

Groundfish observer coverage within the central Gulf of Alaska,
for vessels less than 125 feet long, 1993-1996

By

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INTRODUCTION

The domestic groundfish mandatory observer program in the Gulf of Alaska (GOA) has been in effect since 1989 and is administered by National Marine Fisheries Service (NMFS, REF 1997a). The data collected by the observers is used in many forums, such as estimates of stock size. Observers are responsible for collecting data on total catch, species measurements, and collection of biological samples for age structure determination, as well as the amount of bycatch or prohibited species catch (PSC) in groundfish fisheries (REF 1997b). The PSC can greatly affect groundfish fisheries, limiting fisheries if PSC caps are reached or exceeded. Prohibited species in the GOA include king crab (*Paralithodes sp.*), Tanner crab (*Chionoecetes sp.*), salmon (*Oncorhynchus sp.*) and Pacific halibut (*Hippoglossus stenolepis*), however, the only species with a PSC cap which has affected the groundfish fisheries in the GOA has been bycatch of Pacific halibut (NMFS 1998b).

The current regulations stipulate observer coverage levels according to vessel size (REF 1997a, Federal Register 1998b). An observer must be taken on all fishing trips for vessels 125 feet or longer, and this level of coverage is referred to as 100% observer coverage. If a vessel is between 60 and 124 feet, inclusively, the vessel must carry an observer on 30% of its trips for a specific fishery, and this coverage is referred to as 30% observer coverage. Lastly, vessels less than 60 feet are not required to carry observers and this coverage level is referred to as 0% observer coverage.

Weekly estimates of PSC for each targeted fishery are calculated by NMFS. A procedure, known as the "blend system", uses weekly production reports (WPR) and observer PSC rates to estimate PSC catch. For catcher-processors and mother-ship, which tend to have 100% observer coverage, the catch and PSC estimate are calculated for each vessel, using that vessel's at-sea WPR and observer PSC rates. However, to estimate the weekly PSC for catcher vessels, which tend to be less than 125 feet long, the blend system employs shoreside WPR and an average PSC rate. The average PSC rate is estimated from PSC and catch data collected by observers on catcher vessels (NMFS 1998a). For a more complete description of the blend system and PSC catch estimation see NMFS (1998a). Though no error estimates are provided for the PSC reports, it is likely that there is less precision in the estimates for catcher vessels than estimates from motherships and catcher-processors.

Vessels between 60 and 124 feet long are responsible for insuring 30% observer coverage. How each vessel meets this requirement is largely at its own discretion, with the guidelines set down by the NMFS. NMFS states observer coverage is 30% of the number of trips for each individual federal reporting area. Because the NMFS reporting areas are relatively large (Federal Register 1998a) and since there is no requirement for the percent of harvest to be covered, large geographic areas and substantial portions of the harvest may receive little or no observer coverage.

The purpose of this report is to estimate the amount of observer coverage for vessels less than 125 feet. The report will address this coverage in terms of the amount of groundfish caught (in pounds), and location (by ADF&G statistical areas), as well as comparing the catch of these vessels to the overall harvest by species group. Further, this report will document any major trends in observer coverage in the central GOA, by area and/or species group. However, this

report will not try to document all trends or aspects of observer coverage, rather this report should be used as a general source of information to the public and government agencies.

METHODS

Data on GOA groundfish landings and observer coverage were obtained from three sources, the fish ticket database (abbreviated as TIX) maintained by ADF&G, the groundfish observer database maintained by NMFS and the annual groundfish harvest reports (NMFS 1995, 1996a, 1996b, 1997). Boat length data was obtained from the Commercial Fisheries Entry Commission (CFEC) database maintained by ADF&G and the groundfish observer database maintained by NMFS.

The TIX database provided information from 1993-1996 on total groundfish caught (in pounds) by species group, vessel, date, gear type, and ADF&G statistical area. The catch information for each species on individual tickets was combined into groups similar to "target fishery" groups that NMFS employs for catch summaries and PSC reports (NMFS 1995, 1996a, 1996b, 1997).

The target fishery groups used by NMFS have changed from 1993 to 1996 (NMFS 1995, 1996a, 1996b, 1997). Due to this variation in reporting, it was necessary to make species groupings which could be used in all years, and not necessarily according to a single year's target fishery groups as defined by NMFS. The species groups used in this report were: Arrowtooth Flounder, Atka Mackerel, Deep Water Flatfish, Pacific Cod, Pollock, Rex Sole, Sablefish, Shallow Water Flatfish and Rockfish. The "Other" group, which has been reported by NMFS in all years (NMFS 1995, 1996a, 1996b, 1997), was not used in these analyses due to possible discrepancies in species included in this group. Therefore, the "Other" species group was not found to be useful for this analysis. Squid, octopus, sculpin, capelin and salmon sharks, along with many other species, are all placed in the "Other" group. Due to the exclusion of the "Other" group, the total catch on a fish ticket is often greater than the sum of the catch by species group.

The groundfish observer database provided data on the specific days observers were onboard a vessel, vessel length and gear employed. The vessel lengths from the groundfish observer database were used to identify those vessels required to have 100% observer coverage (vessels 125 feet or longer) and those to have 30% observer coverage (vessels between 60 and 124 feet). Vessel lengths for those boats without observer coverage were obtained from the CFEC database.

A single database was constructed for each year, 1993-1996. Each database consisted of records for each vessel, including gear type, vessel length, ADF&G statistical area fished, trip starting date, trip ending date (or fish ticket delivery date), pounds caught of each species group, total pounds caught, and whether the trip was observed. To determine whether a fish ticket represented an observed trip, the month and day of the vessel departure and return, from the fish ticket, were compared to the dates of all observed trips for that vessel from the observer database. If one or more days of observer data were collected between the departure and returning days on the fish ticket, then the trip was labeled as an "observed trip". In cases where the fish ticket provided only a return date, the ticket was labeled as an observed trip if any observer data was collected the day of return, the day before the return or two days before the

return. Some subjectivity was used on a few (< 5%) questionable fish tickets to determine if the fish ticket represented an observed trip, with a tendency to label the trip as an observed trip.

The above methodology for labeling a trip as observed might imply bias toward overestimating the number of observed trips. However, not all vessels with observers would have turned in fish tickets, since a fish ticket is not required if the vessel is delivering to a processor outside state waters (> 3 nautical miles, ADF&G 1997). Also, if a vessel of any size had an observer and the observer was de-certified, often all the data collected by that observer would be “thrown-out” and no record of that observer’s trips would be available in the observer database (Dave Ackley, Biometrician, ADF&G Juneau, personal communication). A vessel could therefore be in compliance with observer requirements but have no observer data available for a trip. This additional fact makes it difficult to assess whether the observer coverage (defined below) in this report was an overestimate or underestimate. To assist in evaluating this problem, two data sets were constructed from subsets of each year’s database for vessels that were required to have 30% observer coverage (vessels between 60 and 124 feet long). The first set consisted of records that had at least one entry in the observer database and at least one entry in the fish ticket database for a given year. The second data set consisted of records associated with all vessels that were known to have a length between 60 and 124 feet and had any entry in the fish ticket database for a given year. The first data set would provide a higher estimate of observer coverage while the second data set a lower estimate.

A final data set was constructed which consisted of entries associated with all vessels less than 125 feet long. This data set provides for the observer coverage which would be used in the blend system estimates for vessels less than 125 feet long.

The amount of observed and unobserved catch was estimated for each species group, gear type, ADF&G statistical area, and year. The estimates were calculated by summing the ADF&G fish ticket catch (which is in pounds) for trips labeled as observed or unobserved. All catch values from TIX were converted to metric tons, to be consistent with the NMFS harvest reporting (NMFS 1995, 1996a, 1996b, 1997). Maps of the central GOA were then constructed for each species group, gear type, and year. These maps included thematic pie charts for each ADF&G statistical area, showing the relative proportion of observed TIX catch to unobserved TIX catch, with the size of the pie chart indicating the relative catch (in metric tons). Due to the variation among years in the catch for an individual species/gear group, pie charts for each map are scaled to the maximum reported TIX catch in an individual ADF&G statistical area, for that year. Only ADF&G statistical areas which had 3 or more vessels recording landings for the species group were shown, due to confidentiality. Also, maps were made only for species groups where 5 or more metric tons were caught in two or more ADF&G statistical areas, to minimize the number of maps.

A summary for each data set was also constructed. For the summaries, observer coverage was estimated for the combined ADF&G fish ticket catch of Federal Management areas 620 and 630 by species group, gear type and year. Observer coverage for combined Federal Management areas 620 and 630 was estimated by summing the TIX catch (in metric tons) by species group, gear type and year for trips labeled as observed, then dividing by the sum of all TIX catches (in metric tons) by species group, gear type and year. The reason all observer coverage estimates are based on weight (instead of trips like the NMFS uses) was because many species groups can

be caught in a single haul or during a single trip and weight provides a means to balance the varying catch rates between vessels and trips.

The calculation of observed coverage in both the thematic maps and summary tables did not account for varying sample rates by observers. Most observers cannot sample every haul on a trip, mostly due to time limitations. Observers tend to sample between 50% to 70% of the hauls made in a trip, but may be as low as 15% and as high as 100% (Dr. William Carp, Task Leader, North Pacific Groundfish Observer Program, NMFS, Seattle, personnel communication). Due to this uncertainty in observer sampling rate, the sampling rate was not used in estimating observer coverage. However, this could be another reason the estimated observer coverage, calculated by the above method, may be a minimal estimate.

The annual percent that the reported fish ticket catch represented of the total harvest, as reported by NMFS (1995, 1996a, 1996b, 1997), that was caught by species group, gear type and year for each data set, was also estimated. These summaries were calculated for each species group and gear type by summing the TIX catch within Federal Management areas 620 and 630 and dividing that sum by the total harvest by species group and gear type as reported by the NMFS for Federal Management areas 620 and 630 (NMFS 1995, 1996a, 1996b, 1997). The total harvest reported by the NMFS includes the combined catch of all vessels regardless of size. NMFS does not differentiate between bottom and mid-water trawling, therefore the bottom and mid-water trawl gear types were combined in the three data sets, from the TIX information, for these estimates. These summary estimates were calculated to evaluate how much of the total catch, by species group and gear type, was being taken by the different vessel classes (i.e. data sets).

RESULTS AND DISCUSSION

Vessels included in the first data set maintained about 30% or better observer coverage, from this analysis, for most species groups, gear types and years (Tables 1-8). The lowest observer coverage of total catch was 22.2% for the pot fishery in 1996, while the greatest observer coverage of total catch was 49.6% for the midwater trawl fishery in 1995. Observer coverage for individual species/gear groups varied from 0% to 100%. However, the species/gear groups with larger catches (> 1,000 mt from TIX) ranged from 11.2% to 57.5% observer coverage.

The summaries of observer coverage estimated from the second data set varied little from the first data set for the trawl fisheries but generally decreased more in the longline and pot fisheries (Tables 9-16). The lowest observer coverage of total catch was 12.5 % for the longline fishery in 1994, while the greatest observer coverage of total catch was 48.9% for the midwater trawl fishery in 1995. The species/gear groups observer coverage ranged from 0% to 100%, with the species/gear groups with larger catches (> 1,000 mt from TIX) ranging from 4.3% to 48.9%.

In the summaries from the last data set (all vessels less than 125 feet long), the observer coverage was reduced in all fisheries, however the coverage reduction was greater in the longline and pot fisheries (Table 17-24). This is illustrated by noticing that all observer coverage of total catch for longline or pot fisheries were less than 13.5%, with half being below 10.0%. The lowest observer coverage for total catch was 4.7% in the 1994 longline fishery and the greatest observer

coverage was 46.5% for the 1995 midwater trawl fishery. The species/gear groups with larger catches (> 1,000 mt from TIX) ranged from 0.6% to 46.5%.

There was little difference between the first and second data sets with regards to the percentage of total trawl harvest (NMFS 1995, 1996a, 1996b, 1997) taken from TIX reporting vessels between 60 and 124 feet long (Tables 1, 3, 5, 7, 9, 11, 13, 15). In general, these vessels between 60 and 124 feet long took 50% to 65% of the overall trawl catch, as reported by the NMFS for all trawl vessels. The catches were dominated by pollock and Pacific cod, which were taken at about 72% to 85% for pollock and 48% to 66% for Pacific cod. The percentage of the total trawl harvest which was recorded on fish tickets by vessels less than 125 feet long was between 60% to 70% of the reported NMFS trawl harvest. Once again, pollock and Pacific cod were the dominate species in the trawl catch, with 78% to 91% of the pollock NMFS reported trawl harvest and 76% to 89% of the Pacific cod NMFS reported trawl harvest. The remaining 30% to 40% of the catch not caught by vessels less than 125 feet was primarily harvested by vessels 125 feet or longer, although a small percentage (< 5%) was from vessels less than 125 feet long which did not turn in fish tickets.

The longline and pot fisheries varied more than the trawl fishery in the percent of harvest recorded in TIX compared to the NMFS harvest reports (Tables 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24). For the longline harvest, 14% to 32% of the total NMFS reported harvest was recorded in TIX for vessels between 60 and 124 feet long. The longline fishery was dominated by sablefish and Pacific cod, however the percentage of sablefish recorded by vessels between 60 and 124 feet long (from TIX) varied more (11% to 57%) than did Pacific cod (4% to 32%). As with the trawl summaries, there was little difference in the percentages estimated for the first and second data sets. When all vessels less than 125 feet long were included, between 70% and 84% of the longline harvest was recorded in fish tickets, which was a considerable increase from vessels between 60 and 124 feet long.

The pot fishery was dominated by Pacific cod in all summaries, with reported fish ticket landings making up over 90% of all fish caught in pots (Tables 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24). Vessels between 60 and 124 feet long reported between 30% to 52% of the total pot caught fish (Pacific cod). Vessels less than 125 feet long reported between 100% to 104% of the pot caught fish (when TIX total pot catch is compared to NMFS total pot catch). Very few, if any, vessels 125 feet or longer fish with pots (Dave Jackson, Fishery Biologist, ADF&G Kodiak, personal communication).

The calculation of the ratio of total catch reported on ADF&G fish tickets to the total groundfish harvest reported by NMFS lead to some unexpected results. More pounds of fish (Pacific cod mostly) were reported on ADF&G fish tickets than had been reported by NMFS in the pot fishery. The probable cause for this discrepancy was that vessels fishing entirely within 3 nm from shore are not required to obtain a federal permit (Andy Smoker, NMFS, Auke Bay, AK, personnel communication).

The location and amount of catch (from TIX) varied extensively among years, gear types and species groups (Figures 1-188). Since the summaries of the first and second data sets were, in general, similar, the thematic maps for vessels 60 to 124 feet long (Figures 1-92) were based on the second data set. This amount of information could lend itself to an extensive discussion, with many suppositions and questionable conclusions. It is not the intent of the author, as stated in

the Introduction, to go into detail for each species group, year and gear type, but rather provide information and note any remarkable trends.

A few trends and observations were noted from the thematic maps. There seemed to be fairly good observer coverage (> 25%) by statistical area for most years, species groups and gear types for vessels between 60 and 124 feet long (Figures 1-92), as was indicated in the summary tables (Tables 1-16). The fairly good observer coverage (> 25%) by statistical area decreased when vessels less than 60 feet were included (Figures 93-188, Tables 17-24). This is because observers are not required on vessels less than 60 feet, and as such the amount of unobserved catches increases, while the amount of observed catch stays the same, therefore lowering the percentage of observer coverage.

The different gear types and vessel sizes tended to key in on different species groups, as is shown when the thematic maps and summary tables are viewed together. Pacific cod were caught in the greatest or second greatest quantity for all gear types and years, except in the mid-water trawl fishery in 1995 and 1996 (Tables 1-24). In both the bottom trawl and pot fisheries, Pacific cod were the dominate species group caught by weight; more than twice any other species group (Tables 1-24). However when comparing bottom trawl and pot gear observer coverage for Pacific cod there was a noticeable difference. The observer coverage for vessels between 60 and 124 feet long in the bottom trawl fishery was greater than 25% with the exception of 1995 when it was about 21%, while in the pot fishery observer coverage for this vessel class was above 25% in 1995 only. Both Pacific cod bottom trawl and pot fisheries had lower observer coverage estimates when using the last data set (vessels < 125 feet long). However, the observer coverage of bottom trawls fell to between 14% to 21%, while the observer coverage in the pot fishery fell to between 7% to 12%. These trends are also noticeable in the thematic maps for Pacific cod catches in the bottom trawl (Figures 25-28, 89-92) and pot fisheries (Figures 117-120, 185-188).

The longline fishery, which was dominated by catches of sablefish and Pacific cod, had some notable trends. Based on TIX data, sablefish were harvested at twice the rate of Pacific cod in 1993 and 1994 (Tables 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24). The observer coverage for the sablefish longline fishery, as estimated from the first two data sets, was 30% or greater. An exception was in 1994 when sablefish observer coverage was only 11% in the first data set and 4% for the second (Tables 2, 4, 6, 8, 10, 12, 14, 16). When the smaller vessels were included (the last data set), the observer coverage for the longline sablefish fishery dropped considerably to having no observer coverage more than 19% and a low of 2% in 1994 (Tables 18, 20, 22, 24). These trends are fairly obvious when viewing the thematic maps, especially the lack of observer coverage in 1994. The most notable increase in small vessel (< 60 feet long) effort and catch was from the waters south of the Kenai Peninsula, especially in 1993 and 1994 (Figures 77-80, 173-176).

Lastly, the mid-water trawl harvest was dominated by the pollock catch, which exceeded any other species group catches by over 100 times in 1993 and 1995, and by over 25 times in 1994 and 1996 (Tables 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23). The observer coverage of mid-water trawl caught pollock in all three data sets, was greater than 30%, and in 1995 and 1996 was above 40%. The thematic maps show the bulk of the pollock were harvested off east Kodiak Island in 1993-1995, with a greater area wide catch in 1996, especially in the south-west area of the Alaska Peninsula (Figures 65-68, 167-160).

In summary, it appears from the data that observer coverage within the required 30% category (vessels between 60 and 124 feet long) has been fairly consistently reported at near desired levels. Also, most fisheries did not show a tendency to have lower coverage by location (ADF&G statistical area). The largest deviation from the 30% coverage appears to be attributable to gear type with trawl fisheries having somewhat higher coverage than fixed gear, though definite overlap. Since the observer coverage calculated in this report was based on catch (weight) and not on number of trips, as prescribed by NMFS, some deviations from an exact 30% coverage would be expected.

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Table 1. The 1993 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1995), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database during 1993 and were between 60 and 124 feet long (first data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	2,150	37.7%	129	29.9%	15,302	2,279	14.9%
Flathead Sole	1,642	21.4%	22	71.1%	2,238	1,664	74.3%
Rex Sole ^b	1,038	39.8%	32	59.8%		1,070	n/a
Deep Water Flatfish	1,475	11.2%	51	38.4%	5,655	1,526	27.0%
Shallow Water Flatfish	7,661	20.3%	175	46.3%	8,756	7,836	89.5%
Atka Mackerel	3	67.2%	0	n/a	0	3	n/a
Pacific Cod	16,038	25.4%	393	16.2%	25,025	16,431	65.7%
Pollock	7,648	28.9%	62,765	33.9%	86,171	70,413	81.7%
Sablefish	474	24.6%	24	22.9%	1,983	498	25.1%
Rockfish (all species)	409	23.5%	15	28.4%	10,740	424	3.9%
Total Catch	38,954	25.5%	63,725	33.8%	160,645	102,679	63.9%

^a Harvest reported by NMFS (1995) includes catch from all vessels.

^b Rex sole was not a species group for NMFS in 1993 (NMFS 1995).

Table 2. The 1993 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1995), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database, during 1993 and were between 60 and 124 feet long (first data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	1,081	25	91.2%	2.3%	3	< 1	0.0%	1.0%
Pacific Cod	2,837	108	14.2%	3.8%	8,109	3,453	28.6%	42.6%
Sablefish	9,988	1,897	48.2%	19.0%	0	0	n/a	n/a
Rockfish (all species)	1,213	87	57.5%	7.2%	0	< 1	0.0%	n/a
Total Catch	16,107	2,153	48.0%	13.4%	8,289	3,555	27.8%	42.9%

^a Harvest reported by NMFS (1995) includes catch from all vessels.

Table 3. The 1994 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996a), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database during 1994 and were between 60 and 124 feet long (first data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	2,955	39.9%	304	35.6%	20,398	3,259	16.0%
Flathead Sole	1,395	25.8%	72	66.9%	2,011	1,467	72.9%
Rex Sole	1,394	38.3%	76	77.0%	3,508	1,470	41.9%
Deep Water Flatfish	2,166	26.4%	48	69.9%	2,774	2,214	79.8%
Shallow Water Flatfish	2,845	22.6%	208	40.6%	3,591	3,053	85.0%
Atka Mackerel	1	0.0%	93	100.0%	877	94	10.7%
Pacific Cod	11,649	21.5%	745	15.1%	21,039	12,394	58.9%
Pollock	5,928	29.7%	63,296	31.9%	83,117	69,224	83.3%
Sablefish	602	30.3%	26	56.1%	1,952	628	32.2%
Rockfish (all species)	648	31.0%	9	79.6%	8,880	657	7.4%
Total Catch	29,895	26.9%	64,930	32.0%	150,219	94,825	63.1%

^a Harvest reported by NMFS (1996a) includes catch from all vessels.

Table 4. The 1994 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996a), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database, during 1994 and were between 60 and 124 feet long (first data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	416	2	16.1%	0.5%	3	< 1	0.0%	3.3%
Pacific Cod	2,778	714	42.9%	25.7%	6,703	2,038	24.7%	30.4%
Sablefish	7,421	849	11.5%	11.4%	4	0	53.3%	1.6%
Rockfish (all species)	1,257	23	10.5%	1.8%	0	0	n/a	n/a
Total Catch	12,504	1,606	25.3%	12.8%	6,877	2,038	24.7%	29.6%

^a Harvest reported by NMFS (1996a) includes catch from all vessels.

Table 5. The 1995 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996b), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database during 1995 and were between 60 and 124 feet long (first data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	4,226	36.3%	103	46.1%	15,195	4,329	28.5%
Flathead Sole	970	25.4%	1	70.0%	1,560	971	62.2%
Rex Sole	1,265	37.4%	< 1	32.6%	3,627	1,265	34.9%
Deep Water Flatfish	1,225	29.0%	< 1	13.2%	1,872	1,225	65.4%
Shallow Water Flatfish	3,903	27.4%	17	65.3%	5,025	3,920	78.0%
Atka Mackerel	3	100.0%	0	n/a	370	3	0.8%
Pacific Cod	17,441	28.0%	61	54.5%	27,767	17,502	63.0%
Pollock	3,119	44.3%	24,894	49.6%	38,829	28,013	72.1%
Sablefish	389	29.0%	< 1	63.3%	1,840	389	21.1%
Rockfish (all species)	1,015	45.0%	< 1	9.5%	12,463	1,015	8.1%
Total Catch	34,500	31.3%	25,140	49.6%	110,742	59,640	53.9%

^a Harvest reported by NMFS (1996a) includes catch from all vessels.

Table 6. The 1995 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996b), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database, during 1995 and were between 60 and 124 feet long (first data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	836	28	39.1%	3.3%	9	< 1	78.6%	1.3%
Pacific Cod	4,724	991	19.9%	21.0%	12,986	5,651	28.2%	43.5%
Sablefish	5,832	2,871	33.1%	49.2%	0	< 1	57.7%	n/a
Rockfish (all species)	1,075	79	31.2%	7.3%	2	< 1	0.0%	3.2%
Total Catch	13,660	4,155	29.5%	30.4%	13,162	5,718	28.0%	43.4%

^a Harvest reported by NMFS (1996b) includes catch from all vessels.

Table 7. The 1996 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1997), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database during 1996 and were between 60 and 124 feet long (first data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	4,088	31.4%	164	8.3%	19,503	4,252	21.8%
Flathead Sole	1,152	23.5%	20	2.8%	2,162	1,172	54.2%
Rex Sole	1,130	18.4%	197	0.0%	5,202	1,327	25.5%
Deep Water Flatfish	1,265	34.0%	90	0.1%	1,941	1,355	69.8%
Shallow Water Flatfish	6,479	22.3%	114	13.6%	8,896	6,593	74.1%
Atka Mackerel	7	5.7%	0	n/a	9	7	77.8%
Pacific Cod	15,050	28.1%	63	44.7%	32,014	15,113	47.2%
Pollock	4,088	18.5%	17,050	44.2%	25,614	21,138	82.5%
Sablefish	654	33.7%	22	0.1%	1,650	676	41.0%
Rockfish (all species)	4,177	32.0%	32	32.5%	11,857	4,209	35.5%
Total Catch	39,656	26.5%	17,777	42.8%	112,272	57,433	51.2%

^a Harvest report by NMFS (1997) includes catch from all vessels.

Table 8. The 1996 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1997), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX and at least one entry in the observer database, during 1996 and were between 60 and 124 feet long (first data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	231	9	25.6%	3.9%	5	< 1	0.0%	5.1%
Pacific Cod	5,331	931	38.7%	17.5%	10,219	4,140	22.1%	40.5%
Sablefish	5,120	2,292	42.0%	44.8%	3	0	n/a	0.0%
Rockfish (all species)	972	97	56.7%	10.0%	2	0	n/a	0.0%
Total Catch	12,579	3,372	41.0%	26.8%	10,417	4,159	22.2%	39.9%

^a Harvest report by NMFS (1997) includes catch from all vessels.

Table 9. The 1993 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1995), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1993 and were between 60 and 124 feet long (second data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	2,151	37.7%	129	29.9%	15,302	2,280	14.9%
Flathead Sole	1,642	21.4%	22	71.1%	2,238	1,664	74.3%
Rex Sole ^b	1,039	39.7%	32	59.8%		1,071	
Deep Water Flatfish	1,475	11.2%	51	38.4%	5,655	1,526	27.0%
Shallow Water Flatfish	7,689	20.2%	175	46.3%	8,756	7,864	89.8%
Atka Mackerel	3	67.2%	0	n/a	0	3	n/a
Pacific Cod	16,071	25.3%	402	15.8%	25,025	16,473	65.8%
Pollock	7,648	28.9%	62,869	33.9%	86,171	70,517	81.8%
Sablefish	474	24.6%	24	22.9%	1,983	498	25.1%
Rockfish (all species)	409	23.5%	15	28.4%	10,740	424	3.9%
Total Catch	39,018	25.4%	63,839	33.8%	160,645	102,857	64.0%

^a Harvest reported by NMFS (1995) includes catch from all vessels.

^b Rex sole was not a species group for NMFS in 1993 (NMFS 1995)

Table 10. The 1993 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1995), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1993 and were between 60 and 124 feet long (second data sets).

Species Group	Longline				Pots			
	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	1,081	38	60.7%	3.5%	3	< 1	0.0%	3.5%
Pacific Cod	2,837	252	6.1%	8.9%	8,109	4,185	23.6%	51.6%
Sablefish	9,988	2,837	32.2%	28.4%	0	0	n/a	n/a
Rockfish (all species)	1,213	143	35.0%	11.8%	0	0	n/a	n/a
Total Catch	16,107	3,326	31.0%	20.6%	8,289	4,289	23.1%	51.7%

^a Harvest reported by NMFS (1995) includes catch from all vessels.

Table 11. The 1994 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996a), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1994 and were between 60 and 124 feet long (second data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	2,961	39.8%	310	35.0%	20,398	3,271	16.0%
Flathead Sole	1,399	25.8%	72	66.9%	2,011	1,471	73.1%
Rex Sole	1,408	37.9%	76	77.0%	3,508	1,484	42.3%
Deep Water Flatfish	2,173	26.3%	48	69.9%	2,774	2,221	80.1%
Shallow Water Flatfish	2,864	22.4%	209	40.4%	3,591	3,073	85.6%
Atka Mackerel	1	0.0%	93	100.0%	877	94	10.7%
Pacific Cod	11,909	21.0%	746	15.1%	21,039	12,655	60.2%
Pollock	6,261	28.1%	64,366	31.4%	83,117	70,627	85.0%
Sablefish	606	30.0%	27	56.1%	1,952	633	32.4%
Rockfish (all species)	654	30.7%	9	79.4%	8,880	663	7.5%
Total Catch	30,552	26.3%	66,008	31.5%	150,219	96,560	64.3%

^a Harvest report by NMFS (1996a) includes catch from all vessels.

Table 12. The 1994 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996a), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1994 and were between 60 and 124 feet long (second data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	416	9	2.8%	2.2%	3	< 1	0.0%	8.2%
Pacific Cod	2,778	873	35.0%	31.4%	6,703	3,205	15.7%	47.8%
Sablefish	7,421	2,301	4.3%	31.0%	4	< 1	53.3%	1.6%
Rockfish (all species)	1,257	60	4.0%	4.8%	0	0	n/a	n/a
Total Catch	12,504	3,272	12.5%	26.2%	6,877	3,209	15.7%	46.7%

^a Harvest report by NMFS (1996a) includes catch from all vessels.

Table 13. The 1995 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996b), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1995 and were between 60 and 124 feet long (second data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	4,237	36.2%	105	45.2%	15,195	4,342	28.6%
Flathead Sole	972	25.3%	1	69.8%	1,560	973	62.4%
Rex Sole	1,267	37.4%	< 1	32.6%	3,627	1,267	34.9%
Deep Water Flatfish	1,225	29.0%	< 1	2.1%	1,872	1,225	65.4%
Shallow Water Flatfish	3,940	27.2%	17	65.3%	5,025	3,957	78.7%
Atka Mackerel	3	100.0%	0	n/a	370	3	0.8%
Pacific Cod	17,655	27.6%	62	53.9%	27,767	17,717	63.8%
Pollock	3,307	41.8%	25,263	48.9%	38,829	28,570	73.6%
Sablefish	389	29.0%	< 1	60.4%	1,840	389	21.1%
Rockfish (all species)	1,015	45.0%	< 1	9.3%	12,463	1,015	8.1%
Total Catch	34,957	30.9%	25,512	48.9%	110,742	60,469	54.6%

^a Harvest report by NMFS (1996b) includes catch from all vessels.

Table 14. The 1995 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996b), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1995 and were between 60 and 124 feet long (second data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	836	29	38.4%	3.5%	9	1	13.4%	11.1%
Pacific Cod	4,724	1,015	19.4%	21.5%	12,986	6,406	24.9%	49.3%
Sablefish	5,832	3,332	28.5%	57.1%	0	< 1	57.7%	n/a
Rockfish (all species)	1,075	94	26.4%	8.7%	2	< 1	0.0%	4.5%
Total Catch	13,660	4,657	26.3%	34.1%	13,162	6,475	24.7%	49.2%

^a Harvest report by NMFS (1996b) includes catch from all vessels.

Table 15. The 1996 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1997), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1996 and were between 60 and 124 feet long (second data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	4,179	30.7%	165	8.3%	19,503	4,344	22.3%
Flathead Sole	1,164	23.3%	20	2.8%	2,162	1,184	54.8%
Rex Sole	1,132	18.3%	197	0.0%	5,202	1,329	25.5%
Deep Water Flatfish	1,297	33.2%	90	0.1%	1,941	1,387	71.5%
Shallow Water Flatfish	6,667	21.7%	114	13.6%	8,896	6,781	76.2%
Atka Mackerel	7	5.7%	0	n/a	9	7	77.8%
Pacific Cod	15,133	27.9%	63	44.5%	32,014	15,196	47.5%
Pollock	4,090	18.5%	17,141	43.9%	25,614	21,231	82.9%
Sablefish	656	33.6%	22	0.1%	1,650	678	41.1%
Rockfish (all species)	4,183	31.9%	32	32.5%	11,857	4,215	35.5%
Total Catch	40,107	26.2%	17,869	42.6%	112,272	57,976	51.6%

^a Harvest report by NMFS (1997) includes catch from all vessels.

Table 16. The 1996 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1997), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1996 and were between 60 and 124 feet long (second data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	%TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	231	9	25.5%	3.9%	5	< 1	0.0%	8.2%
Pacific Cod	5,331	972	37.1%	18.2%	10,219	4,983	18.4%	48.8%
Sablefish	5,120	2,841	33.9%	55.5%	3	0	n/a	0.0%
Rockfish (all species)	972	115	47.7%	11.8%	2	< 1	0.0%	6.4%
Total Catch	12,579	3,990	34.7%	31.7%	10,417	5,007	18.4%	48.1%

^a Harvest report by NMFS (1997) includes catch from all vessels.

Table 17. The 1993 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1995), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1993 and were less than 125 feet long (third data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	2,245	36.1%	130	29.8%	15,302	2,374	15.5%
Flathead Sole	1,664	21.1%	22	71.1%	2,238	1,686	75.3%
Rex Sole ^b	1,046	39.5%	32	59.8%		1,077	
Deep Water Flatfish	1,480	11.2%	51	38.4%	5,655	1,531	27.1%
Shallow Water Flatfish	7,945	19.6%	175	46.3%	8,756	8,120	92.7%
Atka Mackerel	3	67.2%	0	n/a	0	3	n/a
Pacific Cod	20,528	19.8%	407	15.7%	25,025	20,935	83.7%
Pollock	8,768	25.2%	63,178	33.7%	86,171	71,946	83.5%
Sablefish	475	24.6%	24	22.9%	1,983	499	25.2%
Rockfish (all species)	421	22.8%	15	28.4%	10,740	436	4.1%
Total Catch	45,009	22.0%	64,153	33.6%	160,645	109,162	68.0%

^a Harvest reported by NMFS (1995) includes catch from all vessels.

^b Rex sole was not a species group for NMFS in 1993 (NMFS 1995).

Table 18. The 1993 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1995), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1993 and were less than 125 feet long (third data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	% TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	1,081	107	21.3%	9.9%	3	< 1	0.0%	4.7%
Pacific Cod	2,837	2,437	0.6%	85.9%	8,109	8,150	12.3%	100.5%
Sablefish	9,988	8,142	11.2%	81.5%	0	< 1	0.0%	n/a
Rockfish (all species)	1,213	315	15.9%	26.0%	0	< 1	0.0%	n/a
Total Catch	16,107	11,335	9.1%	70.4%	8,289	8,280	12.1%	99.9%

^a Harvest reported by NMFS (1995) includes catch from all vessels.

Table 19. The 1994 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996a), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1994 and were less than 125 feet long (third data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	2,998	39.4%	321	33.8%	20,398	3,319	16.3%
Flathead Sole	1,452	24.8%	72	66.8%	2,011	1,524	75.8%
Rex Sole	1,425	37.5%	76	77.0%	3,508	1,501	42.8%
Deep Water Flatfish	2,176	26.3%	48	69.9%	2,774	2,224	80.2%
Shallow Water Flatfish	3,098	20.7%	210	40.2%	3,591	3,308	92.1%
Atka Mackerel	1	0.0%	93	100.0%	877	94	10.7%
Pacific Cod	17,914	14.0%	777	14.4%	21,039	18,692	88.8%
Pollock	6,780	26.0%	67,019	30.1%	83,117	73,799	88.8%
Sablefish	607	30.0%	27	56.1%	1,952	633	32.4%
Rockfish (all species)	659	30.5%	9	78.1%	8,880	668	7.5%
Total Catch	37,430	21.4%	68,705	30.5%	150,219	106,135	70.7%

^a Harvest report by NMFS (1996a) includes catch from all vessels.

Table 20. The 1994 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996a), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1994 and were less than 125 feet long (third data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	% TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	416	51	0.5%	12.3%	3	< 1	0.0%	15.9%
Pacific Cod	2,778	2,597	11.8%	93.5%	6,703	7,025	7.2%	104.8%
Sablefish	7,421	5,765	9.9%	77.7%	4	< 1	9.9%	8.4%
Rockfish (all species)	1,257	181	1.3%	14.4%	0	0	n/a	n/a
Total Catch	12,504	8,749	4.7%	70.0%	6,877	7,041	7.2%	102.4%

^a Harvest report by NMFS (1996a) includes catch from all vessels.

Table 21. The 1995 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996b), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1995 and were less than 125 feet long (third data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	4,305	35.6%	116	40.7%	15,195	4,421	29.1%
Flathead Sole	1,019	24.2%	2	41.4%	1,560	1,021	65.4%
Rex Sole	1,278	37.0%	< 1	31.3%	3,627	1,279	35.3%
Deep Water Flatfish	1,228	28.9%	< 1	2.1%	1,872	1,228	65.6%
Shallow Water Flatfish	4,346	24.6%	17	63.9%	5,025	4,363	86.8%
Alka Mackerel	3	99.8%	< 1	0.0%	370	3	0.8%
Pacific Cod	22,934	21.3%	73	45.7%	27,767	23,007	82.9%
Pollock	3,762	36.8%	26,531	46.5%	38,829	30,294	78.0%
Sablefish	389	29.0%	< 1	48.5%	1,840	389	21.1%
Rockfish (all species)	1,025	44.6%	< 1	6.6%	12,463	1,026	8.2%
Total Catch	41,297	26.1%	26,806	46.5%	110,742	68,103	61.5%

^a Harvest report by NMFS (1996b) includes catch from all vessels.

Table 22. The 1995 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1996b), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1995 and were less than 125 feet long (third data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	% TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	836	65	17.0%	7.8%	9	1	11.4%	11.1%
Pacific Cod	4,724	4,643	4.3%	98.3%	12,986	13,618	11.7%	104.9%
Sablefish	5,832	5,837	16.3%	100.1%	0	< 1	53.6%	n/a
Rockfish (all species)	1,075	197	12.6%	18.3%	2	1	0.0%	50.0%
Total Catch	13,660	11,177	11.0%	81.8%	13,162	13,725	11.7%	104.3%

^a Harvest report by NMFS (1996b) includes catch from all vessels.

