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1990/91

HARVEST STRATEGY FOR THE KODIAK MANAGEMENT AREA
COMMERCIAL FOOD/BAIT HERRING FISHERY

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INTRODUCTION

- This harvest strategy attempts to answer most pertinent pre-season and in-season questions regarding the Kodiak food/bait herring fishery.
- This fishery targets both Kodiak and Kamishak spawning stocks which are present in the Kodiak Area during the food/bait season (8/1 - 2/28).
- Since the herring sac-roe fisheries in the Kodiak and Cook Inlet areas are closed-to-entry fisheries, they are treated as primary fisheries and are managed to provide for the majority of the harvest on the affected stocks to occur in these fisheries. The food/bait fisheries on these same stocks are subsequently treated as secondary fisheries and associated harvest levels are directly related to the results of the sac-roe fisheries on these stocks; food/bait harvest levels generally will not exceed 10% of the sac-roe harvest on any of these stocks. Consequently, consideration is given to the biological concerns associated with "double dipping" fisheries on the same stock and is also given to the 200+ limited entry permit holders for both Kodiak and Cook Inlet sac-roe fisheries whose economic interests in permits could be adversely affected without a specific allocative directive for each fishery.
- Since the commercial sac-roe fisheries in Kodiak and Cook Inlet target on herring with mature roe beginning with age 4 and primarily on age 5 and older herring; individual food/bait landings of age 3 or less will be adjusted to reflect weights of age 5 herring.
- A Board of Fisheries regulatory change in March 1988 resulted in the directive to manage the Kodiak Area food/bait fishery in a manner which considers the aforementioned concerns. Specifically management is guided by the following new regulation:

5 AAC 27.535

- a) The department shall manage the herring food/bait fishery, (directed on Kodiak spawning stocks) so that the food/bait harvest does not exceed 10% of the actual herring harvest in the previous season.
- b) The department shall manage the herring food/bait fishery that is directed on Kamishak spawning stocks, which over-winter in the Eastern Shelikof Straits, so that the food/bait harvest does not exceed 2% (two) of the total available spawning biomass of Kamishak stocks as determined by the department during the most recent Kamishak herring sac-roe season.

1. SEASON:

- August 1, 1990 through February 28, 1991.

2. FISHING PERIODS:

- Open to continuous fishing from 12:01 A.M. 8/1/90 to 12:00 P.M. 2/28/91 unless superceded by emergency order closures.

3. CLOSED WATERS:

- See CLOSED WATERS section of the 1990 Commercial Herring Regulation book (page 36), 5 AAC 27.530
- Consult 1990 Commercial Salmon Fishing Regulations for listing of closed waters for the period August 1 through October 31.

4. PERMITS REQUIRED (2):

A. Interim Use Permits for legal gear:

- H01K Purse Seine
- H34K Gillnet
- H07K Trawl

B. Registration Permit - Kodiak ADF&G Office

- Permit will be used for:
 - Monitoring fleet size by gear type.
 - Clarifying catch reporting procedures, closed water areas, and in-season emergency order announcement procedures.
- Both permits are available at the Kodiak Fish and Game office.

5. LEGAL GEAR RESTRICTIONS:

- 01 - Purse Seines
 - Maximum length: 100 fathoms
 - Maximum depth: 1,000 meshes (herring web)
 - Leads allowed during food/bait season.
- 34 - Gillnets
 - Maximum length: 150 fathoms; mesh size: 2-1/8" - 2-1/2".
- 07 - Trawl
 - No restrictions
- Consult the 1990 Herring Regulation book for a complete listing of all regulations.

6.

HARVEST STRATEGY:

Regulation 5 AAC 27.535(a)(b), as approved by the Alaska Board of Fisheries in March 1988, describes a harvest strategy for the Kodiak Area food/bait fishery which provides for:

- A secondary food/bait harvest, following a primary sac-roe harvest, on both Kodiak spawning stocks and on Kamishak spawning stocks which occur in the Kodiak Management Area during the Kodiak food/bait season (8/1 - 2/28).
- An exclusion of a food/bait harvest on Kodiak stocks in that portion of Shelikof Straits associated with the occurrence of Kamishak stocks as depicted in Fig. 1, except that a harvest on Kodiak stocks may occur in the aforementioned units if the harvest occurs in in-shore areas (bays) prior to a closure of these areas based upon the G.H.L. for Kamishak stocks being achieved.
- An exploratory harvest scenario on unidentified stocks which occur in areas not covered by the two aforementioned provisions.

