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STRATEGIC PLANNING FOR HAWAII'S AKU INDUSTRY

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INTRODUCTION

The aku (skipjack tuna) industry of Hawaii was once the leading supplier of seafood in the State. Aku, primarily as sashimi (raw, thin-sliced fish) set the price standard for the fresh fish market. Aku caught by the local fleet supplied about 20% of the local cannery's pack and was sold under a special label. By 1986 landings had plummeted, the fleet had fallen to as few as nine active vessels, the cannery had closed, and everyone was aware that the industry was in severe trouble.

A workshop on the status of the aku industry was held in Honolulu on April 30 and May 1, 1986 at which time the biological and economic causes and implications of the problems in the aku industry were explored. The conclusion of the scientists was that skipjack tuna were still plentiful, oceanwide, although they might be less available to nearshore harvesting in Hawaii than at previous times. Economic problems in marketing were identified as important in reducing revenue to the aku fleet and this reduced the investment required to maintain the current fleet and construct new vessels. A summary of the workshop is appended to this report, and complete proceedings of the workshop will be published shortly as a NOAA Technical Memorandum.

The Southwest Fisheries Center Honolulu Laboratory of the National Marine Fisheries Service (NMFS) then organized a strategic planning meeting to assist the local skipjack tuna industry in identifying directions for rejuvenating the fishery. The planning meetings were held on June 27-28 and on October 9, 1986. This report summarizes the outcome of those planning meetings.

REPRESENTATION

The Honolulu Laboratory invited 14 people from the Hawaii tuna industry and State of Hawaii agencies, including the University of Hawaii, to participate in the planning sessions. Twelve people attended at least one of the sessions (Table 1). These people constitute the **Planning Group.** There were also a number of technical observers. The sessions were led by the Southwest Fisheries Center staff.

Representation at the planning sessions was designed to provide a cross section of industry and government leadership. As such, the Planning Group did not strictly represent the aku industry and thus could not be said to speak for the industry. It could be said that the Planning Group was representative of the **community** of stakeholders in the aku fishery.

PLANNING PROCESS

The Southwest Fisheries Center uses a planning process called "interactive management" emphasizing structured interactions with the participants. For the aku industry planning session these techniques involved brainstorming, structured discussion, and voting. The sessions

were led by a trained "facilitator," knowledgeable of these planning techniques, who conducted the meeting. The reason for using these techniques is to emphasize direct communication within the Planning Group and to involve all participants in the planning process, instead of the usual top-down or "most verbal" discussant means of planning.

Agendas for the planning process, starting in June and ending in October 1986, were as follows:

Friday, June 27

Morning session

Description of planning process

Review of Aku Workshop

Goals and Objectives for Hawaii's Aku Fishery Community

Nominal Group Technique (structured brainstorming and discussion to define goals)

Afternoon session

Goals and Objectives for Hawaii's Aku Fishery Community

Interactive Structural Management (computer assisted linking of priority goals to produce flow chart)

Saturday, June 28

Morning session

Activities and Initiatives for Hawaii's Aku Fishery Community

Brainstorming session to define activities.

Tuesday, July 22

NMFS Staff Contribution:

Completion of Goals flow chart and organization of Activities into an "Options Field."

Thursday, October 9

Review of Goals and Objectives Flow Charts

Presentation of Activities Options Field

Presentation of possible Honolulu Laboratory Research activities

Ranking of Activities

Decision on Next Steps
(Nominal Group Technique process)

RESULTS OF THE PLANNING SESSIONS

June 27-28 Planning Session

Dave Mackett, facilitator for the planning process, introduced the session by identifying four tasks for the **Planning Group:**

1. To define the desirable goals and objectives the fishery community through 1991;

2. To determine the relationships among the desirable goals and objectives;

3. To explore the activities and initiatives required to meet these goals and objectives by 1991; and,

4. To explore where the group wants to go from here in planning for the future of the aku fishery community.

Mackett suggested the term "aku fishery community" be used to reflect the number of "stakeholders" in the aku fishery besides the catching, processing, and marketing industry. In particular, the **Planning Group** felt they needed to take into consideration the interests of government and the seafood consuming public in the future of the aku industry. Goals, objectives, activities, and initiatives specific to the aku **industry** would have to be determined by the industry itself. The NMFS was willing to assist industry planning, but the role of the **Planning Group** was to provide the **content** of a proposed plan for the entire aku fishery community.

The Planning Group then began to consider what **Goals and Objectives** were relevant to the aku fishery community. A five-step process was employed.

1. Introduction and clarification of the following "trigger question" by the Planning Group:

   What are the desirable goals and objectives in planning the future of Hawaii's aku fishery community through 1991?

2. Silent generation of ideas by the Planning Group based on the "trigger question."

3. Round robin recording of these ideas.

4. Clarification and discussion by the Planning Group of these ideas.

5. Voting by the Planning Group on the "most important" ideas.

The Planning Group identified 50 Goals and Objectives for Hawaii's aku fishery community and ranked 22 of them by voting. These are listed in Table 2.