Table 23. The 1996 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1997), and relative proportion of harvest, by species group for trawling vessels within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1996 and were less than 125 feet long (third data sets).

Species Group	Bottom Trawl		Midwater Trawl		Trawl Total		
	TIX Catch	% Observed	TIX Catch	%Observed	Reported Harvest ^a	TIX Catch	%TIX Catch of Harvest
Arrowtooth Flounder	4,366	29.4%	173	7.9%	19,503	4,539	23.3%
Flathead Sole	1,267	21.4%	21	2.7%	2,162	1,288	59.6%
Rex Sole	1,156	17.9%	197	0.0%	5,202	1,353	26.0%
Deep Water Flatfish	1,327	32.5%	90	0.1%	1,941	1,417	73.0%
Shallow Water Flatfish	8,117	17.8%	116	13.4%	8,896	8,233	92.5%
Atka Mackerel	7	5.7%	0	n/a	9	7	77.8%
Pacific Cod	23,696	17.8%	671	4.2%	32,014	24,367	76.1%
Pollock	4,645	16.3%	18,572	40.5%	25,614	23,217	90.6%
Sablefish	685	32.2%	22	0.1%	1,650	707	42.8%
Rockfish (all species)	4,297	31.1%	32	32.2%	11,857	4,329	36.5%
Total Catch	51,241	20.5%	19,918	38.2%	112,272	71,159	63.4%

^a Harvest report by NMFS (1997) includes catch from all vessels.

Table 24. The 1996 estimated groundfish catch (mt) from TIX, observer coverage, NMFS reported harvest (NMFS 1997), and relative proportion of harvest, by species group for vessels using longline or pot gear within the central GOA. The TIX information and observer coverage is from vessels that had at least one entry in TIX during 1996 and were less than 125 feet long (third data sets).

Species Group	Longline				Pots			
	Reported Harvest	TIX Catch	% Observed	% TIX Catch of Harvest	Reported Harvest ^a	TIX Catch	% Observed	%TIX Catch of Harvest
Arrowtooth Flounder	231	17	13.8%	7.4%	5	< 1	0.0%	8.9%
Pacific Cod	5,331	5,013	7.2%	94.0%	10,219	10,546	8.7%	103.2%
Sablefish	5,120	5,120	18.8%	100.0%	3	0	n/a	0.0%
Rockfish (all species)	972	204	26.8%	21.0%	2	< 1	0.0%	11.4%
Total Catch	12,579	10,535	13.1%	83.8%	10,417	10,598	8.7%	101.7%

^a Harvest report by NMFS (1997) includes catch from all vessels.

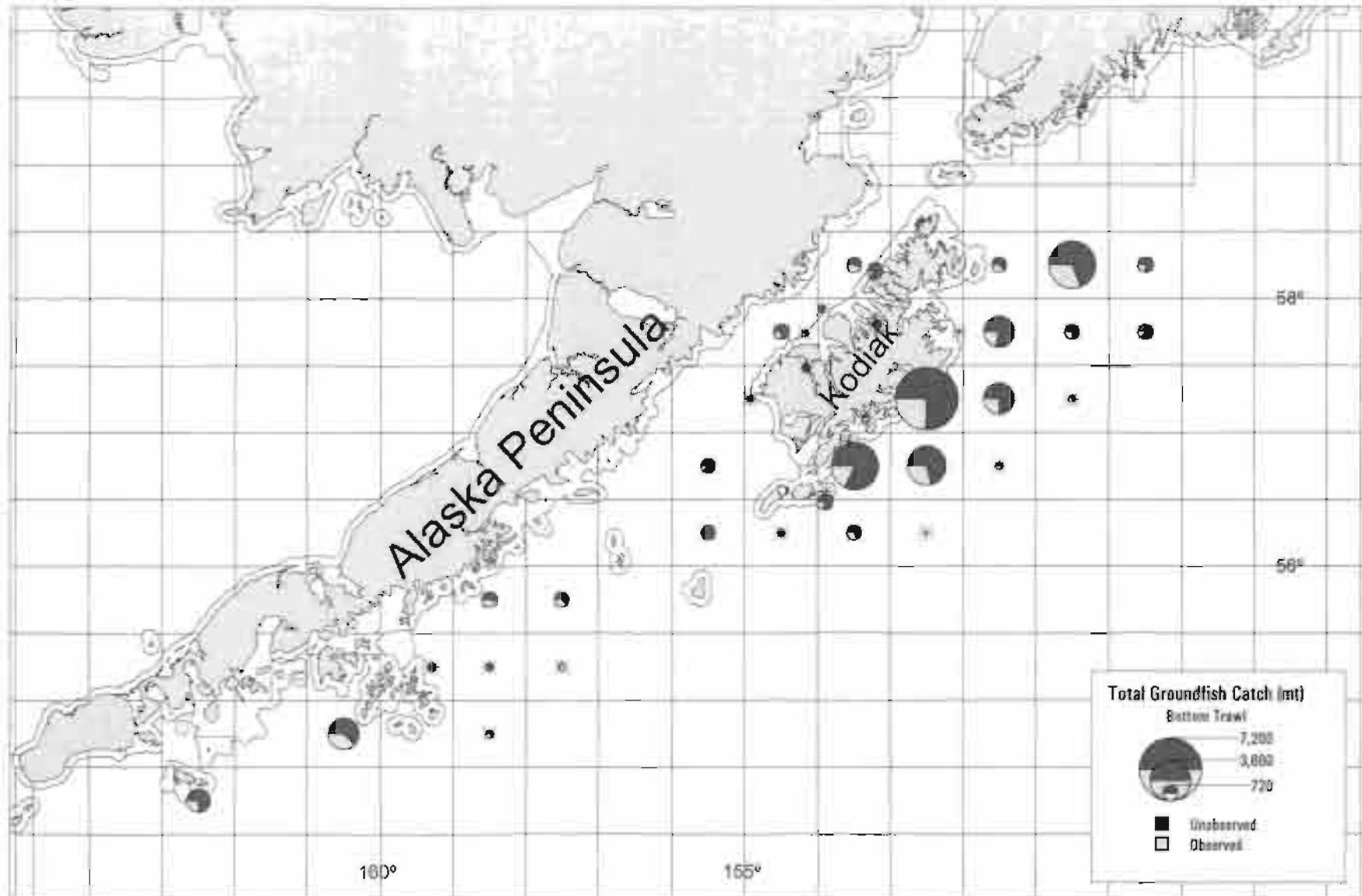


Figure 1. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

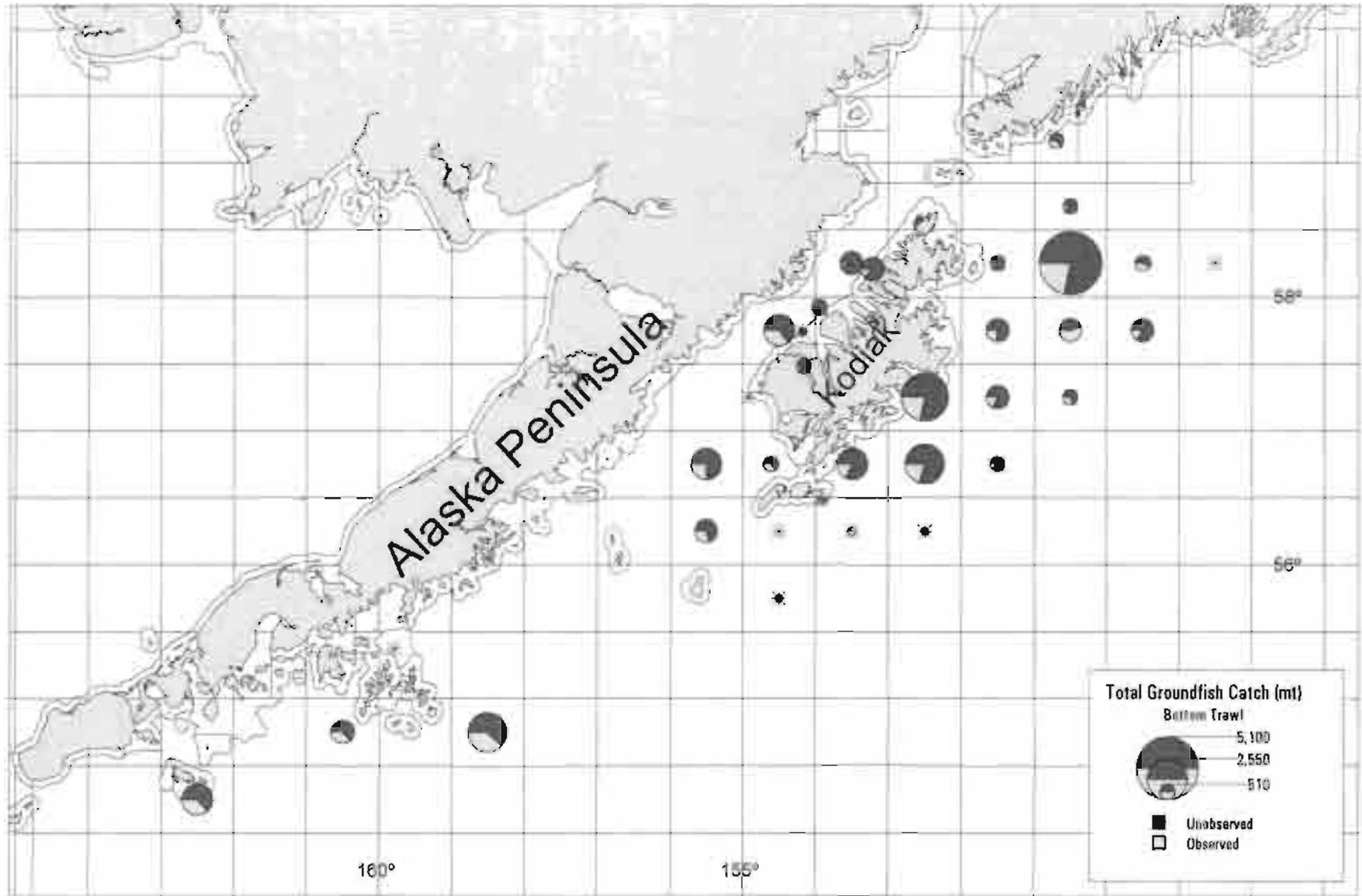


Figure 2. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

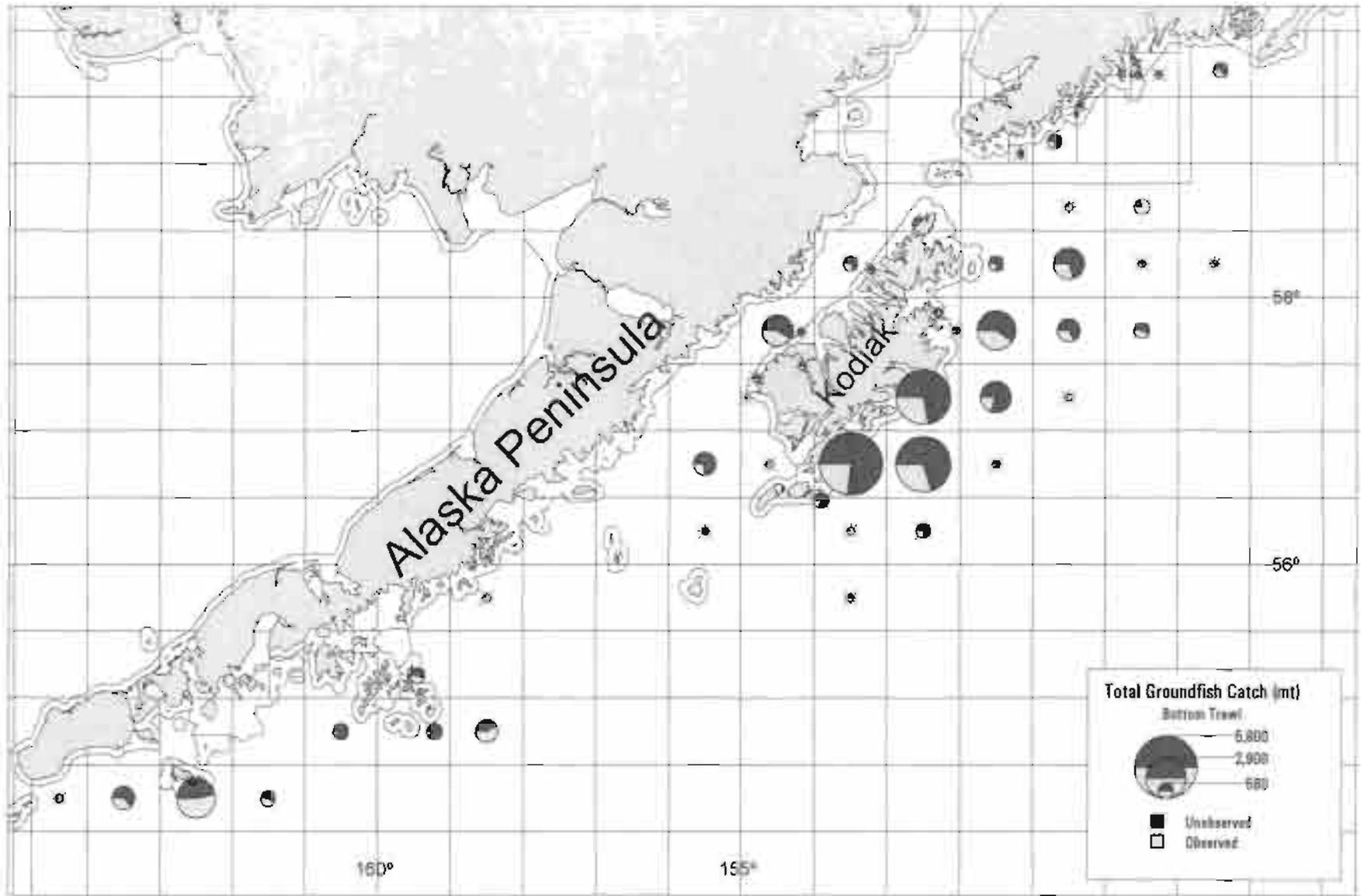


Figure 3. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995

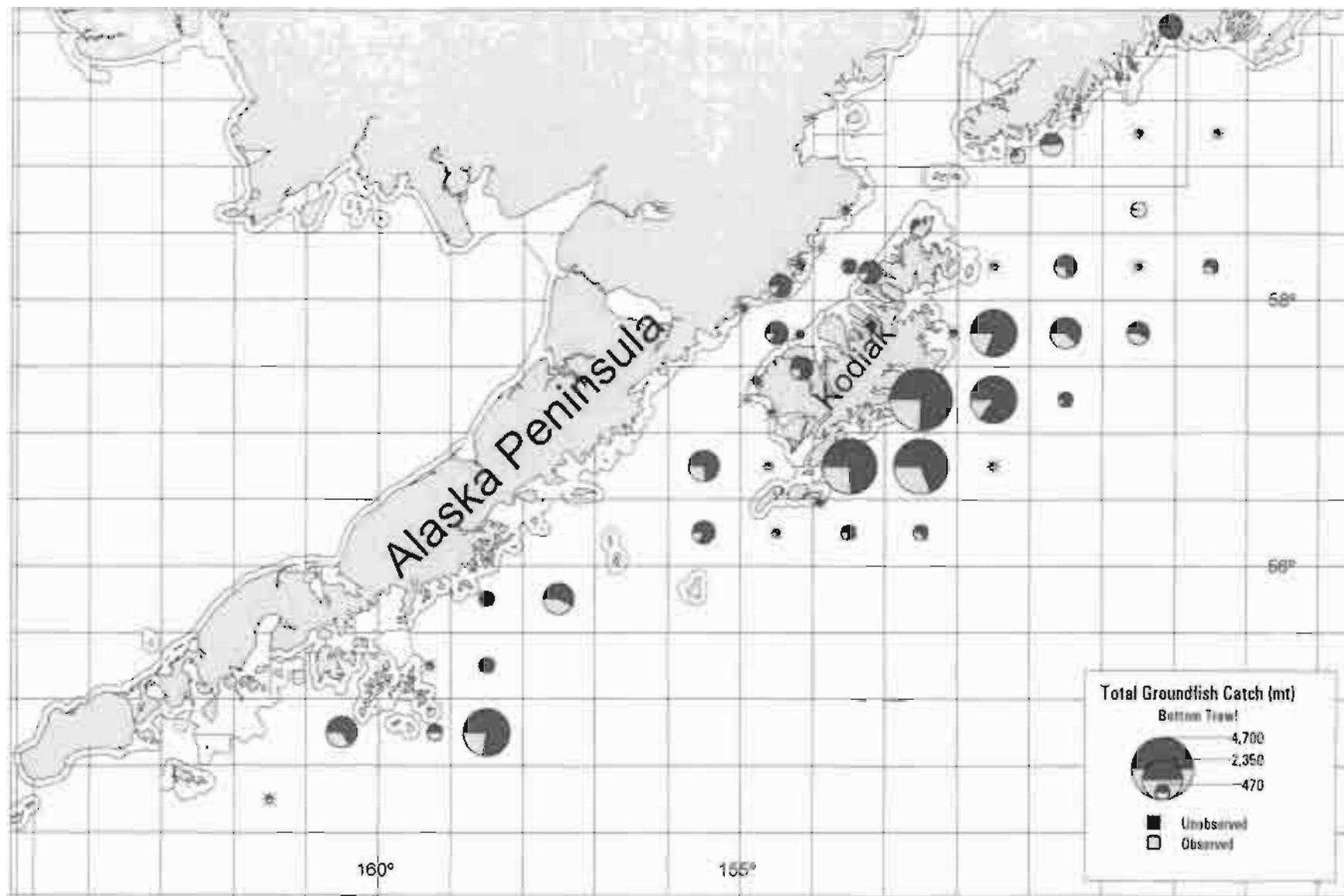


Figure 4. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

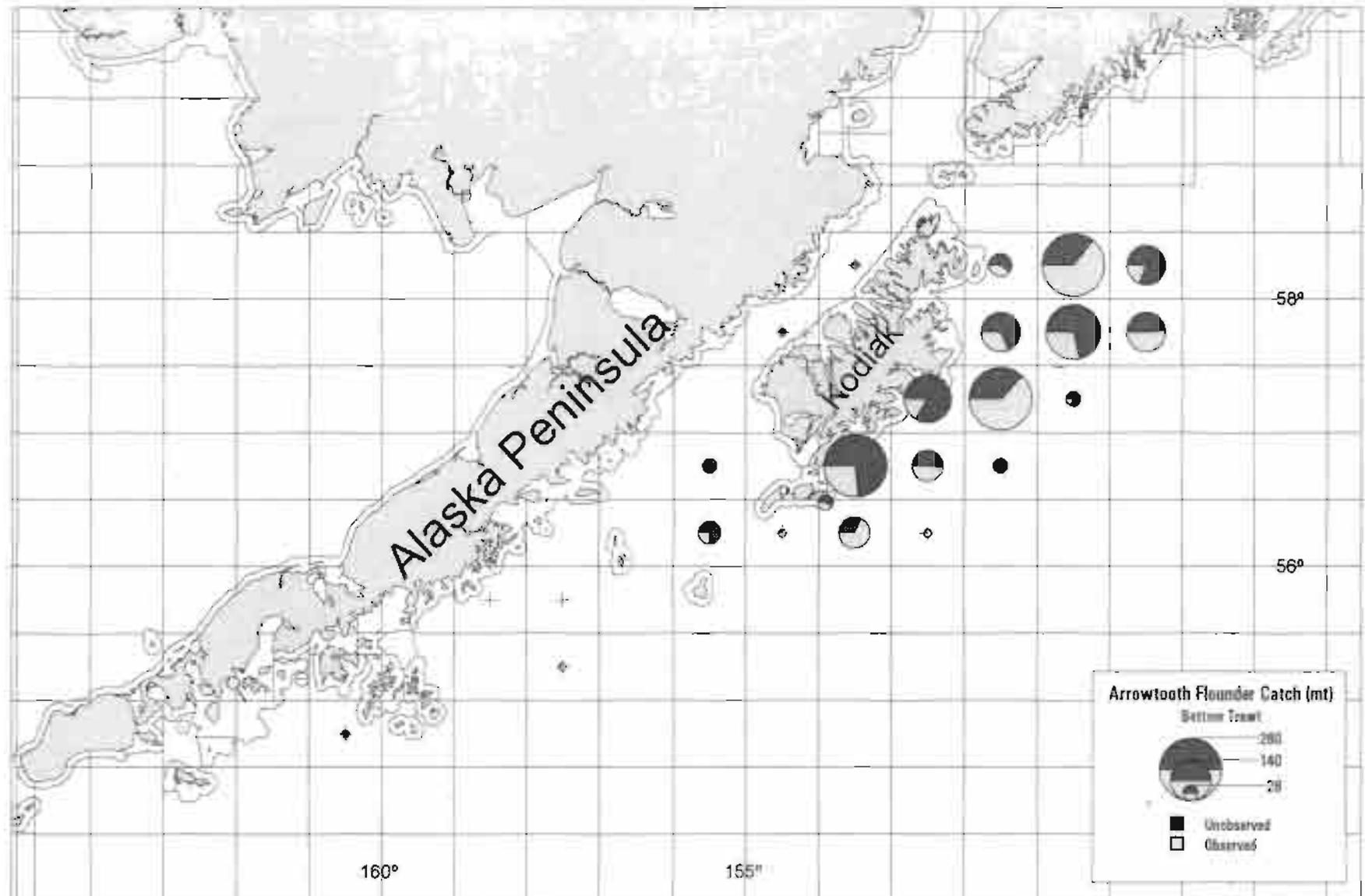


Figure 5. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993

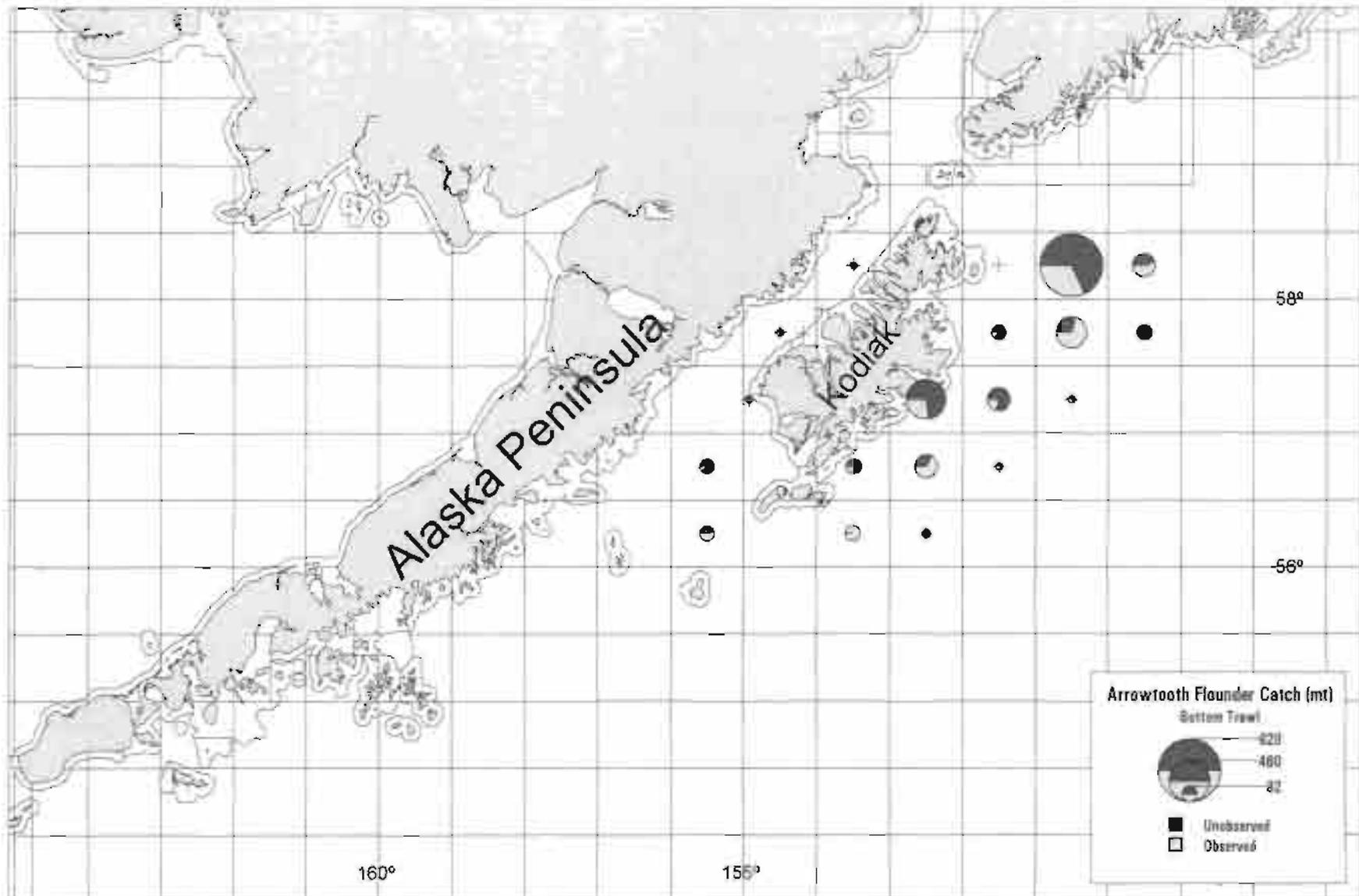


Figure 6. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

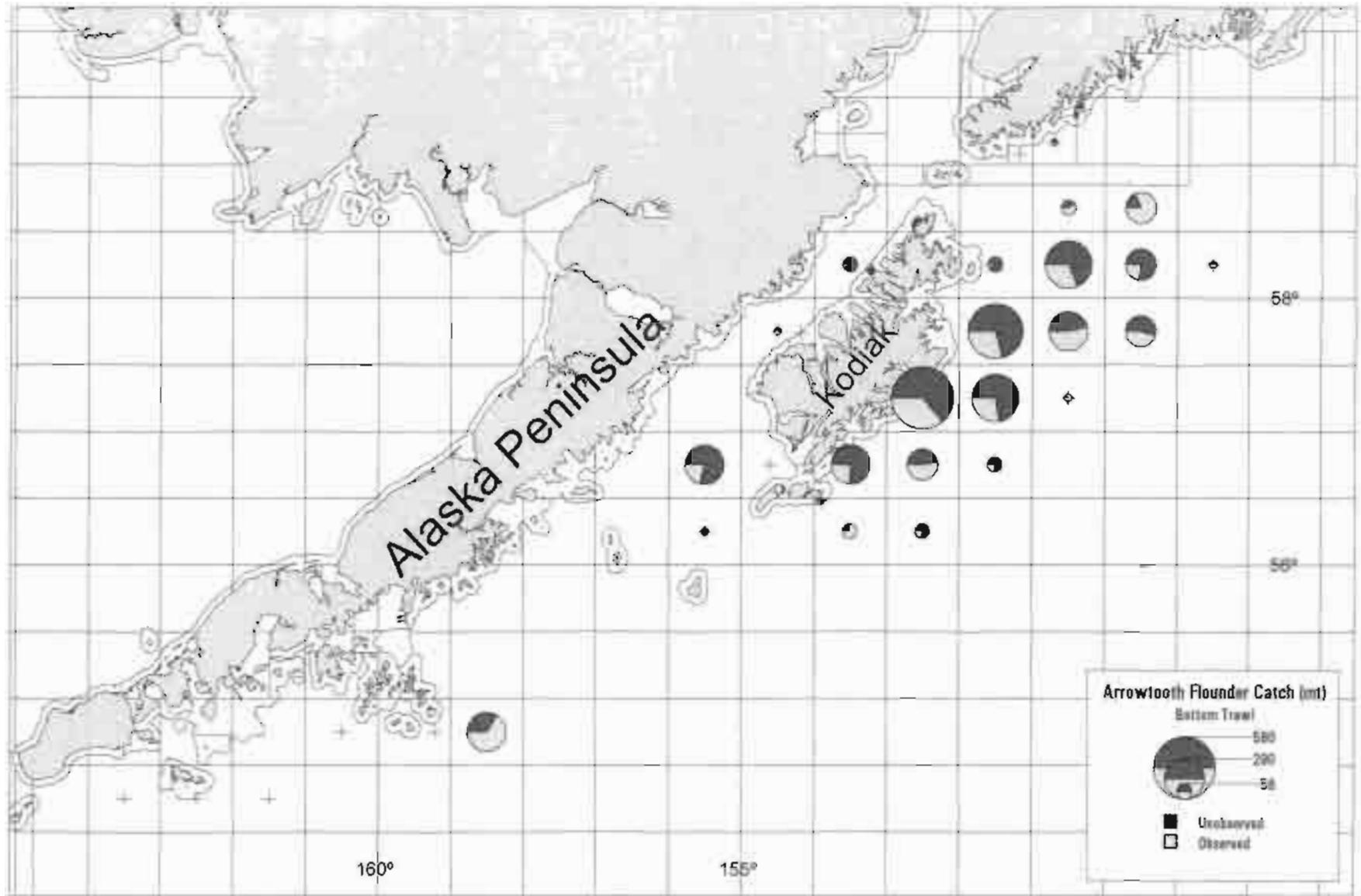


Figure 7. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels 60 to 124 feet long, within the GOA by ADF&G statistical area, 1995.