To accommodate this harvest strategy, thirteen (13) food/bait management units have been established to include geographical groupings of sac-roe stocks and adjacent offshore areas (See Fig. 2).

- For each management unit there is a Guideline Harvest Level (G.H.L.) which reflects the combined G.H.L.'s for Kodiak stocks included within each food/bait unit (See Table 1).
- Six of these food/bait units have also been identified and consolidated into a geographical grouping representing that area where the food/bait harvest on Kamishak stocks will most likely occur (See Fig. 1).

The 1990 food/bait G.H.L. for the Kodiak Area will be affected by the following management considerations:

- **For Kodiak spawning stocks**, the department will generally limit the food/bait harvest to 10% of the previous spring's sac-roe harvest on a stock by stock basis. Variations to this strategy are depicted in Table 1 with explanations listed in the Table's footnotes. Harvest levels on Kodiak stocks in the adjacent offshore areas will reflect the combined food/bait G.H.L. for the sac-roe stocks included within that management unit. See Table 1 for a listing of G.H.L.'s by stock and by management unit.
- **For identified non-Kodiak spawning stocks**, the department will control the harvest to insure that a particular stock is not overexploited. At this time, Kamishak Bay spawning stock(s) are the only identified non-Kodiak spawning stock(s) which occur in the Kodiak Management Area during the Kodiak food/bait season (8/1 - 2/28).
 - In the case of Kamishak Bay spawning stock(s) where evidence exists that they are present in Kodiak area waters during the food/bait season, the harvest level will not be allowed to exceed 196 tons. This tonnage is approximately 1% of the 1990 Kamishak Bay pre-sac-roe season total available indexed spawning biomass (sac-roe harvest: 2,264 s.t. plus post-season indexed spawning biomass 17,286 s.t.)

- Management of Kamishak stocks for both the sac-roe and food/bait fisheries is outlined in Table 2.
- During the food/bait fishery, the Department will attempt to identify the location of Kamishak stock(s) in Kodiak Area waters via data collected from the commercial fishery and/or the ADF&G vessel M/V Resolution during its hydroacoustical surveys which target Shelikof Straits herring biomasses; the M/V Coho may also be required to assist in this search.
- All herring samples obtained from either source will be expeditiously worked-up to apply A-W-L comparisons between Kodiak and Kamishak stocks.
- Biomass estimates will be obtained from the fishery in terms of verbal estimation via skipper interviews as to stocks, distribution, average school size, estimated number of schools, etc! Biomass estimates will also be obtained acoustically from the M/V Resolution surveys.
- Herring harvested in this fishery from the following management units will be identified as either Kodiak stocks (per regulation 5 AAC 535(2) or as Kamishak stock(s).
- These units include F/B 1, F/B 2, F/B 4, F/B 5, F/B 11 and F/B 12 as as depicted in Figure 1.
- Herring harvested from the aforementioned food/bait management units, where the harvest occurred in in-shore (bays) locations, will be considered to be Kodiak stocks unless A-W-L and/or biomass data indicates otherwise, in which case they will be considered to be Kamishak stocks.
- If the harvest ceiling of 196 tons on Kamishak stocks is achieved, all of the aforementioned management units would be closed to herring fishing for the remainder of the food/bait season.
- **For non identified herring stocks** which may occur in off-shore locations in the remaining food and bait management units, the department will control the harvest to insure that a particular stock is not overexploited. Actual harvest levels may be determined by harvest location, biomass observed and age-weight-length information.

7. **GUIDELINE HARVEST LEVELS:**

- For the 1990/91 food/bait season the following harvest levels will be in effect:
 - **For Kodiak spawning stocks:** Per regulation 5 AAC 27.535(a) as described under "Harvest Strategy", a maximum of 280.4 tons properly distributed by stock through- out the management area will be the food/bait harvest on Kodiak spawning stocks.
 - See Table 1 for harvest projections by stock.
 - **For Kamishak spawning stocks:** Per regulation 5 AAC 27.535(b) as described under "Harvest Strategy", a maximum of 196 tons harvested from that portion of Shelikof Straits depicted in Figure 1 (see attached) will be the food/bait harvest ceiling on Kamishak spawning stocks which occur in the Kodiak Area during the food/bait season (8/1 - 2/28).

