator of the NHL program for the Alaska Regional Office, for the opportunity of carrying out fieldwork on Kiska, and for ongoing collaboration on the preservation of Kiska NHL.
DESCRIPTION OF THE REMAINS

This section will set out a description of the extant remains. Their identification will be provided in the section following the historic context (p. 29) as will be a discussion of the state of preservation (p. 47) and the resulting recommendations for future management (p. 68).

Location

The site is located at the south-western shore of Salmon Lagoon, a brackish-water body of water abutting North Head. The main section of the fuselage, comprising the cockpit, rests in swampy tundra/marshland, while the engine and a section of the wing rest in shallow water (Figure 1).

Figure 1. The plane wreck at the south-western shore of Salmon Lagoon as seen from the edge of runway.
The main extant section of the plane is the cockpit of a two seater plane (Figure 4-Figure 6). The tail section, wings (with the exception of the part in the water, Figure 24) and all control surfaces are missing. The heavily corroded fuselage section is comprised of the front cockpit (Figure 65), as well as a small section of the rear cockpit (Figure 14). Everything forward of the pilot’s firewall (Figure 8) is missing, apart from a small, Y-shaped section with circular, tubular opening in it (Figure 16, Figure 75, Figure 86-Figure 87). The wings are preserved as two small stubs (Figure 17-Figure 18). The fuselage has been stripped of all fittings and instruments (Figure 65). Nearby, at least one small fragment of the fuselage, or similar, was noted (Figure 25). Given the ground cover with tundra, it is very likely that additional pieces are present. The time limitations imposed by the weather conditions meant that no thorough investigation could be carried out.

In addition, two major parts of the plane rest in shallow water: a radial engine, heavily fouled with vegetation, rope and netting (Figure 20-Figure 23) and a section of a wing (Figure 24).
Figure 3. The cockpit of the plane as seen from a higher elevation.

Figure 4. The cockpit of the plane with the mouth of Salmon Lagoon in the background.
Figure 5. The cockpit of the plane as seen from port.

Figure 6. The cockpit of the plane as seen from starboard.
Figure 7. The cockpit of the plane. Port side view with wind partially uncovered.

Figure 8. The cockpit of the plane. Port side view, front of cockpit, seen from rear.
Figure 9. The cockpit of the plane. Port side view, front of cockpit, seen from front.

Figure 10. The cockpit of the plane. Starboard side view, front of cockpit.
Figure 11. The cockpit of the plane. Port side view, side of cockpit.

Figure 12. The cockpit of the plane. Port side view, front of cockpit.
Figure 13. The cockpit of the plane. Port side view, rear of pilot’s cockpit.

Figure 14. The cockpit of the plane. Rear view, rear of pilot’s cockpit.
Figure 15. The cockpit of the plane. Port side view, front of cockpit. Note the wing.

Figure 16. The cockpit of the plane. Port side view, front of cockpit, seen from rear.
Figure 17. Port side wing, seen from the front.

Figure 18. Port side wing, seen from the rear.
Figure 19. Port side wing. Detail of hard point.

Figure 20. The partially submerged radial engine. Photographed from the shore.
Figure 21. The partially submerged radial engine. Detail. Note the heavy fouling with marine flotsam.

Figure 22. The partially submerged radial engine. Detail.
Figure 23. The partially submerged radial engine. Detail.

Figure 24. The submerged wing.
Figure 25. Fuselage fragment with green paint remains.

Notes to this Section

1. The fouling seems to be caused by flotsam that has been washed into Salmon Lagoon and then drifted to the southwestern shore.
On 7 December 1941 the Empire of Japan carried out an unannounced aircraft carrier strike on the US naval base of Pearl Harbor. The Doolittle raid of 18 April 1942, when US carrier-launched B-25s attacked Tokyo and other Japanese centers, proved to Japanese planners that the North Pacific posed an area of vulnerability which US carrier forces could exploit. That gap could be closed by occupying Midway Atoll, at the northwestern end of the Hawaiian Chain, and by erecting a base on one of the Aleutian Islands. In a dual operation, Japanese forces moved to attack both the Aleutians (Kiska and Attu) and Midway. When the battle of Midway went against the Japanese, that plan was no longer viable, but Vice-Admiral Hosogaya, Commander of the Fifth Fleet, argued that the Aleutian landings be carried out to occupy the area and prevent US advances down the Aleutian Chain towards Japan.

The landing on Kiska was effected when the Japanese Maizuru No. 3 Special Landing Party with 550 Marines went ashore at Reynard Cove at 10 am on the 7th of June, 1942. They moved south across North Head and with the help of 700 labor troops commenced to set up camp at Kiska Harbor.