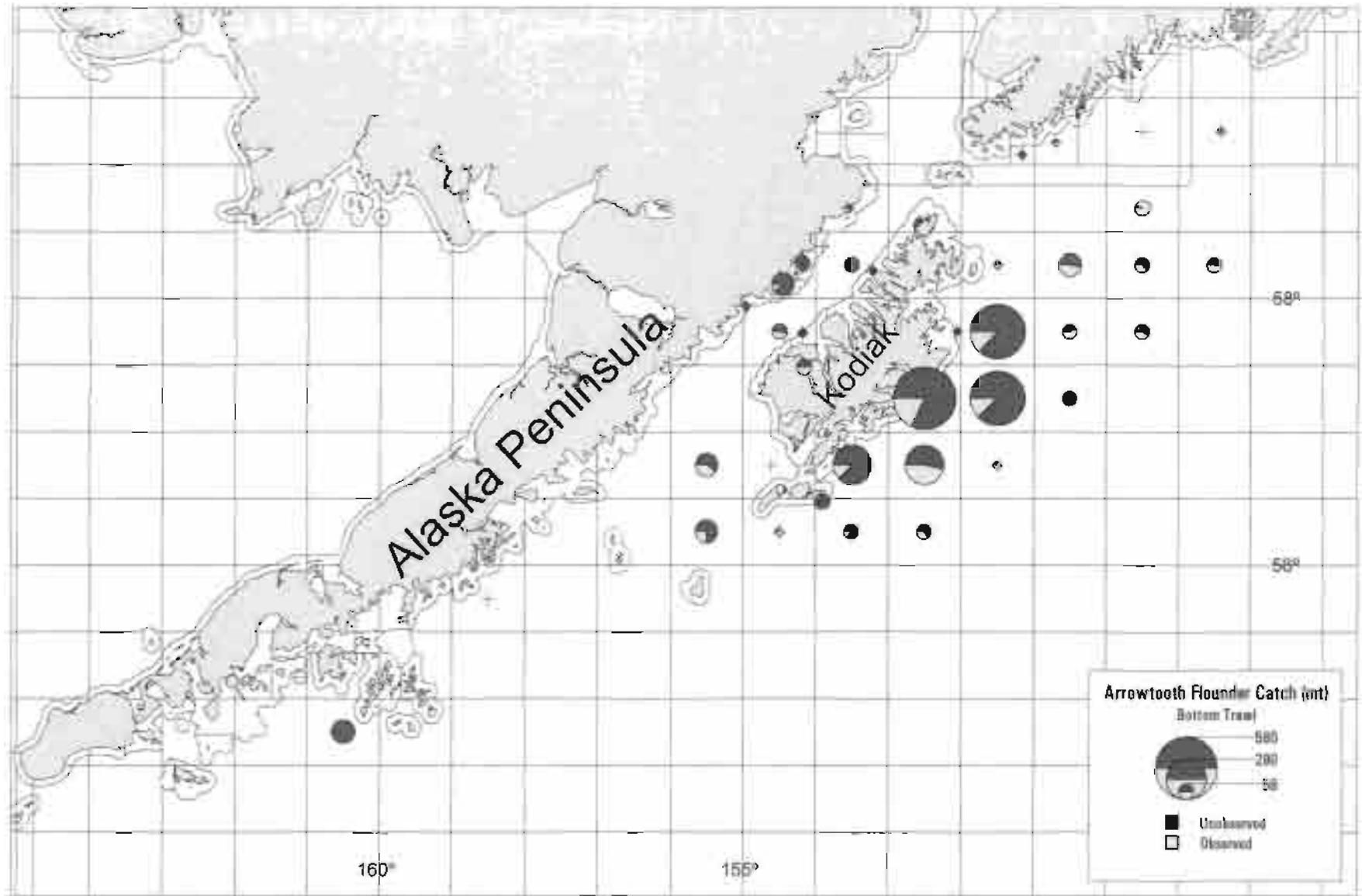


Figure 8. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

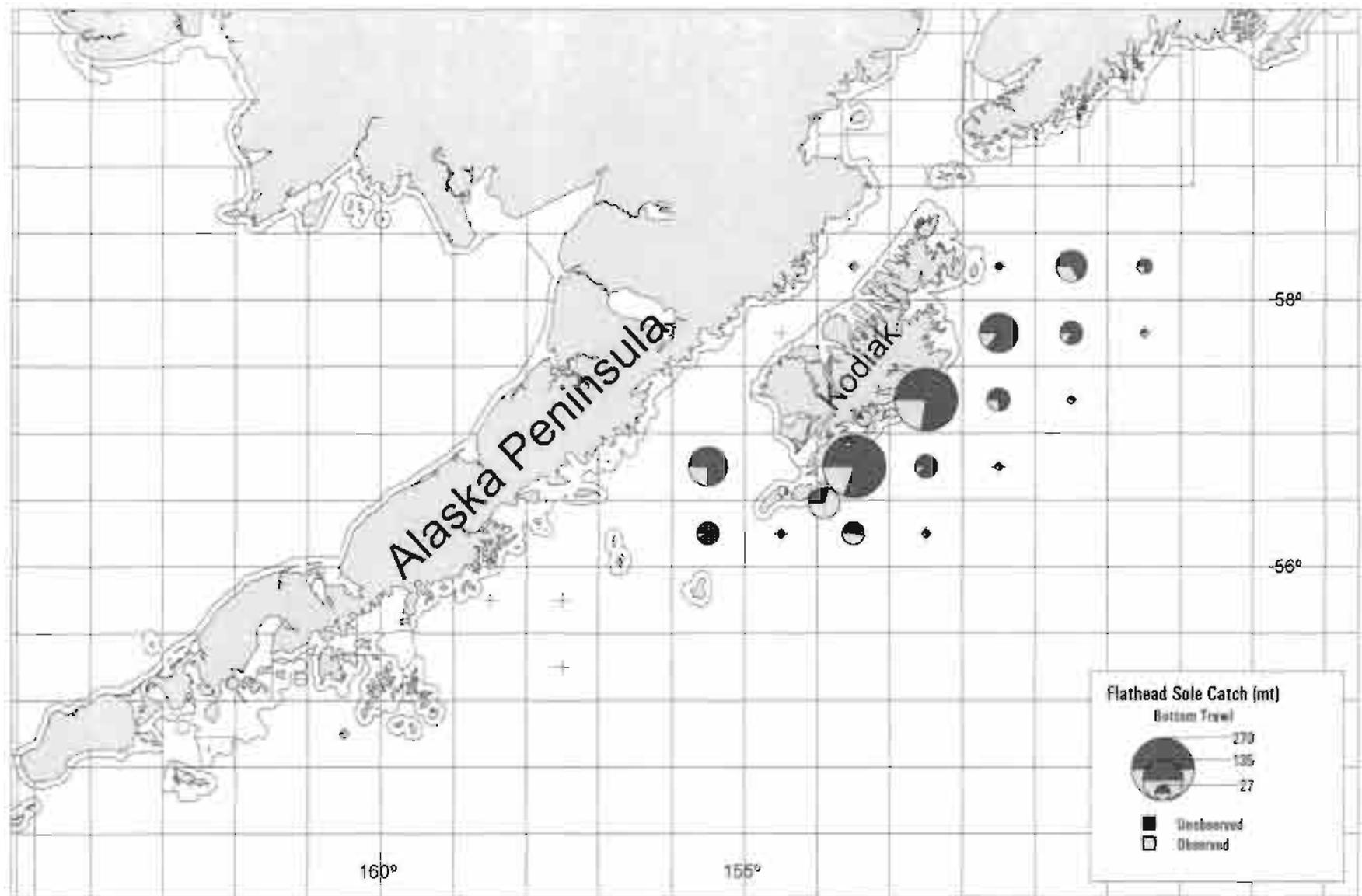


Figure 9. Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

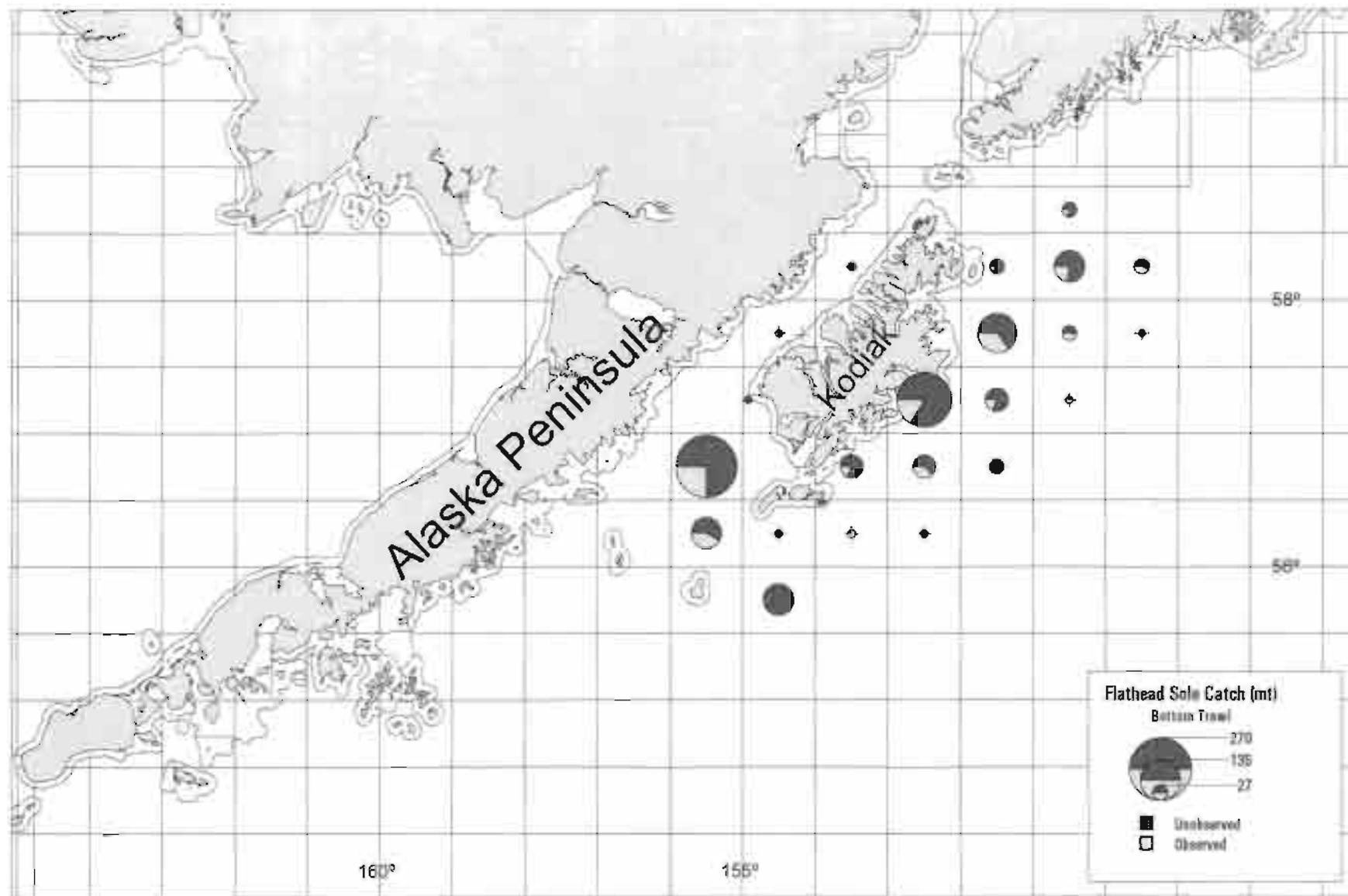


Figure 10. Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

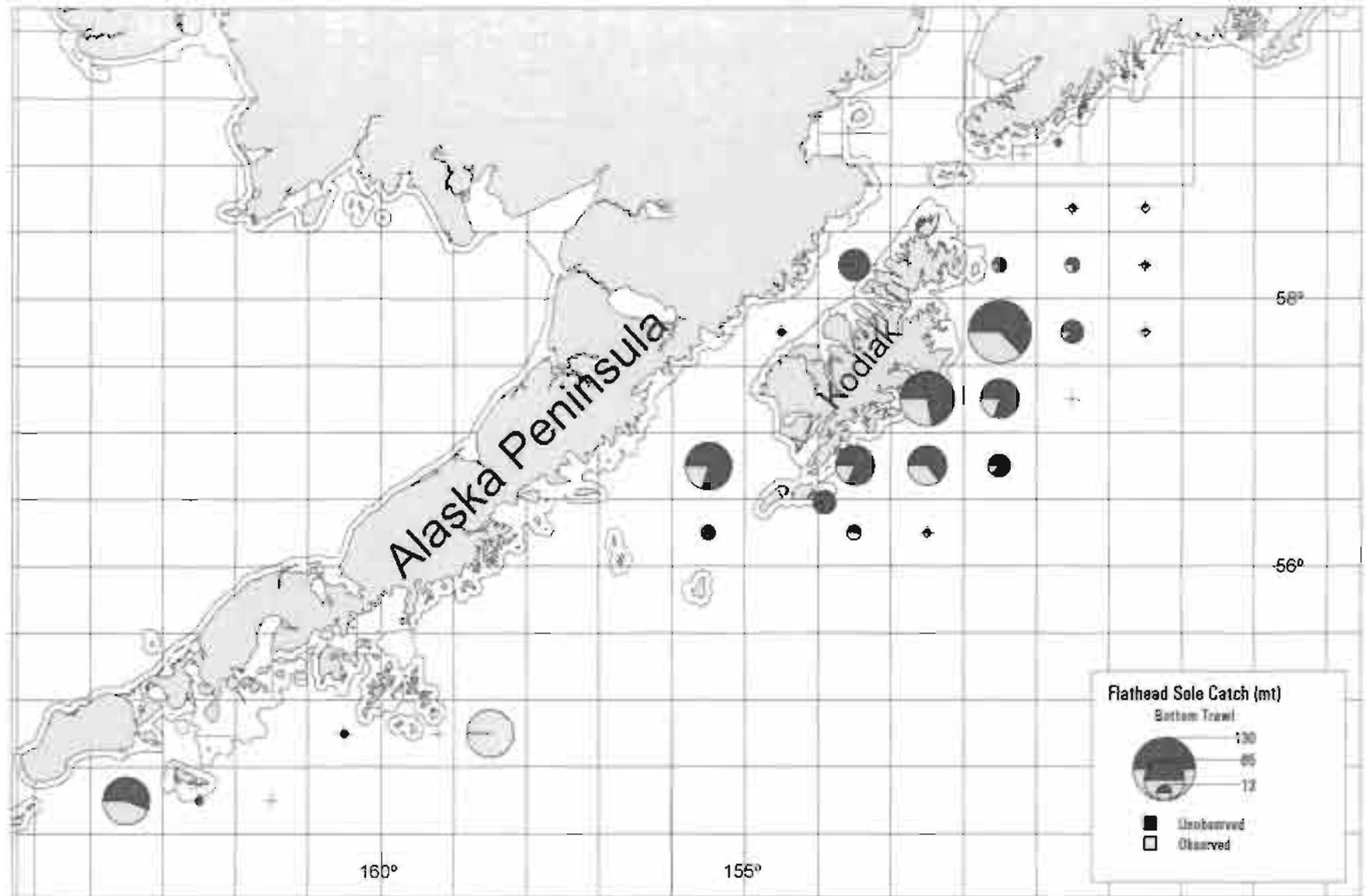


Figure 11. Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

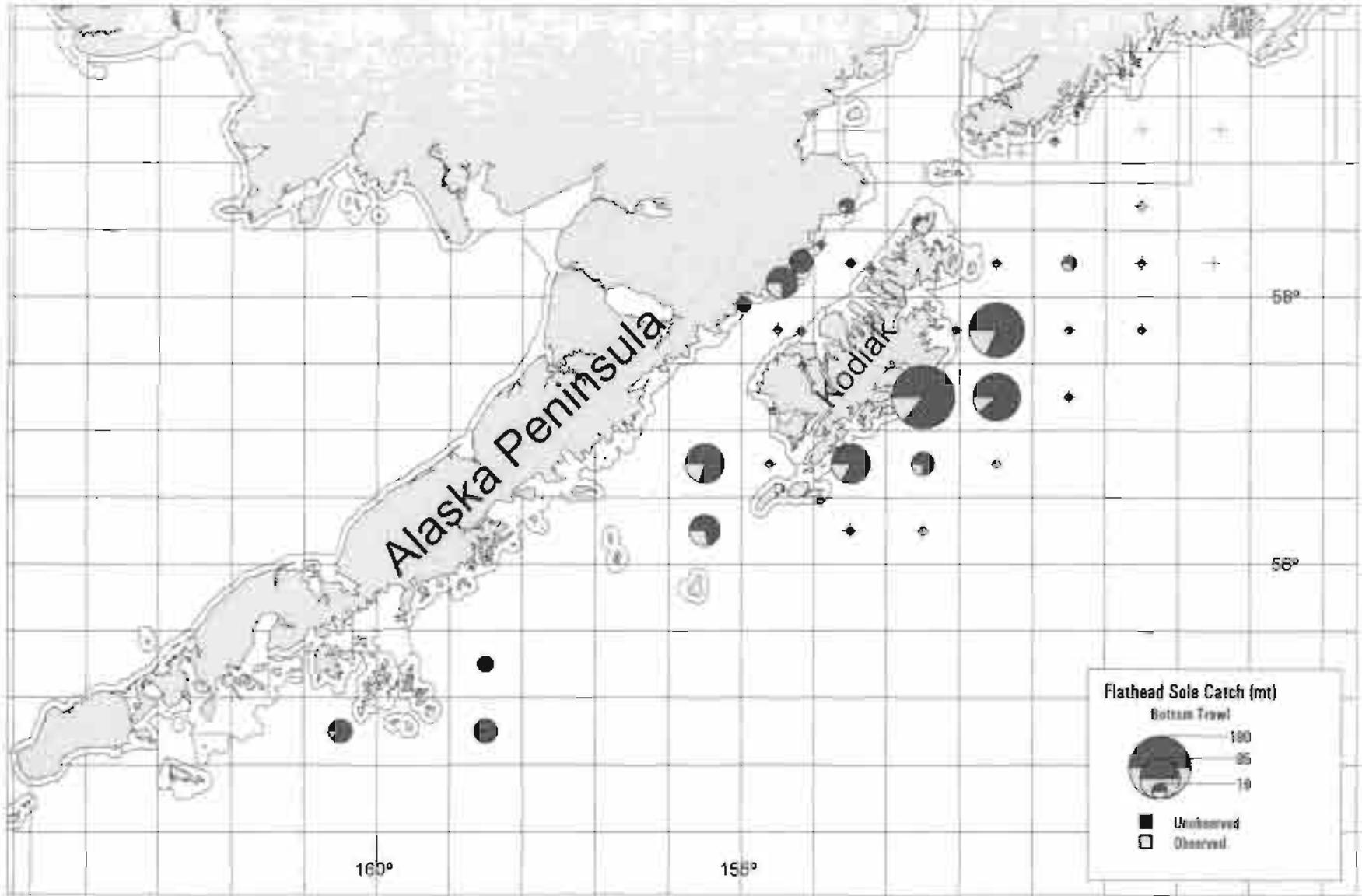


Figure 12. Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

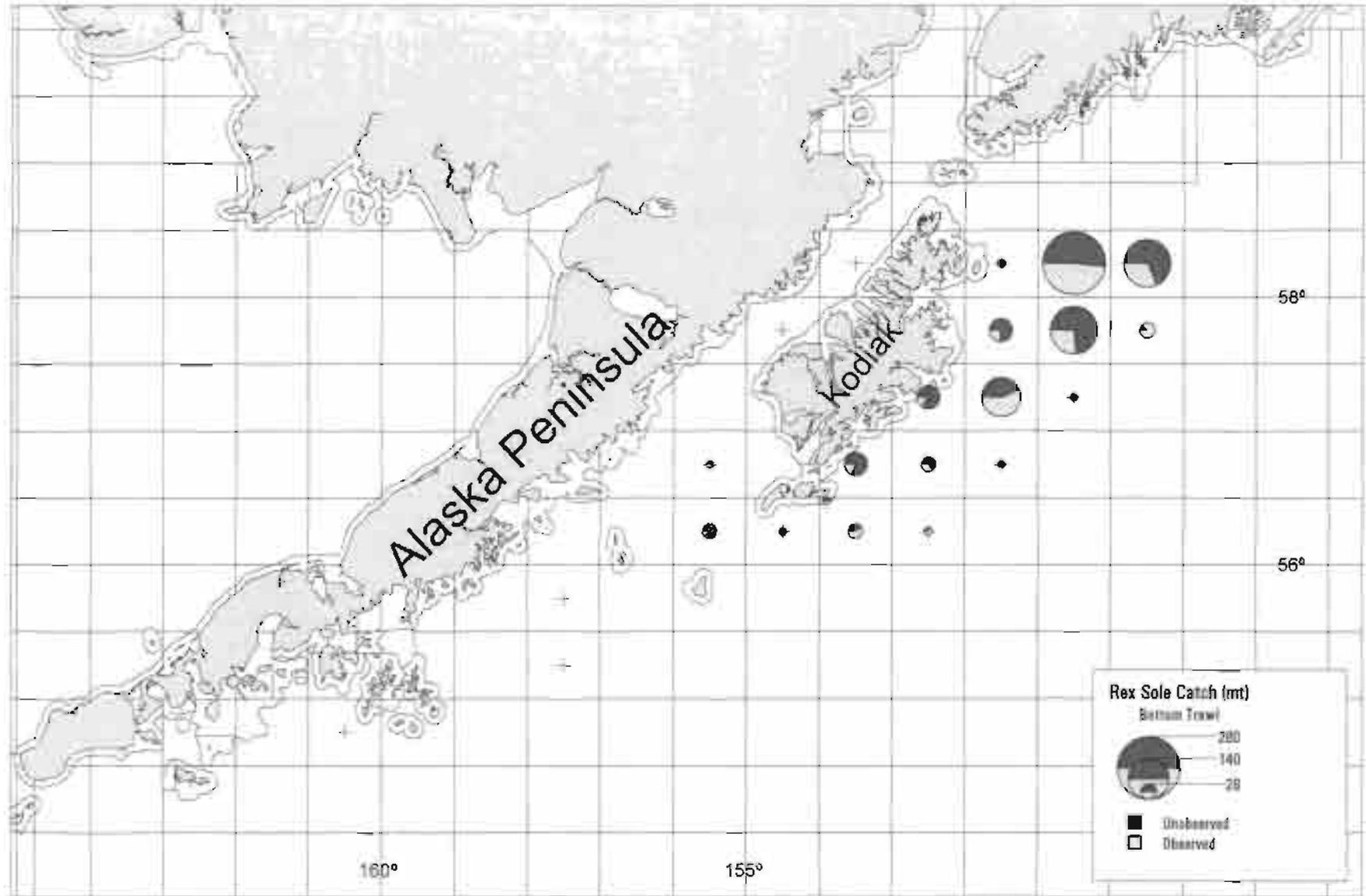


Figure 13: Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

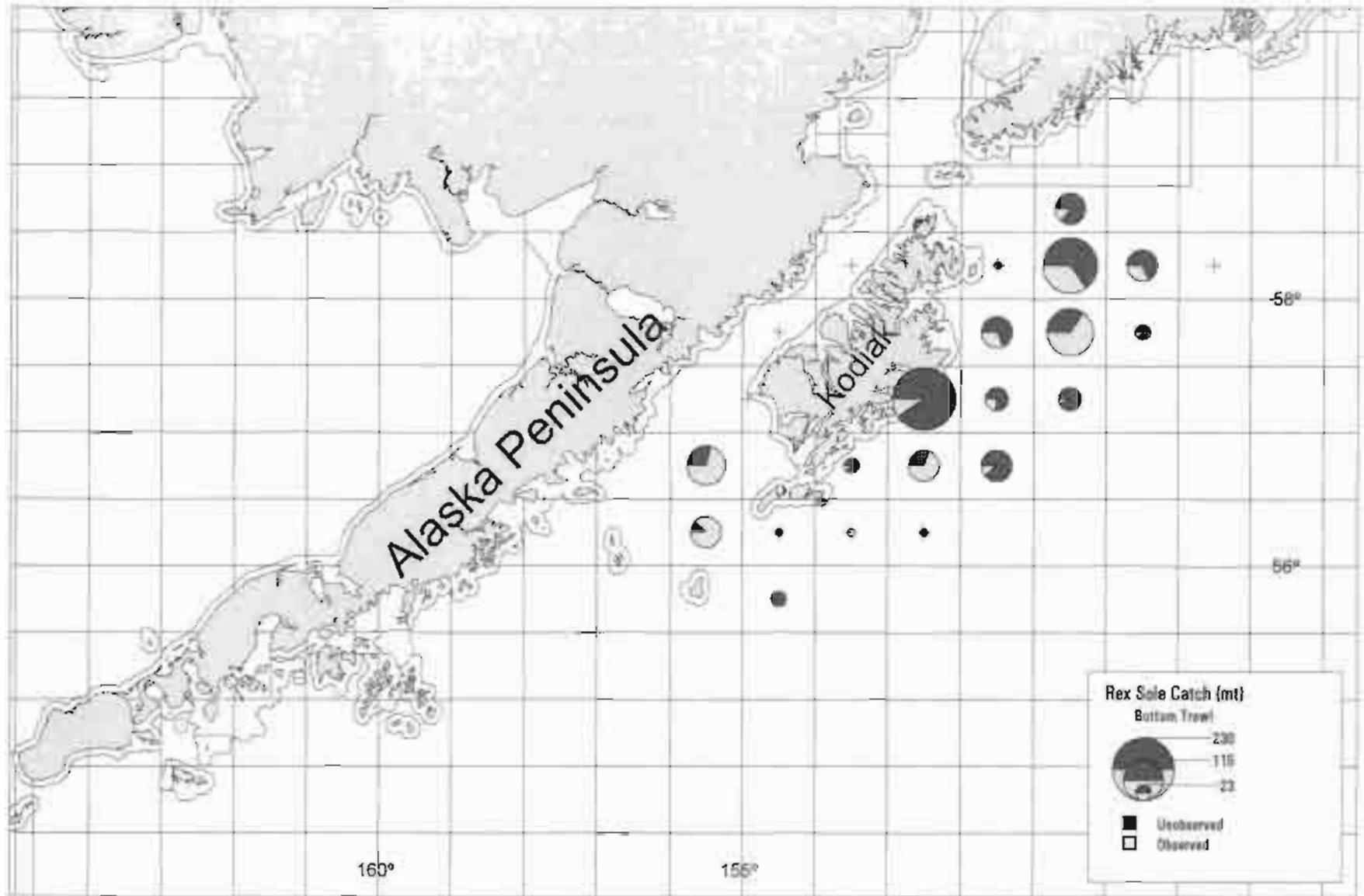


Figure 14. Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

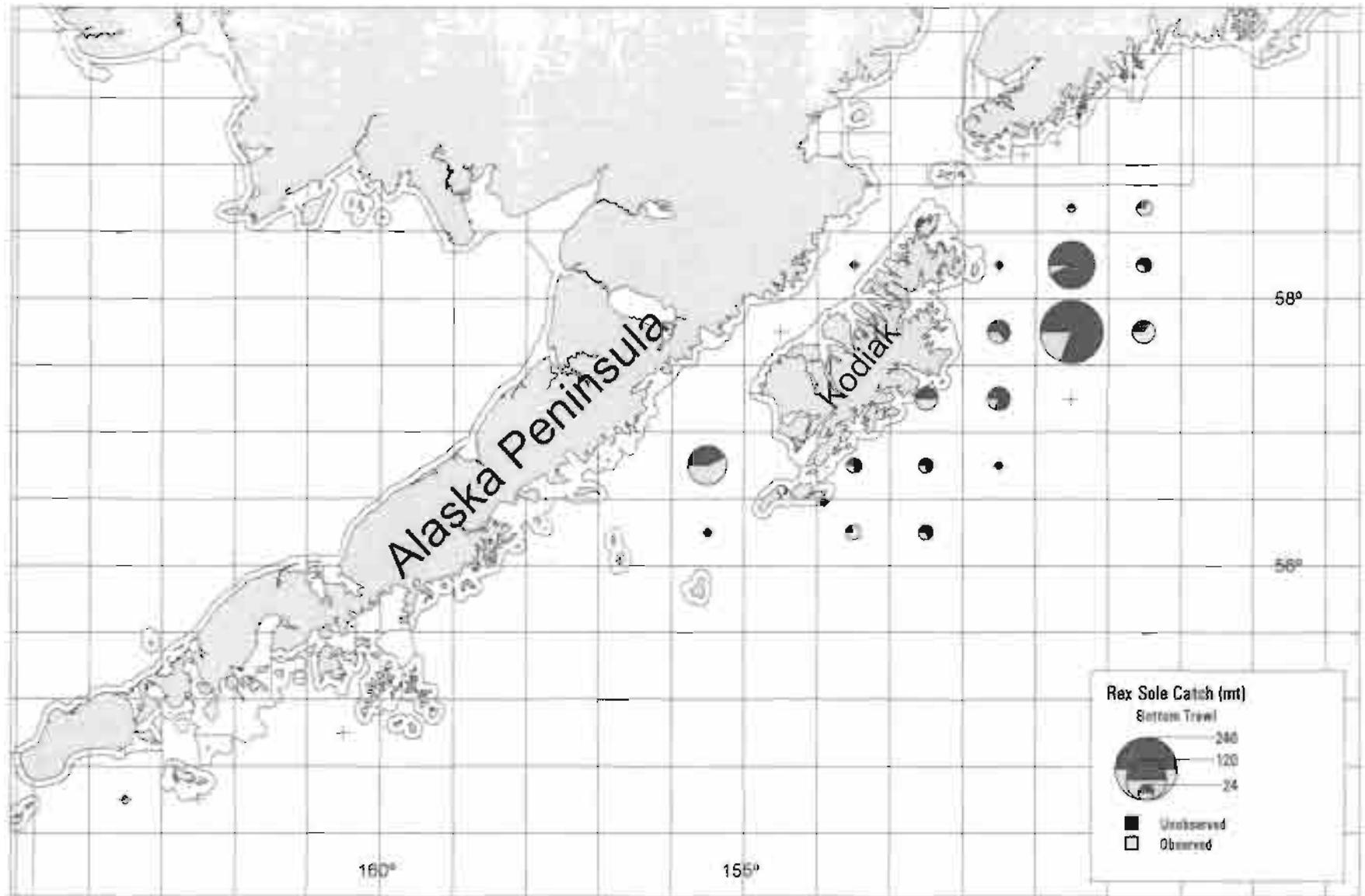


Figure 15. Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

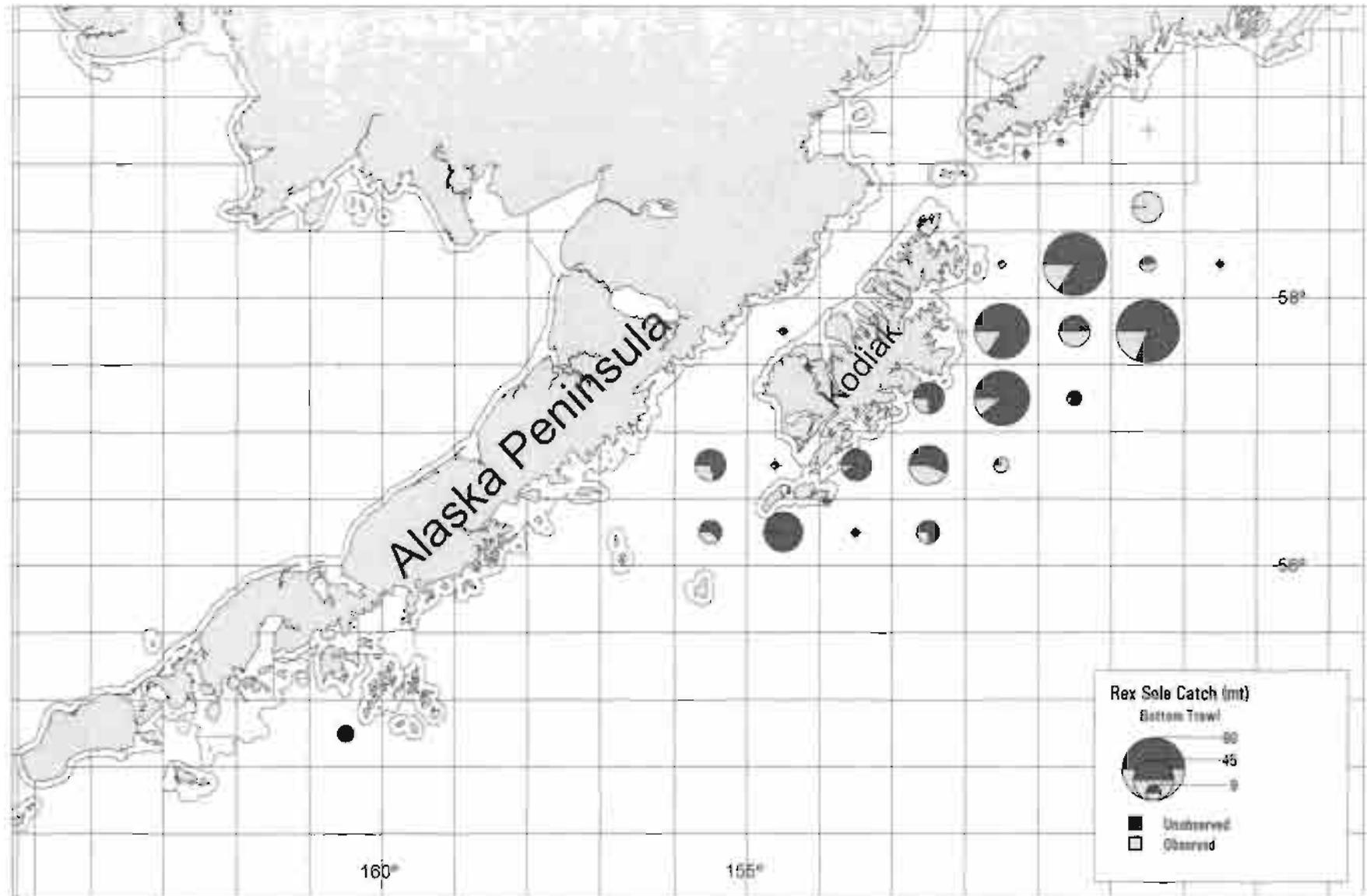


Figure 16 Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

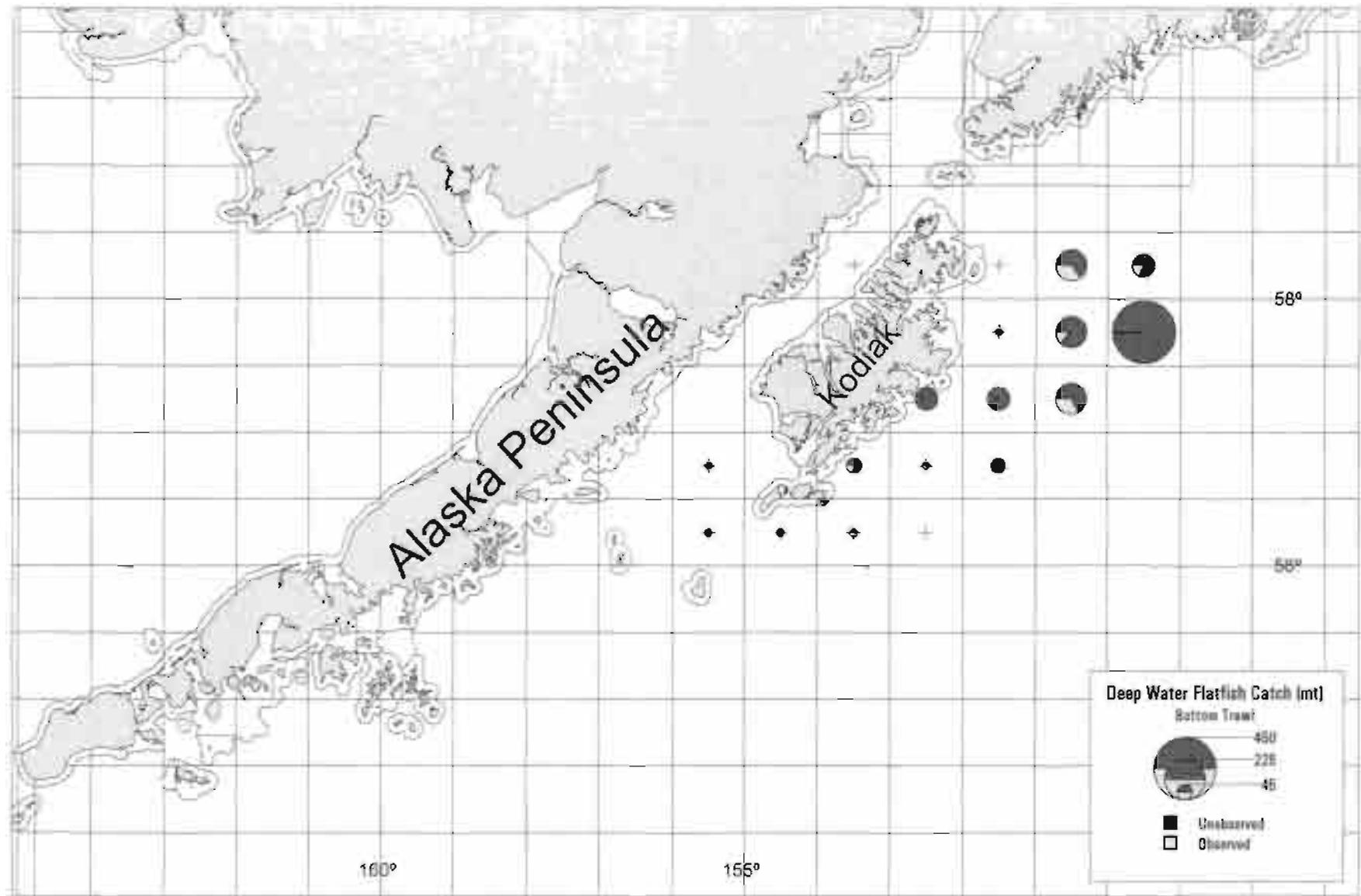


Figure 17 Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long within the GOA by ADF&G statistical area, 1993.

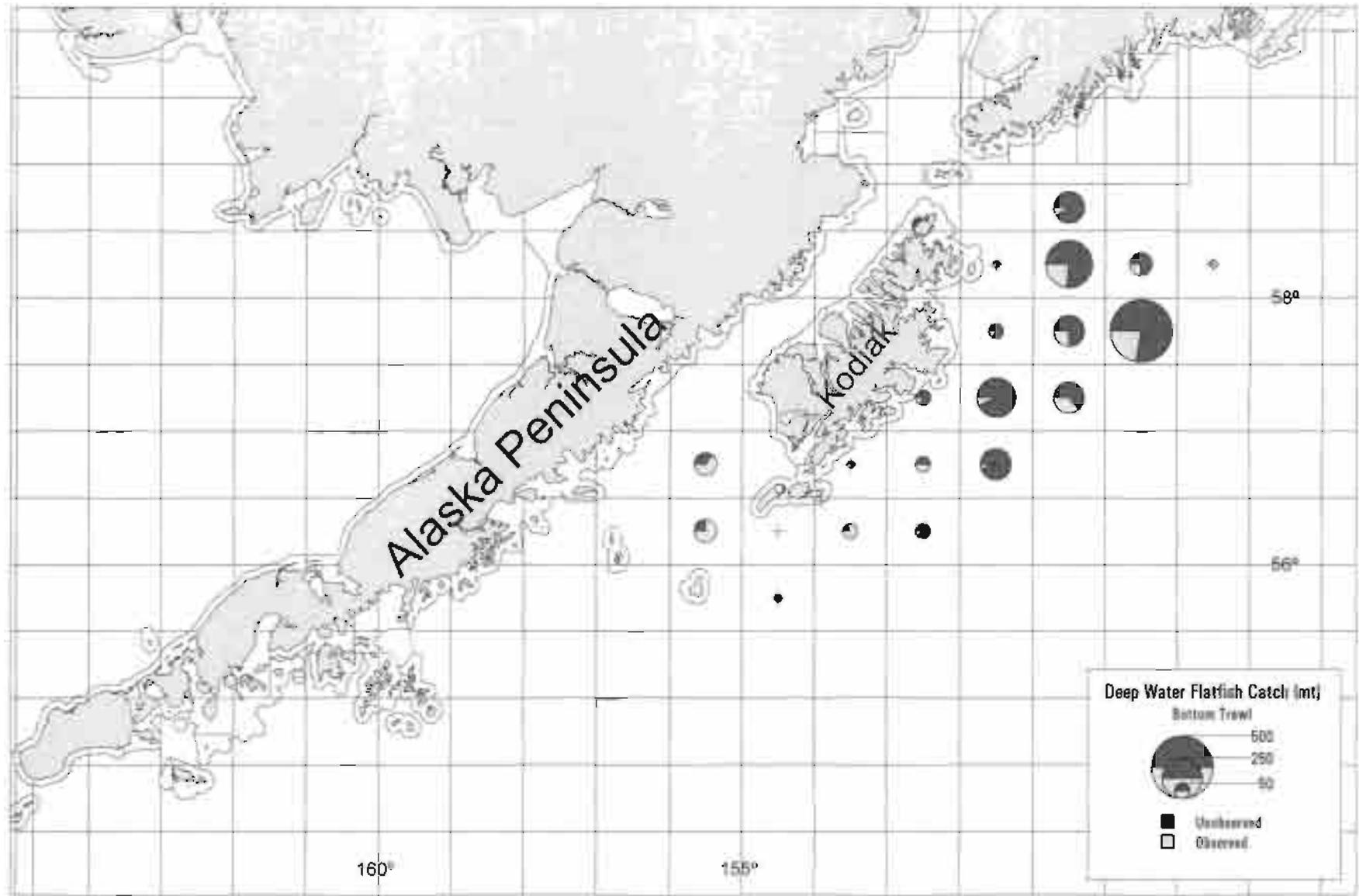


Figure 18. Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long within the GCA by ADF&G statistical area, 1994