- Prior to harvesting Kamishak stocks in the aforementioned area, a harvest on Kodiak stocks may occur per regulation 5 AAC 27.535(a).
- Herring harvested in inshore (bays) locations will be considered to be Kodiak stocks unless A-W-L sampling and/or biomass information indicates otherwise, in which case they will be considered to be Kamisnak stocks.
- **For unidentified stocks:** No guideline harvest levels are established, however the remaining 524 tons of the regulatory 1,000 ton G.H.L. cited in the 1990 commercial herring regulation book would be expected to occur on these stocks, if justified by stock(s) strength.
- Harvest levels per geographically distinct biomasses will be established in-season per information obtained from A-W-L sampling and from "skipper" interviews detailing estimates of biomass strength, seasonal distribution, school size, etc.

8. **REPORTS REQUIRED BY FISHERMEN:**

- **All** landings of herring for food/bait purposes must be **verbally** reported to ADF&G before the product is totally unloaded at the dock.
- The following phone numbers will reach Fish and Game personnel 24 hours per day:
 - ADF&G Office: Monday through Friday
8:00 A.M. to 4:30 P.M. - 486-4791
 - After Office Hours:
 - 4:30 P.M. to 8:00 A.M. - 486-6007 (Dave Prokopowich)
 - 486-6475 (Kevin Brennan)
 - 486-4831 (Pete Probasco)

All fish tickets must be completed and sent in to the Kodiak Fish and Game office within a week of the landing.

- Send to: Alaska Department of Fish and Game
211 Mission Road
Kodiak, Alaska 99615

Table 1.

KODIAK MANAGEMENT AREA
1990/91 HERRING FOOD/BAIT HARVEST STRATEGY
A LISTING OF GUIDELINE HARVEST LEVELS BY FOOD/BAIT MANAGEMENT UNITS^{1/}

Food/Bait Mgmt. Units	Sac-Roe Management Units		1990 Sac-Roe		1990/91 Food/Bait
	No.	Name	G.H.L.	Harvest	G.H.L.
F/B 1 West Afognak Unit	A010	Raspberry	55.0	41.9	5.5
	A020	Malina	30.0	37.6	3.0 ^{2/}
	A031	Paramanof	40.0	41.9	4.0 ^{2/}
	A032	Foul Bay	20.0	21.3	2.0
	A040	Blue Fox	10.0	0.0	1.0
	A050	Offshore Afognak	-	0.0	0.0 ^{8/}
UNIT TOTALS:			155.0	142.7	15.5
F/B 2 North Afognak Unit	A060	Shuyak	20.0	0.0	2.0 ^{4/}
	A070	Perenosa	15.0	29.3	1.5
	A071	Delphin	10.0	0.0	1.0
	A072	Seal Bay	10.0	0.0	1.0 ^{5/}
	A080	Tonki	15.0	7.2	1.5 ^{2/}
UNIT TOTALS:			70.0	36.5	7.0
F/B 3 East Afognak Unit	A090	Izhut	25.0	29.2	2.9
	A091	Kitot	15.0	8.9	1.5
	A092	McDonalds	10.0	0.2	1.0
	A100	Danger	30.0	5.3	3.0
	A101	Litnik	10.0	3.4	1.0
	A102	Inshore Marmot	10.0	0.0	10.0 ^{4/}
UNIT TOTALS:			100.0	47.0	19.4
F/B 4 Uganik Unit	UG10	Kupreanof	10.0	0.0	10.0 ^{4/}
	UG20	Viekoda	20.0	27.7	2.0
	UG21	Terror	60.0	14.8	6.0
	UG30	Village Islands	25.0	58.3	5.8
	UG31	W. Uganik Passage	15.0	22.3	2.2
	UG32	N.E. Arm Uganik	75.0	46.3	7.5
	UG33	E. Arm Uganik	30.0	41.2	4.1
	UG34	S. Arm Uganik	30.0	51.8	5.2
	UG40	Offshore Uganik	-	0.0	0.0 ^{6/}
UNIT TOTALS:			265.0	262.4	42.8