The Japanese immediately began to develop the island into a major base from which to launch seaplane and submarine operations. The Imperial Japanese installations centered on Kiska Harbor. Both North and South Head, as well as the approaches were garrisoned and defended by the Imperial Japanese Navy. A midget submarine base was erected at the southwestern shore in early July 1942 and equipped with six submarines, while a flying boat and sea plane base was established on the northwestern shore.

The Japanese forces operated the following sea-plane and flying-boat types on Kiska:

- Kawanishi H6K Type 97 "Mavis" flying boats (Jun-Aug 42)
- Aichi D13A1 Type 0 ‘Jake’ reconnaissance floatplanes (Jun–Mar 43)
- Mitsubishi F1M2 ‘Pete’ observation floatplanes (Jun–Aug 42)
- Nakajima E8N2 ‘Dave’ reconnaissance floatplanes (Jun–Aug 42)
- Nakajima A6M2-N ‘Rufe’ fighter floatplanes (Jun 42–Mar 43).

Another plane which may have been used on Kiska is the Kawanishi E7K2 ‘All’ which is on record for Attu.
The plane wreck at Salmon Lagoon

Existing World War II imagery of Kiska is indicative as to the presence of a wrecked aircraft at that location (Figure 27), even though higher resolution oblique footage cannot be obtained (eg. Figure 26). However, from an interrogation of Captain Kintaro Muira, we know that “Sometimes the planes were flown over and landed in the calm waters of Salmon Lagoon for engineering work. Salmon Lagoon was also used for operations when the wind was high.”8 According to the interrogation of Commander Nifumi Mukai, “Near the end of June some of the float planes, which were under repair in Salmon Lagoon, were damaged by bombs.”9 It is quite likely that the plane under discussion here was one these planes. Probably damaged beyond repair it was cannibalised for parts and abandoned in place.

It would thus appear that the aircraft in Salmon Lagoon represents one of the few early documented casualties of the ‘Kiska Blitz”, the initial US long-range bombing response to the Japanese occupation of Kiska.

Figure 26. US aerial image of Salmon Lagoon, taken on 27 October 1944, just before the decommissioning of the US Naval Air Station Kiska.10 The site is located at the far end of Salmon Lagoon.
Figure 27. Section of an US aerial image of Salmon Lagoon, taken on 16 March 1943. The plane wreck can be seen in the water.

Figure 28. Section of an US aerial image of Salmon Lagoon, taken on 16 March 1943. Detail.
Notes to this Section

1. Given the international dateline, the 7th of December 1941 in Pearl Harbor was the 8th of December in Japan as well as in Guam and the rest of Micronesia.

2. Interrogation Senior Staff Officer Tiasuke Ito IJN. Interrogation USSBS n° 101; Navy-24. 11 October 1945 at Tokyo. United States Strategic Bombing Survey Interrogations. Australian War Memorial Files.

3. Interrogation of Commander Nifumi Mukai on the Japanese Occupation of Kiska, the Kiska Garrison, and Operation in the Kuriles. Interrogation NAV n° 22, United States Strategic Bombing Survey n° 99. Interrogation of Japanese officials. ONAV P-03-100. Naval Intelligence Division. P. 102-105.— 3rd Maizuru Special Naval Landing Force had been formed at Maizuru on 5 January 1942 and assigned to Combined Fleet. After the occupation of Kiska it was deactivated on 1 July 1942 and became 5th Guard Unit (http://www.geocities.com/historyfan2002/general/infantry/japan/maizuru.htm).

4. Nine of the ten personnel of the US weather station were captured; one managed to evade for 50 days.


8. Interrogation Miura op. cit.


10. National Archives, Record Group 181 Records of Naval Districts and Shore Establishments, Entry 149 17th Naval District, Naval Station, Adak. Classified Files, 1943-1947, Box 14 Folder H1-3.

11. Photo taken 16 March 1943; National Archives, Record Group 80-CF-7825-69034F Image by Y4-105.3 11th AAF.

12. Photo taken 16 March 1943; National Archives, Record Group 80-CF-7825-69034F Image by Y4-105.3 11th AAF.
The surviving sections of the plane belong to a single-engine aircraft of Japanese manufacture (as evidenced by the orange red undercoat). The IJN operated a number of seaplanes, which are set out in Table 1. Those planes that were in operation prior to July 1943 (the Japanese evacuation of Kiska) are illustrated in the following pages.