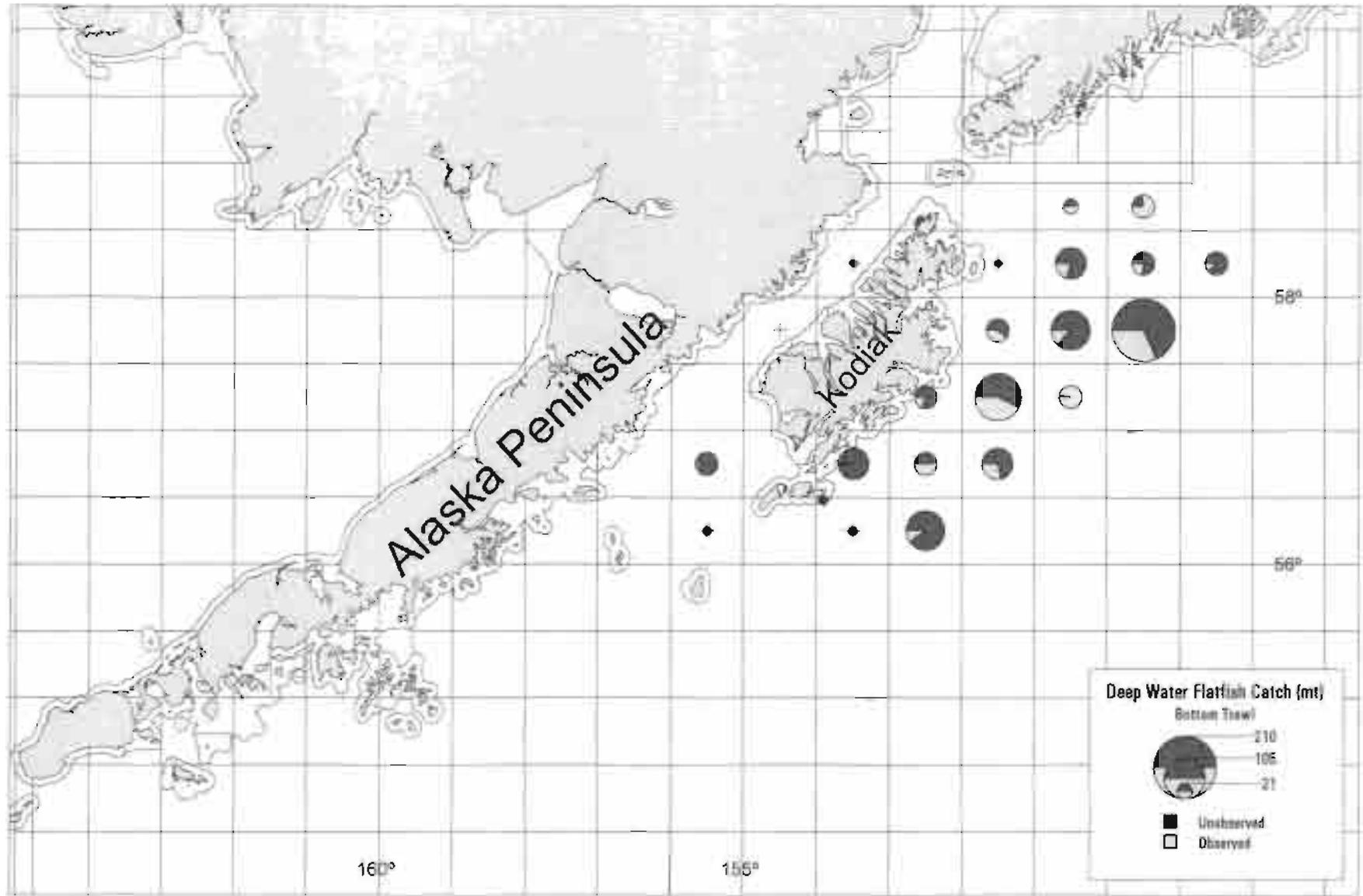


Figure 19. Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

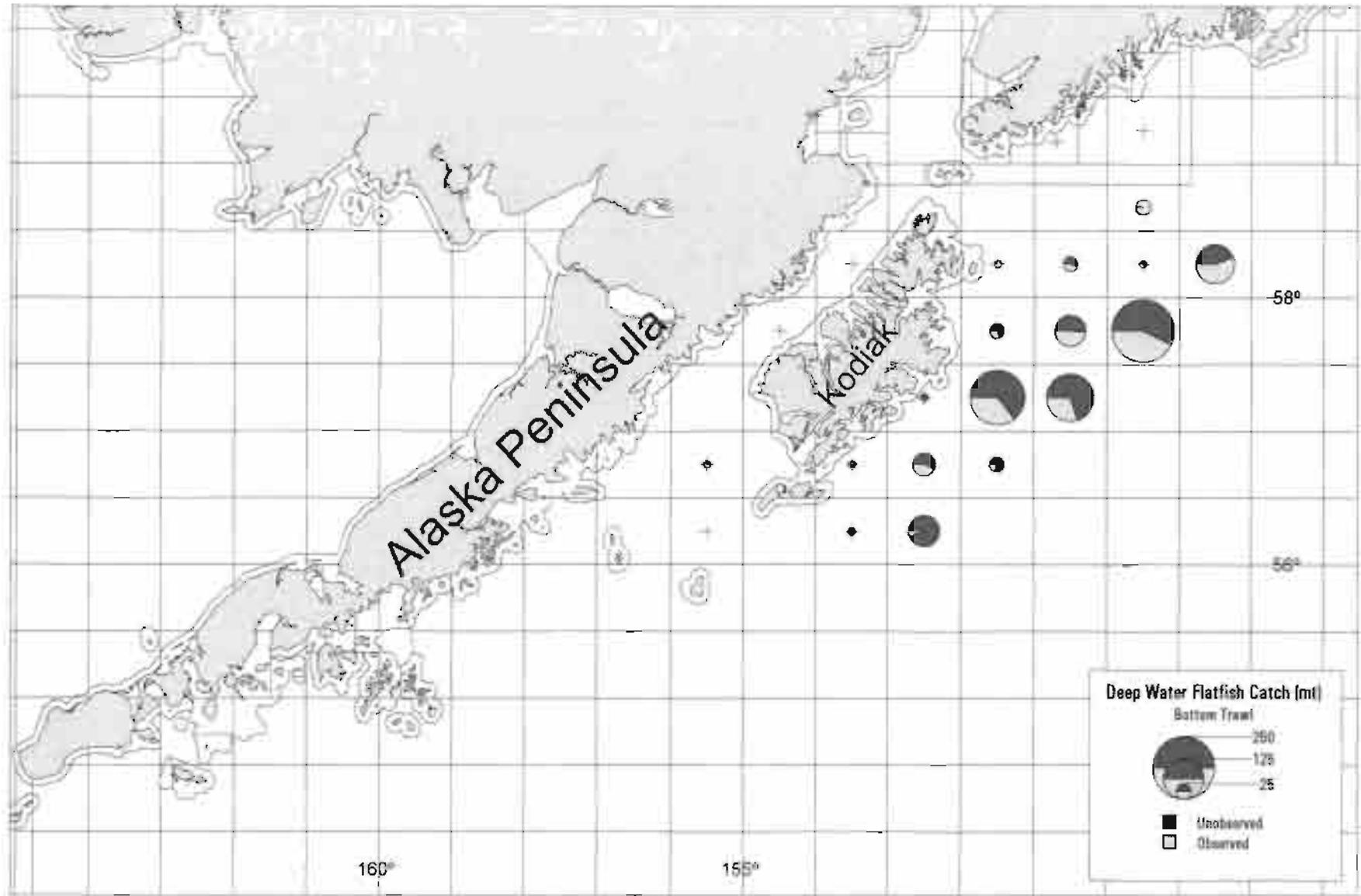


Figure 20. Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

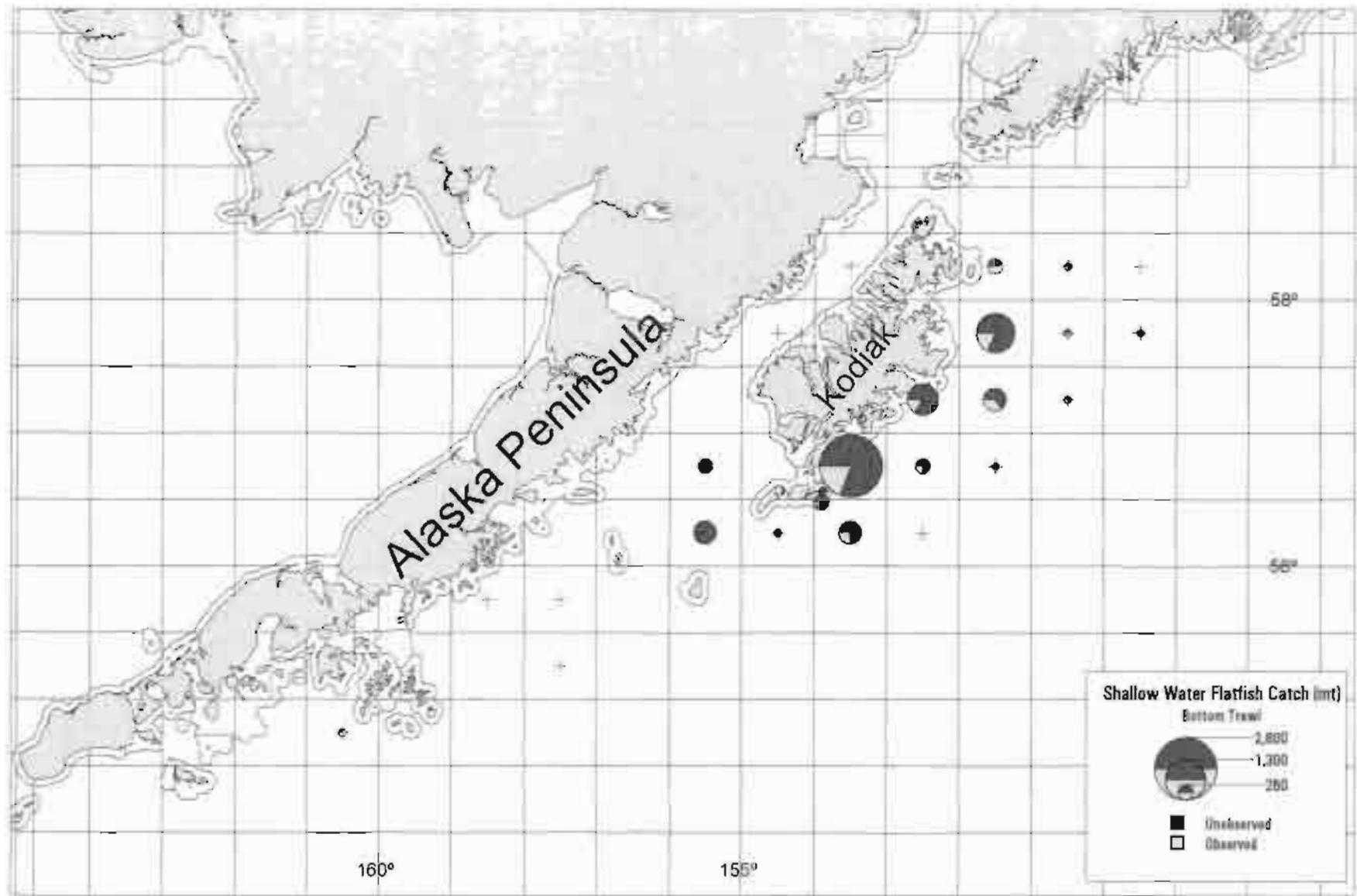


Figure 21 Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

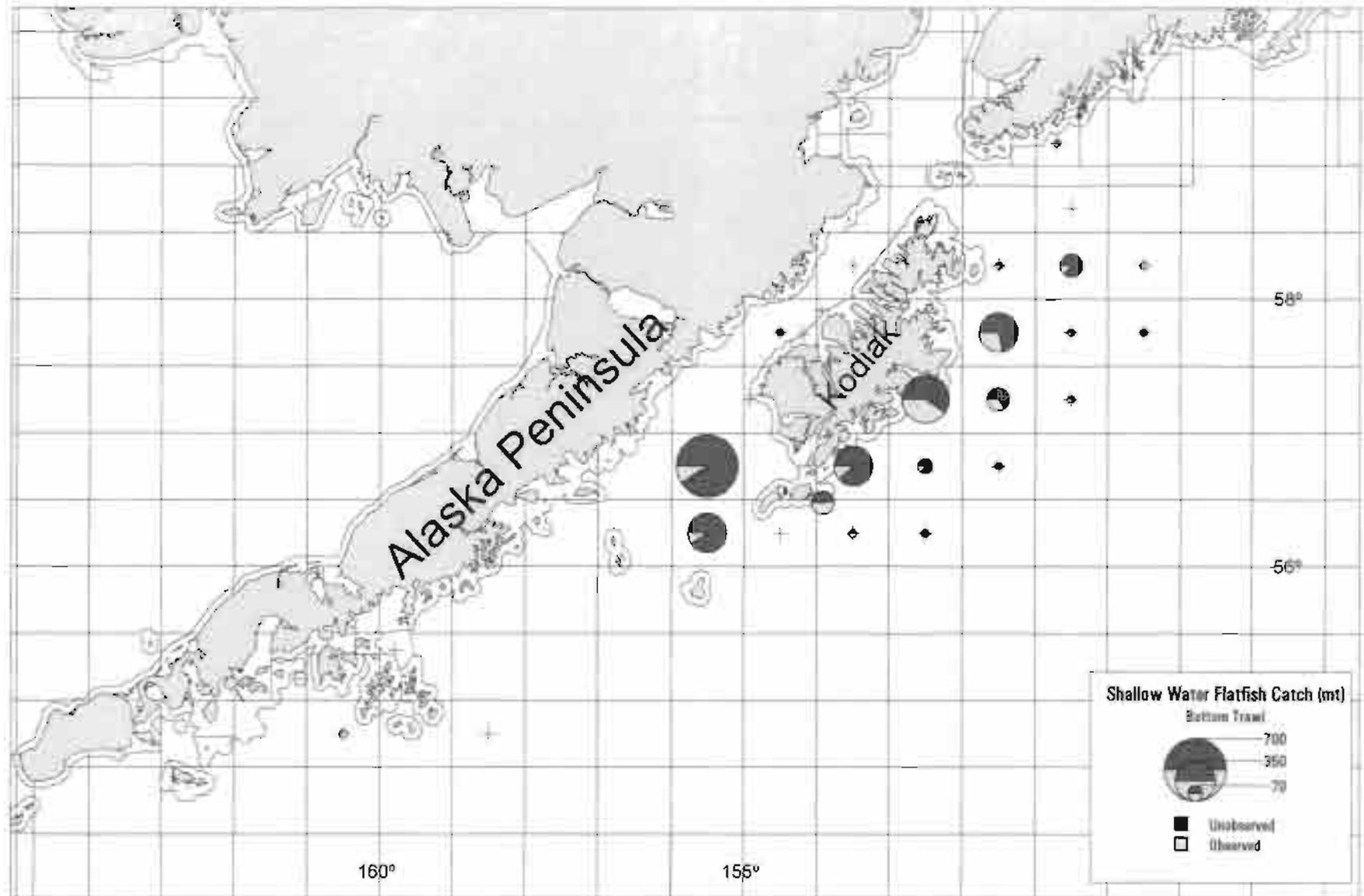


Figure 22. Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

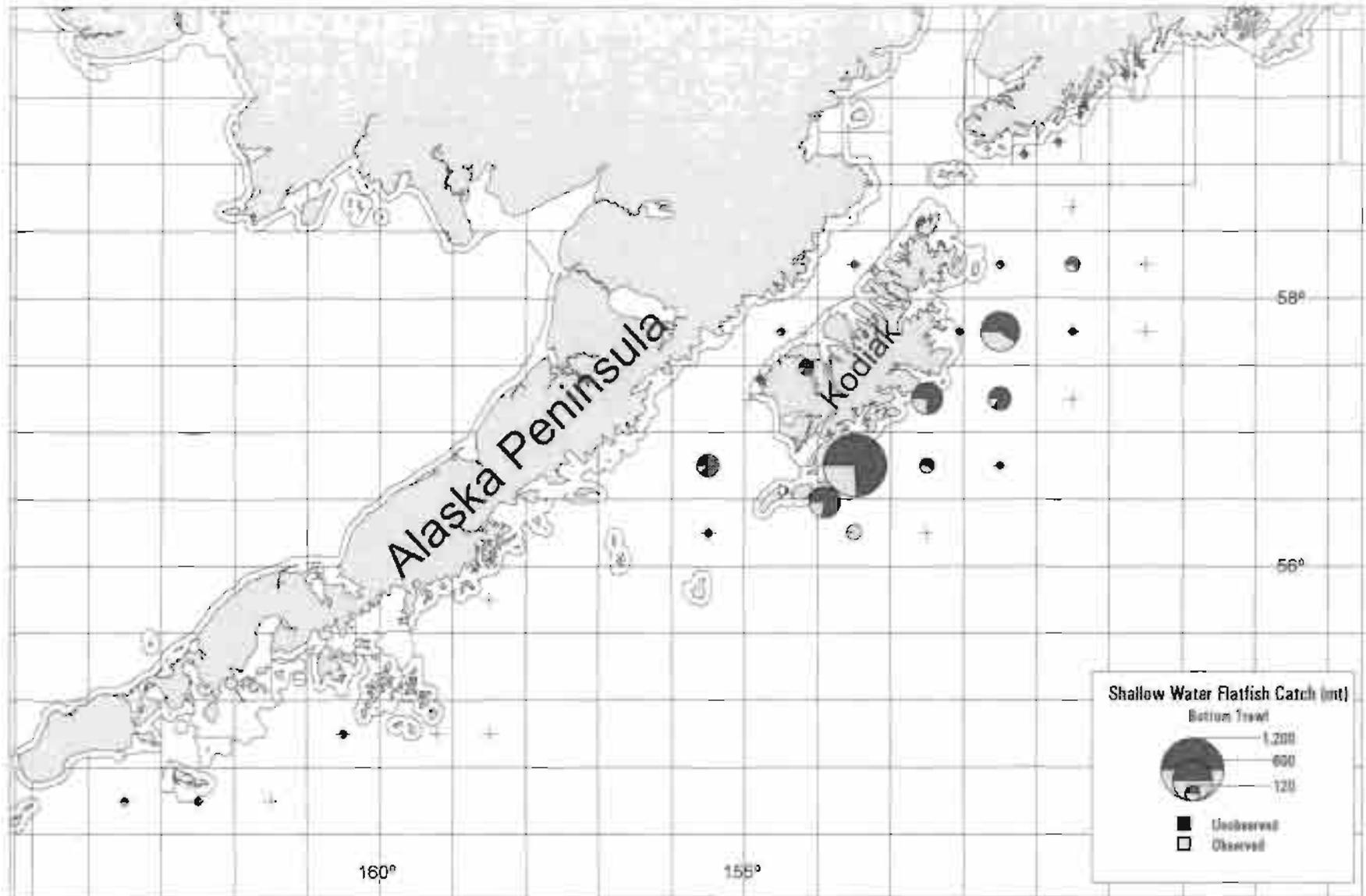


Figure 23. Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

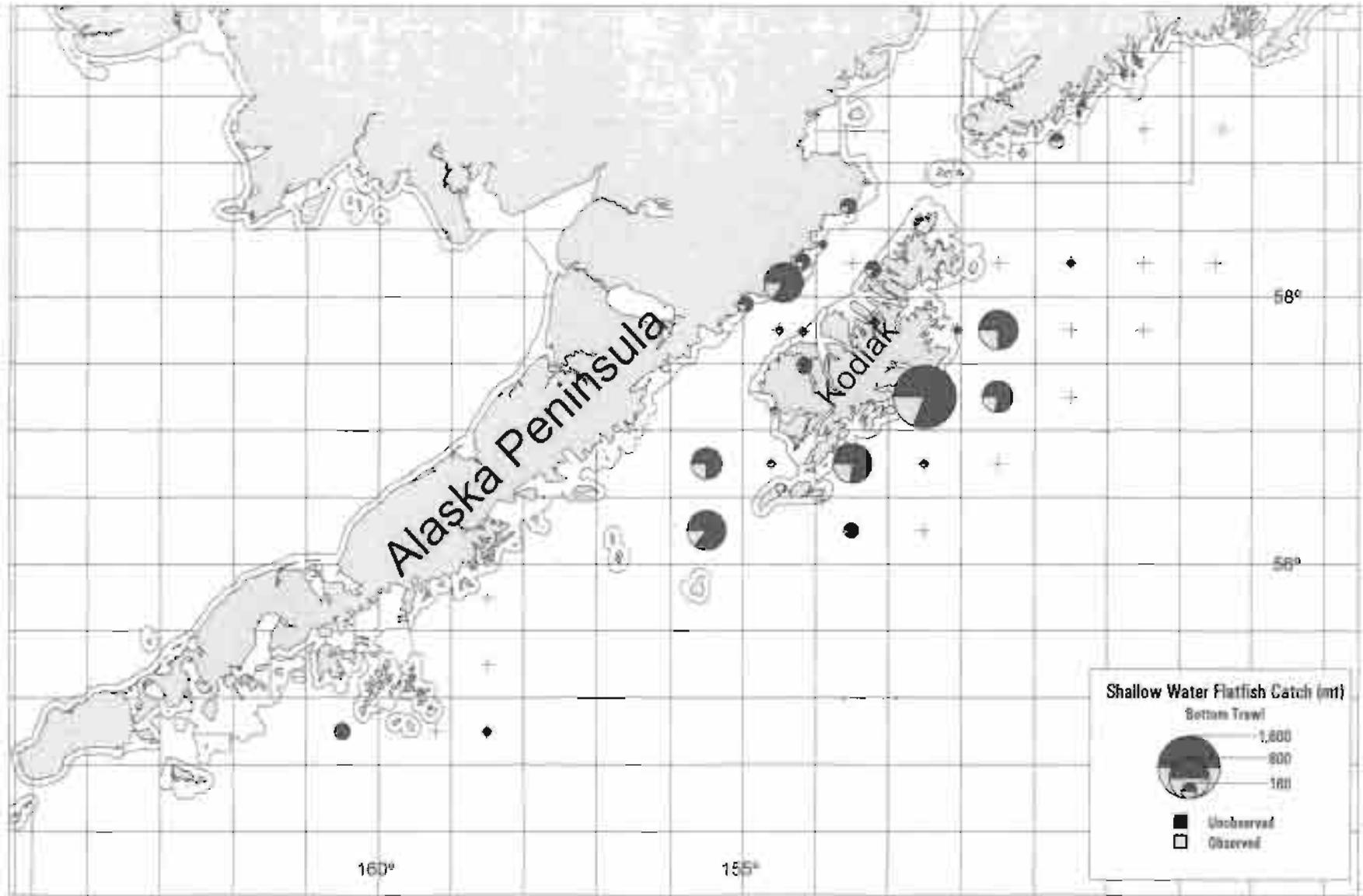


Figure 24. Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

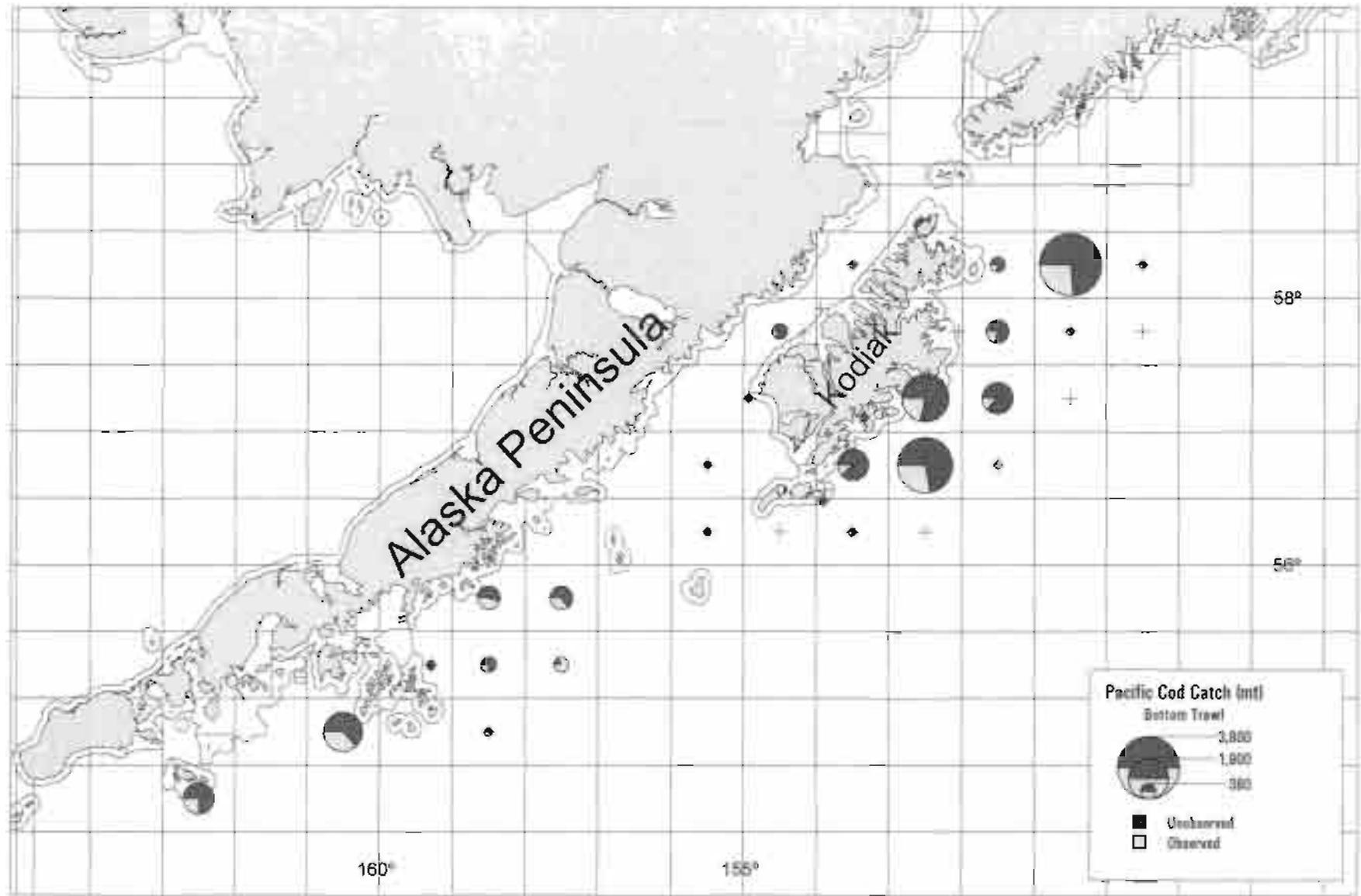


Figure 25. Pacific cod observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

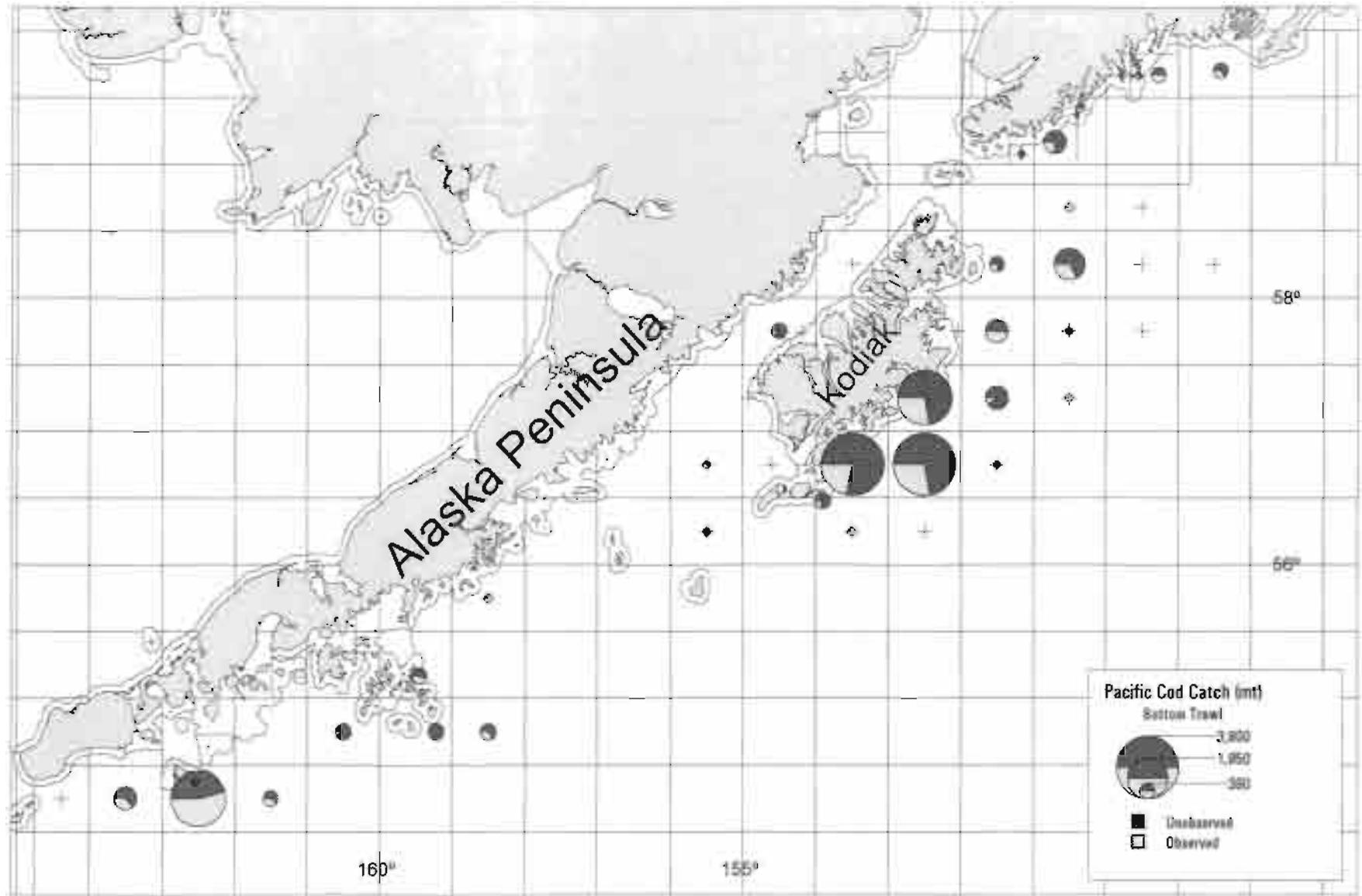


Figure 27. Pacific cod observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

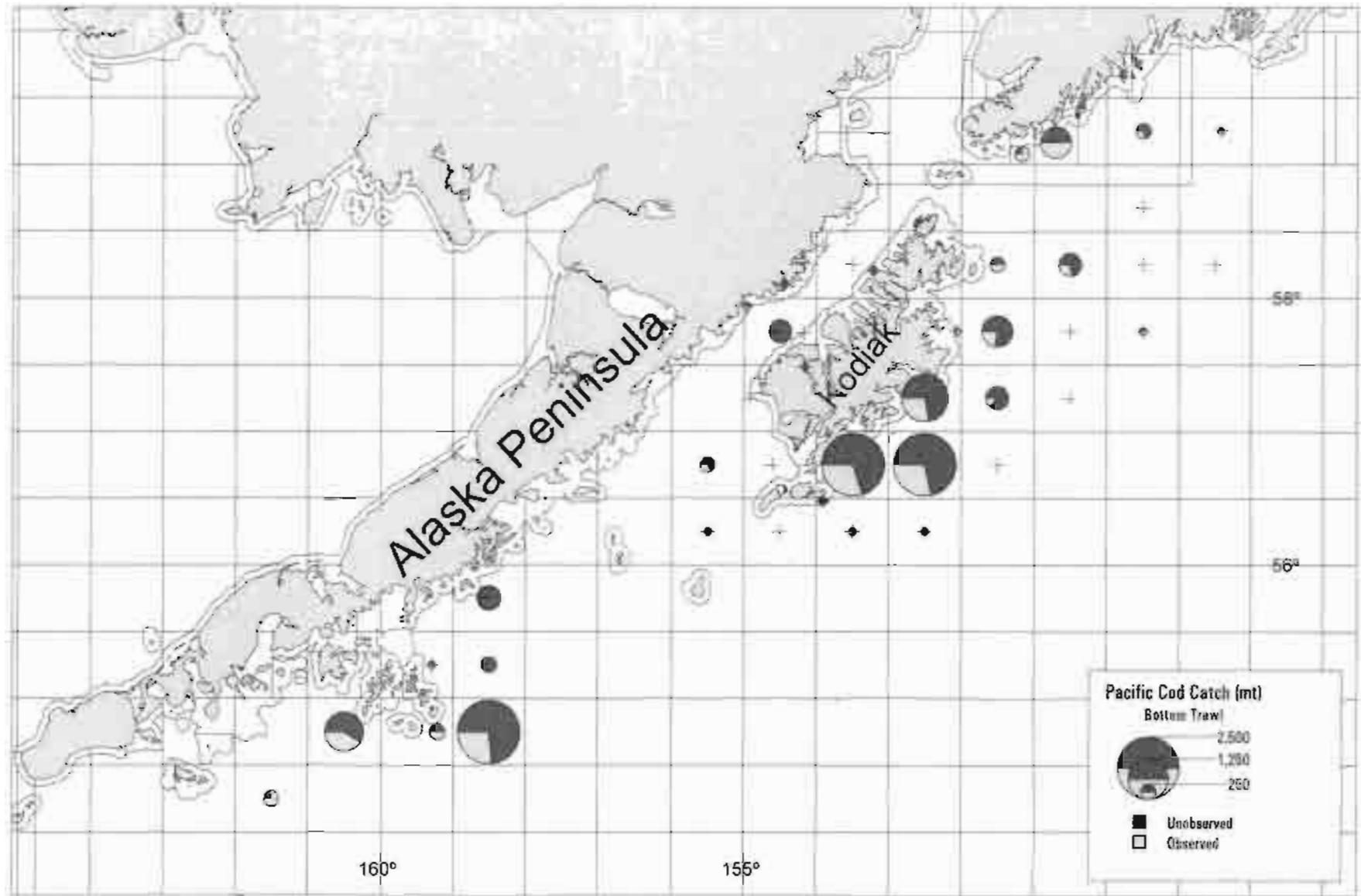


Figure 28. Pacific cod observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