Table 1. (continued)

Food/Bait Mgmt. Units	Sac-Roe Management Units		1990 Sac-Roe		1990/91 Food/Bait
	No.	Name	G.H.L.	Harvest	G.H.L.
F/B 5 Uyak Unit	UY10	Offshore Uyak	-	0.0	^{6/}
	UY20	Harvester	10.0	0.0	1.0 ^{3/}
	UY30	Inner Uyak	240.0	242.9	24.0
	UY32	Browns Lagoon	20.0	22.5	2.0
	UY31	Larsen Bay	10.0	7.2	1.0
	UY40	Zachar	100.0	95.5	10.0
	UY50	Spiridon	160.0	177.4	16.0
UNIT TOTALS:			540.0	545.5	54.0
F/B 6 Sturgeon/ Halibut Unit	SH01	Sturgeon/Halibut	Exploration	0.0	Exploration
UNIT TOTALS:				0.0	-
F/B 7 Alitak Unit	AL10	Outer Alitak	-	0.0	
	AL20	Inner Alitak	Exploration	0.0	Exploration
	AL21	Deadman	125.0	143.5	12.5
	AL30	Sulua	60.0	81.3	6.0
	AL40	Lower Olga/Moser	25.0	0.0	2.5
	AL50	Upper Olga/Moser	190.0	184.4	19.0
	AL60	Geese/Twoheaded	Exploration	0.0	Exploration
UNIT TOTALS:			400.0	409.2	40.0
F/B 8 Eastside Unit	G010	Kaiugnak	10.0	0.0	1.0
	GO20	W. Sitkalidak	Exploration	55.9	Exploration
	GO21	Barling	20.0	23.2	2.0
	GO22	E. Sitkinak	95.0	126.7	12.73 ^{3/}
	GO23	Tanginak	15.0	28.1	1.5 ^{3/}
	GO30	Outer Sitkalidak	Exploration	0.0	-
	GO40	Outer Kiliuda	Exploration	22.3	Exploration
	GO41	Inner Kiliuda	10.0	8.1	1.0
	GO42	Shearwater	25.0	92.0	2.5
	GO50	Outer Ugak	Exploration	0.0	Exploration
	GO50	Pasagshak	25.0	68.6	2.5
	G051	Inner Ugak	50.0	101.9	5.0
UNIT TOTALS:			250.0	526.8	28.2

Table 1. (continued)

Food/Bait Mgmt. Units	Sac-Roe Management Units		1990 Sac-Roe		1990/91 Food/Bait
	No.	Name	G.H.L.	Harvest	G.H.L.
F/B 9	G060	Womens Bay	110.0	74.8	11.0
	G100	Kalsin Bay	20.0	11.8	2.0
Chiniak	G101	Middle Bay	25.0	16.1	2.5
Unit	G102	Inshore Chiniak	10.0	0.0	10.0 ^{4/}
UNIT TOTALS:			165.0	102.7	25.5
F/B 10	G070	Monashka/Mill Bay	Exploration	0.0	Exploration
	G080	Anton Larsen	30.0	7.4	3.0
North Kodiak	G081	Sheratin	10.0	1.3	1.0
Unit	G090	Kizhuyak	110.0	101.7	11.0
	G103	Spruce Island	10.0	0.0	10.0 ^{4/}
UNIT TOTALS:			160.0	110.4	25.0
F/B 11	M010	North Mainland	Exploration	0.0	Exploration
	M020	Inner Kukak	50.0	75.5	5.0
North Mainland	M030	Outer Kukak	-	0.0	Exploration
Unit	M040	Missak	Exploration	0.0	Exploration
UNIT TOTALS:			50.0	75.5	5.0
F/B 12	M050	Inner Katmai	50.0	0.0	5.0
	M060	Outer Katmai	-	0.0	Exploration
Mid-Mainland	M070	Alinchak	30.0	41.2	3.0
Unit	M080	Puale Bay	Exploration	0.0	Exploration
	M090	Portage Bay	Exploration	0.0	Exploration
UNIT TOTALS:			80.0	41.2	8.0
F/B 13	M100	Outer Portage	-	0.0	Exploration
South Mainland	M110	Wide Bay	100.0	47.1	10.0 ^{5/}
Unit	M120	Lower Shelikof	-	0.0	Exploration
UNIT TOTALS:			100.0	47.1	10.0
GRAND TOTALS:			2,415.0	2,346.9	280.4

*See footnotes on next page.

