

William Francis Thompson (1888–1965): a Preeminent Fishery Biologist of the Early and Mid Twentieth Century

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William Francis Thompson (Fig. 1) was a major figure in fisheries research on the west coast of the United States in the early and mid 20th century. He came to prominence in an era of increased awareness in the United States

of the need for conservation of wildlife (Trefethen, 1975), and for over 50 years he was a major contributor to fishery science and management as well as to fishery education. During this period Thompson was arguably the most widely known fishery scientist in North America (Anonymous, 1970; Stickney, 1989).

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Born in St. Cloud, Minnesota, in 1888, Will Thompson moved west with his family to Everett, Wash., in 1903. He demonstrated an early interest in the study of natural history and majored in zoology at the University of Washington, Seattle, from 1906 to 1909. David Starr Jordan (1851–1931)¹, President of Leland Stanford Jr. University in Palo Alto, Calif., learned of Thompson's drive and dedication. Jordan offered Thompson a scholarship, and in 1909 Thompson transferred from the University of Washington to Stanford University where he became a research assistant to Jordan. Thompson graduated with a B.A. degree in zoology in 1911² and published ten papers on the taxonomy of marine fishes during 1910–14, mainly as junior author with Jordan (Dunn, 2001a).

Pursuing graduate work at Stanford University in the fall of 1911, Thomp-

ABSTRACT—William Francis Thompson (1888–1965) was a preeminent fishery scientist of the early to mid twentieth century. Educated at Stanford University in California (B.A. 1911, Ph.D. 1930), Thompson conducted pioneering research on the Pacific halibut, *Hippoglossus stenolepis*, from 1914 to 1917 for the British Columbia Provincial Fisheries Department. He then directed marine fisheries research for the State of California from 1917 to 1924, was Director of Investigations for the International Fisheries Commission from 1924 to 1939, and Director of the International Pacific Salmon Fisheries Commission from 1937 to 1942. He was also Director of the School of Fisheries, University of Washington, Seattle, from 1930 to 1947. Thompson was the founding director in 1947 of the Fisheries Research Institute at the University of Washington and served in that capacity until his retirement in 1958. He was a dominant figure in fisheries research of the Pacific Northwest and influenced a succession of fishery scientists with his yield-based analysis of fishery stocks, as opposed to studying the fishes' environment. Will Thompson was also a major figure in education, and many of his former students attained leadership positions in fisheries research and administration.

¹ Jordan was the preeminent ichthyologist of North America and supervised the work of many students who subsequently became leaders in ichthyology and fishery science. His autobiography (Jordan, 1922) provides a treasure of information on the history of ichthyology and early fishery science. Additional information on the history of ichthyology is given by Pietsch and Anderson (1997).

² Thompson received his Ph.D. degree in 1930 from Stanford University (Anonymous, 1931). Additional information concerning ichthyology and fishery science at that institution is given by Brittan (1997).



Figure 1.—William F. Thompson at Stanford University, May 1913. Source: Photograph No. 444 from the William F. Thompson papers, Archives, School of Aquatic and Fishery Sciences, University of Washington, Seattle.

son came under the influence of Charles Henry Gilbert (1859–1928), a zoology professor and eminent early fishery biologist.³ Gilbert thought highly of Thompson and arranged jobs for him during the summers between university semesters, first with the California Fish and Game Commission (1911) and then with the British Columbia Provincial Fisheries Department of Canada (1912–13). These assignments entailed surveys of shellfish resources (Dunn, 2001a).

Excelling in these studies, Thompson was then entrusted by the Provincial Fisheries Department to undertake a comprehensive, full-time investigation of the Pacific halibut, *Hippoglossus stenolepis*, in British Columbia. Thompson conducted an intensive study of this species from 1914 to 1917 and published the results in seven landmark papers (Dunn, 2001a).