Dave Mackett then introduced the **interactive structural management** technique for linking together these goals into a flow chart. Essentially, the Planning Group was asked to consider pairs of the 22 ranked Goals and Objectives using the following question:

Does Goal A **significantly support** the accomplishment of Goal B?

The pairs were generated by a computer program which checks for existing links between different pairs of goals, as revealed by previous responses by the Planning Group participants, and reduces the number of potential pairs to be considered.

The result of this structuring exercise is shown in Figure 1 (as slightly revised the following day by the group). The logic of the Goals and Objectives flow chart can be shown by considering two parts of the figure.

First, accomplishing the goal of "To Provide for Gathering and Enforcing of Catch Data" (item No. 5) was considered by the group to **significantly support** the accomplishment of the goal "To Regulate Recreational and Commercial Fish Marketing" (item No. 22) when the two items were asked as a pair. The group did **not** think that item No. 22 **significantly supported** item No. 5. Logically, since the group also said that item No. 15 supported item No. 5, then there is a route from item No. 15 to item No. 22 through item No. 5.

Second, in some cases the group decided that **both** items of a pair **significantly supported** each other. For example, item No. 5 also **significantly supports** a whole range of goals and objectives identified in the box on the right-hand side (items No. 1-7, 9, 12, 13, 20, 21). However, each of the goals and objectives within the box was considered to be mutually supportive. That is, "To Maintain a Viable Cannery" (item No. 1) **significantly supports** "To Develop New Product Forms and Markets" (item No. 2), and **vice versa**, item No. 2 **significantly supports** item No. 1. This "cycle" of Goals and Objectives was the subject of some discussion during the session but was not resolved at the time.

The next day (June 28) the group was asked to consider the flow chart of Goals and Objectives (Fig. 1) and to identify "Activities and

Initiatives" which would help accomplish these goals. The group used another **Nominal Group Technique** exercise and generated 32 desirable Activities and Initiatives for Hawaii's aku fishery community (Table 3).

The June 27-28 meeting ended with a discussion of the **process** and **results** of the two-day session and with a clarification of what should happen next. All participants appreciated the effort put into organizing and contributing to the planning session, although some found the structured discussion rather restrictive. Dave Mackett emphasized that the reason the discussion was structured rather than freewheeling was to progress through a large amount of material in a fairly short time and to allow **each** participant an equal opportunity to provide his or her ideas. The group agreed that a follow-up session would be a good idea.

NMFS Staff Contributions (July 2, July 22, and October 3)

Following the June 27-28 planning session, several Honolulu Laboratory staff worked to record the output of the meeting and to complete some steps of the planning process. The staff finished linking the 23 unranked Goals and Objectives into a flow chart of all 50 goals (Fig. 2). They categorized the list of Activities and Initiatives into an "Options Field" (Table 3), i.e., a grouping of similar ideas. The NMFS staff attempted to unravel the "cycle" in the Planning Group's flow chart of Goals and Objectives, as shown in Figure 3. The NMFS staff also discussed possible options for Honolulu Laboratory research activities and initiatives which would contribute to the Goals and Objectives identified by the Planning Group. These were added to the Options Field.

October 9 Planning Session

The original group of participants was invited to participate in a follow-up planning session to review results from the first session and to make recommendations for further planning efforts. Several people could not attend the October 9 session, but one industry representative who was not at the June 27-28 session did participate in the later session.

The NMFS staff reviewed the results of their contribution to the planning process. Then the Planning Group was asked to review the Options Field in some detail and to rank Activities and Initiatives within each "category" and for the list as a whole. These ranks are included in Table 3.

The Planning Group was then asked:

> What should the <u>next</u> step be in planning to improve conditions in Hawaii's aku industry?

Seven steps were identified and then ranked (Table 4). The major conclusion was that NMFS should report the results of these planning sessions to the aku industry as a whole and to the State of Hawaii's Hawaii

Fishery Coordinating Committee. Also, NMFS staff should meet in person with members of the industry and the State Government to answer questions on the planning process, but it was up to these two bodies to make further initiatives. Richard Shomura, Director of the NMFS Honolulu Laboratory, concurred with this allocation of responsibilities. At the same time, he noted that NMFS would also use the results from this planning exercise to help guide its own research planning.

It was also agreed that a report on the planning sessions would be prepared by the Honolulu Laboratory staff and circulated to the Planning Group for review before general release.

The second planning session concluded with a brief discussion of the planning process. Again, participants were appreciative of the effort undertaken in holding the planning session. The importance in directing attention at the important role of the industry itself in future planning for the aku fishery community was reemphasized, as was the importance in allowing time for full discussion of ideas.

Table 1.--Participants in the Aku Industry Strategic Planning Sessions.

