

# **Radioactive Tuna: The Hidden Bikini Bombings**

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Hist 1602 Environmental History

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In 1954, a shocking discovery was made in a California cannery, revealing radioactive contamination in a tuna shipped from Japan. The radiation could have stemmed from many reasons and by exploring the historical context of this primary source, and the global events occurring at the time, we can draw conclusions as to how this tuna originated. A particular event of interest being the United States Castle Series bomb tests of 1954, particularly the Castle Bravo detonation. This essay will examine the Castle series tests, their environmental consequences, and the migratory patterns of Pacific Bluefin Tuna, to demonstrate how these detonations may have resulted in the contamination of marine life.

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Authority EAO 052.10

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DEPARTMENT OF STATE  
Memorandum of Conversation

DATE: July 6, 1954

SUBJECT: Radioactive Tuna

PARTICIPANTS: Mr. Cribbitt, Food and Drug Administration  
Mr. Loomer, U/P

COPIES TO: S/AR - Mr. Spiegel  
RA - Mr. Finn  
U/P - Mr. Harrington

Mr. Cribbitt informed us that a radioactive tuna had been discovered earlier today in a California cannery by the cannery's own monitoring group. This is the third contaminated tuna found among Japanese tuna exports to the United States since the bomb tests of March. The fish, a thirty-five pound albacore, recently arrived from Yokohama on the Asama Maru. It was part of a lot of 1,400 fish, designated "White Fuji"; it had been taken from cold storage in Japan on May 20. Contamination was largely in the skull and bones, as in the case of the earlier two specimens, indicating contamination through ingestion. Radioactivity was from .4 to .8 milli-roentgens.

I indicated to Mr. Cribbitt that the Department would watch developments but would not at this time inform Embassy Tokyo.

U/P W. Loomer:jed  
7/7/54

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Director, State Dept.  
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Figure 1

In the given primary source, in Figure 1, we find a letter from a W. Flooney to the US Food and Drug Administration, with copies being sent to several associates. The source details that a California cannery discovered a radioactive tuna coming from Yokohoma, Japan on the Asama Maru fishing liner. The fish contained 0.5-0.8 milli-roentgens of radioactivity in it's skull and bones, due to ingestion. The fish was taken from cold storage on May 20<sup>th</sup>, 1954, and the source specifies "This is the third contaminated tuna found among Japanese tuna exports to the

United States since the bomb tests of March.”. The letter also specifies that the Tokyo Embassy will not be informed of the situation, but continuous monitoring will take place.

During this time, the United States Military undertook 67 nuclear tests between 1946 and 1958.<sup>1</sup> One of the test series at this time was the Castle series, which was a 6-phase detonation test sequence starting in the Spring of 1954. This series was meant to experiment with large-yield thermonuclear hydrogen devices,<sup>2</sup> as well as test lithium deuteride as thermonuclear fusion fuel in hydrogen bombs.<sup>3</sup> Within this series, the six bombs BRAVO, ROMEO, KOON, UNION, YANKEE and NECTAR, detonated in this order.<sup>4</sup> To test the power and efficiency of these devices, several empty military ships and submarines were placed in the lagoons and archipelago area known as the Marshall Islands.<sup>5</sup> The Marshall Islands consist of two chains of 29 low-lying coral atolls situated north of the equator between Hawaii and Australia.<sup>6</sup> Within the Marshall Islands, Bikini Atoll was selected as the main island for detonation.

Three days before Castle Bravo was set off, the winds were predicted to be favorable, and no nearby inhabitants were moved other than the immediate locals on Bikini Atoll. This changed six hours before the detonation, the winds shifted, meaning the fallout would be carried to populated islands nearby and into the surrounding ocean. Despite the risk, the US army continued with their tests.<sup>7</sup> Castle Bravo was detonated on March 1<sup>st</sup>, 1954, with Romeo following shortly after on March 27<sup>th</sup>, 1954. Castle Bravo was the first deliverable hydrogen

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<sup>1</sup> April L Brown, "LOOKING BACK: No Promised Land: The Shared Legacy of the Castle Bravo Nuclear Test", *Arms Control Today* 44, no. 2 (2014): 40.

<sup>2</sup> United States Defence Nuclear Agency, *CASTLE series, 1954*, (Washington DC, 1982) 17.

<sup>3</sup> April L Brown, "Looking Back", 40.