In 1917 research on the halibut began to wind down as concern intensified in Canada over the ravages of World War I. Thompson was then hired by the California Fish and Game Commission to investigate that state's marine fisheries. While there, he helped found, and direct, the Commission's first marine fisheries research laboratory. Thompson focused his investigations initially on the albacore tuna, *Thunnus alalunga*, and then on the Pacific sardine, *Sardinops sagax*, as the commercial harvest of this latter species began to increase (Dunn, 2001b).⁴

The International Fisheries Commission (now the International Pacific Halibut Commission) was established in 1923 by treaty between the United States and Canada to investigate and regulate the fishery for Pacific halibut.⁵ Thompson, the logical choice, was appointed Director of Investigations for the newly formed Commission, left California, and began his work for the

Commission in Seattle in 1925. Expanding his earlier Pacific halibut studies, he engaged a small staff of scientists that undertook the applied research necessary for the scientific management of the halibut fishery. Thompson remained as Director of Investigations for the Commission until 1939. During his tenure halibut abundance increased, as did the commercial harvest. The halibut fishery ultimately was considered a model of a well-managed fishery.^{6,7}

Thompson was appointed Director of the School of Fisheries (now the School of Aquatic and Fishery Sciences), University of Washington, in 1930. This appointment was initially a part-time position in addition to his duties at the International Fisheries Commission (Stickney, 1989).

The International Pacific Salmon Fisheries Commission was established in 1937 to restore the sockeye salmon, *Oncorhynchus nerka*, runs of the Fraser River, British Columbia (Roos [1991]). Thompson, by then recognized as one of the premier fishery scientists of the era, was chosen to be the director of this newly formed organization (Roos

[1991]). He initially retained his other positions as Director of the "Halibut Commission" and of the U.W. School of Fisheries, thus holding three jobs simultaneously!⁸ Thompson followed his previous approach to fisheries research by building a small but talented staff of scientists and broadly attacking a wide range of research projects pertinent to the current fisheries problems. He directed the research that resulted in the construction of fish ladders at Hell's Gate on the Fraser River. These ladders were built to enable salmon to bypass migration obstructions caused by certain high water-level conditions.⁹ Thompson and the Commission were generally credited with restoring the abundance of salmon in the Fraser River.^{10, 11} He resigned from the "Salmon Commission" in 1942 and returned to the University of Washington as the full-time Director of the School of Fisheries.

Thompson was the Director of the School of Fisheries for over 17 years (1930–1947). During his tenure, the school developed into a preeminent facility to train fishery scientists, and it graduated many individuals who subsequently became prominent fishery scientists and leaders in fisheries research and administration (Stickney, 1989).¹²

After the close of World War II, the salmon packers of Bristol Bay, Alaska,

⁶ Several authors have given plaudits to the management of the Pacific halibut and, either directly or by implication, to Thompson's role in this effort. Bevan (1965) wrote: "The work of the Pacific Halibut Fisheries Commission provides an outstanding example of successful regulation by means of a quota. The commission's regulation has resulted in virtually full rebuilding of halibut stocks of the North Pacific." Crutchfield (1965) commented: "The halibut programme has been a conspicuous success—from a biological standpoint." Parsons (1993) noted: "W. F. Thompson, the first director of the Halibut Commission, identified a relationship between catcher-unit-of-effort and the amount of fishing effort (Thompson and Bell, 1934). This led him to suggest that some restrictions of fishing effort would improve the state of the halibut stocks. Some management measures were taken by the Halibut Commission and the halibut stocks increased in abundance. There was later controversy about the extent to which this was due to the appearance of a strong year-class at the same time the measures were introduced." Scheiber (1994) wrote that "...which — on the basis of Thompson's investigations of the causes of halibut depletion — instituted a halibut fishing regime that was widely regarded as being responsible for engineering the recovery to commercially viable levels of a fishery that had nearly died out from uncontrolled over-harvesting on a virtually slash-and-burn basis."

⁷ Other possible interpretations of the causes of the recovery of halibut stocks, other than management actions, are reviewed by Skud (1975) and Smith (1994).

⁸ Thompson resigned as Director of the International Fisheries Commission in 1939.

⁹ Further information on the International Pacific Salmon Fisheries Commission is given by Roos [1991] and Gilbert (1988).