	Planning Group
*	Representative Peter Apo, Hawaii State Legislature
	David Doulman, Pacific Islands Development Program, East-West Center
*	Frank Goto, United Fishing Agency
	Winfred Ho, Hawaii Allison Tuna Tournament
	Robert T. B. Iversen, Pacific Fisheries Consultants
	Alvin Katekaru, Division of Aquatic Resources, Hawaii Department of Land and Natural Resources
	Richard Kinney, FV Lehua
	Craig MacDonald, Ocean Resources Office, Hawaii Department of Planning and Economic Development
*	Rex Matsuno, Suisan Fishing Company
*	John Robey, Tuna Boatowners Cooperative
**	Kathryn Vanderpool, Billingsgate Fish Company
*	Present only June 27-28, 1986
**	Present only October 9, 1986
	Observers and facilitators: ***
	Christofer H. Boggs, Honolulu Laboratory, NMFS
	Doyle E. Gates, Western Pacific Program Office, NMFS
	Wesley K. Higuchi, Honolulu Laboratory, NMFS
	Linda L. Hudgins, Pacific Islands Development Program, East-West Center
	Samuel G. Pooley, Honolulu Laboratory, NMFS
	David J. Mackett, Southwest Fisheries Center, La Jolla, NMFS
	John J. Naughton, Western Pacific Program Office, NMFS

Table 1.--Continued.

	Justin Rutka, Western Pacific Regional Fishery Management Council
	Henry M. Sakuda, Division of Aquatic Resources, Hawaii Department of Land and Natural Resources
	Richard S. Shomura, Honolulu Laboratory, NMFS
	Robert A. Skillman, Honolulu Laboratory, NMFS
	Joan P. Thomason, Honolulu Laboratory, NMFS
	Jerry A. Wetherall, Honolulu Laboratory, NMFS
***	Observers and facilitators were not necessarily present at all sessions.

Table 2.--List of Goals and Objectives (June 27-28, 1986).

The **Planning Group** developed 50 Goals and Ojectives in response to the following question:

What are the desirable Goals and Objectives in planning the future of Hawaii's aku fishery community, through 1991?

The **Planning Group** then ranked 22 Goals and Objectives; the remaining ones did not receive ranking votes.

Rank	Goals/Objectives
1	To maintain a viable tuna cannery operation.
2	To develop new product forms and markets.
3	To provide a means of handling/processing surplus fish to stabilize the local market.
4	To fully and competitively meet local market demand for aku.
5	To provide better and more realistic means of gathering and enforcing fish catch data.
6	To obtain an alternate bait supply for expanded fishing.
7	To improve facilities infrastructure.
8	To provide logistical and financial government support to industry on a commercial basis without subsidies.
9	To obtain a flash freezing facility at -50°.
10	To better enable fishermen to locate aku schools.
11	To prevent imports of inferior canned tuna.
12	To get the State to increase support for marketing and promotion.
13	To increase market within/outside the State.
14	To design and develop new generation of aku boats fishing both locally and distant waters to 1,500 miles.
15	To develop more visible constituency at the State Legislature.
16	To amend U.S. docuentation laws to allow the construction of aku boats less than 200 gross tons in foreign yards.

Table 2.--Continued.

17	To be able to forecast aku availability to local fishermen.
18	To develop more realistic loan program without endangering loaner assets.
19	To foster a high degree of cooperation between fishermen in harvesting and marketing.
20	To reduce operational costs.
21	To provide for market stability for local aku.
22	To regulate recreational and commercial fish marketing.

The following Goals and Objectives were not ranked:

23	To obtain more scientific data on abundance of resource and where it can be found.
24	To get assistance from agencies regarding insurance, maintenance, vessel purchase, and equipment.
25	To encourage looking at recruitment of aku fishermen.
26	To look into the market situation as it is now.
27	To provide reasonable insurance to encourage outside investors.
28	To cope with fluctuations in aku availability to local fishery.
29	To provide Federal, State, and private emergency funds as a means of providing repair and maintenance now.
30	To have capability and use of military electronics for spotting and tracking aku schools.
31	To find ways and means of attracting aku closer to our reach.
32	To define commercial and recreational aku fishing.
33	To present bait problems and get better cooperation from government.
34	To restrict licenses on the basis of market demand for aku and bait availability.
35	To provide new economic and financial incentives for acquiring new aku boats.

Table 2.--Continued.

36	To limit the size of marketable aku.
37	To provide a better transhipment capability.
38	To determine impact or lack of impact of Japanese fishing in the Northwestern Hawaiian Islands.
39	To develop improved methods for collecting and sharing intelligence on location of aku.
40	To have a fleet of 15 new-generation aku vessels.
41	To ban foreign fishing for aku within the 200-mile Fishery Conservation Zone.
42	To amend the Magnuson Fishery Conservation Management Act to have an aku Fishery Management Plan.
43	To have a Shomura/Sakuda meeting with boat owners.
44	To educate fishermen.
45	To introduce new fishing methods.
46	To identify collateral effects of recreational and commercial harvesting of aku.
47	To develop clear channels in both State Houses for fishery constituents to communicate.
48	To educate the Hawaii public on the desirability of eating more aku.
49	To develop a realistic aku fleet modernization plan
50	To place fisheries under the State of Hawaii Department of Agriculture.