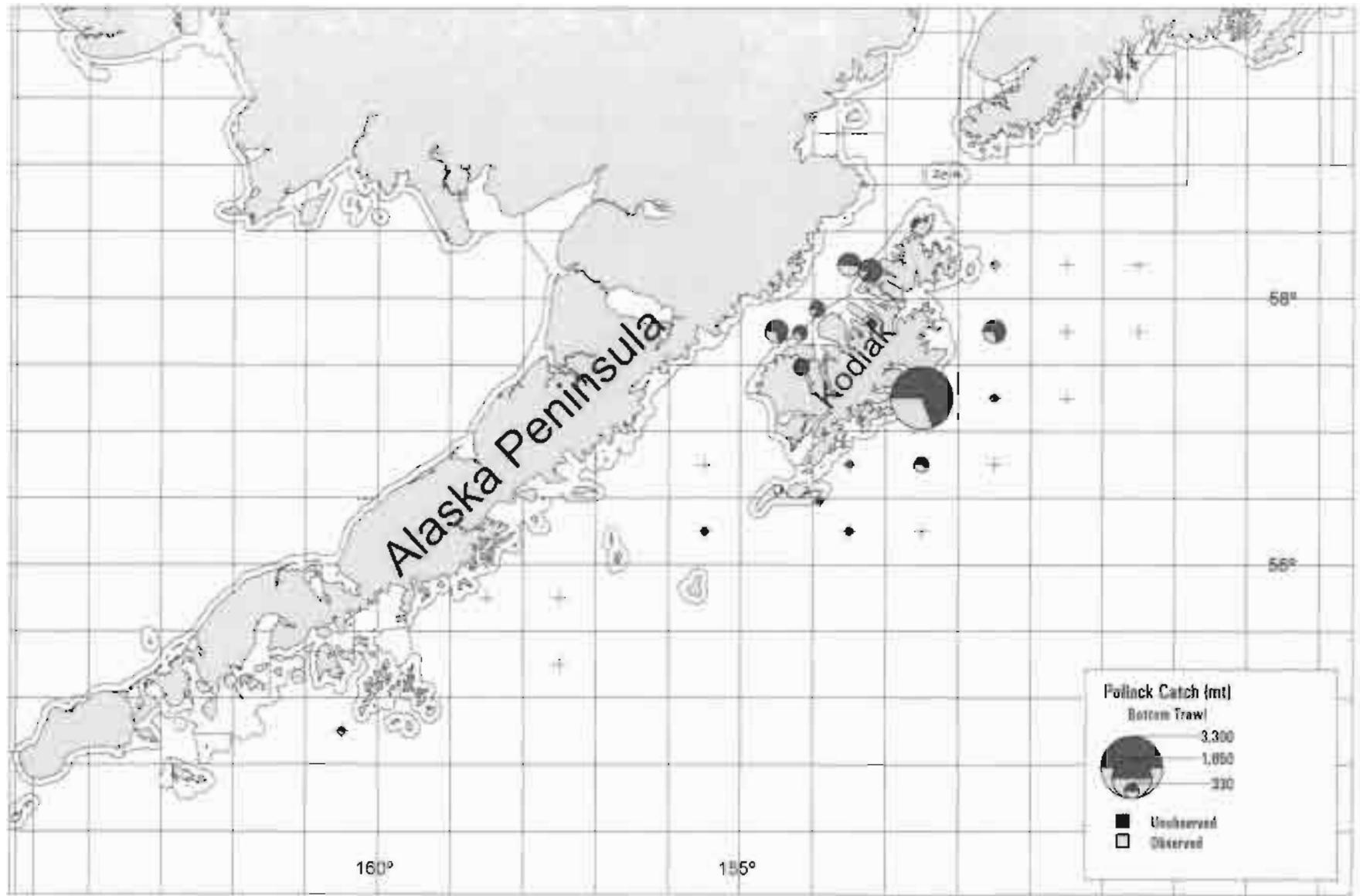


Figure 29 Pollock observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

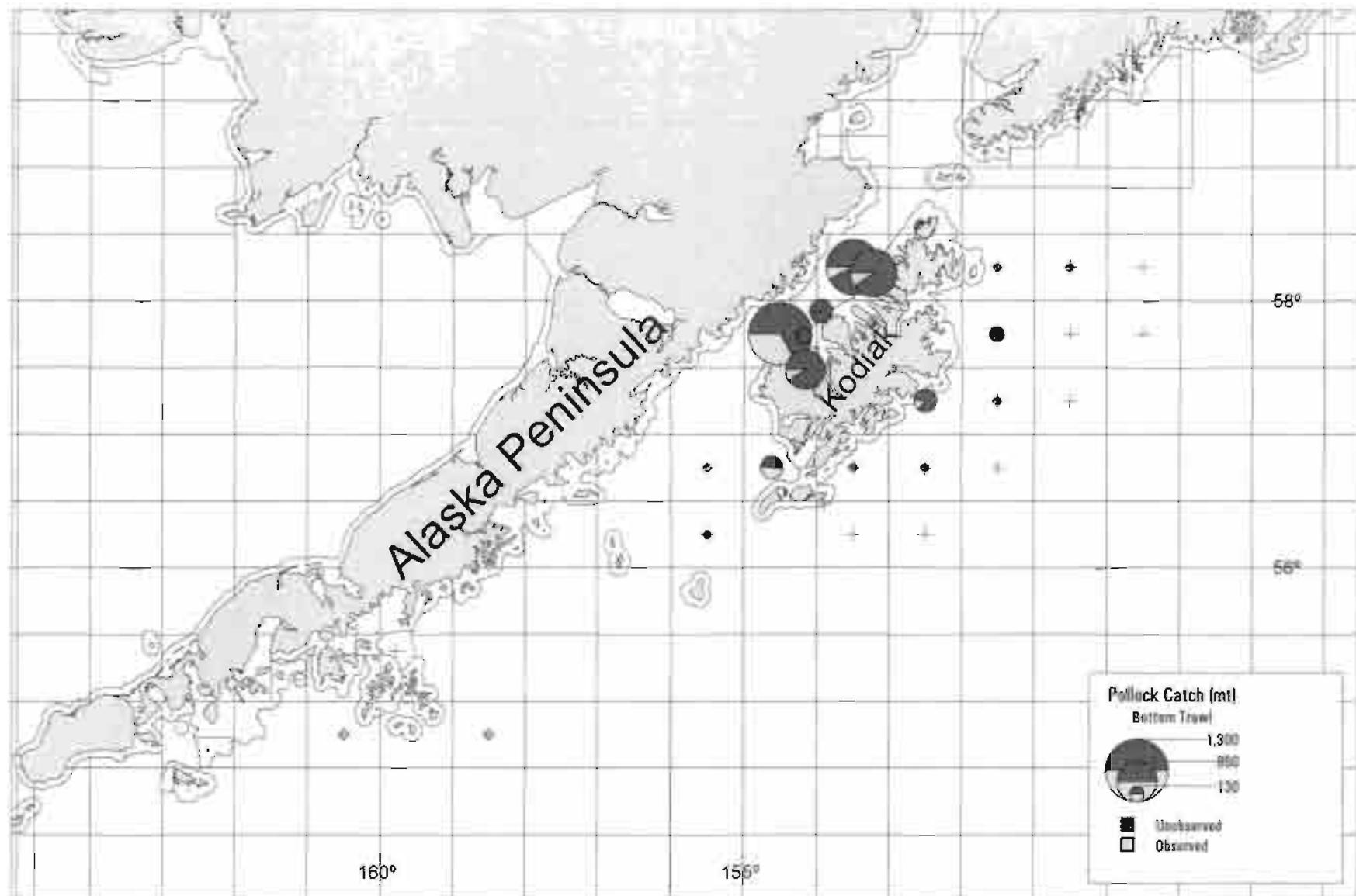


Figure 30. Pollock observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

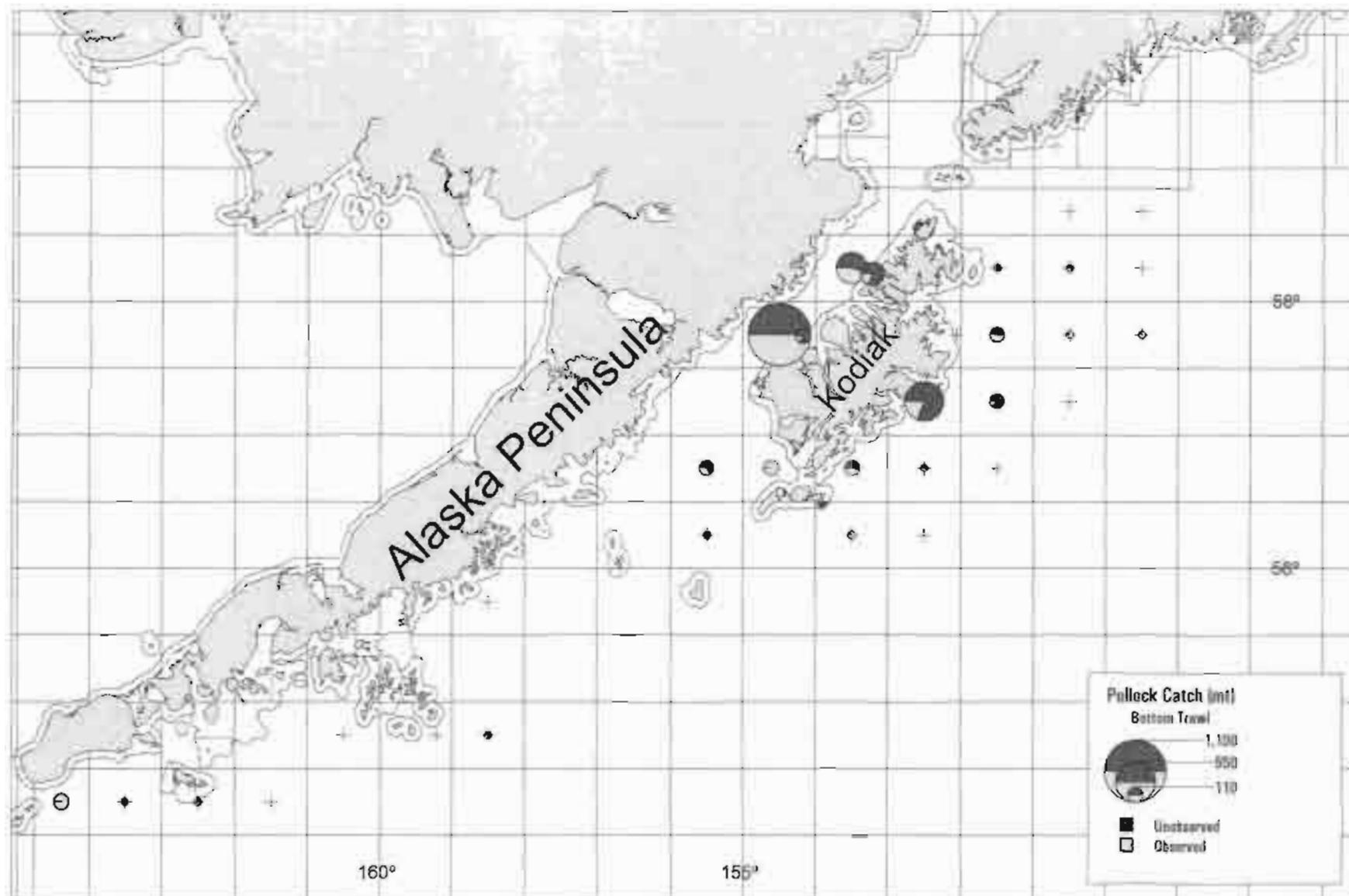


Figure 31. Pollock observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

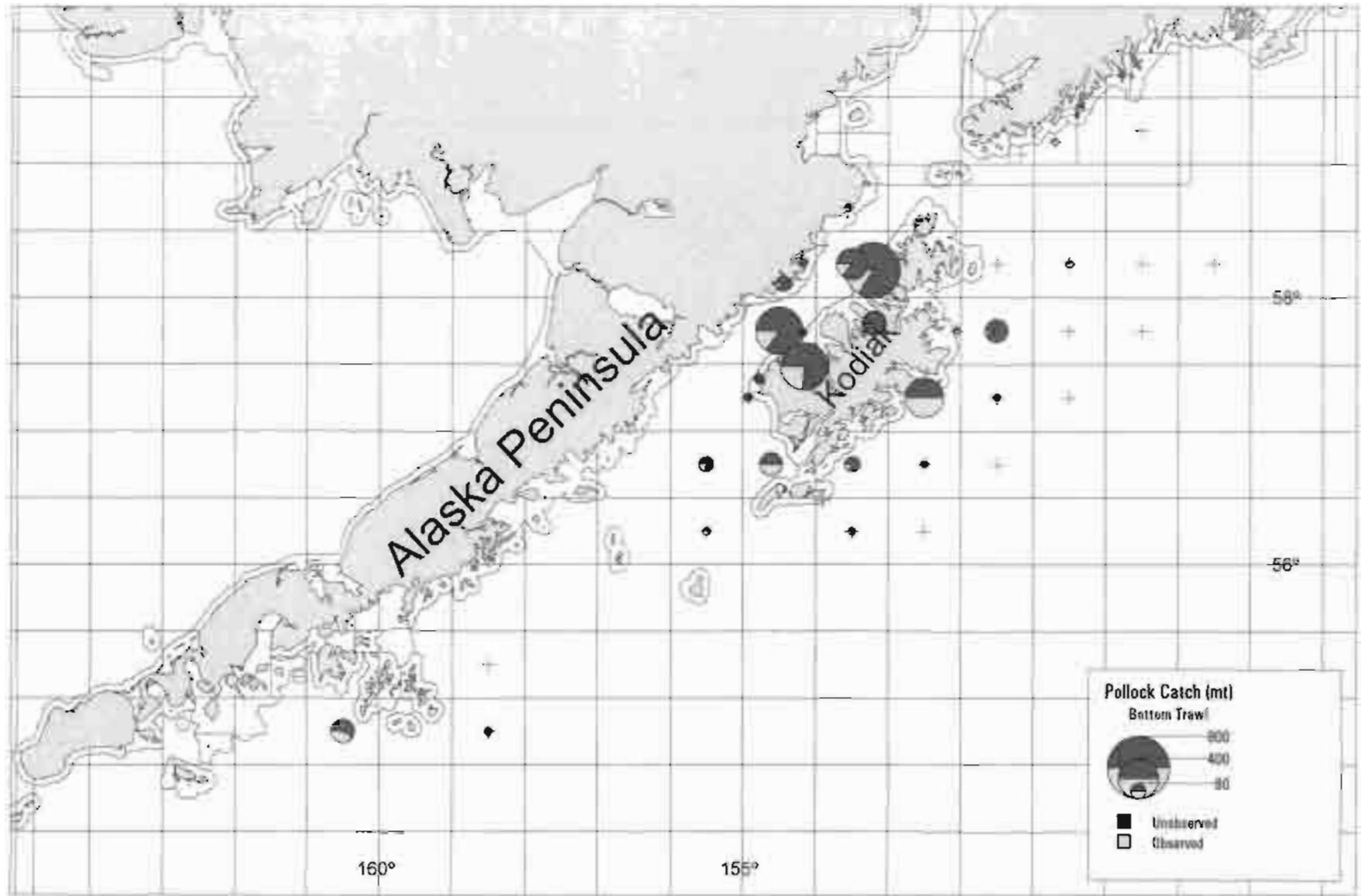


Figure 32. Pollock observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

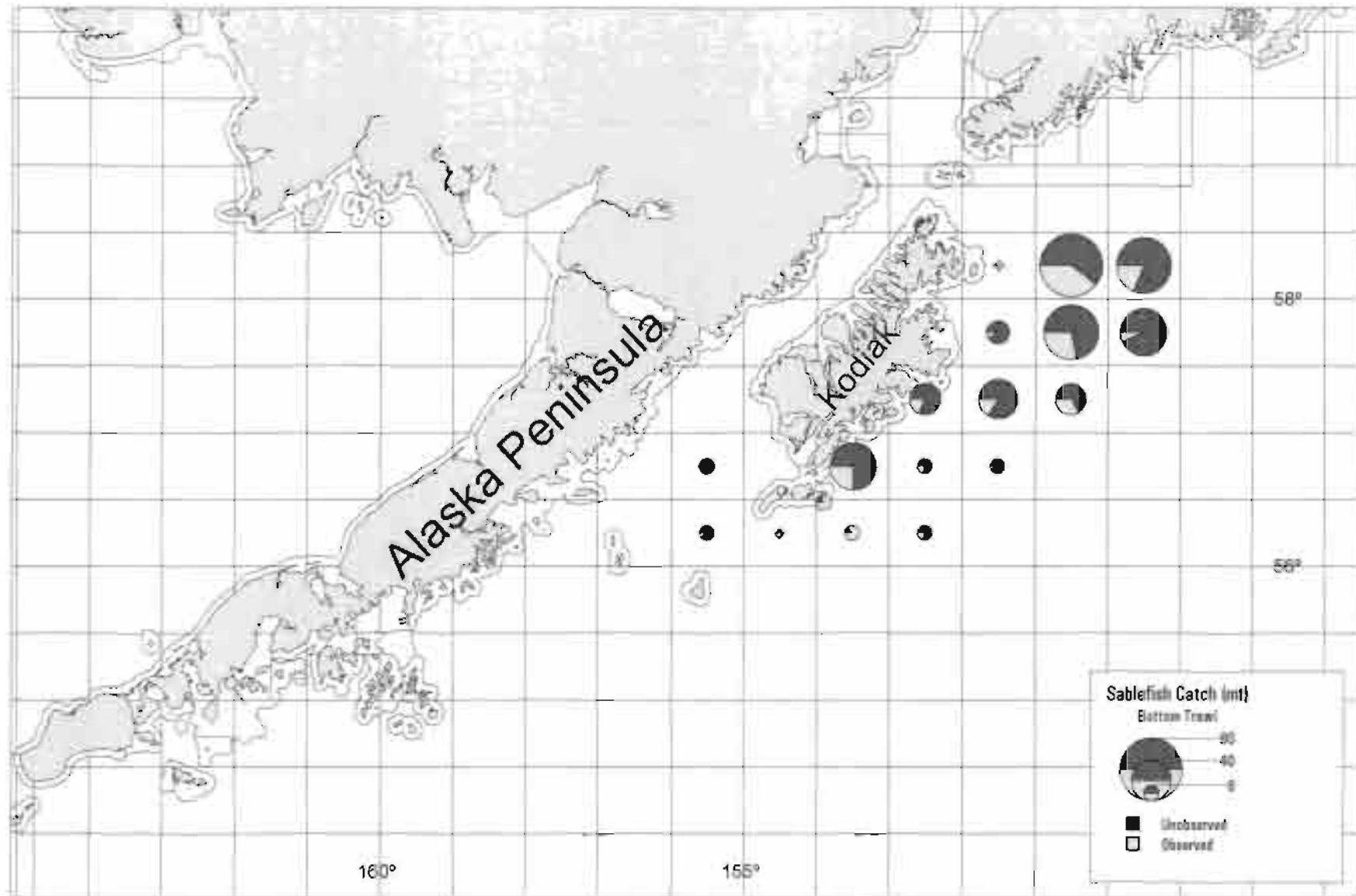


Figure 33 Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

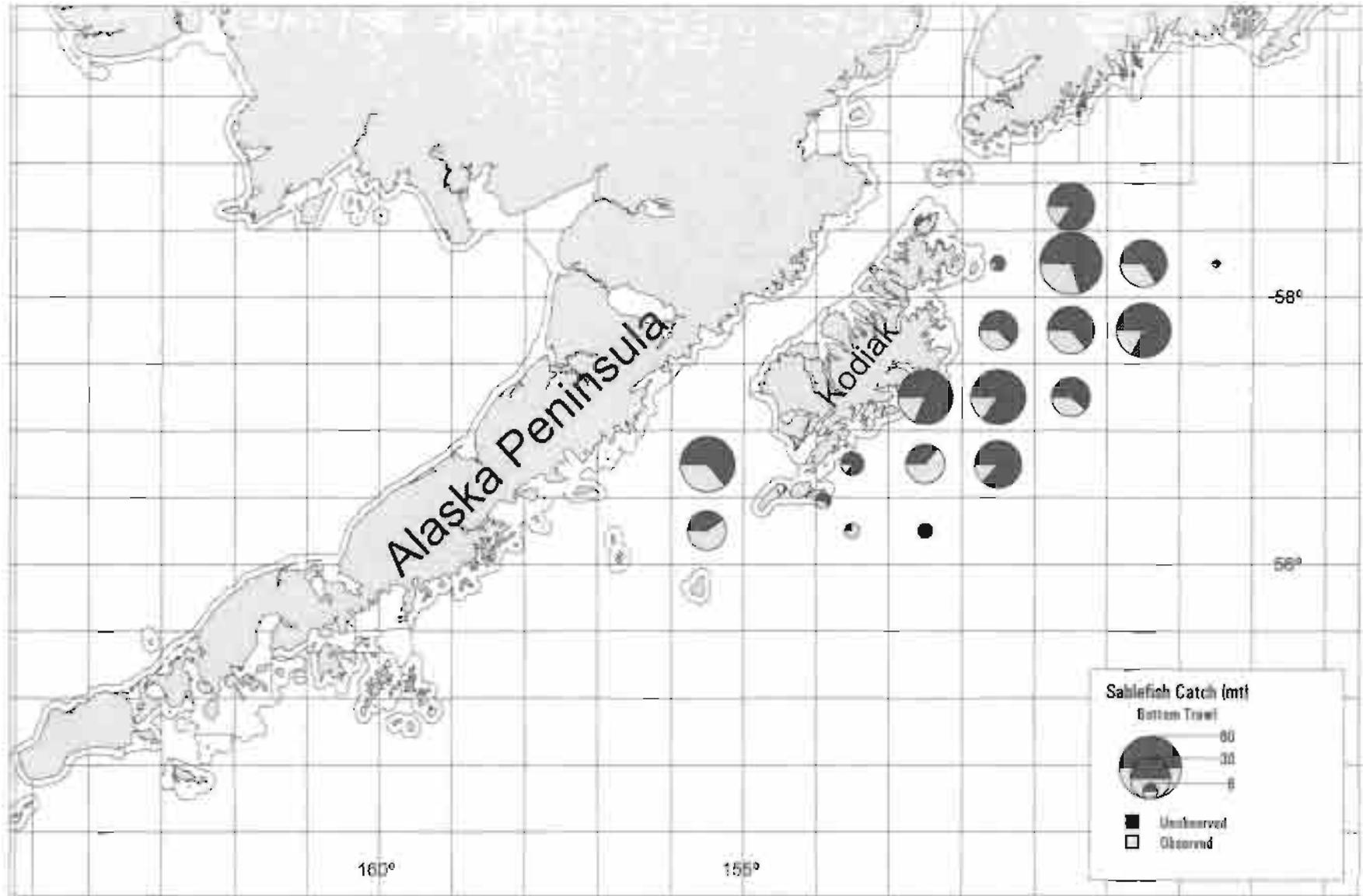


Figure 34. Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

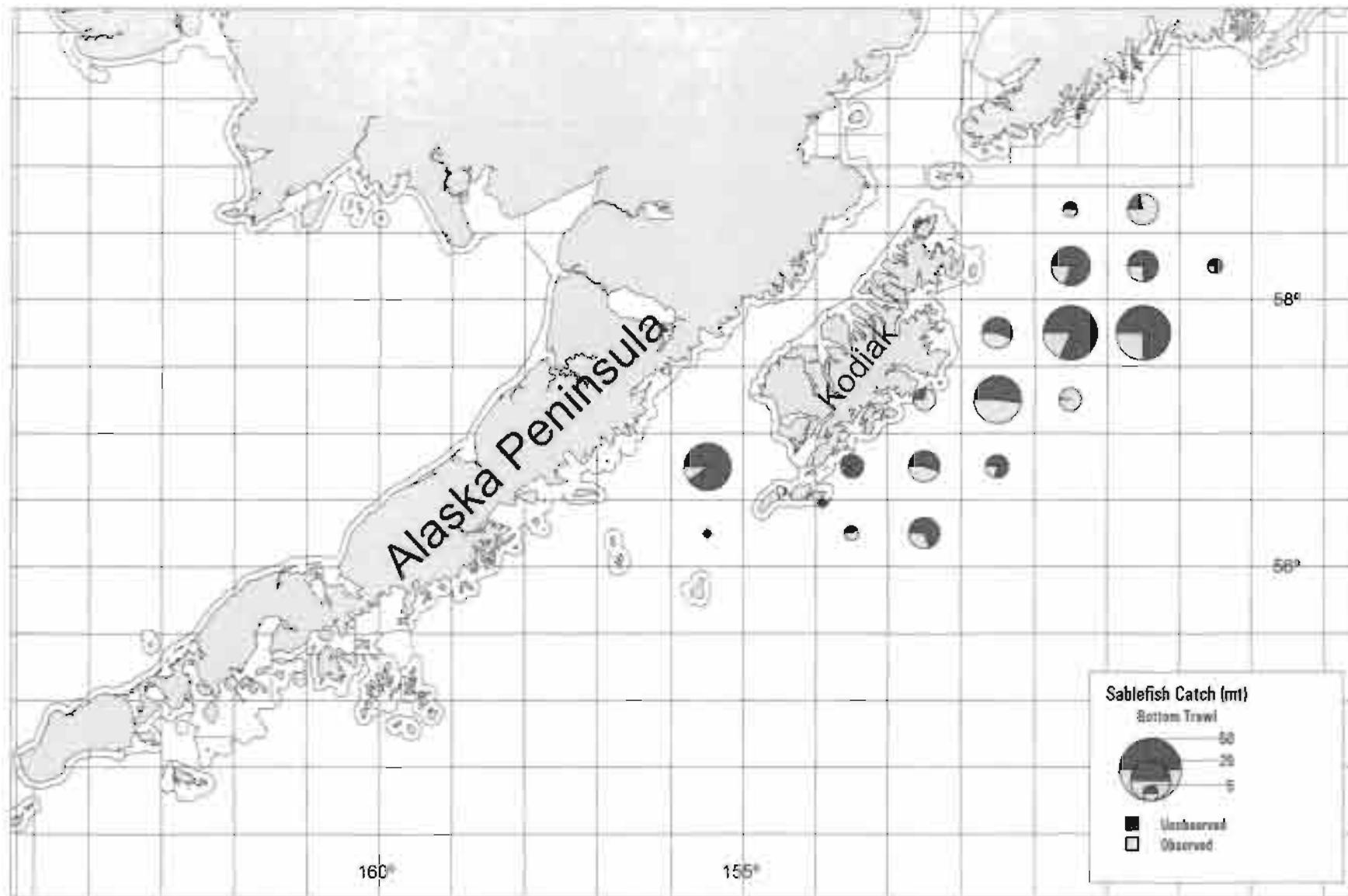


Figure 35 Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

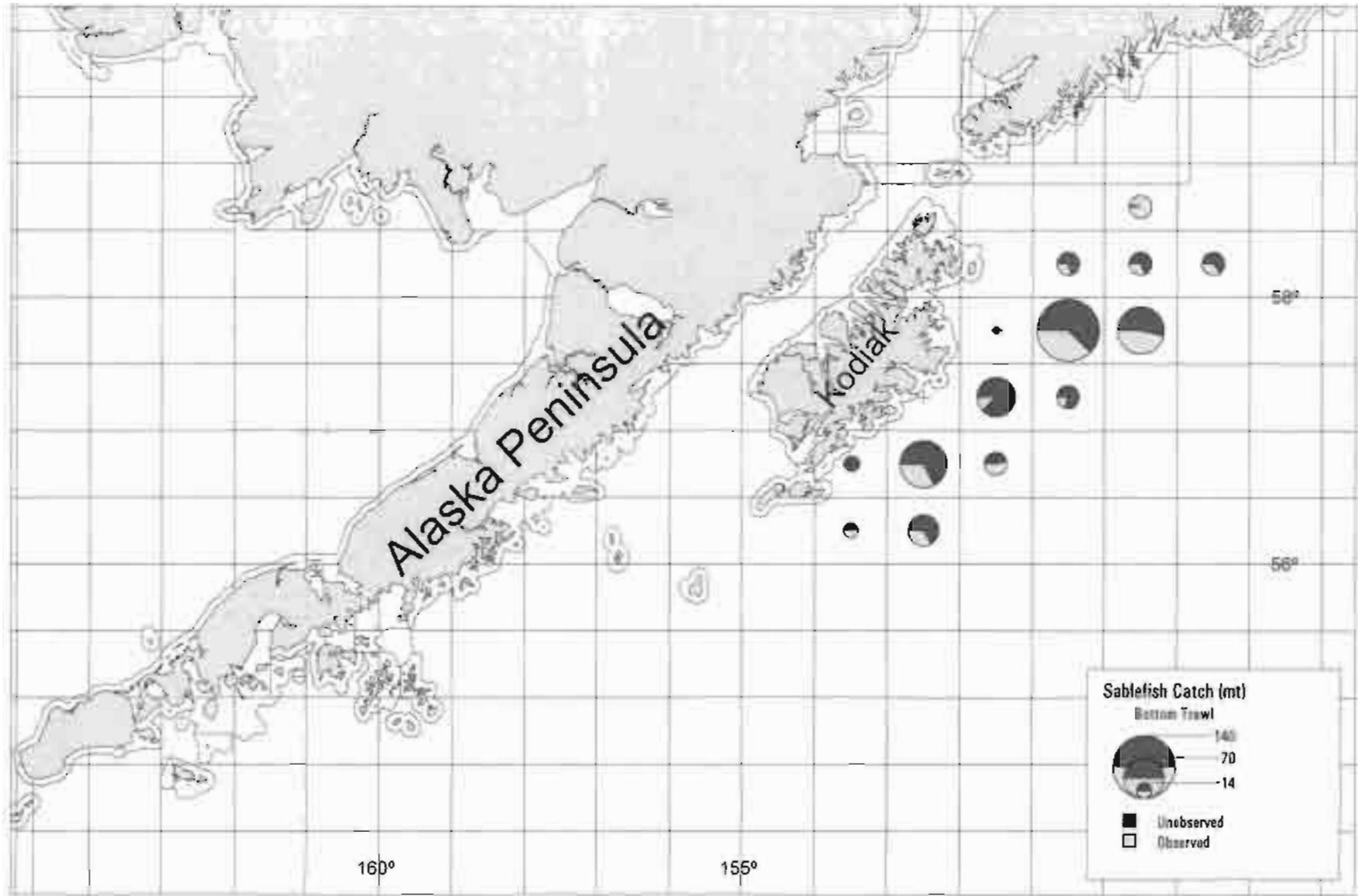


Figure 36. Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

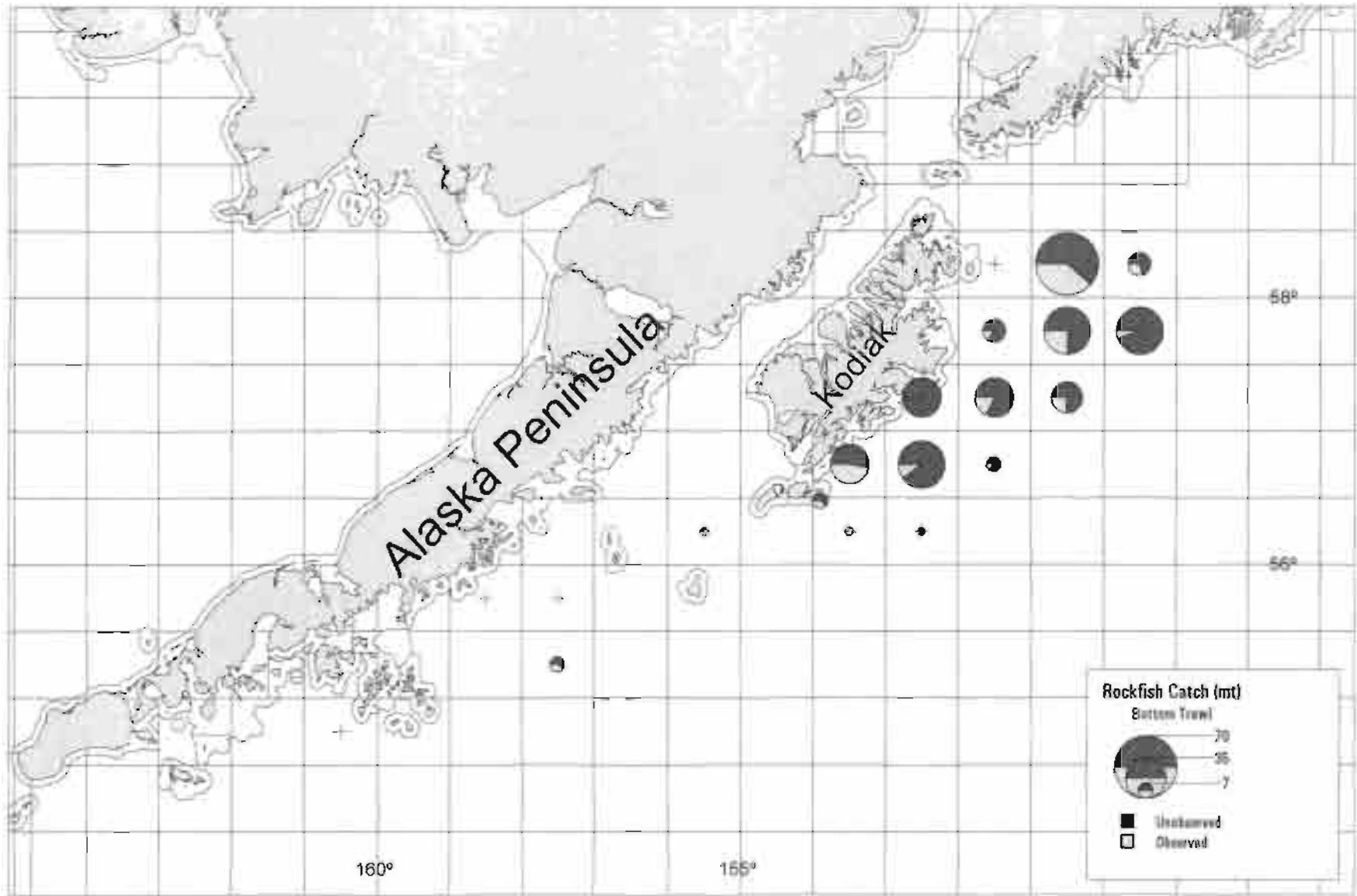


Figure 37 Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

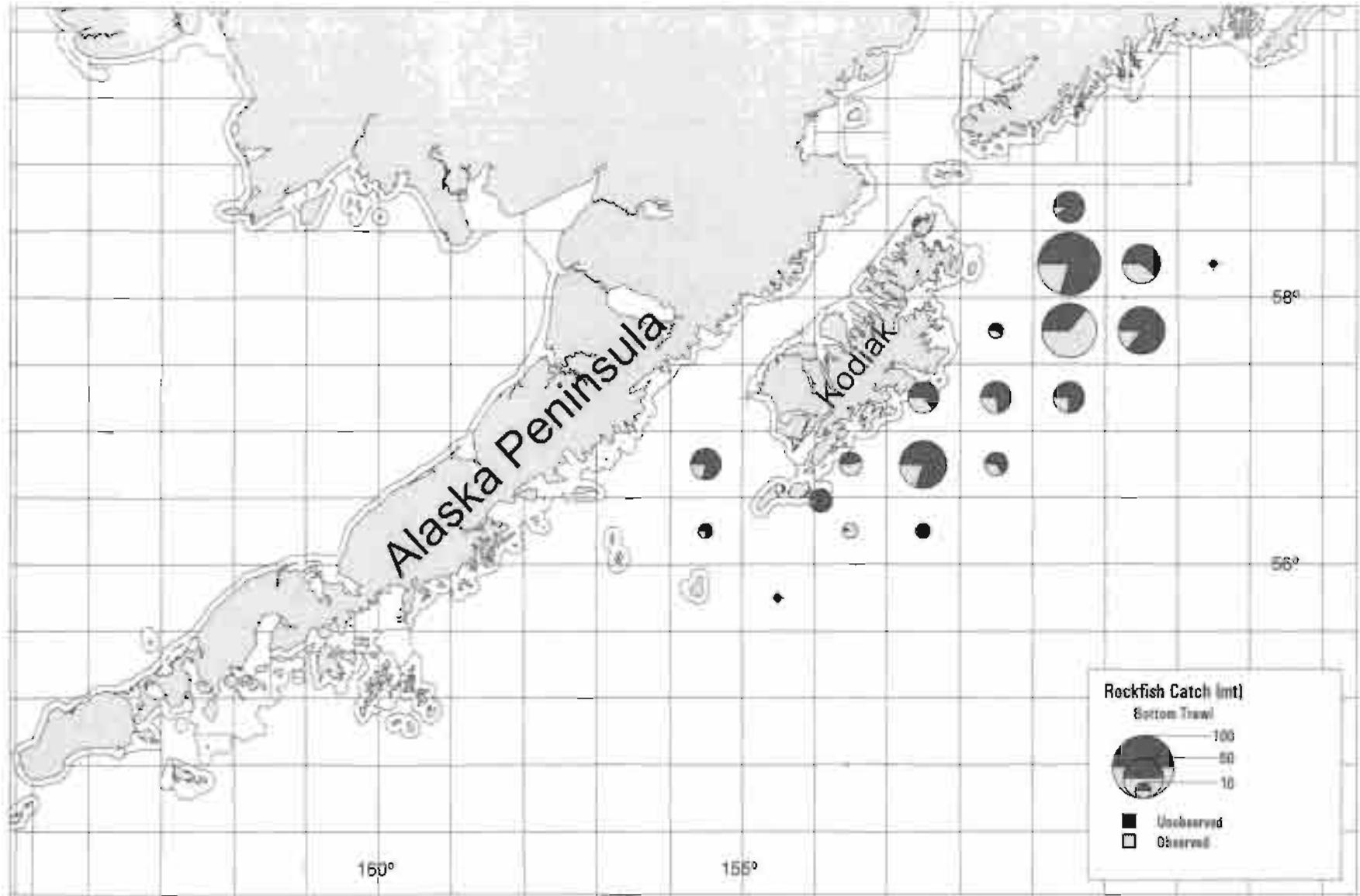


Figure 38. Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

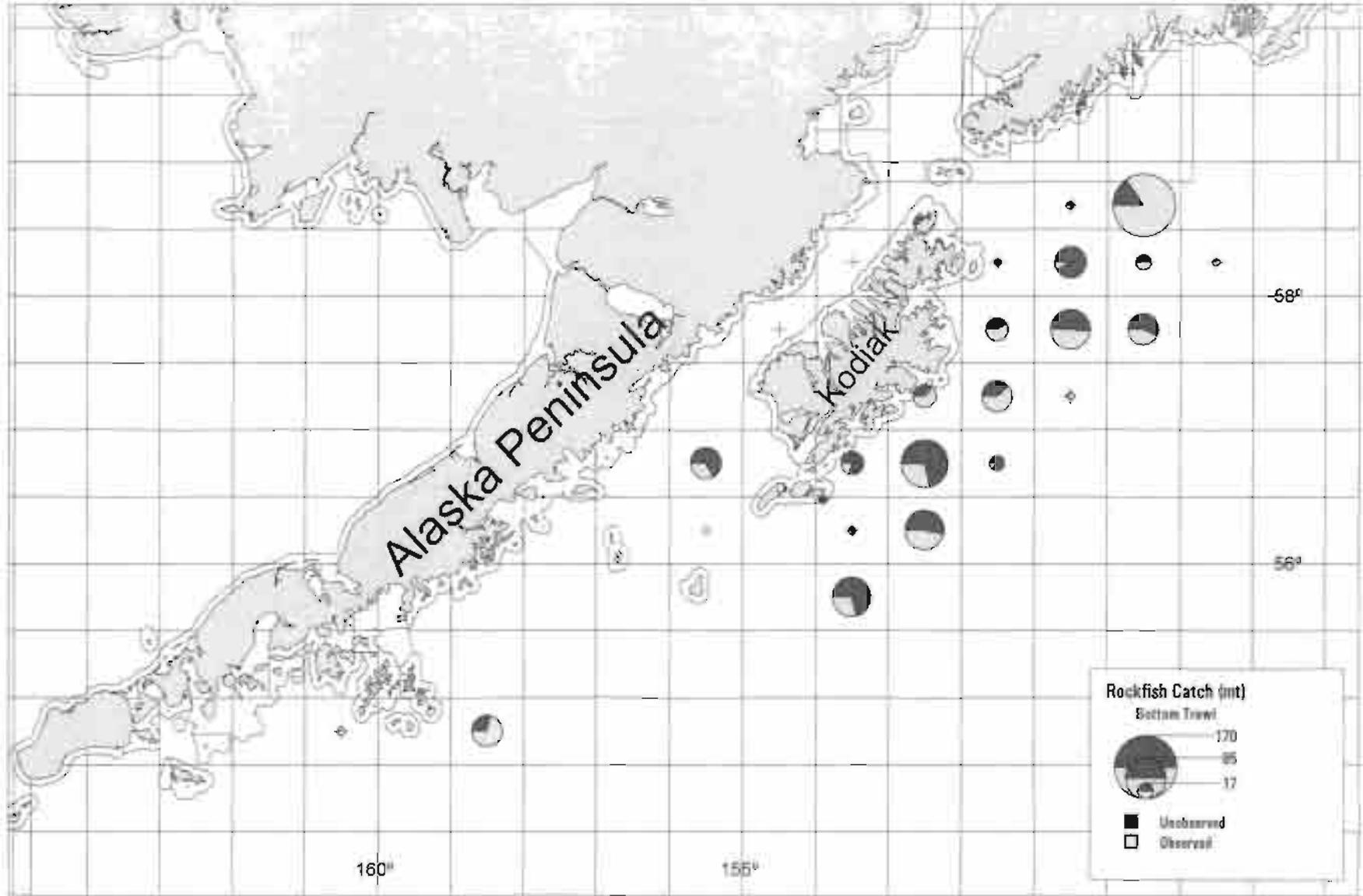


Figure 39. Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

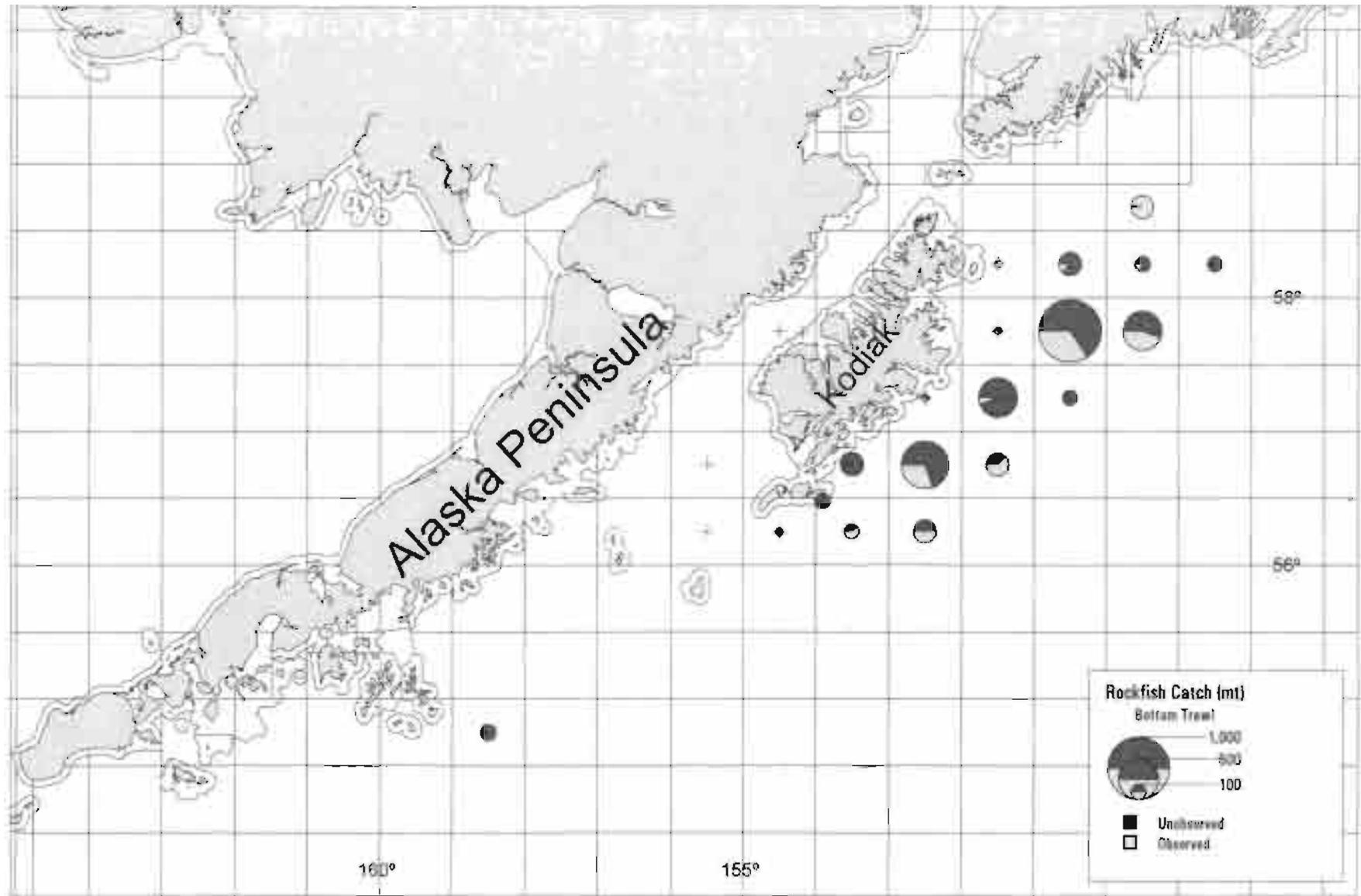


Figure 40 Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

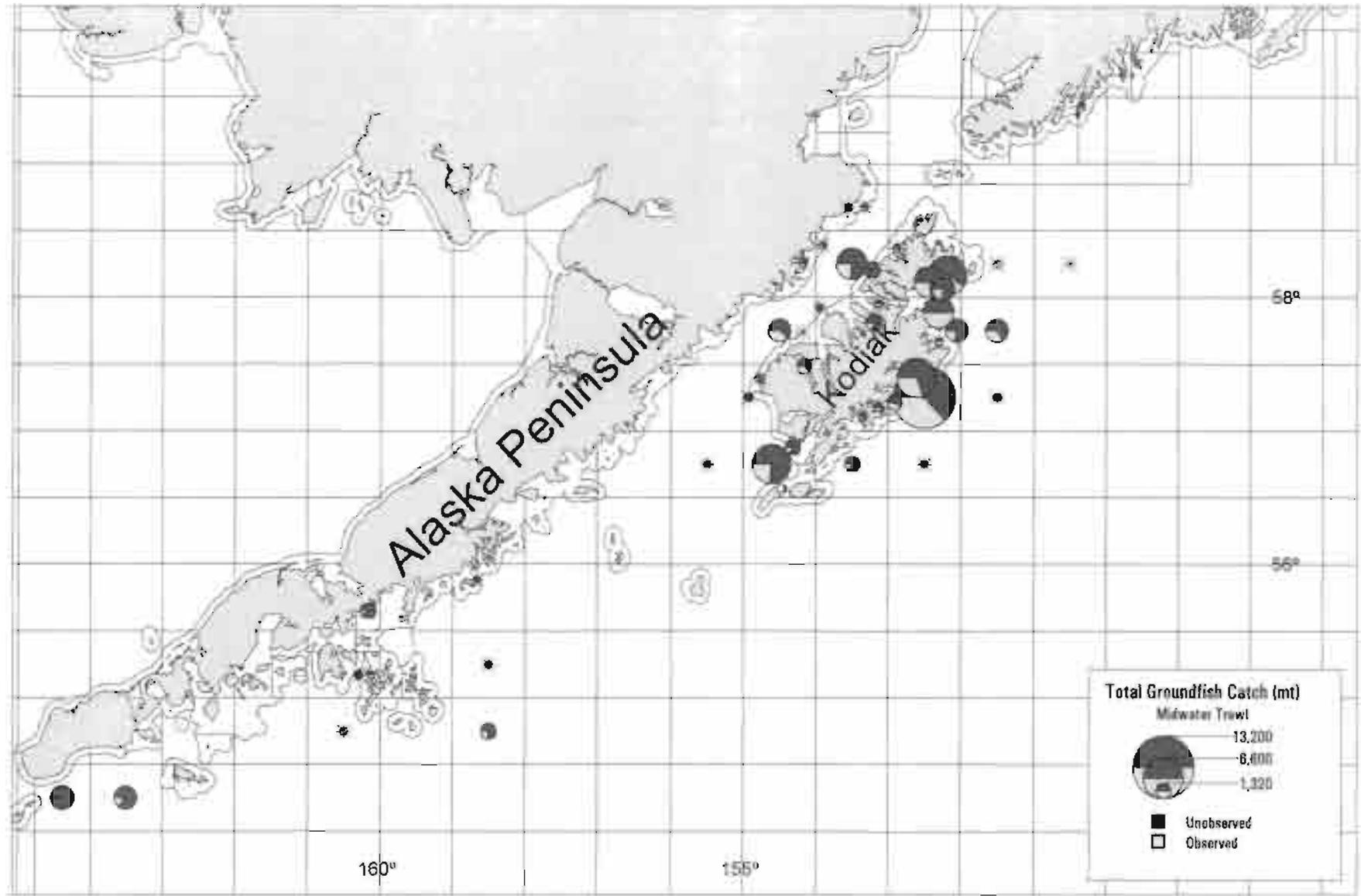


Figure 42. Total observed versus unobserved groundfish catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