FOOTNOTES:

^{1/}The Kodiak Area total G.H.L. for food/bait, as indicated in the 1990 Herring Regulation book is 1,000 s.t. However, as indicated under the regulatory harvest strategy, these stocks exploited during the sac-roe season are managed to retain approximately 10% of the available harvest for the food/bait fishery. This table reflects the available food/bait harvest for each sac-roe stock or food/bait unit, whichever applies. (See Harvest Strategy.)

^{2/}Sac-roe management units where excessive sac-roe harvests may have occurred either this year or in the past and where a reduced food/bait harvest is justified.

^{3/}Sac-roe management units where the sac-roe harvest substantially exceeded pre-season expectations probably as a result of increased stock abundance rather than overharvest and where an increased food/bait harvest commensurate with the increased sac-roe fishery is justified.

^{4/}Sac-roe management units where a sac-roe underharvest may have occurred and where an increased food/bait harvest is justified. In some cases where the stock status is in question the increased food/bait harvest may still be less than pre-season expectations on those stocks.

^{5/}Sac-roe management units where the sac-roe harvest was substantially less than pre-season expectations probably as a result of an overestimation of stock strength and where a reduced food/bait harvest is justified.

^{6/}See attached plan for management of the Kamishak Bay Herring Spawning Stocks in the Shelikof Straits Food and Bait Fishery.

Table 2.

MANAGEMENT OF THE KAMISHAK BAY HERRING SPAWNING STOCKS
IN THE SHELIKOF STRAIT
FOOD AND BAIT FISHERY

Addendum to the 1988 Kamishak Bay
Herring Management Plan

Kamishak Bay herring spawning stocks support both the Kamishak Bay sac-roe fishery and the Shelikof Strait food and bait fishery. Pursuant to the Board of Fisheries decision to allocate 2% of the Kamishak Bay herring spawning biomass to the Shelikof Strait food and bait fishery, the following adjustments will be made to the 1988 Kamishak Bay sac-roe fishery management plan to accommodate the Board's actions and to protect the Kamishak Bay herring stock from over harvest:

- 1) ADF&G guidelines direct that herring harvest rates be kept at or below 20% of the current best estimate of biomass, depending upon stock strength and age composition. Best estimates of biomass of the Kamishak Bay herring stock are currently determined by aerial survey following the spring sac-roe fishery. Therefore, harvest levels in the Shelikof Strait food and bait fishery will be based on this estimate of spawning biomass.
- 2) The harvest ceiling for the Shelikof Strait food and bait fishery will be 2% of the best estimate of the total Kamishak biomass, as determined by the Department during the most recent Kamishak herring sac-roe season. The total Kamishak Bay biomass will be determined by the best estimate of the spawning biomass following the sac-roe fishery plus the total harvest from the sac-roe fishery.
- 3) Present management strategy for the Kamishak Bay spawning stocks attempts to achieve a maximum harvest rate on older fish of 20% while keeping the harvest rate of fish age 5 and younger at or below 10%.
- 4) If ADF&G determines the harvest rate for the stock of Kamishak Bay herring should be less than 20%, either due to a decrease in biomass, weak year classes, or poor recruitment, the 2% food and bait harvest ceiling will be reduced proportionally. [i.e. If the biological markers (decrease in biomass, weak year classes, or poor recruitment) indicate that the sac-roe harvest needs to be reduced, for example to 15%, the food and bait fishery would be reduced to 1.5%]
- 5) If the spawning biomass of the Kamishak Bay herring stocks falls below the biological threshold level of 8,000 tons, both the Kamishak Bay sac-roe and the Shelikof Strait food and bait fishery will be closed or severely limited.
- 6) The allocation of herring to the Shelikof Strait food and bait fishery is based on spawning biomass, primarily age 5 and older herring, not on the biomass of juveniles. Therefore, the quantity of Kamishak Bay stocks ages 4 and younger caught in Shelikof Strait will be adjusted upward to bring the biomass of these younger age classes up to the biomass of age 5 herring.