Table 1. Japanese seaplanes of World War II. Plane types in italics are unlikely to have been used on Kiska because they were either outdated or not yet in service.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model</th>
<th>Japanese name</th>
<th>Allied name</th>
<th>Design</th>
<th>Function</th>
<th>Seats</th>
<th>Float type</th>
<th>Drawing</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nakajima</td>
<td>E8A</td>
<td>Type 95</td>
<td>Dave</td>
<td>Biplane</td>
<td>Reconnaissance</td>
<td>Two</td>
<td>Central</td>
<td>Figure 32</td>
<td>3</td>
</tr>
<tr>
<td>Kawanishi</td>
<td>E7K2</td>
<td>Type 96</td>
<td>Alf</td>
<td>Biplane</td>
<td>Reconnaissance</td>
<td>Two</td>
<td>Central</td>
<td>Figure 29</td>
<td>4</td>
</tr>
<tr>
<td>Mitsubishi</td>
<td>F1M2</td>
<td>Type 0</td>
<td>Pete</td>
<td>Biplane</td>
<td>Reconnaissance</td>
<td>Two</td>
<td>Central</td>
<td>Figure 34</td>
<td>5</td>
</tr>
<tr>
<td>Aichi</td>
<td>E13A1</td>
<td>Type 0</td>
<td>Jake</td>
<td>Monoplane</td>
<td>Reconnaissance</td>
<td>Three</td>
<td>Dual</td>
<td>Figure 30</td>
<td>6</td>
</tr>
<tr>
<td>Nakajima</td>
<td>A6M2-N</td>
<td>Type 0 Suisen</td>
<td>Rufe</td>
<td>Monoplane</td>
<td>Fighter</td>
<td>Single</td>
<td>Central</td>
<td>Figure 32</td>
<td>7</td>
</tr>
<tr>
<td>Kawanishi</td>
<td>E15K</td>
<td>Shiun</td>
<td>Norm</td>
<td>Monoplane</td>
<td>Reconnaissance</td>
<td>Two</td>
<td>Central</td>
<td>./</td>
<td>8</td>
</tr>
<tr>
<td>Kawanishi</td>
<td>N1K1</td>
<td>Kyofu</td>
<td>Rex</td>
<td>Monoplane</td>
<td>Fighter</td>
<td>Single</td>
<td>Central</td>
<td>./</td>
<td>9</td>
</tr>
<tr>
<td>Aichi</td>
<td>E16A1</td>
<td>Zuiun</td>
<td>Paul</td>
<td>Monoplane</td>
<td>Reconnaissance</td>
<td>Two</td>
<td>Dual</td>
<td>./</td>
<td>10</td>
</tr>
</tbody>
</table>

According to US intelligence assessments, as well as post war accounts of air photo interpretation, mainly Aichi E13A1 ‘Jake’ three-seater reconnaissance planes (Figure 30), as well as Nakajima A6M2-N ‘Rufe’ fighter planes (Figure 32) were reported having encountered on Kiska. The first Nakajima A6M2N ‘Rufe’ to fall into Allied hands in an almost complete state was encountered on Attu in June 1943. Subsequent analysis provided much needed intelligence on the plane’s performance and comparison with the carrier version (the Mitsubishi A6M2 ‘Zero’ fighter from which it had been developed). The third key plane that needs to be considered is the Kawanishi E7K2 ‘Alf’ which is on record for Attu and which may have been used on Kiska as well (Figure 29). Even though essentially obsolete by the time of the Kiska campaign, the aircraft remained in first line service until early 1943. Additionally, we need to consider the Mitsubishi F1M2 ‘Pete’, a two-seater reconnaissance biplane which entered service in 1940. While theoretically possible, the obsolete Nakajima E8A ‘Dave’ (Figure 32) is less likely to have been present on Kiska, unless it was still carried on one of the cruisers that supported the landings.
Aichi E13A was numerically the most numerous Japanese float plane, with 1,418 units built by three different plants. It had an endurance of almost 15 hours and was eminently suited for long range patrol flights (Figure 29).

Figure 29. Drawing of the Kawanishi E7K2 (‘Alf’) reconnaissance float plane.
Figure 30. Drawing of the Aichi E13A1 (‘Jake’) reconnaissance float plane.18
Figure 31. Drawing of the Aichi E13A1 ("Jake") reconnaissance float plane.\textsuperscript{19}
Figure 32. Drawing of the Nakajima E8N ("Dave") reconnaissance float plane.\textsuperscript{50}
Figure 33. Drawing of the Nakajima A6M2-N (‘Rufe’) fighter float plane.\textsuperscript{21}
Figure 34. Drawing of the Mitsubishi F1M ("Pete") reconnaissance float plane.²²
Figure 35. Drawing of the Mitsubishi F1M (‘Pete’) reconnaissance float plane.\textsuperscript{23}
Identification criteria

A re-examination of the images of the wreckage of the plane wreck at the shore of Salmon Lagoon in the light of the above aircraft models reveals that the plane is a two seater with two discrete crew compartments. This rules out the single-seat Nakajima A6M2-N ‘Rufe’ as well as the three-seater Aichi E13A1 ‘Jake’.