¹⁰ Van Cleve (1966) wrote about Thompson: "He inaugurated an intensive investigation of the effect of the varying water levels at Hell's Gate in the Fraser River Canyon, and found that the block to migrating sockeye, created by a land slide in 1912, was still effective at certain river levels. This study resulted in the construction of the Hell's Gate fishways which, with subsequent additions to provide passage at higher and lower water levels, made possible the restoration of the sockeye salmon runs in the upper Fraser River." Roos [1991] wrote the following about Thompson: "His findings with regard to Hells Gate published as the first Commission Bulletin set the course for the Commission's restoration of Fraser River sockeye and pink [*O. gorbuscha*] salmon stocks."

¹¹ Evenden (2000) described Thompson's role in building the Hell's Gate fishways and the attendant controversy about their need.

¹² A brief history of the School of Fisheries compiled by the author is available on the website of the School of Aquatic and Fishery Sciences [<http://www.fish.washington.edu/history/>].

³ Gilbert subsequently became famous for his pioneering studies of the life history of Pacific salmon. More information on Gilbert is given by Dunn (1997).

⁴ Smith (1994) described some of Thompson's scientific contributions made in California.

⁵ Information on the background and origins of the International Pacific Halibut Commission is given in Anonymous (1978) and at the Commission's web site: <http://www.iphc.washington.edu/halcom/default.htm>. Further information about the Commission is contained in Bell (1981), and Gilbert (1988).

became concerned about the declining abundance of salmon in Alaska. In 1945 they asked Thompson to undertake a preliminary study of the situation and to make recommendations for action. Thompson visited Bristol Bay, reviewed much of the available data on the salmon fisheries of the region, and wrote a report to the packers.¹³ He called for long-term studies of the runs to various watersheds of Bristol Bay and noted that such investigations were then lacking. The salmon packers funded an expanded investigation by Thompson in 1946 and 1947. The salmon cannery of southeastern Alaska soon thereafter asked that Thompson also undertake scientific investigations in that region (Stickney, 1989).

Realizing that a comprehensive investigation of salmon in Alaska would ultimately require a relatively large organization, Thompson organized the Fisheries Research Institute at the University of Washington. The university's Board of Regents approved the institute in 1947 and placed it administratively in the Graduate School and therefore distinct from the School of Fisheries. Thompson resigned the directorship of the School of Fisheries in 1947 and was named Research Professor and Director of the new institute (Stickney, 1989).

Over the years The Fisheries Research Institute undertook detailed studies of Pacific salmon in various areas of southeastern, central, and western Alaska. In the early years, this research was funded mainly by the Alaska salmon industry. Later, the Federal Government provided major support for these studies. The institute, well known for the high quality of its research (Stickney, 1989)¹⁴, made major contributions over a 50-year period to knowledge of Pacific salmon biology. During the early part of this era, Thompson became the "expert" on salmon of Alaska and the Pacific Northwest, and he was involved in most aspects of salmon research (Fig. 2). Thompson maintained close relations with the Alaska salmon



Figure 2.—William F. Thompson, ca. 1951. Courtesy, Archives of the University of Washington Libraries, Seattle. William F. Thompson papers, Accession Number 2597-77-1, Folder 39.

industry that, in turn, respected and trusted him. He generally received broad support from industry and government for his research.

Thompson retired from the directorship of the Fisheries Research Institute in 1958 at the age of 70. He remained active as a consultant to various fishery agencies, including the Bureau of Commercial Fisheries (now the National Marine Fisheries Service), the International North Pacific Fisheries Commission, and the U.S. Army Corps of Engineers. Thompson also remained close to the salmon fishing industry as an advisor. Many scientists and administrators held him in high esteem and welcomed his honest and forthright comments and criticism.

Will Thompson died on 7 November 1965 (Van Cleve, 1966). He left a legacy as a preeminent fishery scientist of his

era. He influenced a myriad of fishery scientists by studying the characteristics of the fisheries, rather than the environment, to develop management strategies (Kendall and Duker, 1998). Thompson's work with the halibut and salmon of the Pacific Northwest and Alaska became classic, but at times controversial, studies of commercial fisheries (Fig. 3).¹⁵ He published about 150 scientific papers and was known for his original studies of population dynamics of commercial fishes.

Under Thompson's leadership, the School of Fisheries at the University of Washington became world-renowned. He was the doctoral advisor for many of the principal scientists who carried out

¹³ Stickney (1989) discussed Thompson's initial report to the salmon industry.