Table 3.--Options Field of Activities and Initiatives.

Preliminary Activities and Initiatives required to meet the desirable goals and objectives for the aku fishery community.

Activities and Initiatives were conceived by the **Planning Group** on June 28 and categorized into an "options field" by NMFS staff on July 2, 1986. Potential NMFS research activities were added on October 3, and ranked by the **Planning Group** on October 9, 1986.

The **Planning Group** ranked these activities overall and within categories. The categories are listed in order of the highest overall ranking, and the activities are listed within categories by rankings within the category.

The **bold** printing demarks the top ranked activity in each group; the starred (*) items represent the top 10 ranked activities overall (two items had a tie ranking).

Options Field

Market studies

* **Market study and recommendations for improved distribution, product development, handling, and market expansion.**

* Look into the stabilization of the price of aku.

* Study to assess existing market conditions.

Start studies to identify new markets for cannery output.

Hawaii Seafood Product Promotion Committee to look at aku promotion and marketing as next project

Constituency organizations

* **Produce white paper for lobbying purposes.**

Meeting between fishermen and marketing and processing agents to form cohesive lobby group and to plan a public and political awareness campaign.

Recreational and commercial fishermen group organized to present united resource - user constituency.

Have one fishermen's cooperative.

Table 3.--Continued.

	Create Governor's task force.
	Develop better understanding between fishermen and processing and marketing segment of industry.
	Create industry oversight group to maintain momentum toward goals.
NMFS Research	
*	**Study economics of aku industry .**
*	Improving means of locating aku schools in Hawaii waters.
*	Modeling and forecasting availability of local aku.
	Investigate habitat requirements of nehu.
	Improve reporting of aku catch and fishing effort statistics.
Freezing and canning	
*	**Provide means to enable fishermen to freeze and store their excess fish for later marketing.**
*	Conduct market study and business plan for shore-based flash freezing facility.
*	Encourage State to grant long-term lease for tuna cannery and provide use of facility for other profitable businesses.
	Legislation to fund bond issues to build flash freezing facilities.
Financial relief	
	Study to examine fuel price situation for Hawaii fishermen.
*	New Governor to declare aku industry a "disaster area."
	Hawaii Fishery Coordinating Committee to consult with Department of Planning and Economic Development (DPED) to propose joint resolution to liberalize and expand the present commercial fishing vessel loan program.

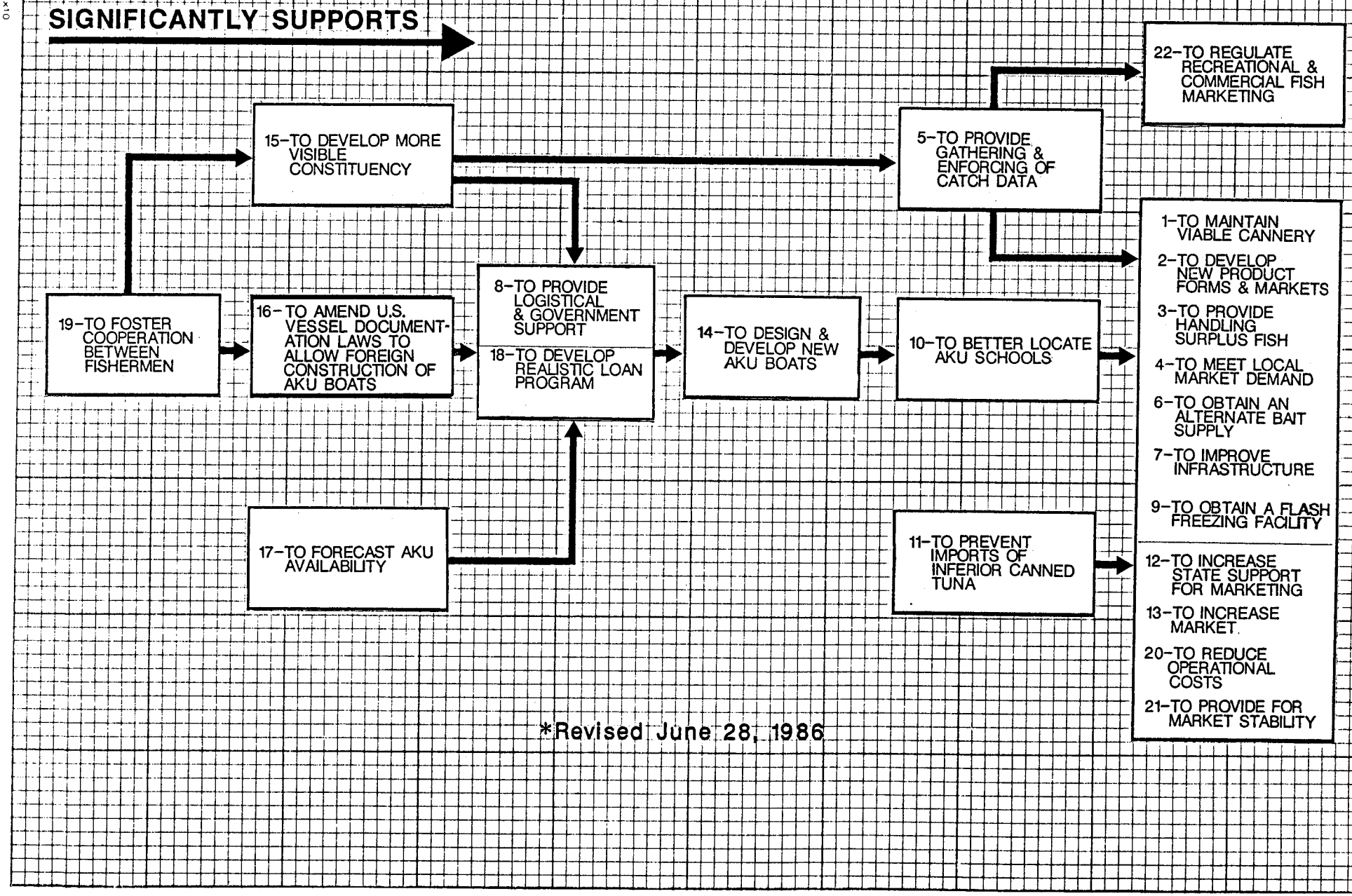
Table 3.--Continued.