The remaining three contenders are all two-seater biplanes: Kawanishi E7K2 Type 96 ‘Alf’, Nakajima E8A Type 95 ‘Dave’, and the Mitsubishi F1M2 Type 0 ‘Pete’. Indeed, the wreckage has attachments just forward of the pilot’s cockpit (Figure 12) as well as on the wing (Figure 19) that are connectors for the struts of the biplanes upper wing.

The lower wing of the Nakajima E8A Type 95 ‘Dave’ has a very characteristic gull-wing shaped connection to the main fuselage, which is absent in the case of the plane wreckage at Salmon Lagoon. Even though the plane was only partially freed from the tundra vegetation, enough of the wing connection was exposed to illustrate that this connection was straight and not gull-wing shaped (Figure 15).

The two remaining planes models, the Kawanishi E7K2 Type 96 ‘Alf’ and the Mitsubishi F1M2 Type 0 ‘Pete’ have different connections of the wind struts to the main fuselage. While in the case of the Kawanishi E7K the struts end up at the same central hard point (Figure 29), the struts of the Mitsubishi F1M2 end up in two hard points, one two thirds up and two thirds down the side (Figure 35). The hard points for the struts of the plane wreckage encountered at Salmon Lagoon (Figure 12; Figure 19) conform with the hard points of a Mitsubishi F1M2 Type 0 ‘Pete’ observation seaplane.

Figure 36. A U.S. Navy reconnaissance photo of two Japanese Nakajima A6M2-N Rufe seaplane fighters at Attu Island, Alaska (USA), in 1942/43.
Mitsubishi F1M2 Type 0 ‘Pete’ observation seaplane

In the mid 1930s the Japanese Navy required an agile float plane that could be launched off catapults to serve as a reconnaissance and naval gun fire spotting plane. The first Mitsubishi prototype was flown in 1936 and, after a redesign of performance faults, the F1M2 was accepted by the IJN as ‘Navy Type 0 Observation Plane Model 11’, coded ‘Pete’ by the Allied powers.

It was a radial-engined bi-plane that proved to be a versatile aircraft. The two-seater biplane was characterised by a central float with two wing floats. The plane had foldable wings to facilitate easier stowage on battleships and cruisers (see here: Figure 52). The technical characteristics of the plane are set out in Table 2. While its armament was only light (two forward firing 7.7mm and one flexible 7.7mm machine gun in the rear), and even though it was already outdated by the time of the Pacific War, the aircraft’s exceptional manoeuvrability led to it being used as a light interceptor fighter, a dive-bomber, convoy escort and coastal patrol aircraft, in addition to its more conservative role as ship-based reconnaissance and spotting plane. Over the duration of its service life, Mitsubishi built 525 of the F1M2, while Dai-Nijuchi KK built another 590.25

Table 2. Technical details of the Mitsubishi F1M2 Type 0 ‘Pete’ observation seaplane

<table>
<thead>
<tr>
<th>General characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crew</td>
<td>two, pilot and rear gunner</td>
</tr>
<tr>
<td>Length</td>
<td>9.5 m (31 ft 2 in)</td>
</tr>
<tr>
<td>Wingspan</td>
<td>11 m (36 ft 1 in)</td>
</tr>
<tr>
<td>Height</td>
<td>4 m (13 ft 1½ in)</td>
</tr>
<tr>
<td>Wing area</td>
<td>29.5 m² (318 ft²)</td>
</tr>
<tr>
<td>Empty weight</td>
<td>1,928 kg (4,251 lb)</td>
</tr>
<tr>
<td>Loaded weight</td>
<td>2,550 kg (5,622 lb)</td>
</tr>
<tr>
<td>Max takeoff weight</td>
<td>2,856 kg[2] (6,296 lb)</td>
</tr>
<tr>
<td>Powerplant</td>
<td>1× Mitsubishi Zuisei 13</td>
</tr>
<tr>
<td></td>
<td>14-cylinder two-row radial engine, 653 kW (875 hp)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum speed</td>
<td>370 km/h (230 mph) at 3,440 m (11,300 ft)</td>
</tr>
<tr>
<td>Range</td>
<td>740 km (460 mi)</td>
</tr>
<tr>
<td>Service ceiling</td>
<td>9,440 m (30,970 ft)</td>
</tr>
<tr>
<td>Wing loading</td>
<td>86.3 kg/m² (17.7 lb/ft²)</td>
</tr>
<tr>
<td>Power/mass</td>
<td>2.9 kW/kg (6.85 hp/lb)</td>
</tr>
<tr>
<td>Climb to 5,000 m</td>
<td>9 min 36 sec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Armament</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Guns</td>
<td>2 × fixed forward-firing 7.7 mm (.303 in) Type 89 machine guns</td>
</tr>
<tr>
<td></td>
<td>1 × flexible rearward-firing 7.7 mm (.303 in) Type 89 machine gun</td>
</tr>
<tr>
<td>Bombs</td>
<td>2 × 60 kg (132 lb) bombs</td>
</tr>
</tbody>
</table>
Figure 37. Drawing of the Mitsubishi F1M ("Pete") reconnaissance float plane.26
Figure 38. Crew positions and arc of fire of the Mitsubishi F1M ("Pete") reconnaissance float plane.  