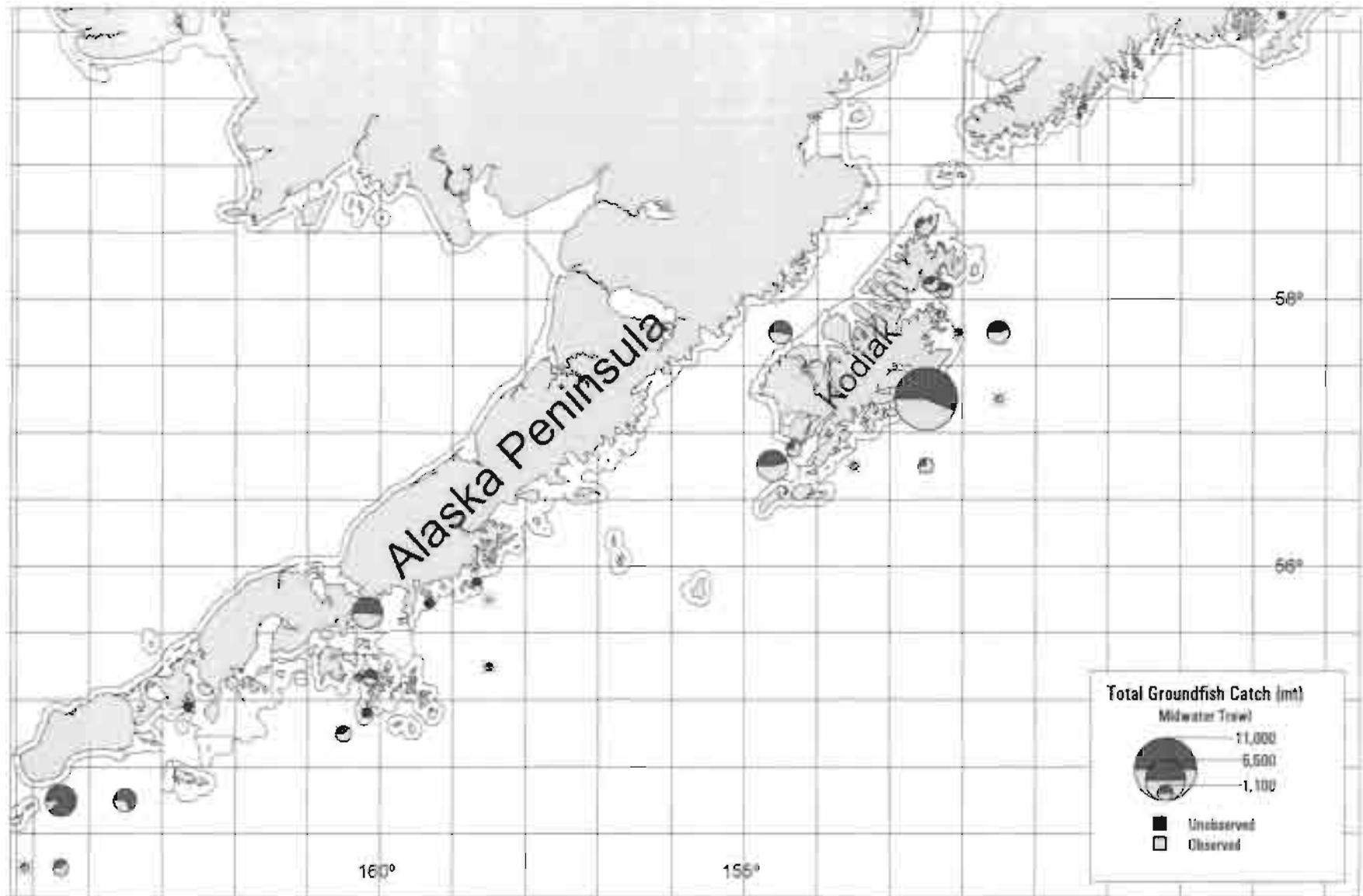


Figure 43. Total observed versus unobserved groundfish catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

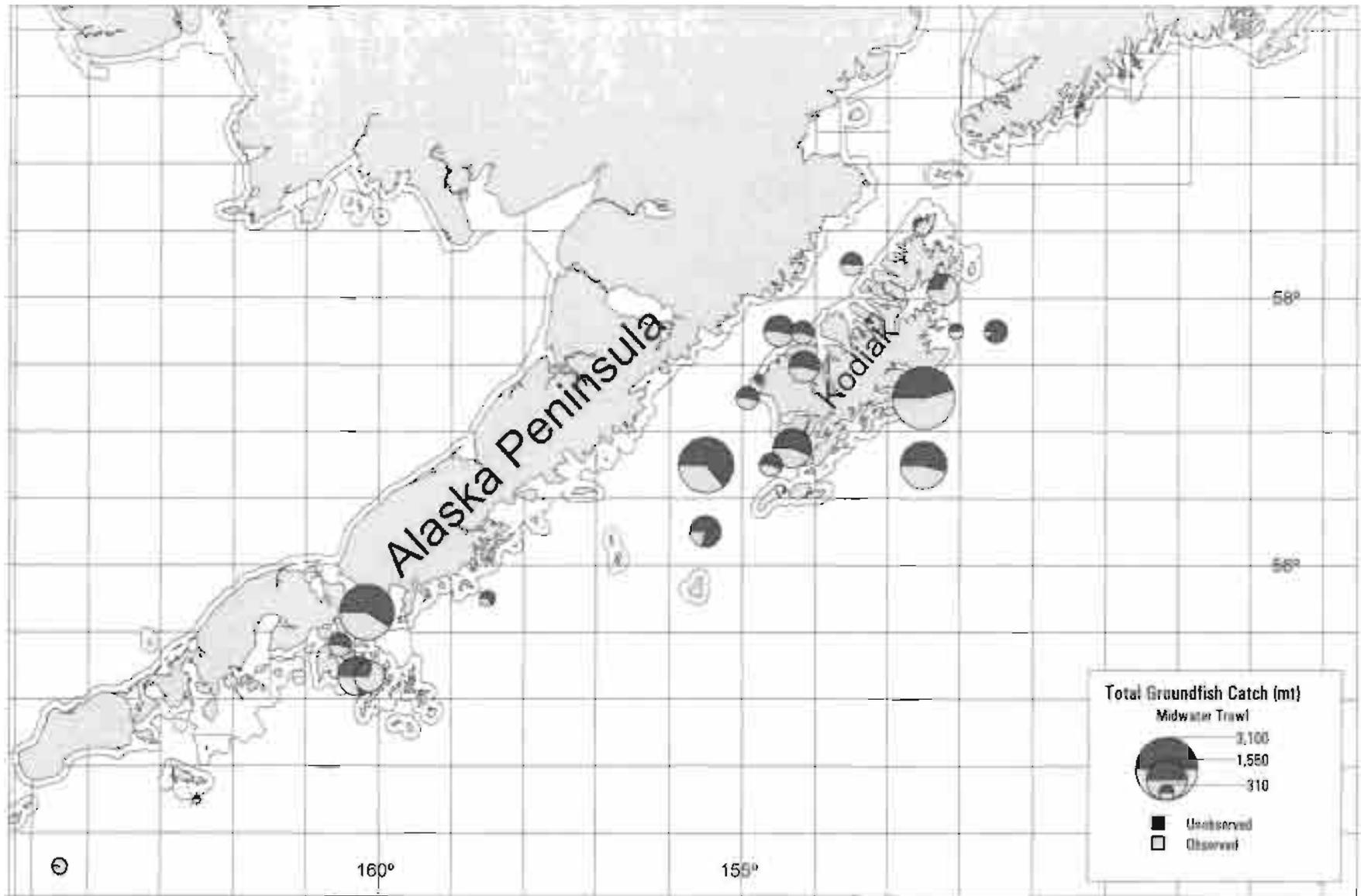


Figure 44. Total observed versus unobserved groundfish catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