<sup>4</sup> Nuclear Agency, *CASTLE series, 1954*, 17.

<sup>5</sup> Nuclear Agency, *CASTLE series, 1954*, 18.

<sup>6</sup> April L Brown, "Looking Back", 40.

<sup>7</sup> April L Brown, "Looking Back", 41.

bomb, and the second largest bomb ever detonated in history. It decimated 3 of Bikini Atoll's islands and left a crater 2 kilometers wide and 80 meters deep.<sup>8</sup> Castle Bravo was 1000 times more powerful than the force of the Hiroshima and Nagasaki bombs.<sup>9</sup> The mushroom cloud resulting from Castle Bravo was 130,000 feet high and spread 25 miles in diameter in less than 10 minutes.<sup>10</sup> Local inhabitants on nearby Atolls witnessed the fallout and quickly fell ill from radiation poisoning. The fallout of Castle Bravo affected 64 people on Rongerlap Atoll, 18 people on Ailinginae Atoll and 23 members of a nearby Japanese fishing boat, as well as affect the surrounding ocean and marine life.<sup>11</sup>

Hydrogen Bombs when tested on small islands in the ocean vaporize the land and produce radionuclides that settle in the ocean sediment.<sup>12</sup> Contamination levels from lingering radioactive isotopes and radionuclides will last for centuries, forever affecting the aquatic environment of the Bikini Atoll lagoons and surrounding areas.<sup>13</sup>

On June 9, 1954, the American Energy Commission (AEC), downplayed the impact of their nuclear testing to the UN and claimed that no long-term side effects would be felt by locals, and that they would be able to return to their homes in six months time. In actuality, the locals were exposed to nearly lethal amounts of radiation, equaling to about 60-300 rem.<sup>14</sup> As well, to

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<sup>8</sup> Steve Brown, "Archaeology of brutal encounter: heritage and bomb testing on Bikini Atoll, Republic of the Marshall Islands", *Archaeology in Oceania* 48, no 1 (2013): 27.

<sup>9</sup> April L Brown, "Looking Back", 41.

<sup>10</sup> April L Brown, "Looking Back", 41.

<sup>11</sup> Steve Brown, "Archaeology...", 28.

<sup>12</sup> Emelyn W Hughes, Monica Royuco Molina, Maveric K I L Abella, Ivana Nikolic-Hughes and Malvin A Ruderman, "Radiation Maps of Ocean Sediment from the Castle Bravo Crater.", *Proceedings of the National Academy of Sciences of the United States of America* 116 no. 31 (2019): 15420.

<sup>13</sup> Emelyn W Hughes, et al., "Radiation Maps...", 15420.

<sup>14</sup> April L Brown, "Looking Back", 42.

this day Bikinian locals suffer from chronic illness, displacement issues, and culture loss because of the nuclear tests.<sup>15</sup>

The Castle series tests are connected to the radioactive tuna found in California due to the migration patterns of Pacific Bluefin Tuna. Large groups of maturing, juvenile and post spawner tuna often journey across the Pacific Ocean, suggesting they may have passed through the radiation zone during the Castle Series detonations.<sup>16</sup> As seen in Figures 1 and 2 below, the migration routes of Pacific Bluefin Tuna cross through and around the Marshall Islands, indicating that they could have picked up radiation from the explosion and brought it back to Japan.<sup>17</sup> Castle Bravo was detonated March 1<sup>st</sup>, 1954, followed by Castle Romeo on March 27<sup>th</sup> 1954. The timing of these tests aligns with the events described in the primary source, suggesting that these detonations were likely responsible for the radioactive tuna.<sup>18</sup> Further investigation by divers and researchers revealed that the highest levels of radiation were concentrated within the Castle Bravo crater, strongly pointing to it's significant contribution to the radioactive contamination in the tuna.<sup>19</sup>