Figure 39. Crew positions and fuel tanks of the Mitsubishi F1M ("Pete") reconnaissance float plane.
Figure 40. Drawing of the Mitsubishi F1M ("Pete") reconnaissance float plane.²⁹
Figure 41. Drawing of the Mitsubishi F1M (‘Pete’) reconnaissance float plane.30

Figure 42. Drawing of the Mitsubishi F1M (‘Pete’) reconnaissance float plane.31
Figure 43. Drawing of the Mitsubishi F1M (“Pete”) reconnaissance float plane.
Compiled from the following sources:


2. The Type number refers to the year the plane type entered service.

3. A total of 755 of such aircraft were built. At the beginning of the Pacific War these aircraft were still used on some cruisers, while later in the war it served as communications and training aircraft.—Francillon, *Japanese Aircraft of the Pacific War* op. cit., pp. 408-410.—Yusawa, *Imperial Japanese Navy Reconnaissance Seaplane* op. cit., p. 80.


8. A total of only 15 such aircraft were every built.—Francillon, *Japanese Aircraft of the Pacific War* op. cit., pp. 314-316.

9. A total of 97 such planes were built, with service deliveries from July 1943.—Francillon, *Japanese Aircraft of the Pacific War* op. cit., pp. 317-320.—Yusawa, Kawanishi Kyofu, Shiden, Shidenkai op. cit., pp. 126-127.


As described above, only a small section of the plane is still in existence. The following condition assessment is based on a rapid photographic survey of those remains of the plane that could be accessed on land. It is acknowledged that at least two parts of the plane rest in shallow water (the engine block and part of a wing) and that additional, smaller parts of the plane are likely to be present, but are covered by vegetation.

The extant section is comprised of the forward section of the cockpit, from frame 1 to frame 5, with some skin reaching towards frame 6 (Figure 62). In addition, small sections of the lower wing are also present. A 1/48 scale model of the Mitsubishi F1M2 was assembled to visualise the extant remains of the plane (Figure 45-Figure 50) form a range of angles.¹

The preservation of the plane is generally very poor. All items that could be unbolted and removed are missing. This includes all instruments, pilot’s and co-observer’s seat and fittings, levers, switches, wiring and the canopy. Most of this seems to have been removed since World War II, if the extant imagery taken by US Intelligence in October 1943 is any guide (see Figure 52-Figure 61).

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¹ Figure 44. Visualisation of the extant remains of the Mitsubishi plane wreck at Salmon Lagoon, using a scale drawing.²
Figure 45. Visualisation of the extant remains of the Mitsubishi plane wreck, using a 1/48 scale model. Extant remains marked in red (model assembly by Rudolf Spennemann, photography by Dirk HR Spennemann, 2009).

Figure 46. Visualisation of the extant remains of the Mitsubishi plane wreck, using a 1/48 scale model. Extant remains marked in red (model assembly by Rudolf Spennemann, photography by Dirk HR Spennemann, 2009).

Figure 47. Visualisation of the extant remains of the Mitsubishi plane wreck, using a 1/48 scale model. Extant remains marked in red (model assembly by Rudolf Spennemann, photography by Dirk HR Spennemann, 2009).
Figure 48. Visualisation of the extant remains of the Mitsubishi plane wreck, using a 1/48 scale model. Extant remains marked in red (model assembly by Rudolf Spennemann, photography by Dirk HR Spennemann, 2009).

Figure 49. Visualisation of the extant remains of the Mitsubishi plane wreck, using a 1/48 scale model. Extant remains marked in red (model assembly by Rudolf Spennemann, photography by Dirk HR Spennemann, 2009).