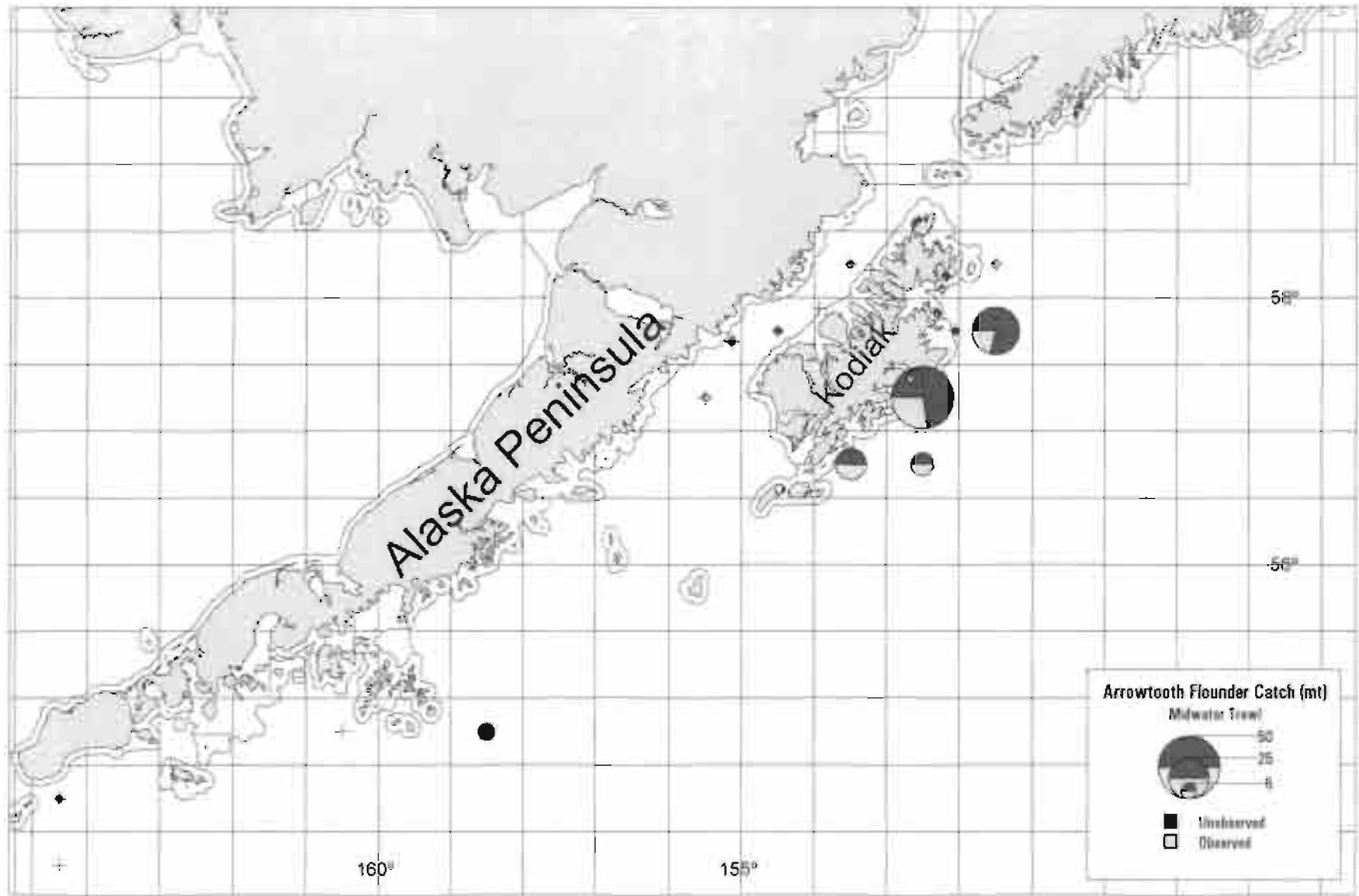


Figure 45 Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

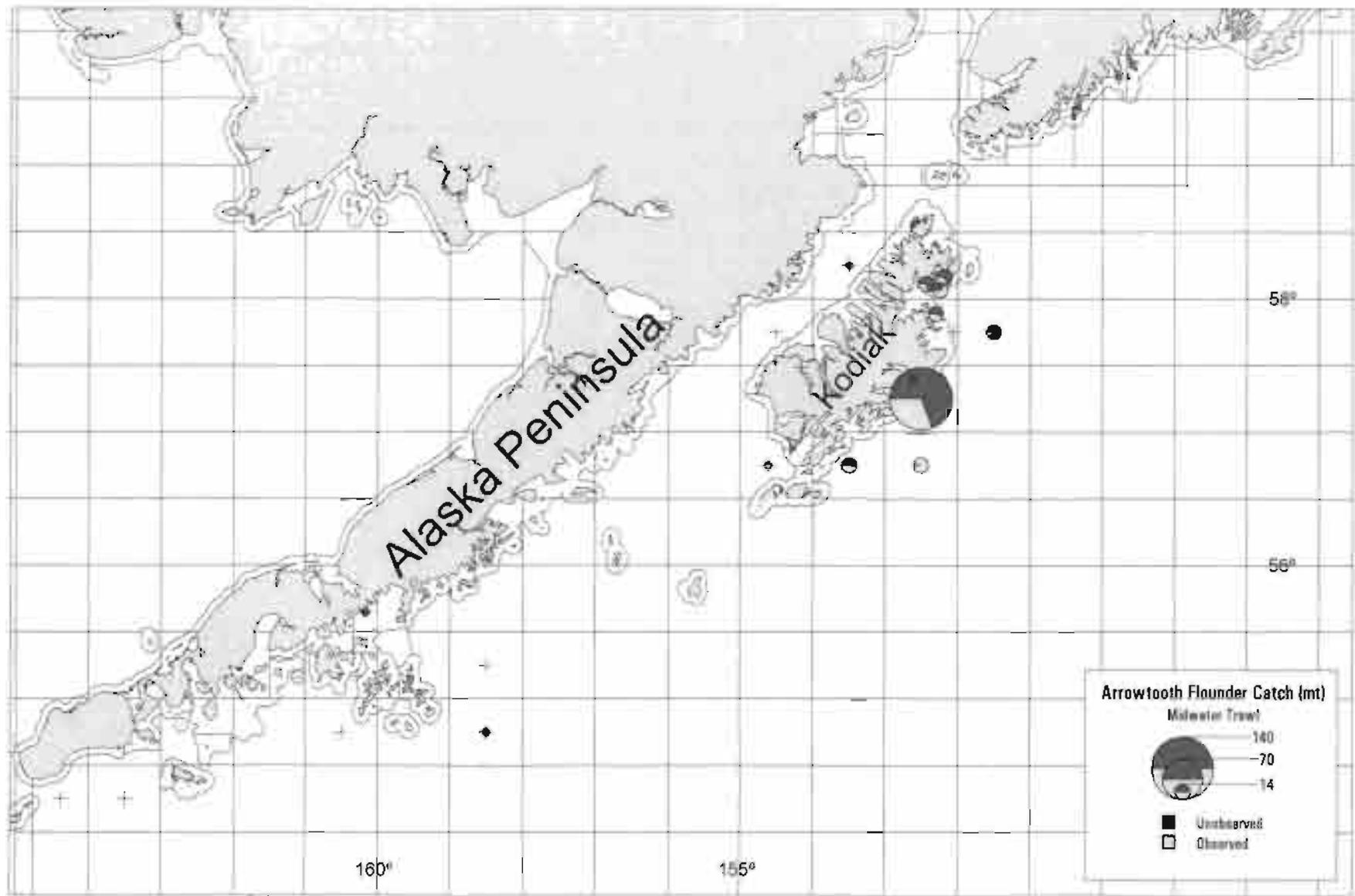


Figure 46. Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

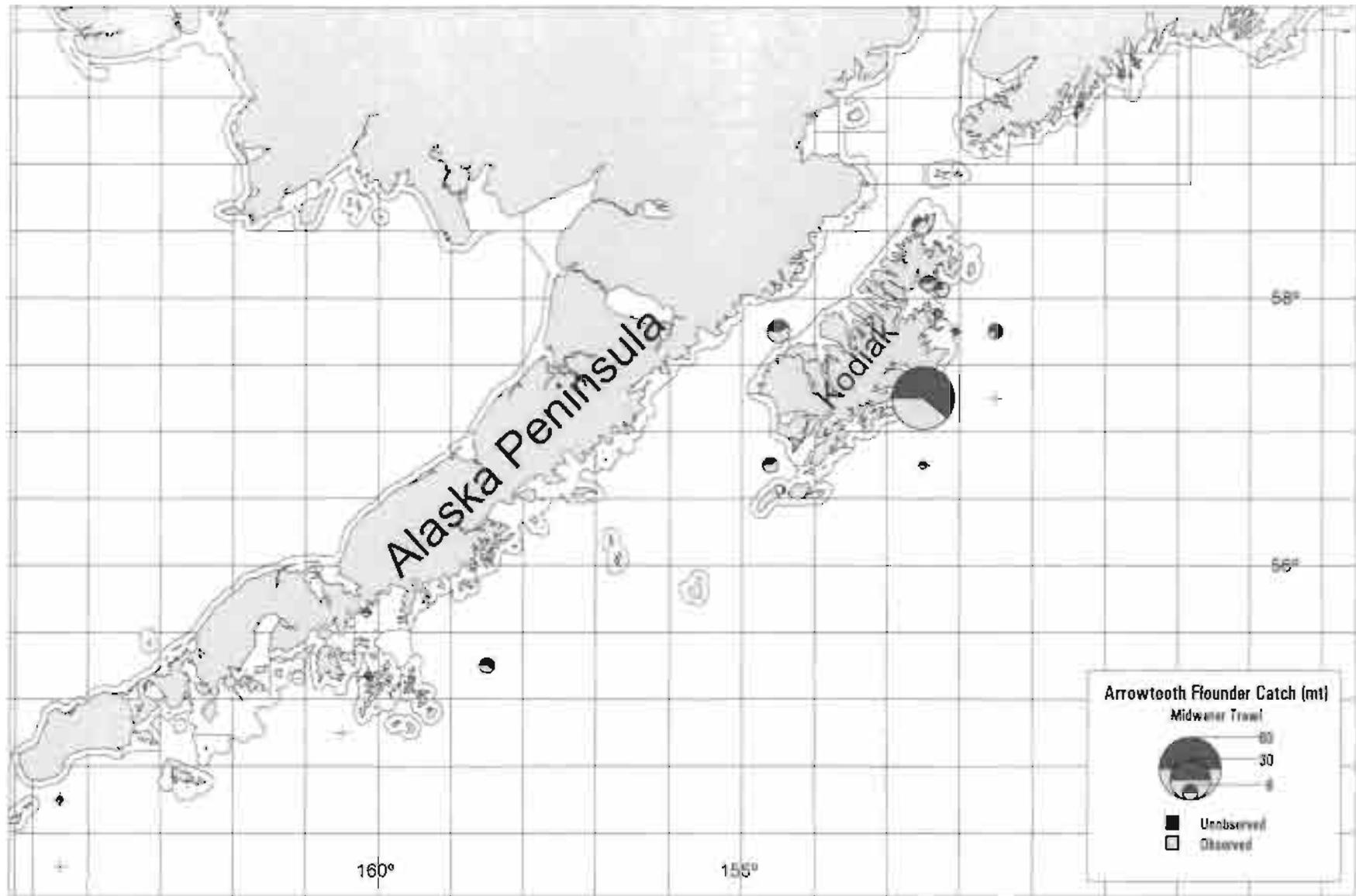


Figure 47. Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

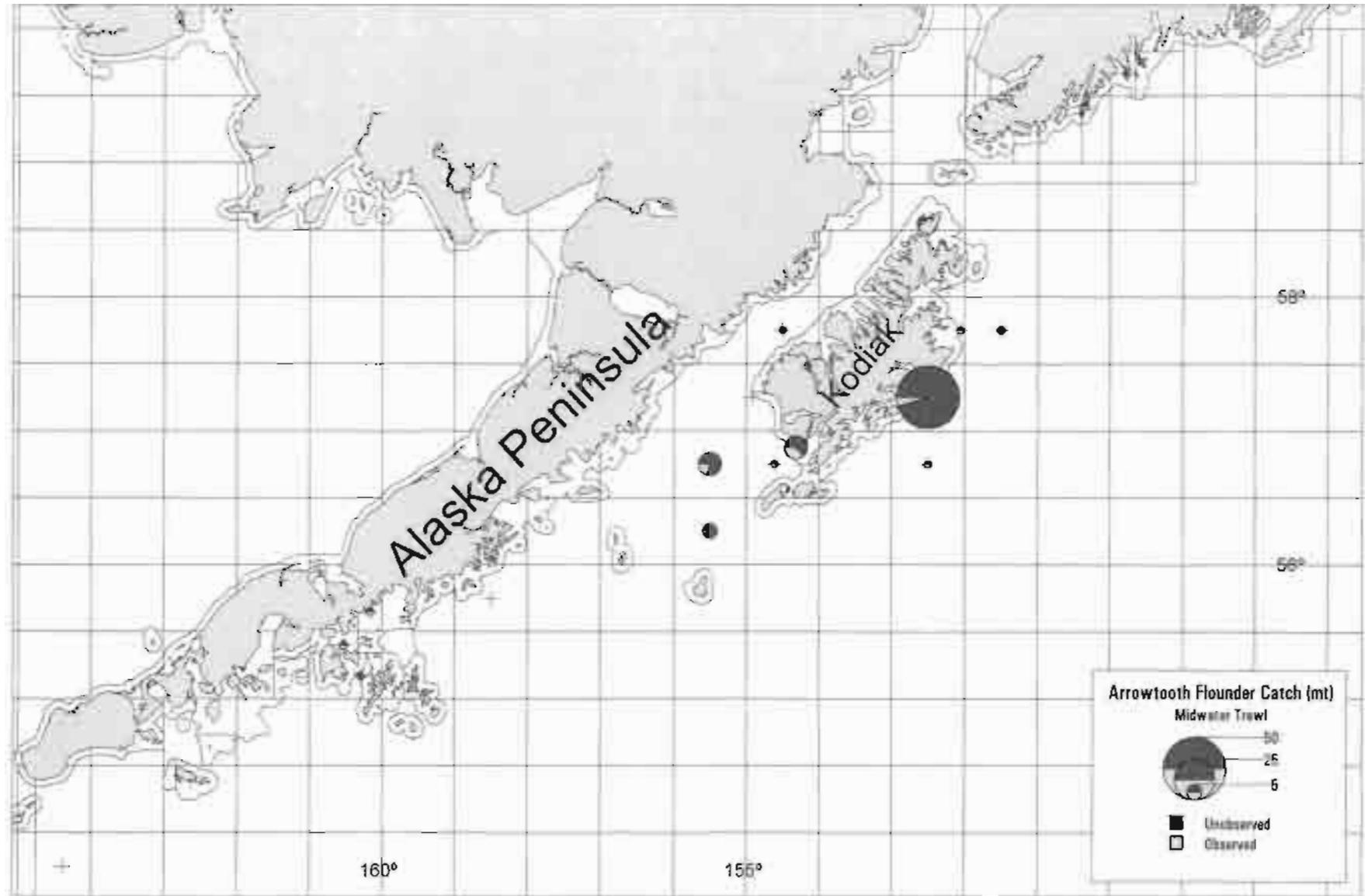


Figure 48. Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

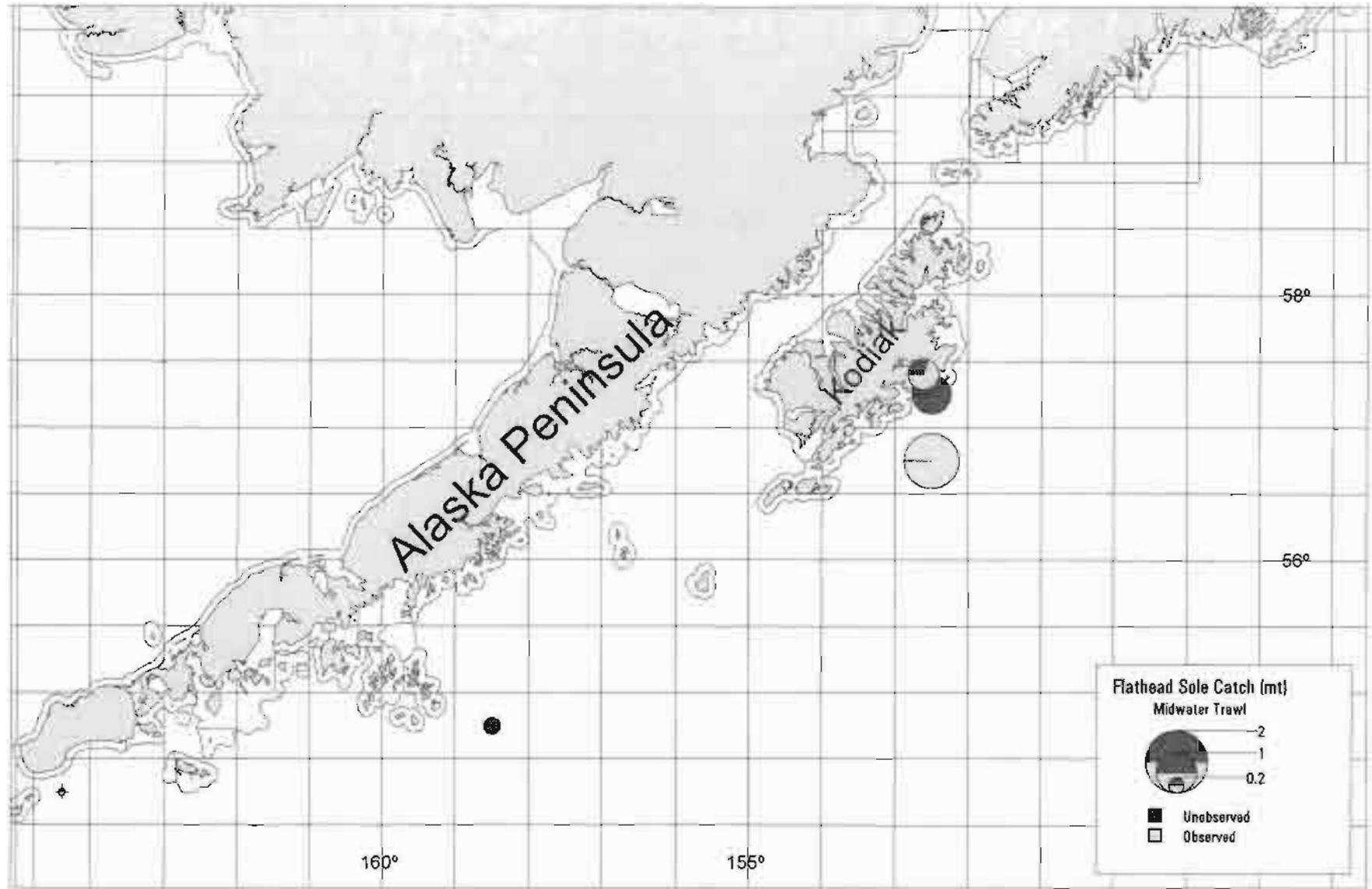


Figure 49. Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

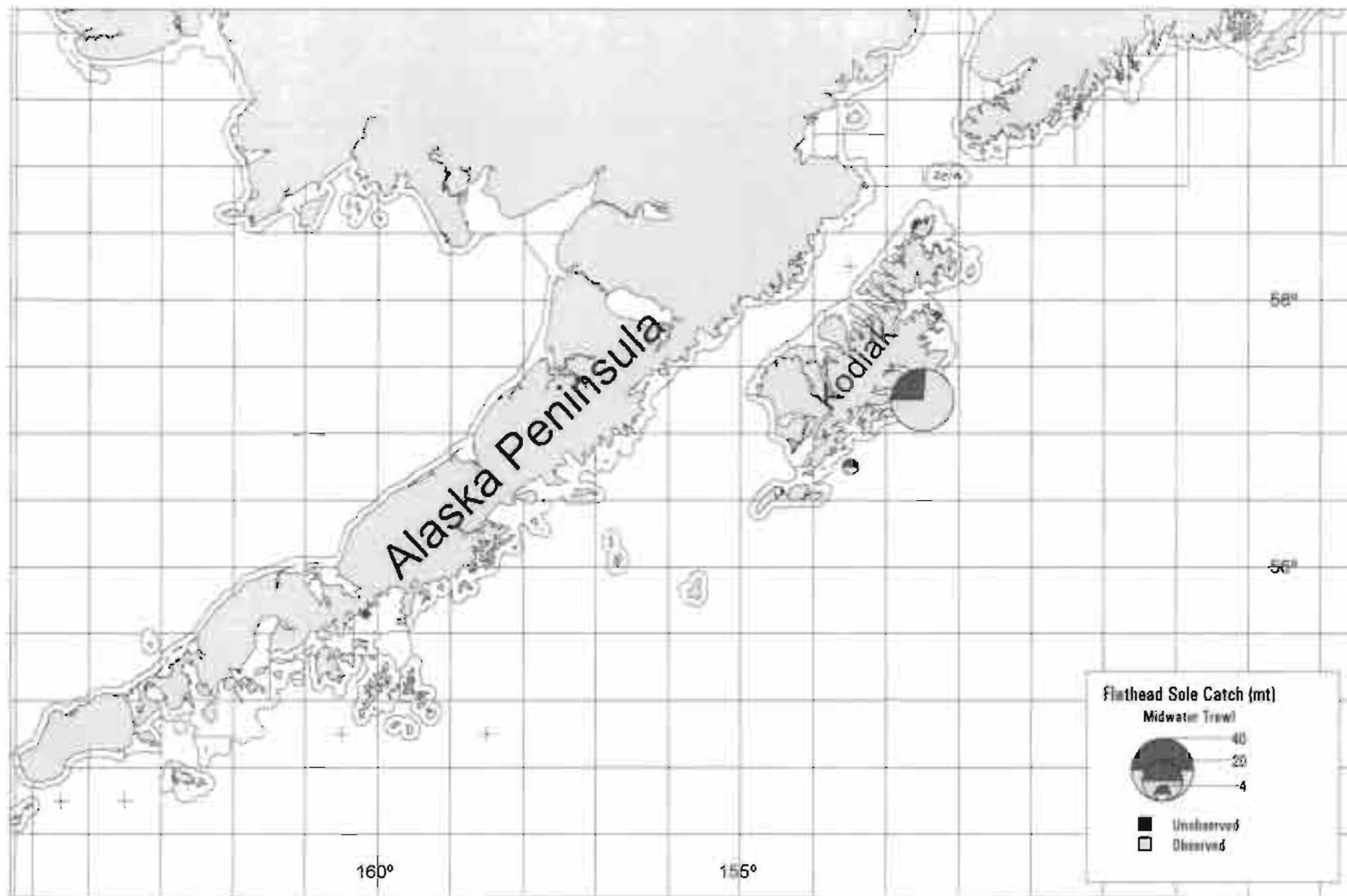


Figure 50. Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

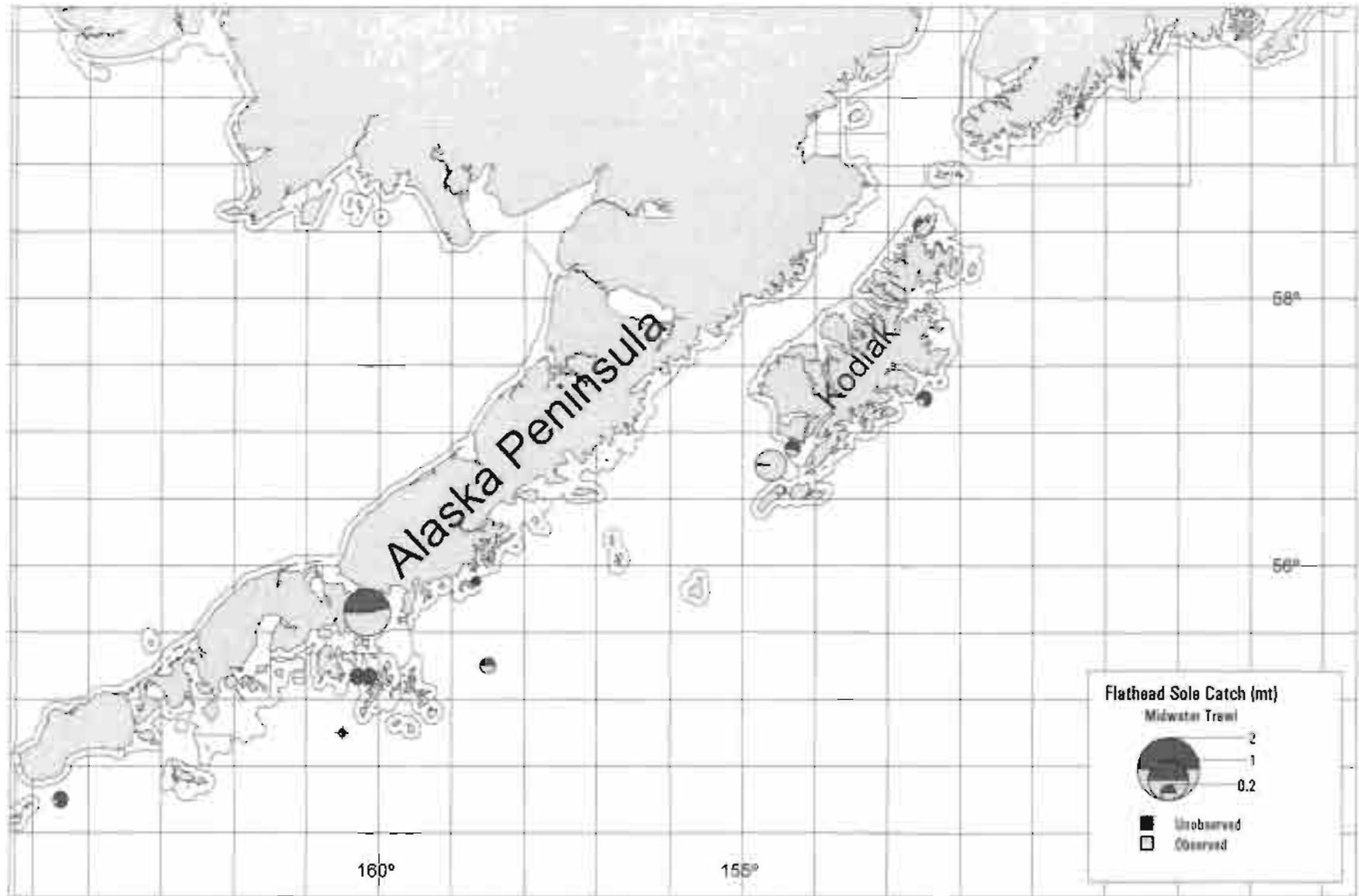


Figure 51 Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

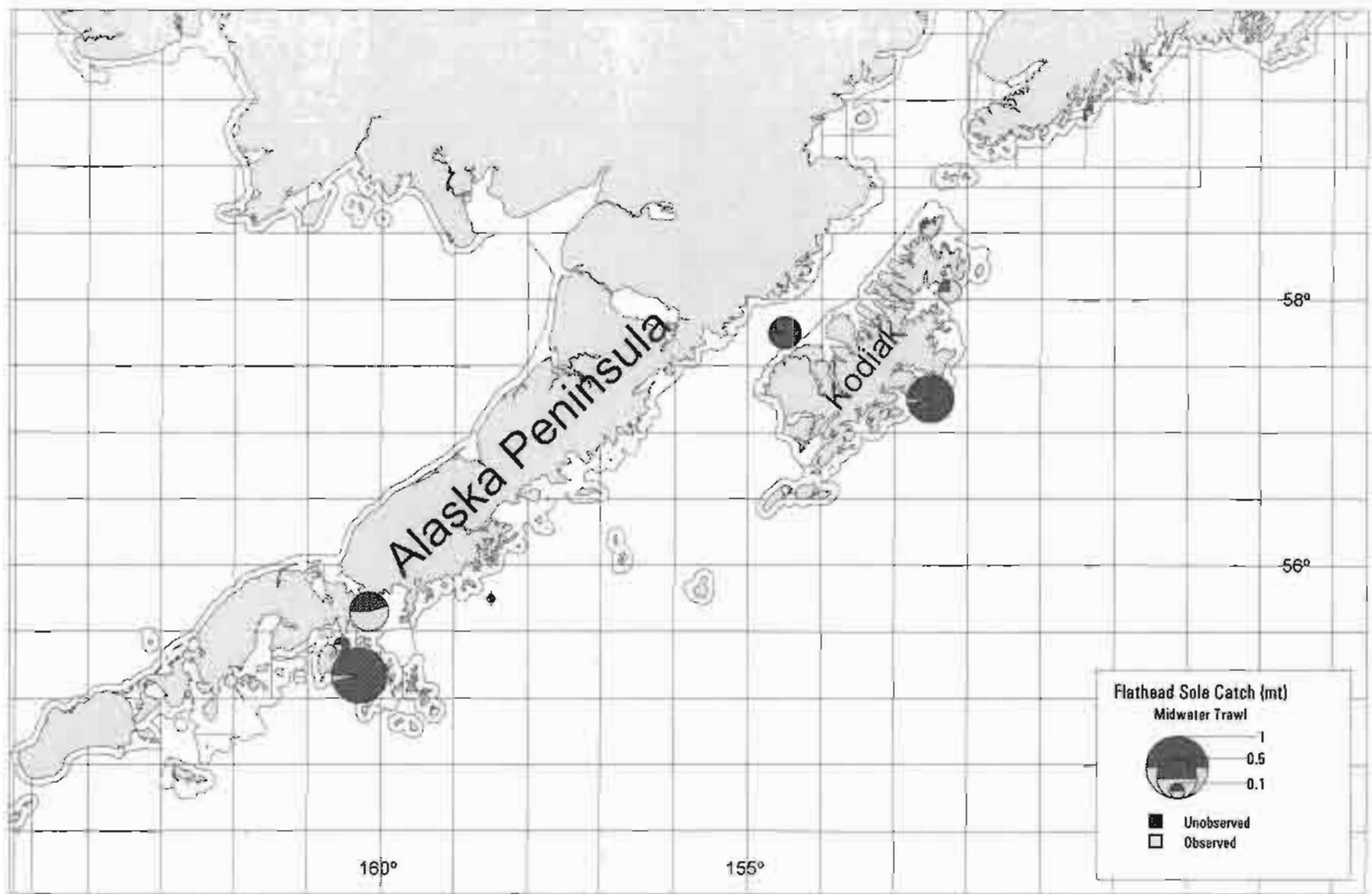


Figure 52. Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

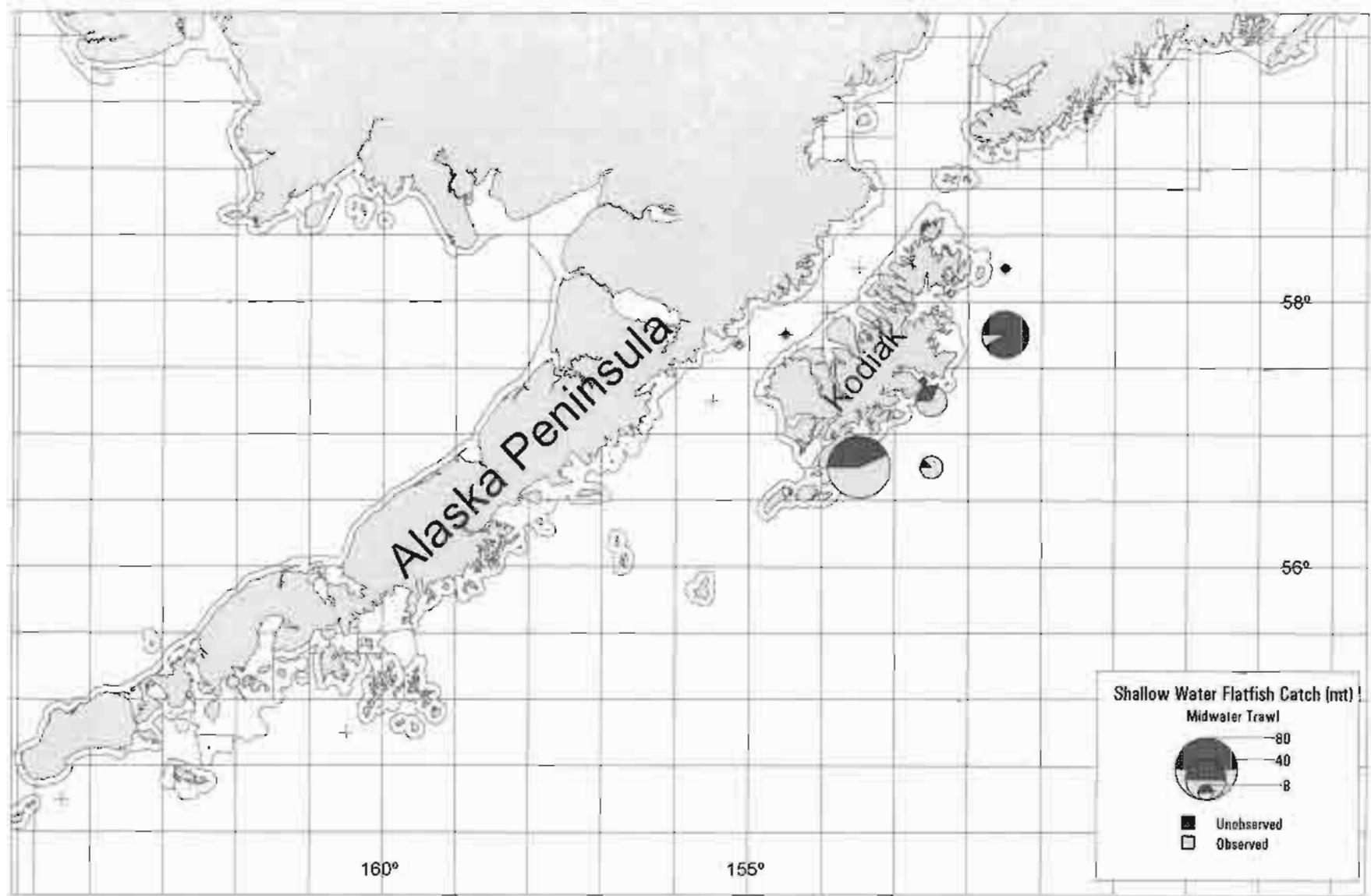


Figure 53. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

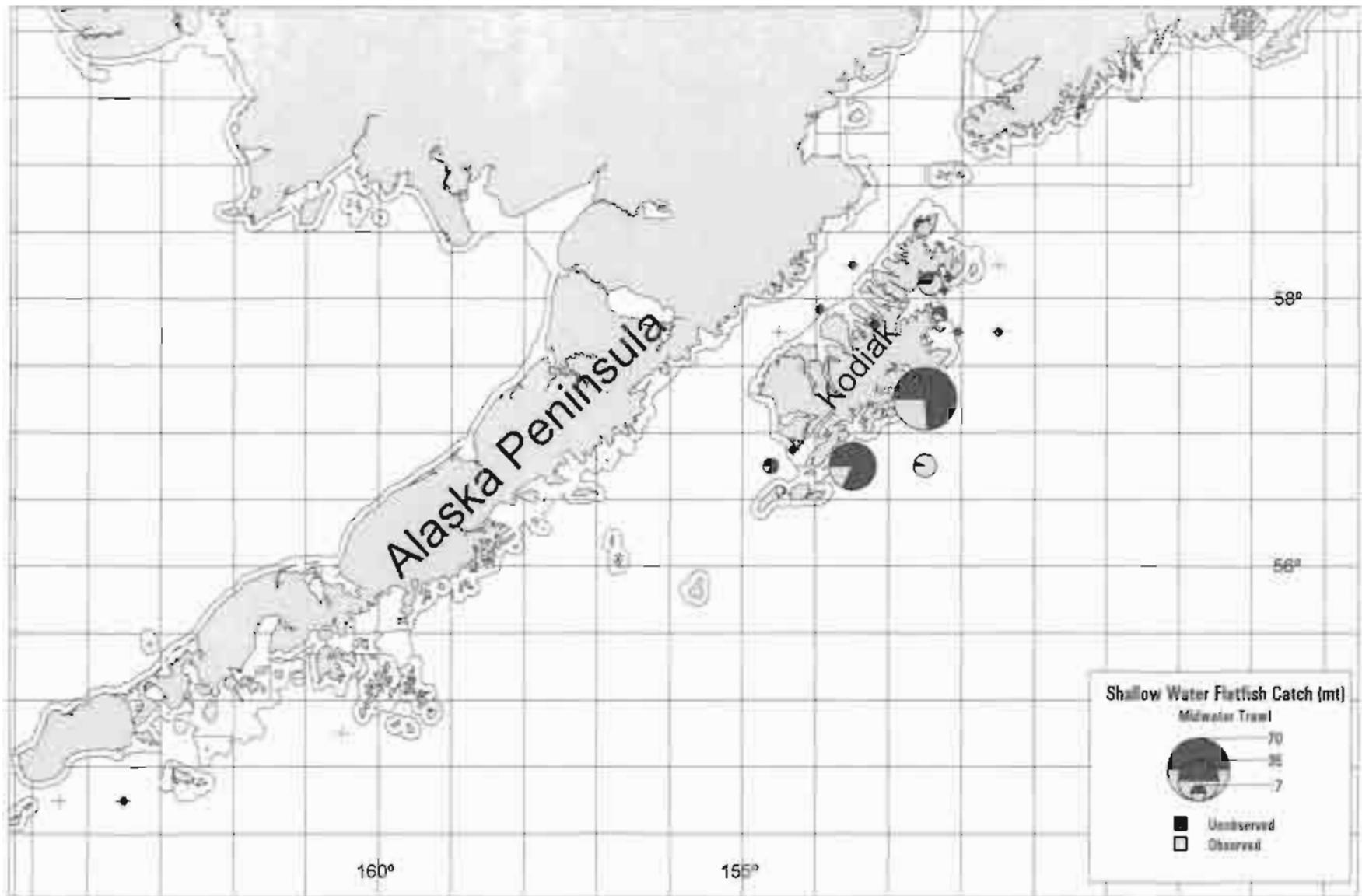


Figure 54. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

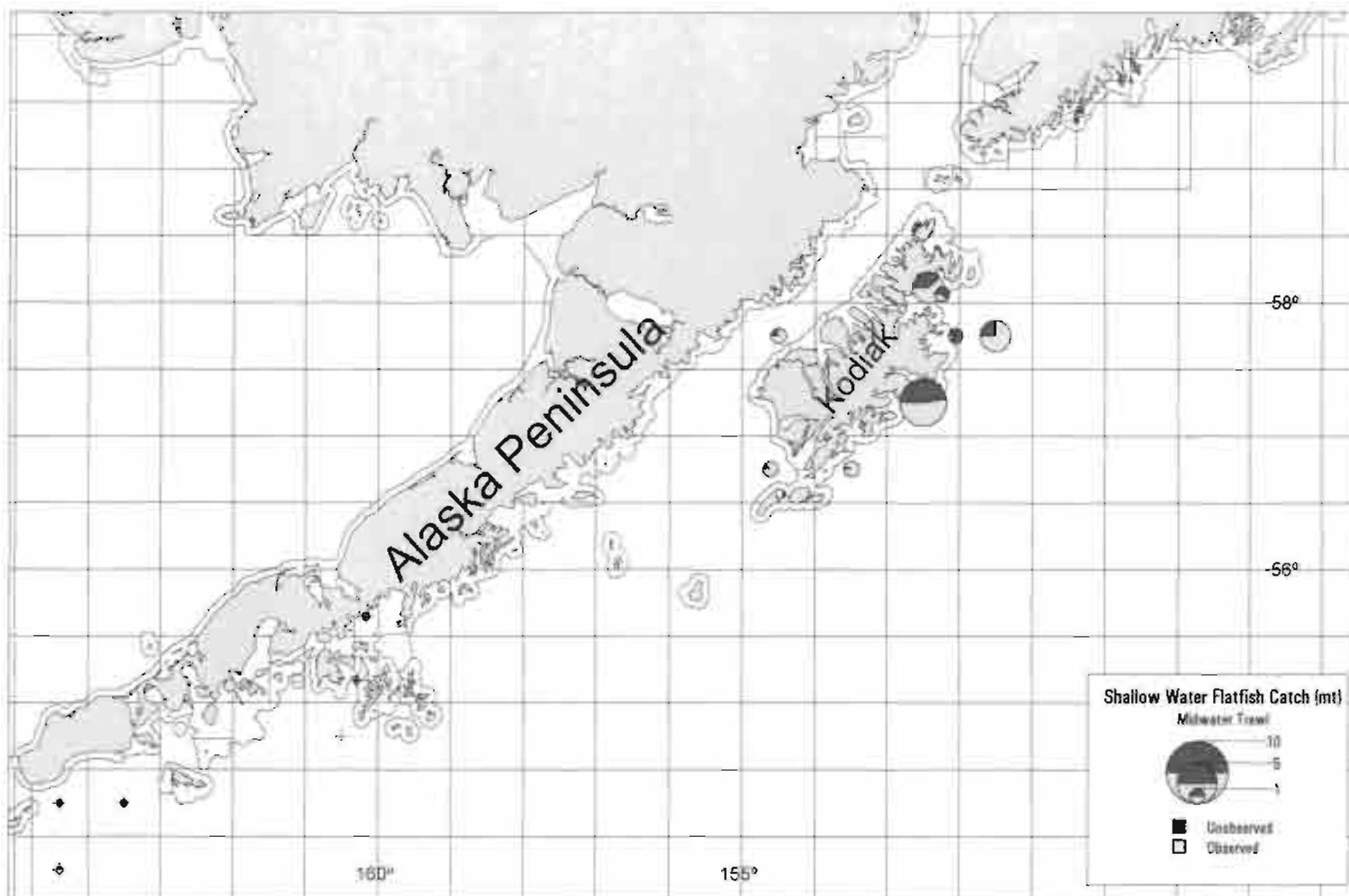


Figure 55. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

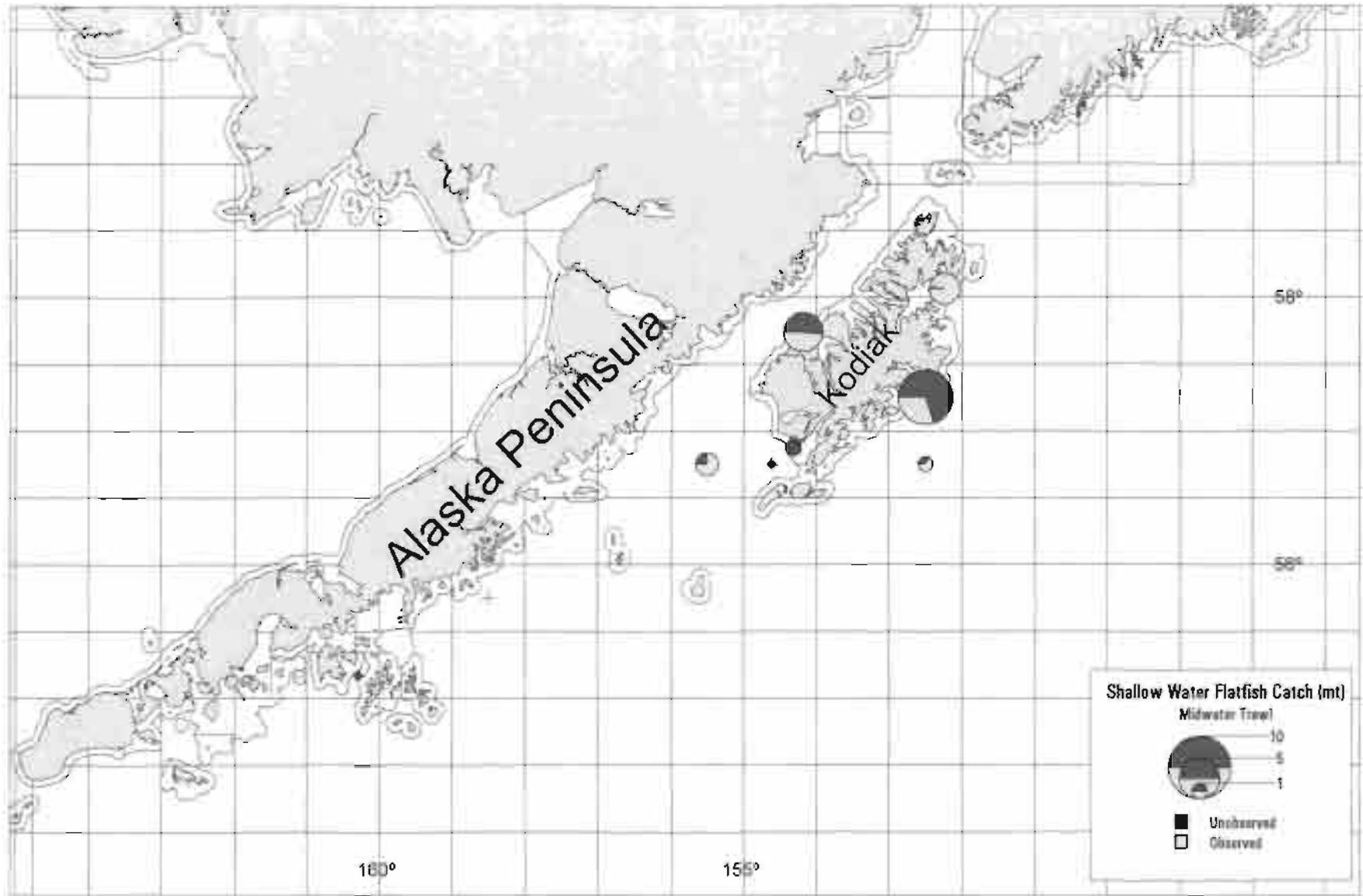


Figure 56. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

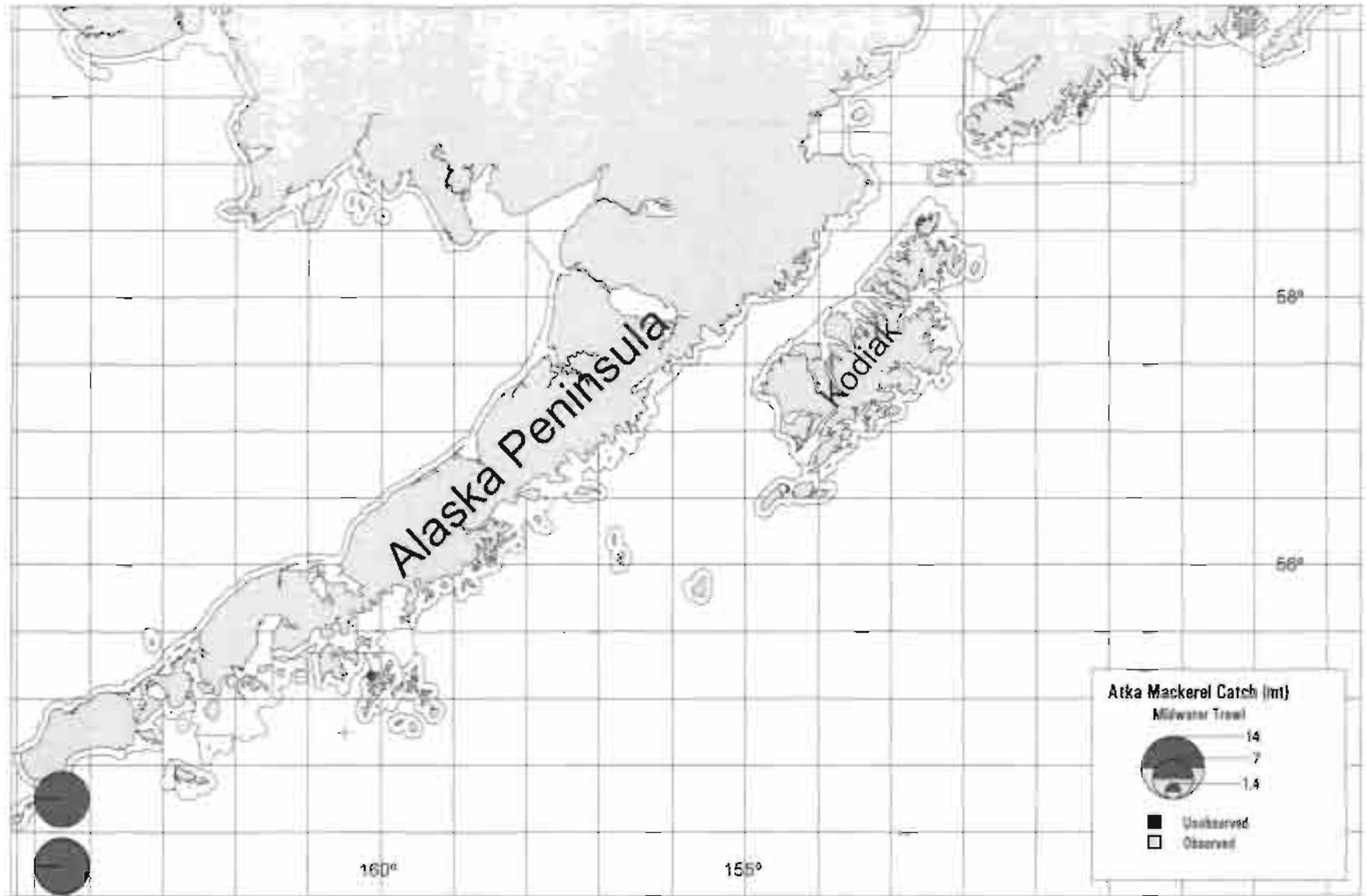


Figure 57. Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

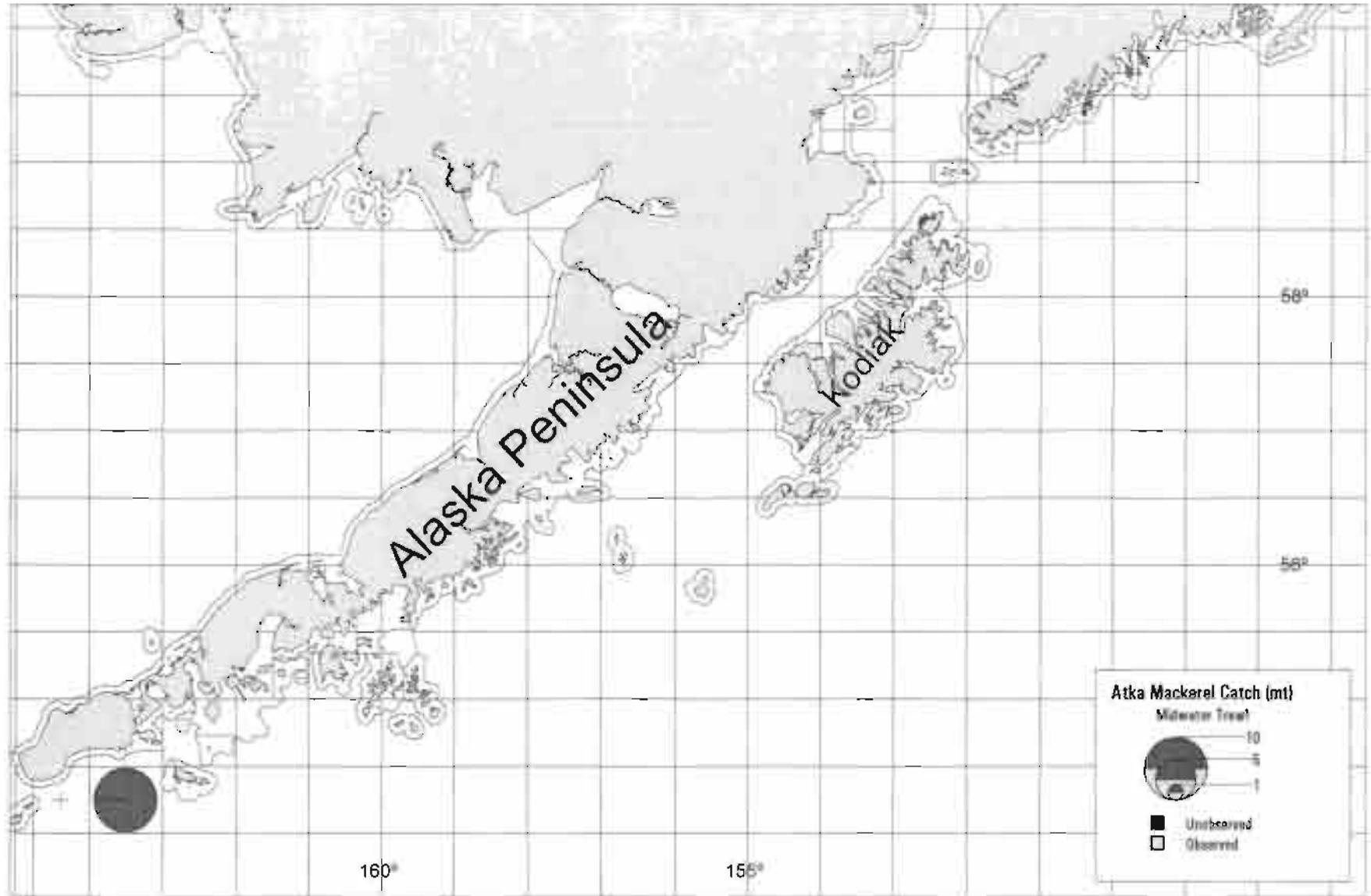


Figure 58. Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

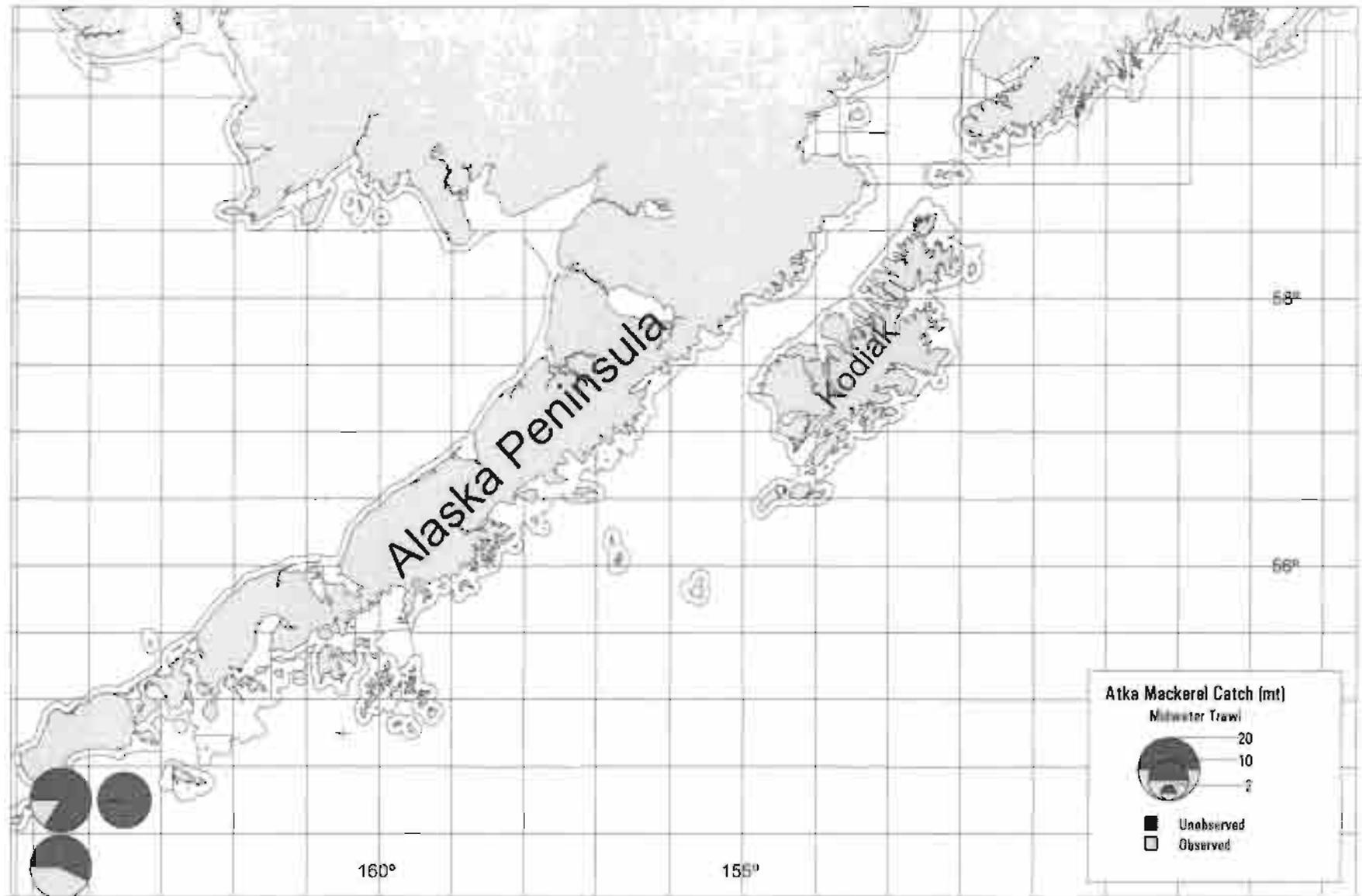


Figure 59. Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet, within the GOA by ADF&G statistical area, 1995.