	Task force subcommittee to meet with director of DPED to propose guidelines to restructure commercial fishing vessel loan program.
	Schedule meeting with new Governor to request immediate financial assistance.
	Seek Congressional support to amend the U.S. documentation laws to allow foreign construction of new aku boats. Request DPED to provide $50,000 bond for aku baiting operations in Pearl Harbor.
	Feasibility study of State subsidized insurance for aku boats.
	Request Hawaii Department of Transportation to delay further increases in pier space rental rates until aku fishing industry shows recovery.
Technology	
	Seek Congressional support for dialog with military to seek satellite information to locate aku schools.
	Submit Saltonstall-Kennedy or Sea Grant proposals for improved vessel design and vessel upgrading.
	Greater financial support for expanding Hawaii Division of Aquatic Resources programs.
	Committee investigate feasibility of using Pearl Harbor for propagating aku bait.
	Put Hawaii aku fisherman on Japanese aku boat in NWHI this summer.

Table 4.--Proposed next steps in the planning process from the October 9 meeting as ranked by the **Planning Group** from highest to lowest priority.

• To consult with industry on what it wants to do.
• To establish a market research-analysis agenda and implementation plan with industry input.
• To create an industry oversight group.
• To answer the question, is the aku industry worth saving?
• To draw up working papers using industry and agency input on the highest ranking activities and initiatives.
• To have a viable cannery.
• To do nothing more at this time.

Figure 1.
Flowchart of Top 22 Goals and Objectives for the Aku Fishery Community



*Revised June 28, 1986

Figure 2.