Figure 50. Visualisation of the extant remains of the Mitsubishi plane wreck, using a 1/48 scale model. Extant remains marked in red (model assembly by Rudolf Spennemann, photography by Dirk HR Spennemann, 2009).
Not much work has been carried out on the taphonomic processes that contribute to the site formation of aircraft wreck sites. Setting aside the damage caused by a possible crash, and damage caused by enemy action on a stationary (and possibly already wrecked) aircraft, the major processes to be considered are the natural environmental decay of the constituent materials, anthropogenic decay caused by souveniring of plane parts, and geomorphologic and similar processes.

The author has selective, but extensive experience in all three processes through the investigation of World War II sites in the tropical conditions, as well as through previous work on the conservation management of the Japanese guns on Kiska itself.

The setting of the aircraft sees the plane facing the lagoon, with the engine and part of the wind resting in the water, some 15 to 20m further to east. Unless the engine had been dismantled by Japanese or US forces, it can be surmised that the retaining bolts corroded and the engine fell of its mounting, facilitated by the differentially greater weight of the engine block. The wind section, which forms part of the top wing, broke off at one point and came to rest in the water. It is probable that the fuselage section was pushed by strong wave action toward the shore. At one point the central float would have broken up. The extant wreckage shows the central section of the solid strut for the float. Moreover, the center of gravity of the plane fuselage is forward. Thus the section where the wings are attached, would act as pivot, spinning the plane wreck like a wind vane and thus ensuring that the tail section would pint away from the direction of the waves.

![Figure 51. Environmental Change of Salmon Lagoon, 1943 at left, 1986 aerial image in center and 2001 satellite image at right]
US intelligence personnel examined the Mitsubishi wreckage in early October 1943, some six weeks after the US landings. As the report’s author noted:

“The situation, upon arrival of this offer, was very detrimental to the making of a complete and accurate report for intelligence purposes. Arriving on the scene after our troops had occupied the area meant that that souvenir hunters had an opportunity to do what they pleased. At no time was any attempt made to prevent the men from stripping aircraft equipment and no “Out of Bounds” notices of any kind were posted around these areas.”

The images available show the aircraft at the shore of Salmon Lagoon, resting on its side, with all four wings folded up.

Figure 52. The Mitsubishi F1M2 at Salmon Lagoon in October 1943. The aircraft rests on its starboard side, with both wings folded up.

Scan of a print of a (deteriorating) microfilm.

Figure 53. The Mitsubishi F1M2 at Salmon Lagoon in October 1943.

Scan of a print of a (deteriorating) microfilm.
Figure 54. The Mitsubishi F1M2 at Salmon Lagoon in October 1943. Scan of a print of a (deteriorating) microfilm.

Figure 55. The Mitsubishi F1M2 at Salmon Lagoon in October 1943. Scan of a print of a (deteriorating) microfilm.
Figure 56. The Mitsubishi F1M2 at Salmon Lagoon in October 1943.\textsuperscript{12} Scan of a print of a (deteriorating) microfilm.

Figure 57. The Mitsubishi F1M2 at Salmon Lagoon in October 1943.\textsuperscript{13} Scan of a print of a (deteriorating) microfilm.

Figure 58. The Mitsubishi F1M2 at Salmon Lagoon in October 1943.\textsuperscript{14} Scan of a print of a (deteriorating) microfilm.
Figure 59. The Mitsubishi F1M2 at Salmon Lagoon in October 1943.\textsuperscript{15}

Scan of a print of a (deteriorating) microfilm.

Figure 60. The Mitsubishi F1M2 at Salmon Lagoon in October 1943.\textsuperscript{16}

Scan of a print of a (deteriorating) microfilm.

Figure 61. The Mitsubishi F1M2 at Salmon Lagoon in October 1943.\textsuperscript{17}

Scan of a print of a (deteriorating) microfilm.
The state of preservation

Original and extant paint scheme

The aircraft has lost of its original paint coat. While the October 1943 imagery is very poor by virtue of it coming from a poor microfilm, differences in light reflection off the aircraft surfaces suggest that the plane was originally painted in the standard colour scheme with the upper surfaces of the wings and the sides of the plane painted in a dark green colour.

At present the plane is either bare of paint or shows traces of the red primer that characterises Japanese military aircraft.

Level or corrosion

Overall the aluminium sheeting of the plane exhibits strong evidence of corrosion. This extends both to the external surfaces that once had been primed and treated and to internal surfaces that were never meant to be exposed to the elements in an unprotected environment. The corrosion is particularly pronounced among the lower sections of the fuselage (Figure 9). It can be surmised that these sections are frequently inundated by salt water from Salmon Lagoon pushed there by wave action during high tides under strong westerly winds. The vegetation cover adds to the ongoing wetting of the plane surfaces. The intermittent soaking with saline water from the lagoon causes more decay than total immersion in salt water or exposure no no-saline moisture. The climatic conditions during spring and summer with the near constant fog and light drizzle imply that the salts remain in solution and are gradually diluted. Yet during winter conditions below the freezing point of non-saline water we can expect increasing concentration of salts in solution and possibly even the crystallisation of some salts. Such high salt concentrations are likely to accelerate corrosion.