Fig. 1. Geographical Area encompassed by management plan for the Shelikof Straits food/bait fishery.

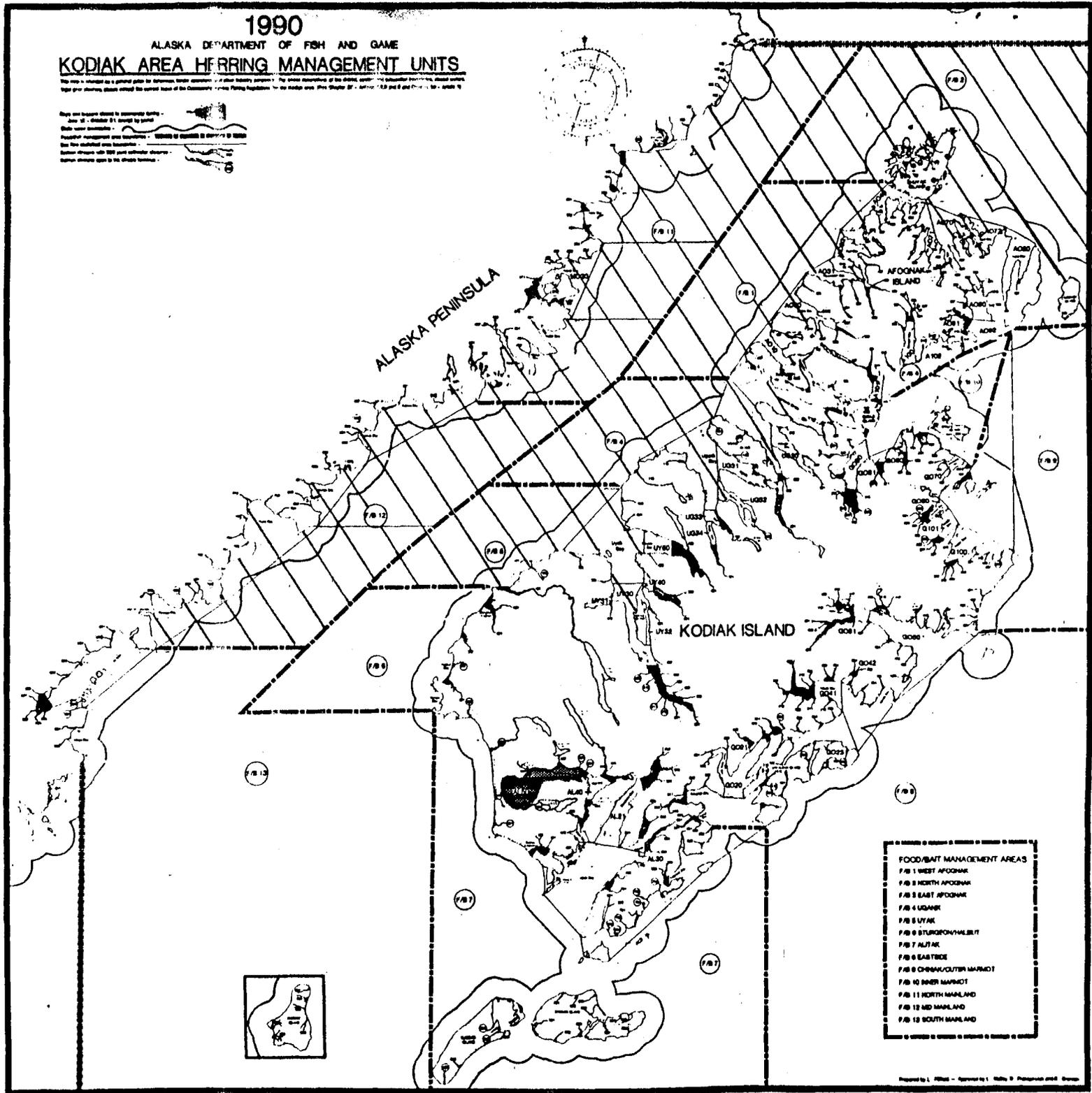