Honolulu Laboratory Staff Completion of

FLOW CHART FOR 50 GOALS AND OBJECTIVES FOR THE AKU FISHERY COMMUNITY

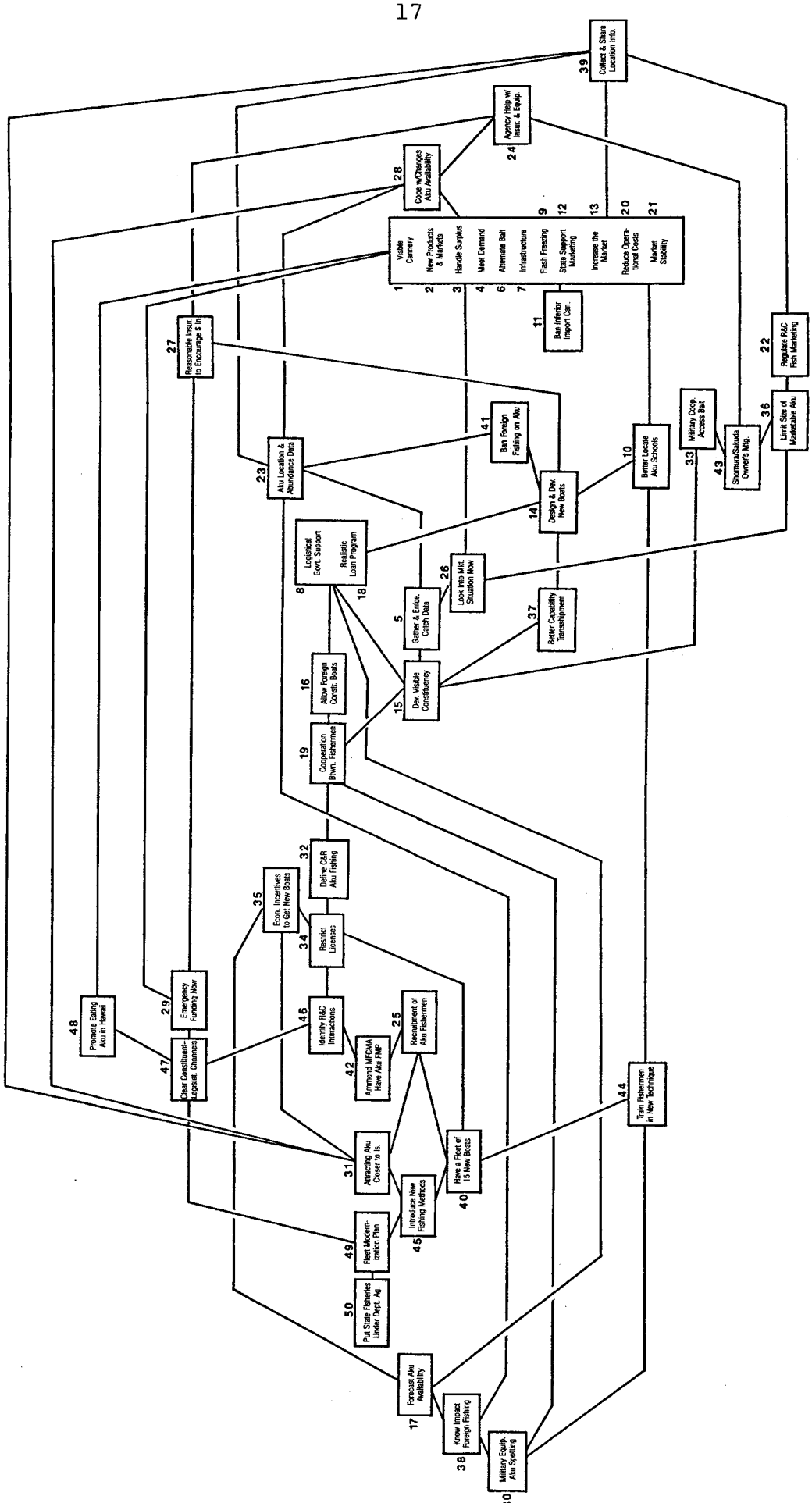
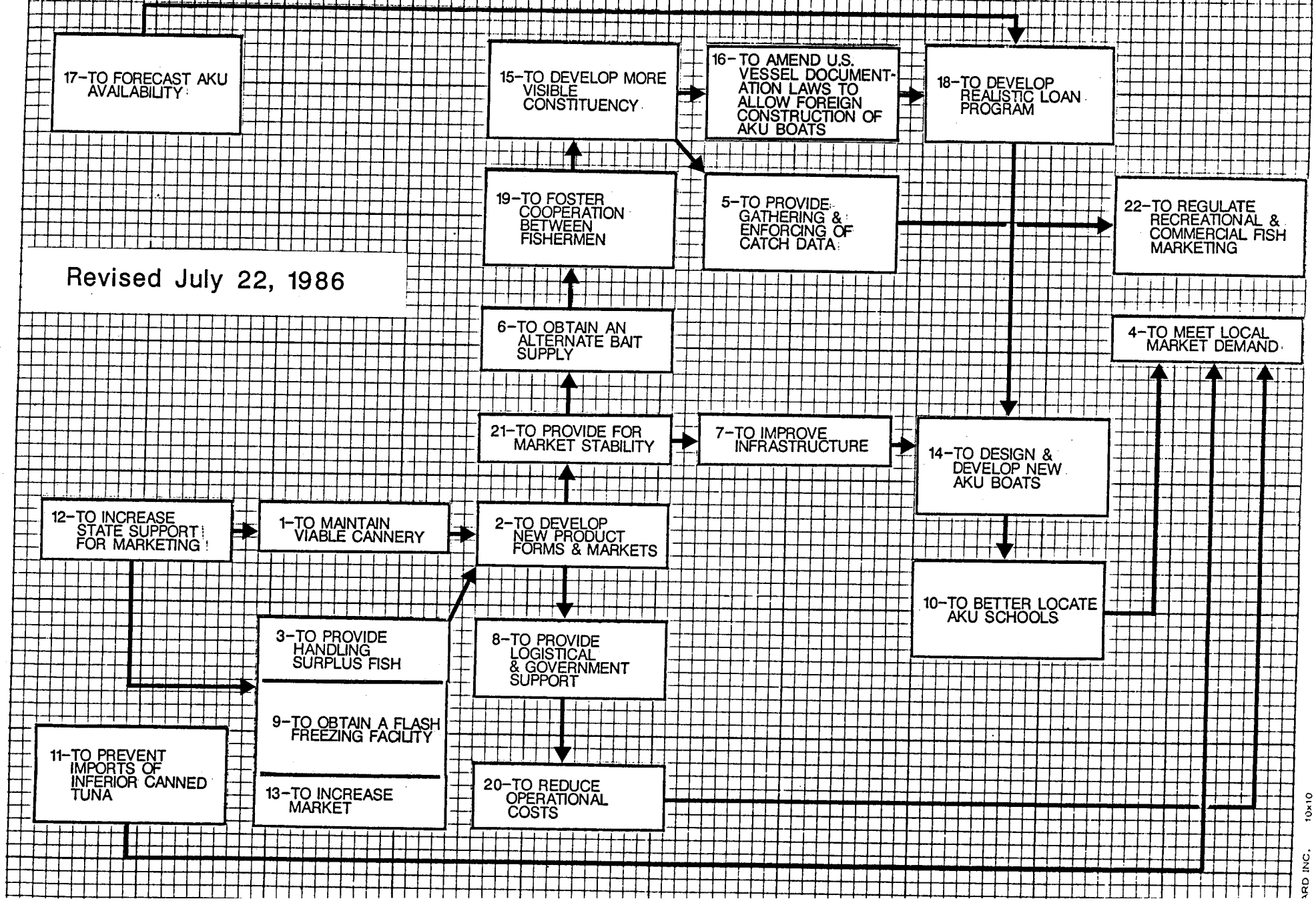