Many of the frames and frame elements exhibit uniform corrosion and pitting (Figure 67, Figure 70), which in several instances has penetrated the component (Figure 64, Figure 67, Figure 68). Stress and crevice corrosion is evident in sections where the aluminium panelling has corroded at the rivet points and the frames (Figure 11, Figure 12). Much of the aircraft fuselage is structurally very weak.

In addition, the plane fuselage exhibits some traces of severe impact with an angular instrument (Figure 81). Other smaller holes could well have been caused by bullets when the plane was staffed on the ground (Figure 80).

Evidence for field modification

Both the port and the starboard side of the wreck at Salmon Lagoon show a small sheet of aluminium that has been riveted between frames 1 and 2. The sheet, which has angled edges toward the cockpit, is riveted on top of the normal aircraft skin (Figure 10, Figure 12). The number of rivets used and the fact that it overlaps the normal skin, suggests that this a general in-service or
even a squadron-based field modification, aimed at strengthening the interface between frames 1 and 2, possibly in response to the stresses exerted by the upper wing which is attached to that section of the plane (Figure 62). Close inspection of the port side (Figure 12) shows some traces of differential paint wear, suggesting that the plate may have been replaced at one point of time with a slightly smaller one. Most of the available published photographic evidence or other Mitsubishi F1M2 is not detailed enough to show whether such a modification was service-wide or whether it was modification undertaking by this squadron alone. We have in hand an illustration of a F1M2 of the 958th Kokutai that lacks the modification as does an F1M2 of the 19th Kokutai, and an F1M2 of an unidentified squadron. The modification is certainly absent among planes that were ready for delivery to front-line squadrons.
Figure 64. Pilot’s fire-wall, seen from the front.

Figure 65. Interior of the pilot’s cockpit, seen from port.
Figure 66. Interior of the front cockpit, seen from port. Detail.

Figure 67. Interior of the front cockpit, seen from port. Detail.
Figure 68. Interior of the front cockpit, seen from port. Detail.

Figure 69. Interior of the front cockpit, seen from port. Detail.
Figure 70. Interior of the front cockpit, seen from port. Detail.

Figure 71. Interior of the rear cockpit, seen from port. Detail.
Figure 72. Interior of the rear cockpit, seen from starboard. Detail.

Figure 73. Interior of the rear cockpit, seen from starboard. Detail.
Figure 74. Interior of the rear cockpit, seen from starboard. Detail.

Figure 75. Front of the cockpit, seen from starboard.
Figure 76. Front of the cockpit, seen from port.

Figure 77. Front of the cockpit, seen from front.
Figure 78. Starboard side of the cockpit of the plane and wing fragment as seen from the rear.

Figure 79. Starboard side of the cockpit of the plane as seen from the rear.

Figure 80. Starboard side of the cockpit of the plane as seen from the rear.

Figure 81. Starboard side of the cockpit of the plane as seen from the rear.
Figure 82. Interior of the cockpit of the plane as seen from the rear.

Figure 83. Interior of the cockpit of the plane as seen from the rear.

Figure 84. Interior of the cockpit of the plane as seen from the rear.

Figure 85. Interior of the cockpit of the plane as seen from the rear.
Figure 86. Starboard side of the cockpit of the plane as seen from the rear.

Figure 87. Starboard side of the cockpit of the plane as seen from the rear.

Notes to this Section


2. Source: Yusawa, Imperial Japanese Navy Reconnaissance Seaplane op. cit. , pp. 82.


Sources: 1943 image: Photo taken 16 March 1943; US NARA RG 80-CF-7825-69034F Image by Y4-105.3 11th AAF.—1986 air photo by US Army Corps of Engineers, copy held by NPS Anchorage, Kiska NHL files.

George W. Huff (Crash Intelligence Officer), Information on Japanese Aircraft, Kiska Island. Crash Intelligence Section, Office of Assistant Chief of Staff, Field Headquarters, Eleventh Air Force. APO 980.

Obtained from a deteriorated microfilm kept at the National Air And Space Museum, Washington DC. It appears that the original copy has been lost or destroyed.

Huff, Information on Japanese Aircraft, Kiska Island op. cit.


Yusawa, Imperial Japanese Navy Reconnaissance Seaplane op cit. p. 61.