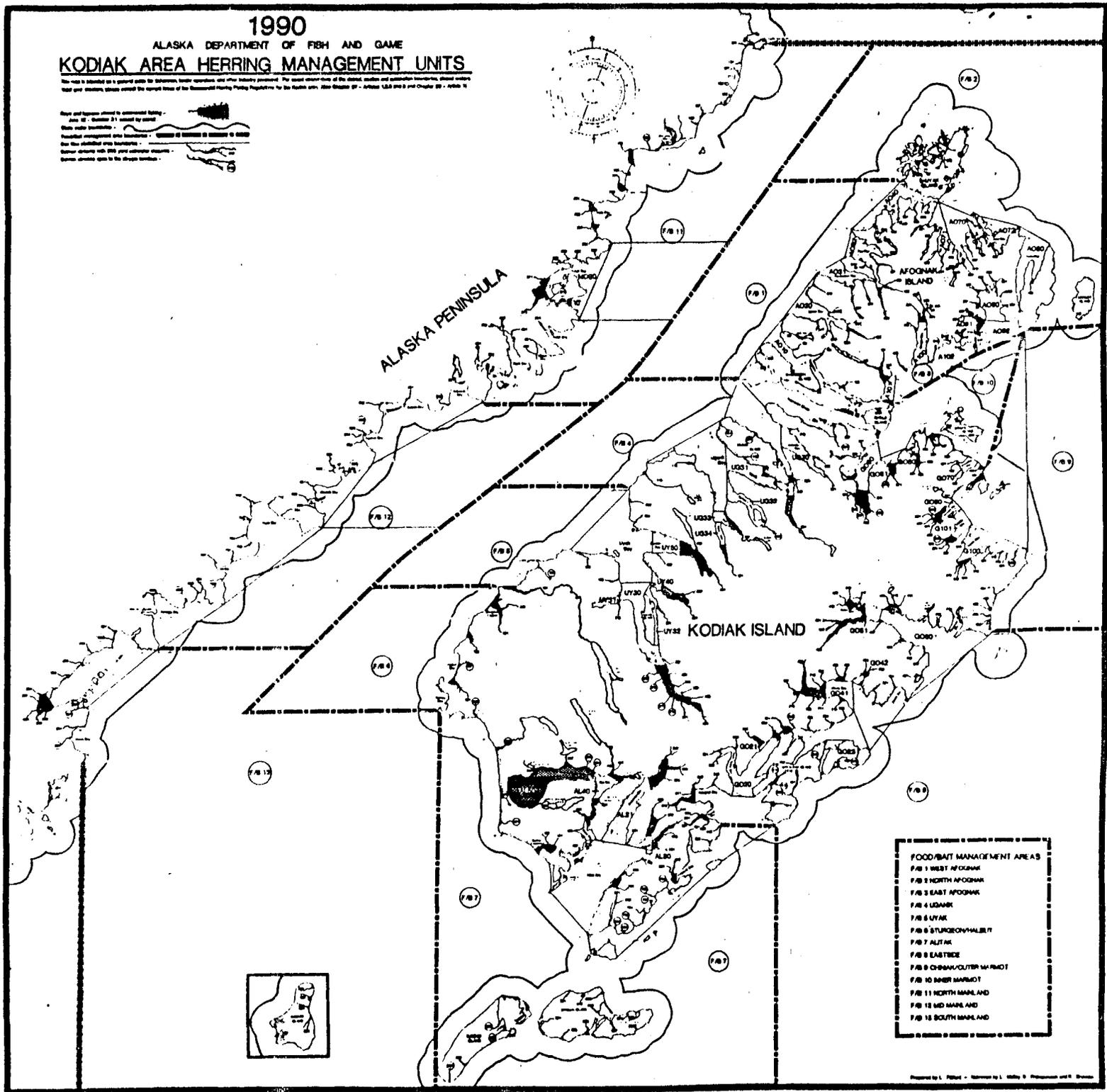


Fig. 2. 1990/91 Statistical chart for the Kodiak food/bait fishery.



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