Figure 3.

Honolulu Laboratory Staff Revision to

GOALS AND OBJECTIVES FLOWCHART FOR HAWAII AKU FISHERY



Appendix

HONOLULU SKIPJACK TUNA WORKSHOP

David Doulman
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The skipjack tuna industry in Hawaii is in trouble. Catch rates and the size of tuna taken in the fishery have been falling since the 1970's. Tuna prices have been depressed since 1980 and Hawaii's only tuna cannery closed in October 1984. The closure was a direct result of the worldwide restructuring of the tuna industry. Coupled with depressed market conditions, Hawaii's tuna fishermen have been squeezed by production cost increases on all fronts.

The National Marine Fisheries Service (NMFS) in Honolulu in conjunction with the tuna industry, the State of Hawaii, the University of Hawaii, and the Western Pacific Regional Fishery Management Council sponsored a workshop to examine the current state of the skipjack tuna industry in Hawaii. The workshop, entitled Forces of Change in Hawaii's Skipjack Tuna Industry: Resource and Industry Issues, was held in Honolulu from April 30-May 1, 1986. It was the first time that such a workshop had been held. The objectives of the workshop were to (1) review the status and current research on Hawaii's skipjack tuna fishery and (2) introduce background material and prepared discussions for a joint industry-government planning session to be held at a later date.

A total of 11 papers were presented at the workshop. Lively, and often gutsy discussion followed each session. The workshop commenced with a review of worldwide influences on the tuna industry in Hawaii. Siebert (South Pacific Commission-Noumea) discussed the status of tuna stocks in the central and western Pacific, and Kearney (Inter-American Tropical Tuna Commission-San Diego) addressed the skipjack tuna migration and interaction issue pertaining to the fisheries in the eastern and western tropical Pacific and Hawaii. Kearney reached the conclusion that skipjack tuna in Hawaii are not closely related to those in the eastern or western Pacific. Therefore, fishing in these areas is unlikely to be responsible for the skipjack tuna availability problems facing Hawaii's tuna industry. Furthermore, Kearney postulated that factors causing the decline in the fishery might be related more to local factors in Hawaii. A paper by Mendelssohn (Pacific Fisheries Environmental Group-NMFS, Monterey), posed the question as to whether the decline in Hawaii's aku fishery had been due to overfishing or environmental considerations. He concluded that fluctuations in aku availability in Hawaii were due in part to Pacific-wide environmental considerations. King (ERG Pacific, Inc.-San Diego), discussed world tuna markets in relation to the Pacific fishery. He said that the international outlook for skipjack tuna was generally bleak. He told the workshop that market prospects for Hawaiian skipjack tuna, either

raw or canned, in traditional markets were poor. However, King noted that the restructuring of the world tuna industry had left niches that could be filled by canners marketing specialty packs.

The second session of the workshop focused on issues relating to Hawaii's skipjack tuna industry. Skillman (NMFS-Honolulu), outlined trends in Hawaii's aku production. Production has been falling since 1974. In 1965, approximately 6,300 metric tons (t) of skipjack tuna was landed by the Hawaiian fleet. However, in 1984 production had dropped to about 1,650 t. There has been a reduction in fishing effort (number of vessels fishing) but this does not entirely account for the continuing drop in production. Pooley (NMFS-Honolulu), showed that per vessel costs had risen more rapidly than revenues since 1970 and pointed to the need for the fleet to increase fishing effort--subject to the available market--and efficiency in operations if it is to survive. The future directions for Hawaii's tuna markets were discussed by industry representative Takenaka (United Fishing Agency-Honolulu). Hudgins (University of Notre Dame-Indiana), reviewed past events in the fishery and speculated about possible future developments. Hudgins is well known for her economic analysis of the Hawaiian skipjack tuna industry. She pointed out that the total abundance of skipjack tuna in the Hawaiian fishery was changing and that this was resulting in an annual loss of around $2 million to the industry. In addition, the closure of the cannery meant that fishermen could not easily market their surplus catches in the summer season, creating a loss of $500,000. Hudgins forecast that market forces are likely to progressively reduce the size of the aku fleet further and that in the absence of a cannery, the fresh tuna (sashimi) market in Hawaii can only support about four or five vessels on a full-time basis. There are currently nine active vessels in the fishing.