Yusawa, Imperial Japanese Navy Reconnaissance Seaplane op cit. p. 58.

Base drawing: Yusawa, Imperial Japanese Navy Reconnaissance Seaplane op. cit
A number of management issues can be considered.

**Significance**

While a number of Japanese Navy planes have survived the war and are in museum collections world-wide,¹ with the Mitsubishi A6M ‘Zero’ being the most common, floatplanes are comparatively rare. Known to exist are (parts of) two Aichi E13A1² and three N1K1.³ At the time writing no surviving Mitsubishi F1M2 ‘Pete’ is known in museum collections. A fair number, however, can be found in submerged locations throughout the Pacific Theatre of War:

- Kwajalein Lagoon, Marshall Islands (Figure 88)⁴
- Shortland Islands, Solomon Islands (Fig.⁵
- Kavieng, New Ireland, Papua New Guinea (3 wrecks) (Figure 89)⁶
- Rabaul, New Britain, Papua New Guinea (Figure 90)⁷
- Stirling Island, Bougainville, Papua New Guinea (Figure 91)⁸

Additional aircraft were reported from the Shortland Islands, Solomon Islands, but they seem to have been removed illegally in the recent past.

As such, then, the remains of the aircraft on Kiska is one of the view in situ and on resting on land. Furthermore, given its probable association with the Kiska Blitz (p. 26), and given the fact that the Japanese aircraft wrecks at the seaplane base at Kiska Harbor have been removed by US forces when they erected the US facilities there, the Mitsubishi F1M2 at Salmon Lagoon seems to be the only Japanese aircraft left in situ on Kiska. Thus it can be attributed a high level of cultural significance, even though its general integrity is quite low, and even though its prospects of prolonged survival are very small.
Figure 88. Mitsubishi F1M2 ‘Pete’ in 40m depth at Kwajalein Lagoon, Marshall Islands

Figure 89. Mitsubishi F1M2 ‘Pete’ in 40m of water near Kavieng Harbor
Suggested Management

Prospects

The overall level of decay is such that the aircraft fuselage has lost most of its integrity and its chance of survival, even in the medium-term (10yrs) is low. The extant remains are so corroded that any preservation in situ is impossible. While it might be possible to move the remains off island and place them in a
protected environment, the cost of removal would be high. Moreover, much of the aluminium is already so thin, that successful corrosion removal is unlikely and that any stabilization will only be a measure that will buy a limited amount of time. Thus, interventive conservation action does not appear practical.

**Threats**

At present, the remains of the aircraft wreck are comprised of a highly oxidised shell of the fuselage. While at the time of the US intelligence assessment of the plane in October 1943 the internal section of the plane still exhibited a number of elements, such as a seat (Figure 57) and the canopy (Figure 58), it was already stripped of its instruments (Figure 58), either by the Japanese for spare parts or by US or Canadian servicemen looking for souvenirs.

The author has carried out a review of the trade in and demand for Japanese aircraft memorabilia, which showed that the sought after elements were instruments and especially aircraft tags and sections of aircraft skin with identification numbers. None of this is still extant in the fuselage section of the Mitsubishi F1M2 examined here. While it is possible that some stamped numbers may be present on the manifold sections still attached to the engine resting in the water, these are not of high collector’s value. Overall, it is the opinion of the author, that the plane wreck in its current state of preservation, holds very little value to the serious collector and as such is not at major risk. This is not to say, however, that an unscrupulous individual might not cut off a small section of skin as a personal memento, no matter how meaningless this may be from a collector’s or historic perspective.

Overall, the threat to the aircraft is low, given its negligible value to the collector and its location away from the main visitation area. Thus there is little to be gained in keeping the location of the aircraft secret or restricted. Rather, given its likely association with the Kiska Blitz, it would be advantageous to interpret it through a web display or interpretation leaflet of some sort.

**Future action**

Given the short time span spent at the site in 2009, it would be desirable to undertake a thorough examination of the aircraft, free it of all vegetation and excavate any buried elements. In addition, the ground should be searched carefully for other aircraft parts and the parts resting in shallow water should be examined and documented.

**Notes to this Section**

2. JASDF Gifu and at the Kaseda Peace Memorial, Kagoshima-pref.
3. NSAM, Nimitz Museum and NAS Willow Grove. See also: Yuzawa, Kawanishi Kyofu, Shiden, Shidenkai op. cit.


8. Via Bob Alford, Lampong, Thailand


10. Scuba Ventures Kavieng.


13. Although not as high as the costs for the guns. See Spennemann, The Present and Future Management of the Japanese Guns on Kiska, op. cit.