¹⁴ A history of the Fisheries Research Institute is on the School of Aquatic and Fishery Sciences web site at [<http://www.fish.washington.edu/research/alaska/history.html>].

¹⁵ Additional information on Thompson's impact on fishery science is given by Smith (1994) and Kendall and Duker (1998).

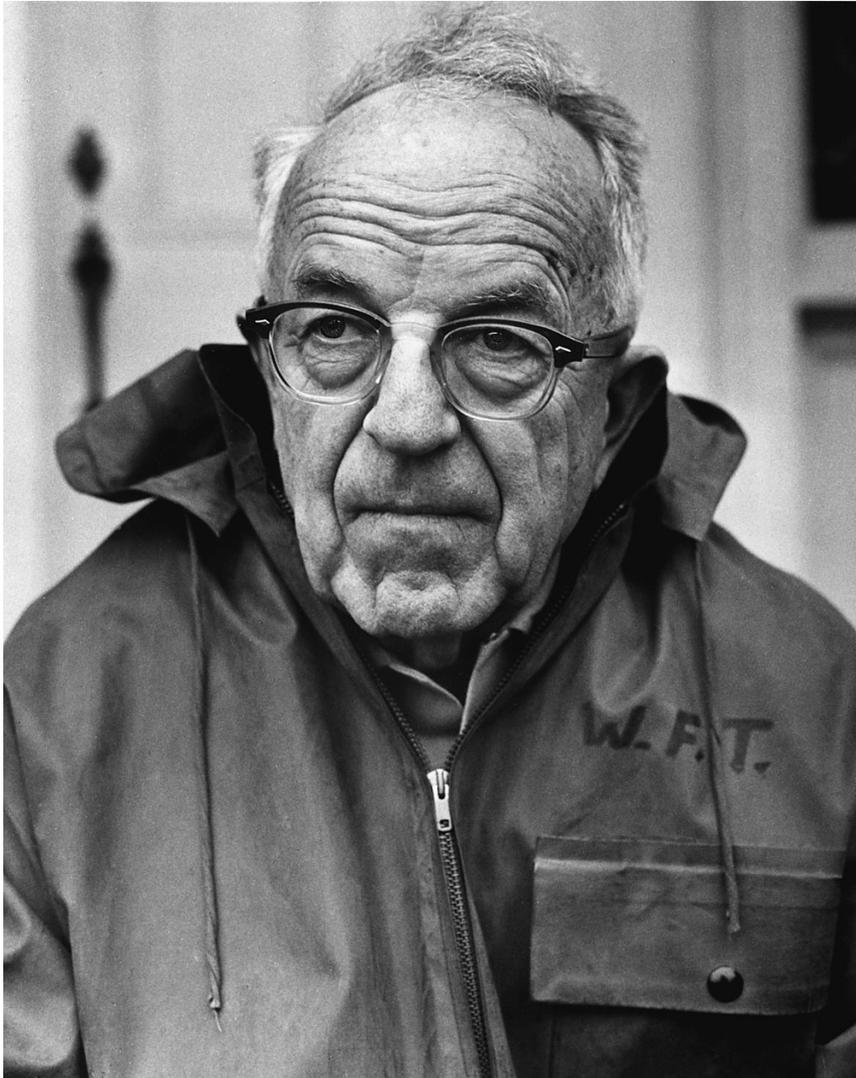


Figure 3.—William F. Thompson, 1964. Photograph by Josef Scaylea, Seattle. Courtesy, Josef Scaylea, The Seattle Gallery, and the Archives, School of Aquatic and Fishery Sciences, University of Washington, Seattle.

fishery work on the Pacific coast after World War II. He was also the major fishery researcher on the West Coast during the interlude between the two World Wars (Scheiber, 1994). Thompson was known as a highly focused individual and an intense worker who, at times, was possessed of a difficult personality (Stickney, 1989).

Always possessing a high concern for ethics, Thompson helped found the American Institute of Fishery Research Biologists in 1956 to insure high standards in the profession. Thompson's

pioneering accomplishments remain in high esteem today.

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