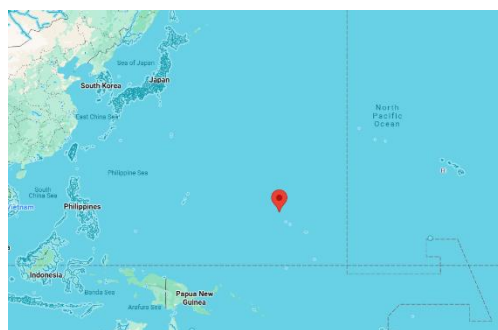


Figure 2

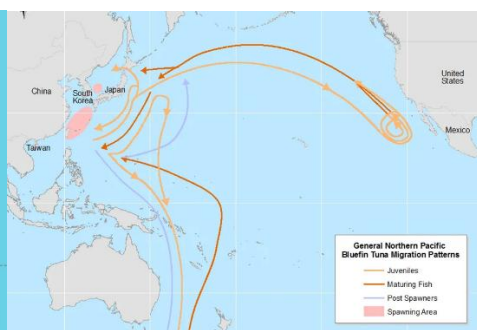


Figure 3

<sup>15</sup> April L Brown, "Looking Back", 42.

<sup>16</sup> "Pacific Bluefin Tuna Migration", Smithsonian National Museum of Natural History, accessed November 19, 2024.

<sup>17</sup> "Pacific Bluefin Tuna Migration", Smithsonian National Museum of Natural History, accessed November 19, 2024.

<sup>18</sup> Emelyn W Hughes, et al., "Radiation Maps...", 15421.

<sup>19</sup> Emelyn W Hughes, et al., "Radiation Maps...", 15422.

While the evidence strongly suggests a link between the Castle Bravo detonation and the radioactive tuna, alternative explanations must also be considered. Such as, the contaminated fish found in California may not be the same ones that passed through the contaminated waters of the Marshall Islands. Another possibility is that the affected tuna fed on smaller, already-contaminated fish, which introduced the radiation into their system. Additionally, the radioactive contaminations could have stemmed from another source, such as fallout from other nuclear tests, as the US was not the only country experimenting with nuclear technology.<sup>20</sup> These factors all highlight the complexity of tracing radioactive contamination and the difficulty of drawing definitive conclusions about this primary source.

In closing, there is sufficient evidence to suggest that the Castle series bomb testing, specifically bombs BRAVO and ROMEO, may have resulted in the radioactive tuna found in California. The matching timelines of the events, the fact that the letter indicates bomb testing and the overlapping migration patterns of Pacific Bluefin tuna, all point towards the Castle series bomb tests. The Castle series testing highlights the profound and far-reaching consequences of nuclear weapons and the devastating effects it has on wildlife. The radioactive tuna demonstrates the relationship between human activity and the environment, highlighting the need for caution in military advancements and the need for transparency between people and the government.

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<sup>20</sup> April L Brown, "Looking Back", 43.

## Bibliography

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## Photo Sources

Figure 1: Primary Source given by Dr Glenn Icton

Figure 2: “Bikini Atoll”, Google Maps, accessed November 20, 2024 at

[https://www.google.com/maps?sca\\_esv=41abccaec8fca31d&output=search&q=bikini+atoll&source=lnms&fbs=AEQNm0BVRSMFkTbieTChvBxNZ3EeEOgPHld7HgA-CGensvXpVupvYNYQWdDHh-tdpz7kAVjL1ehwRa\\_hV\\_lgOMc64eC9M14WZ4ueeJUWaV-gpB2H2ILVdH52kqcXwX1oxANsbXHcHROeaCEo2yPekQ-wOhxOb6J2h4m1l69DUuoq-Uh-zZB9CfzpuCMcnrUXeiwhnZTiFlX1sIwfaZSjF0s3gprTymO2Fw&entry=mc&ved=1t:200715&ictx=111](https://www.google.com/maps?sca_esv=41abccaec8fca31d&output=search&q=bikini+atoll&source=lnms&fbs=AEQNm0BVRSMFkTbieTChvBxNZ3EeEOgPHld7HgA-CGensvXpVupvYNYQWdDHh-tdpz7kAVjL1ehwRa_hV_lgOMc64eC9M14WZ4ueeJUWaV-gpB2H2ILVdH52kqcXwX1oxANsbXHcHROeaCEo2yPekQ-wOhxOb6J2h4m1l69DUuoq-Uh-zZB9CfzpuCMcnrUXeiwhnZTiFlX1sIwfaZSjF0s3gprTymO2Fw&entry=mc&ved=1t:200715&ictx=111)

Figure 3: "Pacific Bluefin Tuna Migration", Smithsonian National Museum of Natural History, accessed November 19, 2024 at <https://ocean.si.edu/ocean-life/fish/pacific-bluefin-tuna-migration>