The third session of the workshop concerned research and fishery development. Vanderpool (Billingsgate Fish Co.--Honolulu) discussed innovative marketing technology for tuna. She pointed out that the tuna industry in the United States is not in a temporary slump but rather undergoing a fundamental period of change and therefore, post-harvest handling techniques had to be modified to keep abreast of changes in the seafood industry at large. She gave an instructive and thorough presentation on fish-handling changes made on her albacore vessels to ensure that her fish reaches Californian markets in prime condition. Vanderpool operates albacore vessels in the Midway fishery to the north of Hawaii. Boggs (NMFS-Honolulu) reviewed biological research on skipjack tuna and proposed that the Japanese pole-and-line fishery in the NWHI might be having some impact on the domestic Hawaiian fishery. The Japanese have provided no data for the NWHI fishery since 1980. Boggs pointed out that the changes in the domestic fishery might result from aku being intercepted before they reached Hawaii. However, he maintained that environmental factors--primarily ocean currents--were probably also having some effect on the fishery but the extent and the exact nature of these factors were hard to assess and prove.

Shomura (Director, Southwest Fisheries Center Honolulu Laboratory, NMFS) summarized the proceedings of the workshop. He said that since 1973

skipjack tuna had not arrived in normal abundance in the Hawaiian fishery. He pointed out that the fleet had been reduced in numbers, that many of the remaining vessels were old, and boatowners were not making money. Fishing had declined but that there appeared to be a difference in opinion as to the role of the eastern Pacific tuna fishery. Kearney indicated that the eastern tropical fishery was not having a major impact, but Hudgins had shown evidence to the contrary. Available evidence also indicated that there was little interaction with the western tropical Pacific tuna fishery although Shomura suspected that there might be some interaction with the skipjack tuna fishery in the northwest Pacific. He added that the last El Nino seemed to have had no obvious effect on catches in Hawaii. Rising salinity levels in Hawaiian waters and pollution from Oahu (Hawaii's most populous island) could be forcing aku schools further out to sea.

Shomura informed the workshop that with the restructuring of NMFS and Federal Government budget cutbacks, tuna research in Hawaii had taken second place to other fisheries research. He said that tuna research, however limited, should be continued in Hawaii as a means of supporting the local aku industry. But research alone was not sufficient. Shomura stated that there must be new investment in the industry but that the industry must prove its financially viability. Aku vessels needed to stay on the fishing grounds for more than a day and required better vessel accommodation for fishermen and improved baitwells. Overall fishing efficiency needed to be improved and bait problems solved. Shomura also said that it might be appropriate to consider the deployment of small purse seiners in Hawaii's fishery if these were found to be more efficient and viable.

Shomura's summary of the workshop was followed by a panel discussion involving Yee (Chairman, Western Pacific Regional Fishery Management Council-Honolulu), Goto (United Fishing Agency-Honolulu), and Robey (Tuna Boatowner's Co-op, Inc.-Honolulu). Goto and Robey head the two aku cooperatives in Hawaii. Yee told the workshop that, if the aku industry was to survive in Hawaii, all boatowners must work together to pool resources and ideas. Robey said that fishermen in his cooperative were frustrated about the state of the industry in Hawaii but that they were not sure what to do about it. He said that from the fishermen's point of view the two biggest problems facing the industry were the lack of fish and escalating production costs. He said for example, that the cost of insuring a typical aku vessel in Hawaii had risen from approximately $20,000 in 1983 to $54,000 in 1986. Fishermen were hard pressed to cope with such production cost increases. Robey added that the fresh tuna market in Hawaii was estimated to be 1,500-2,500 t per year and on the basis of this market demand, a local aku fleet could be justified. He said some hard decisions need to be made about the aku industry if it is not to be let die. Finance from the State and Federal Governments is needed to turn the industry around.

A working committee consisting of industry and government representatives will be formed to discuss the findings of the workshop and to plan a strategy with a view to ensuring that Hawaii's skipjack tuna industry is saved and that it is put on a more economic footing.

The proceedings of the workshop are to be published by the NMFS. For further information contact the Director, Southwest Fisheries Center Honolulu Laboratory, National Marine Fisheries Service, NOAA, 2570 Dole Street, Honolulu, Hawaii 96822-2396, U.S.A.

May 1986