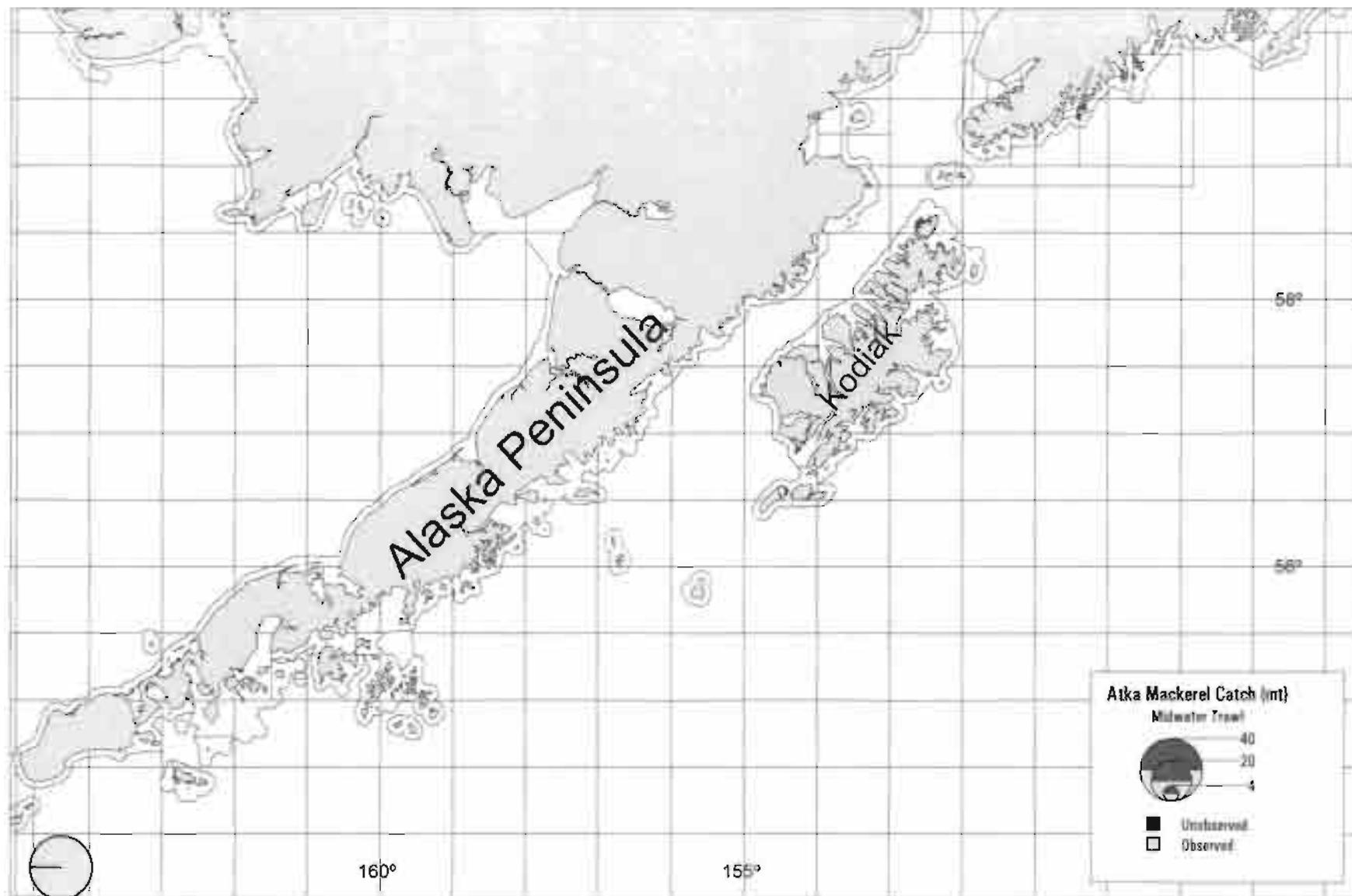


Figure 60. Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

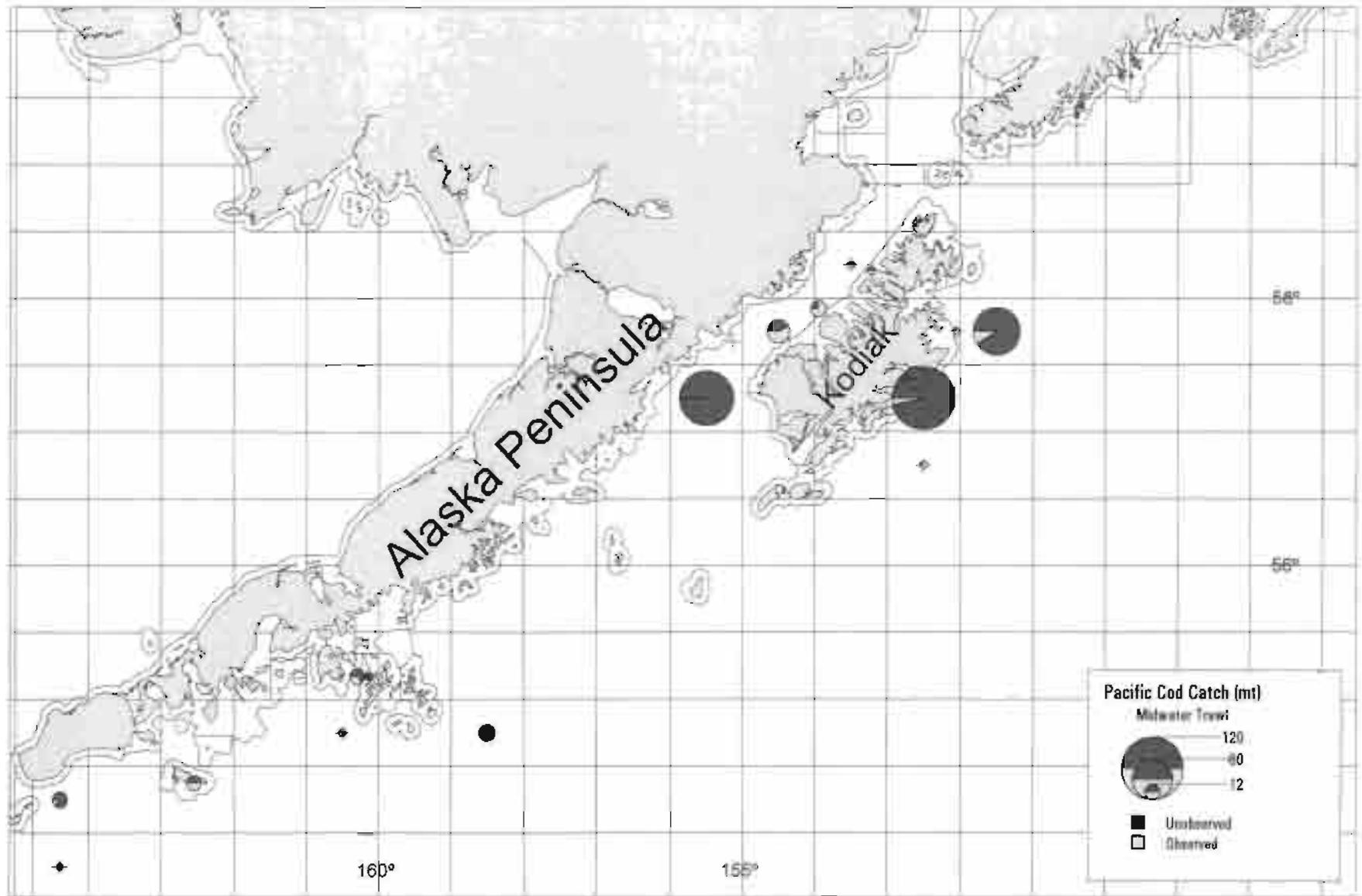


Figure 61. Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

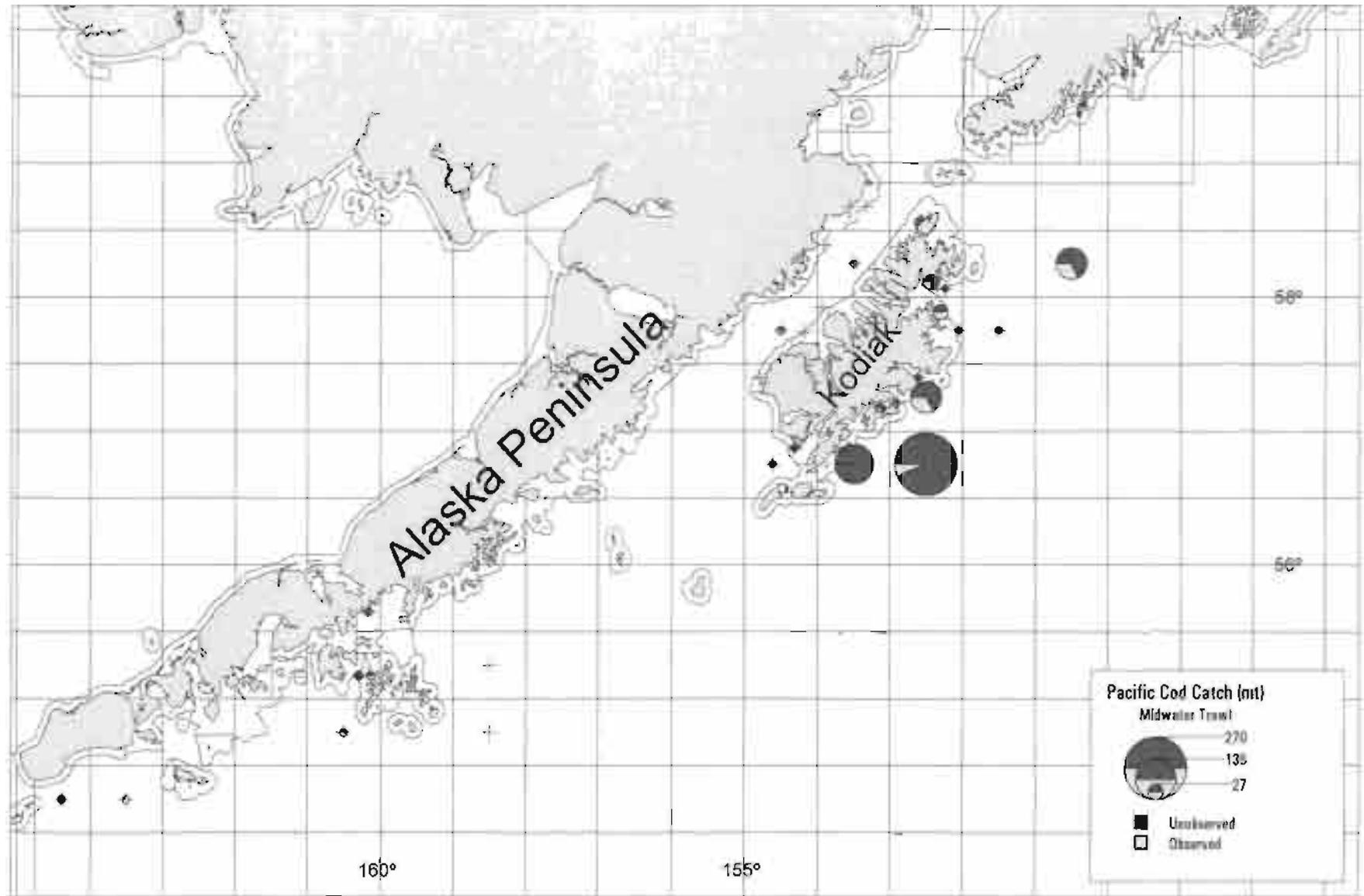


Figure 62 Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

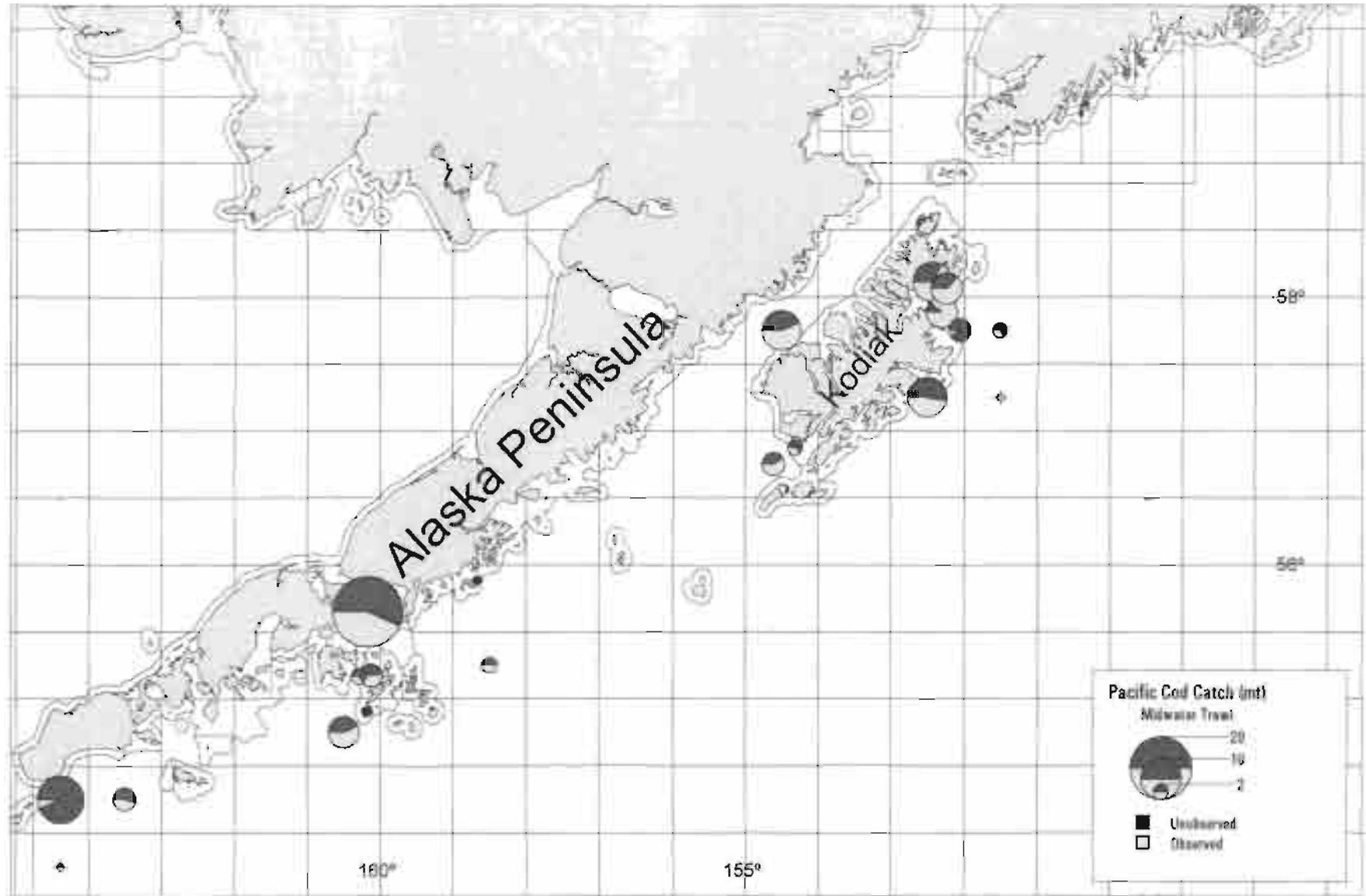


Figure 63. Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long within the GOA by ADF&G statistical area, 1995.

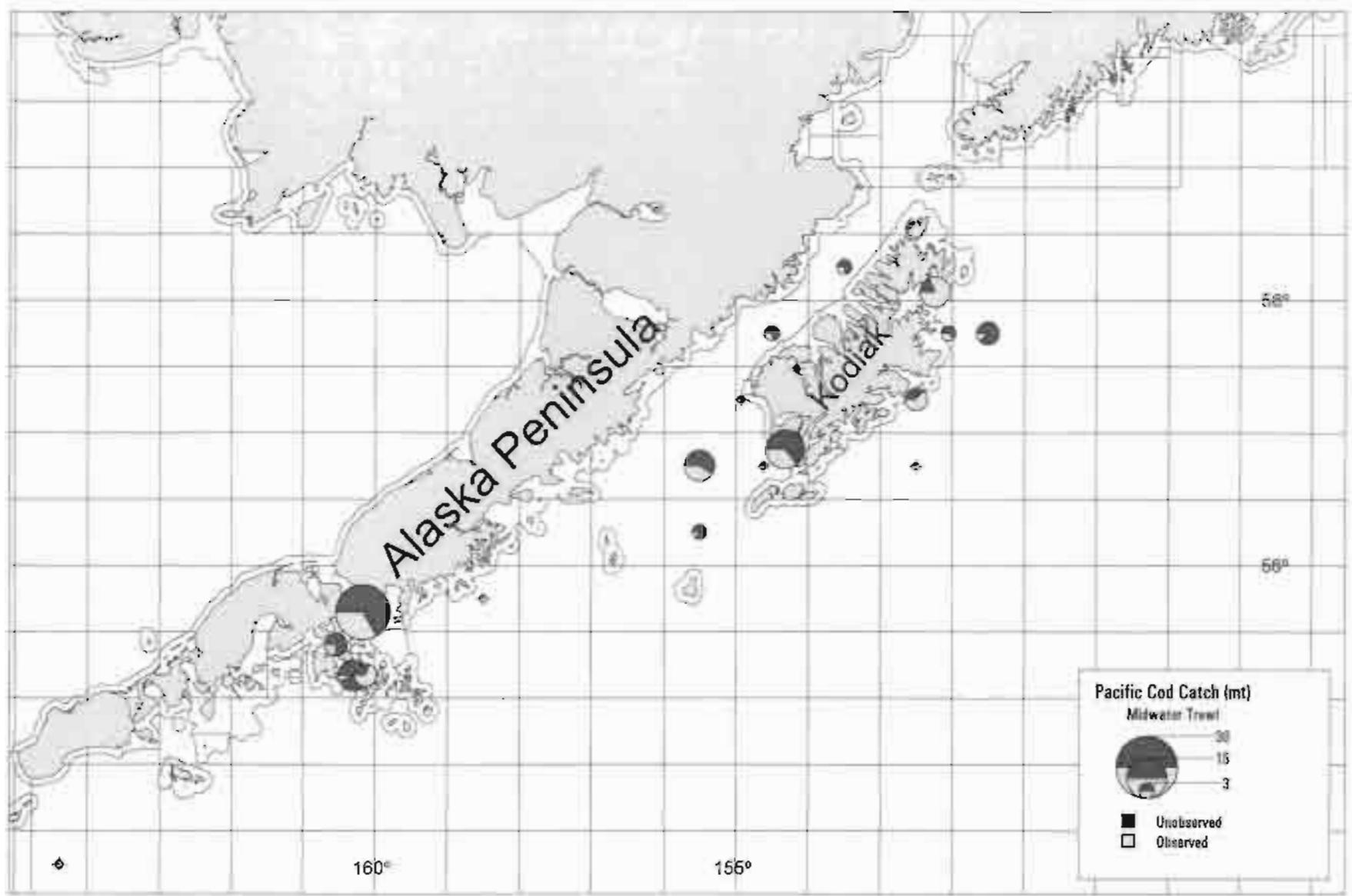


Figure 64. Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

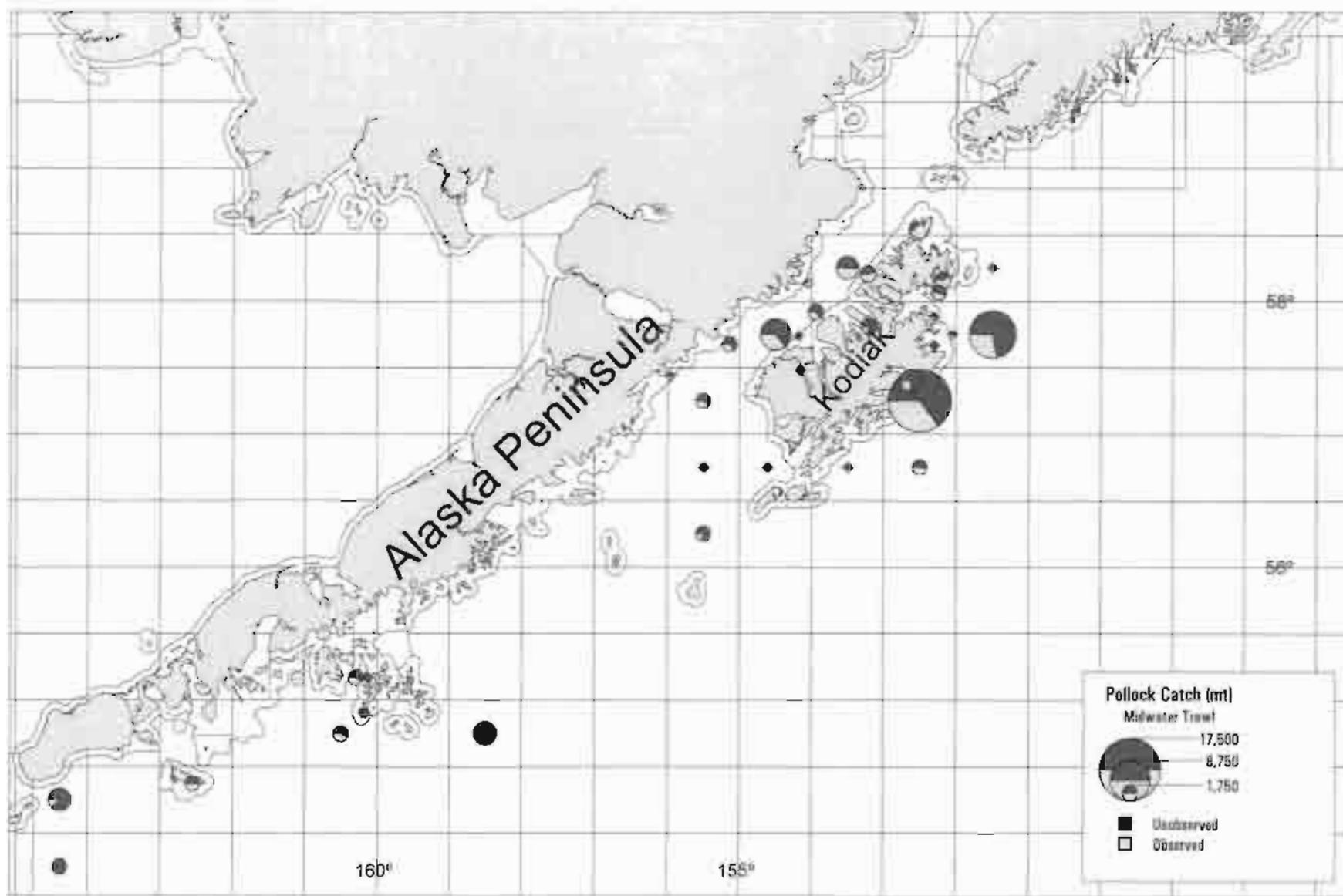


Figure 65. Pollock observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

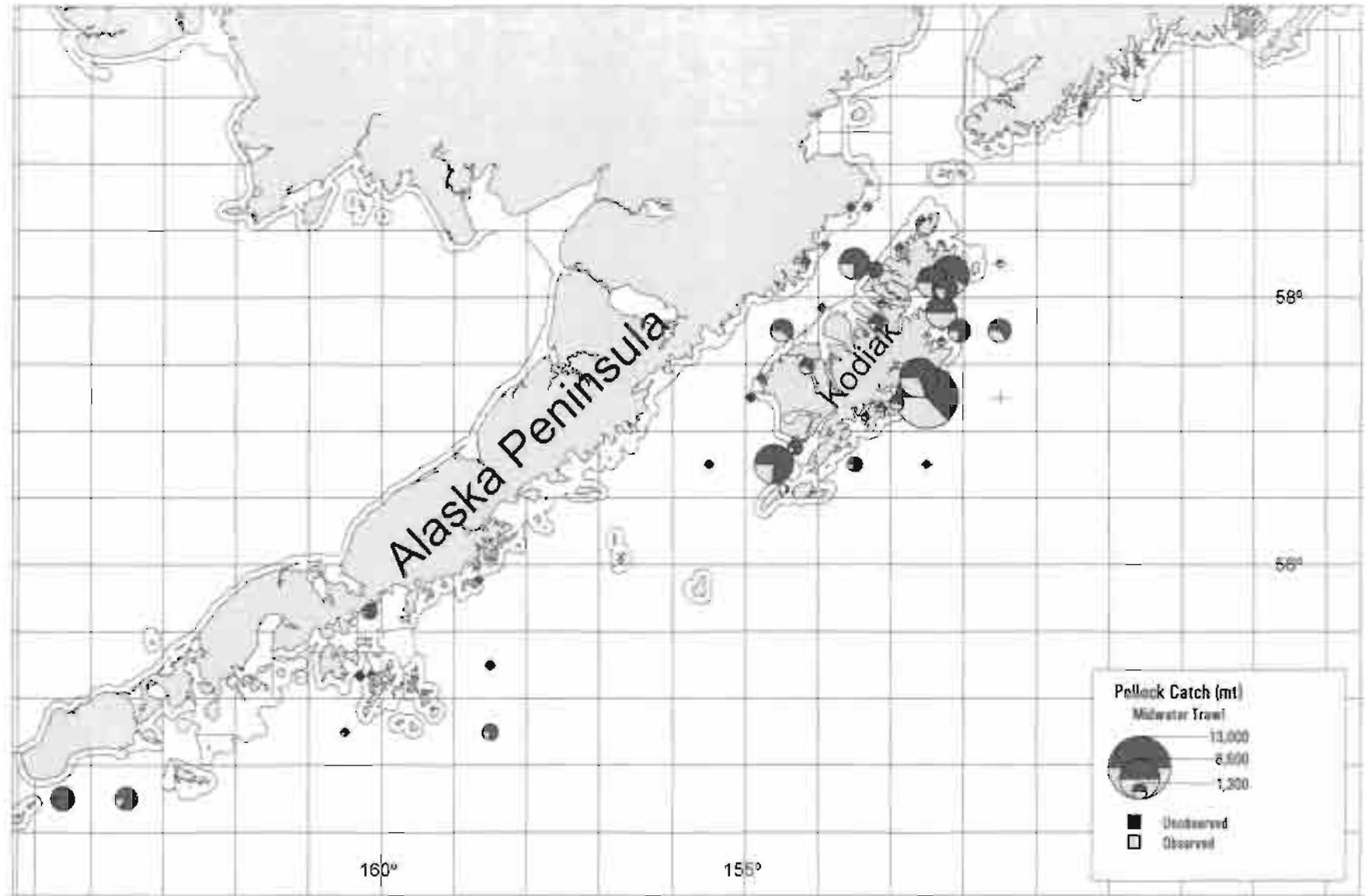


Figure 86. Pollock observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

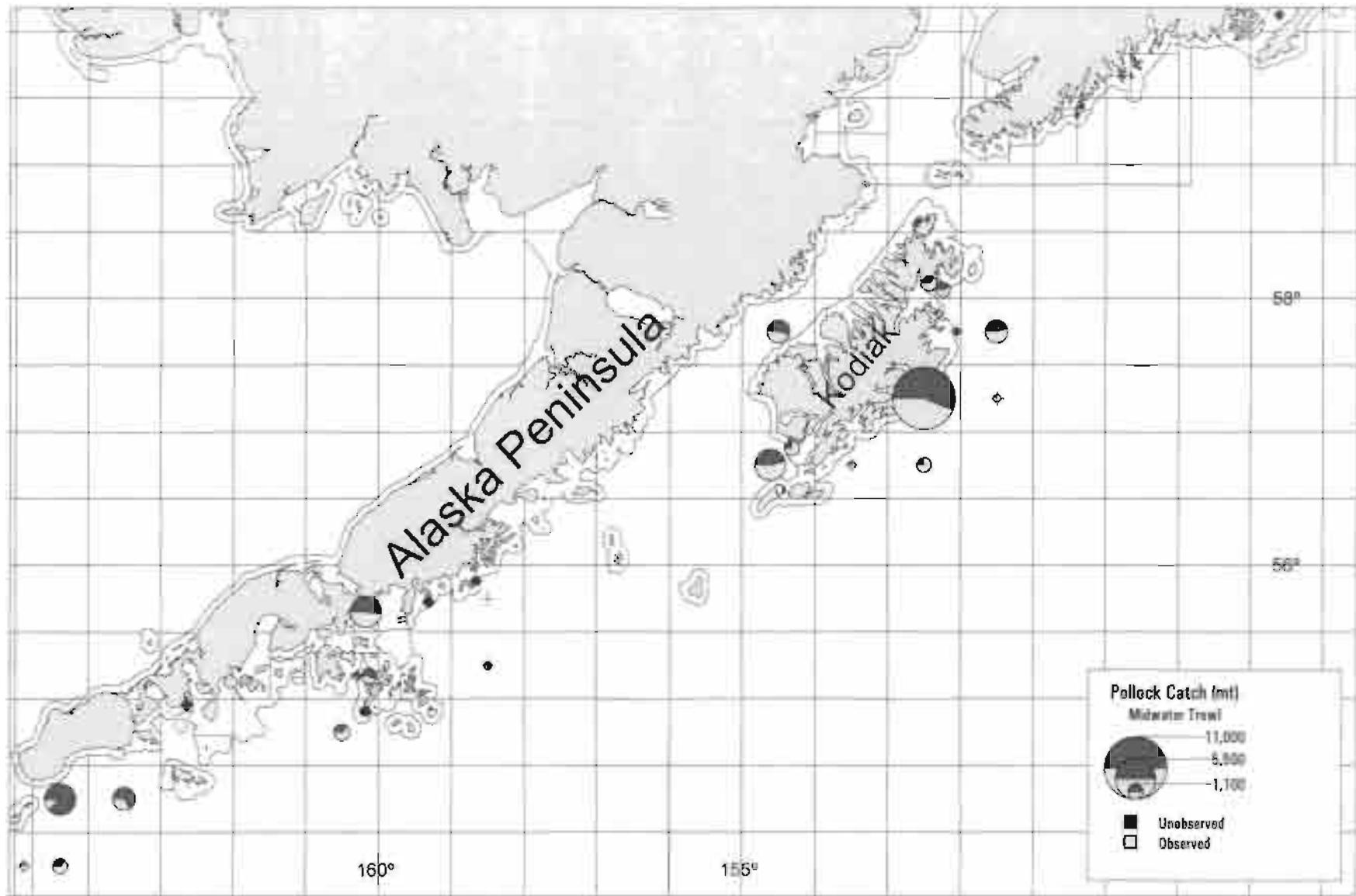


Figure 67. Pollock observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet, within the GOA by ADF&G statistical area, 1995.

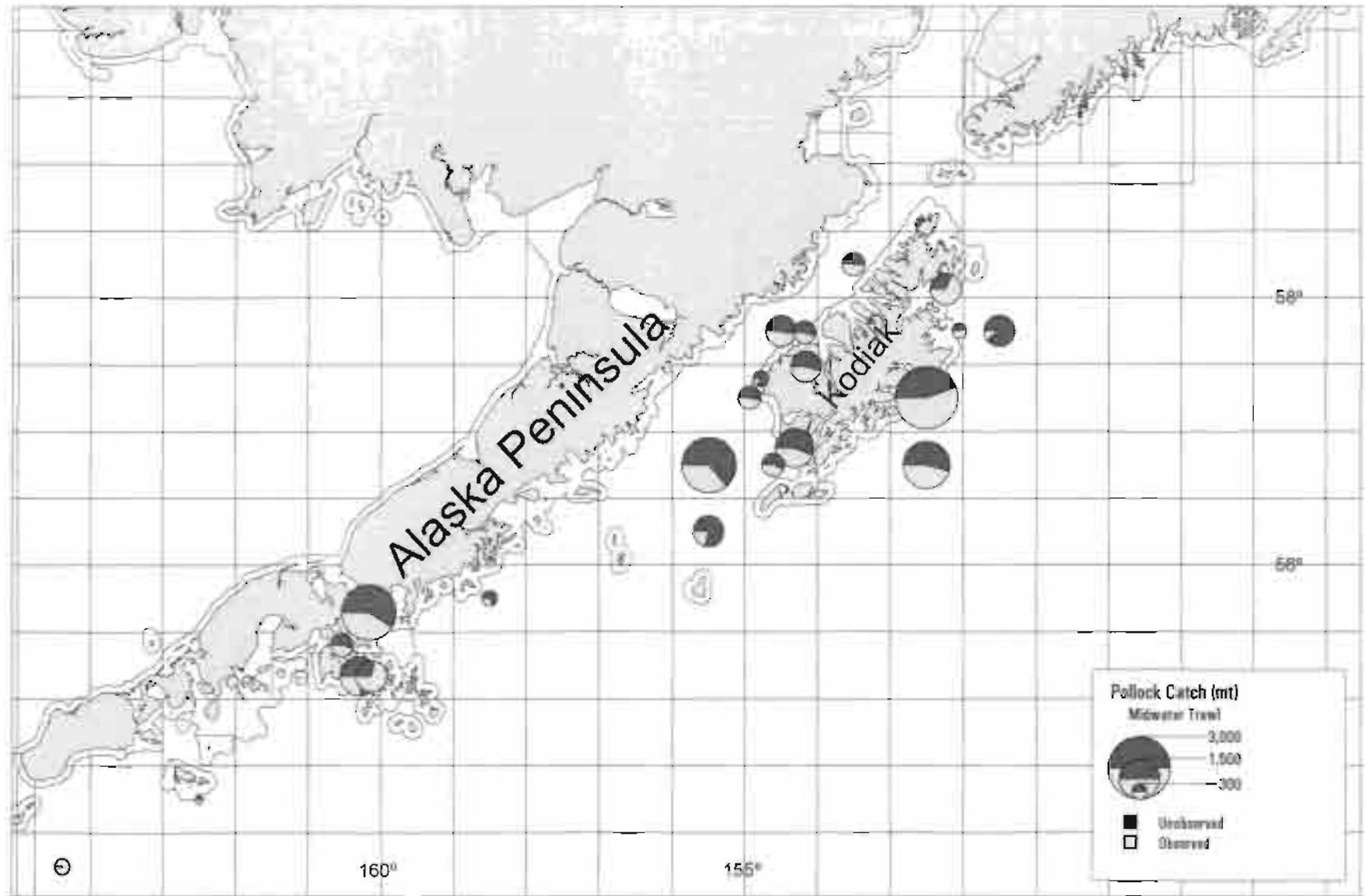


Figure 68. Pollock observed versus unobserved catch (mt) using midwater trawls from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

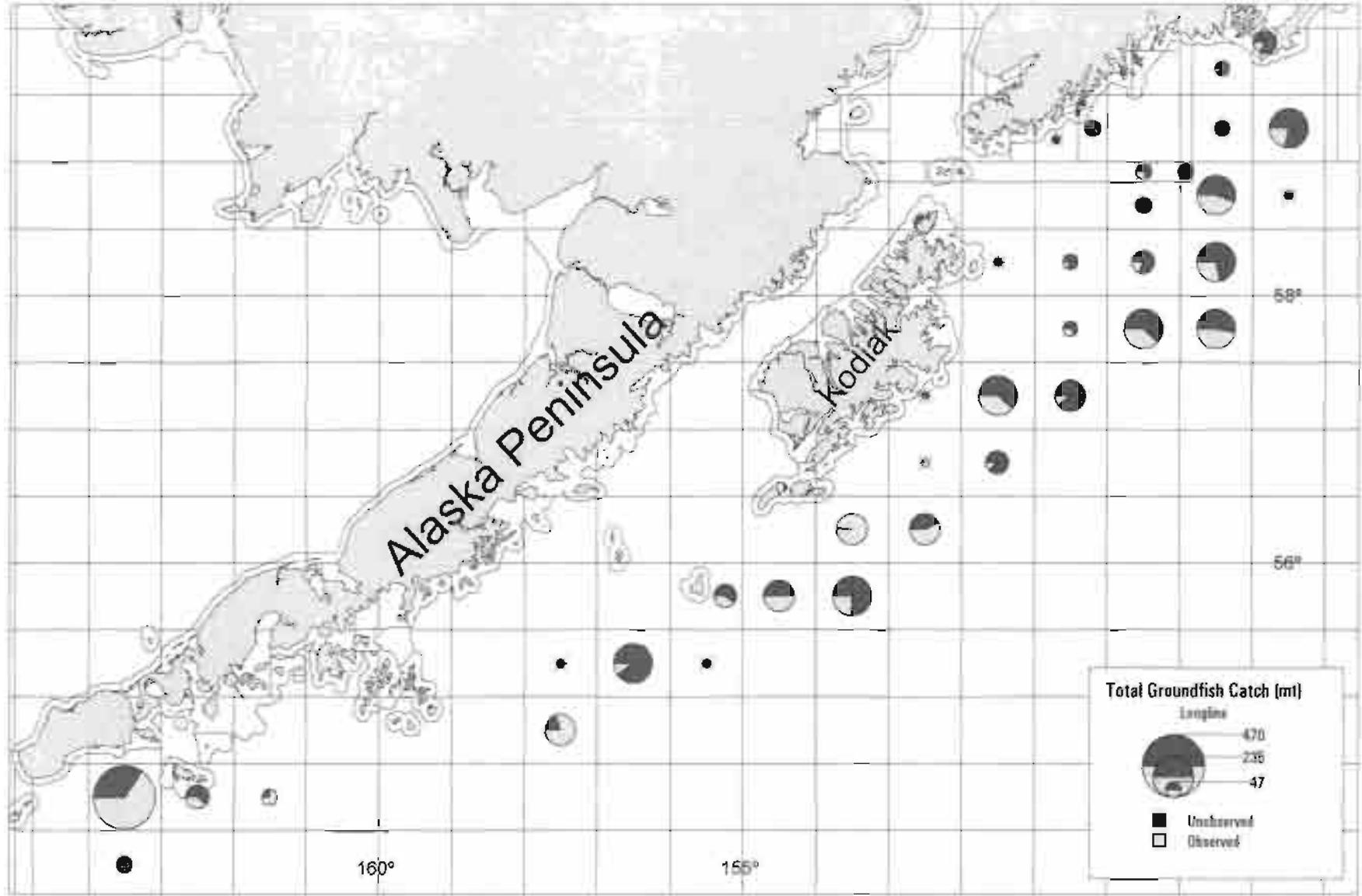


Figure 69. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

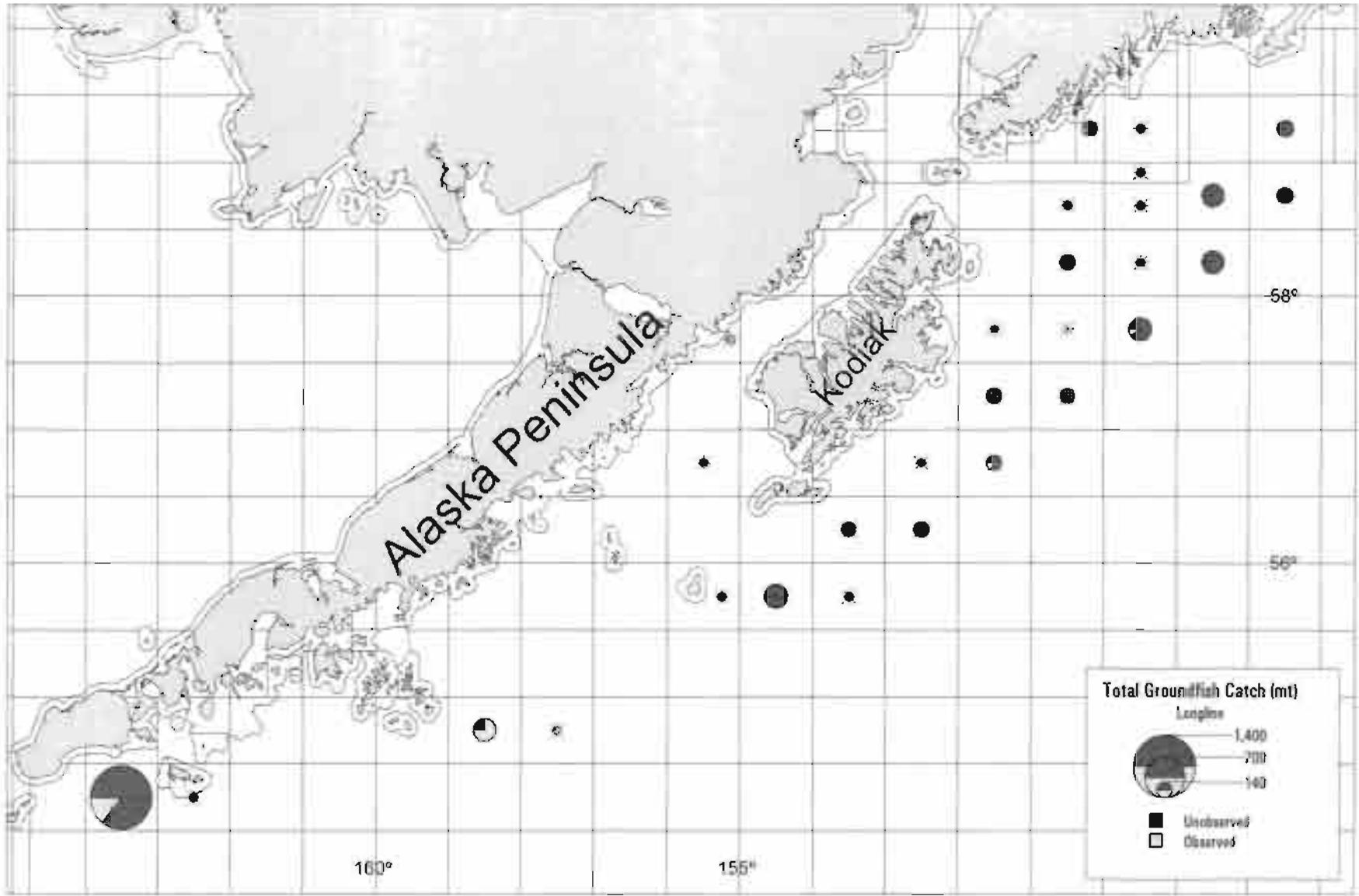


Figure 70. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

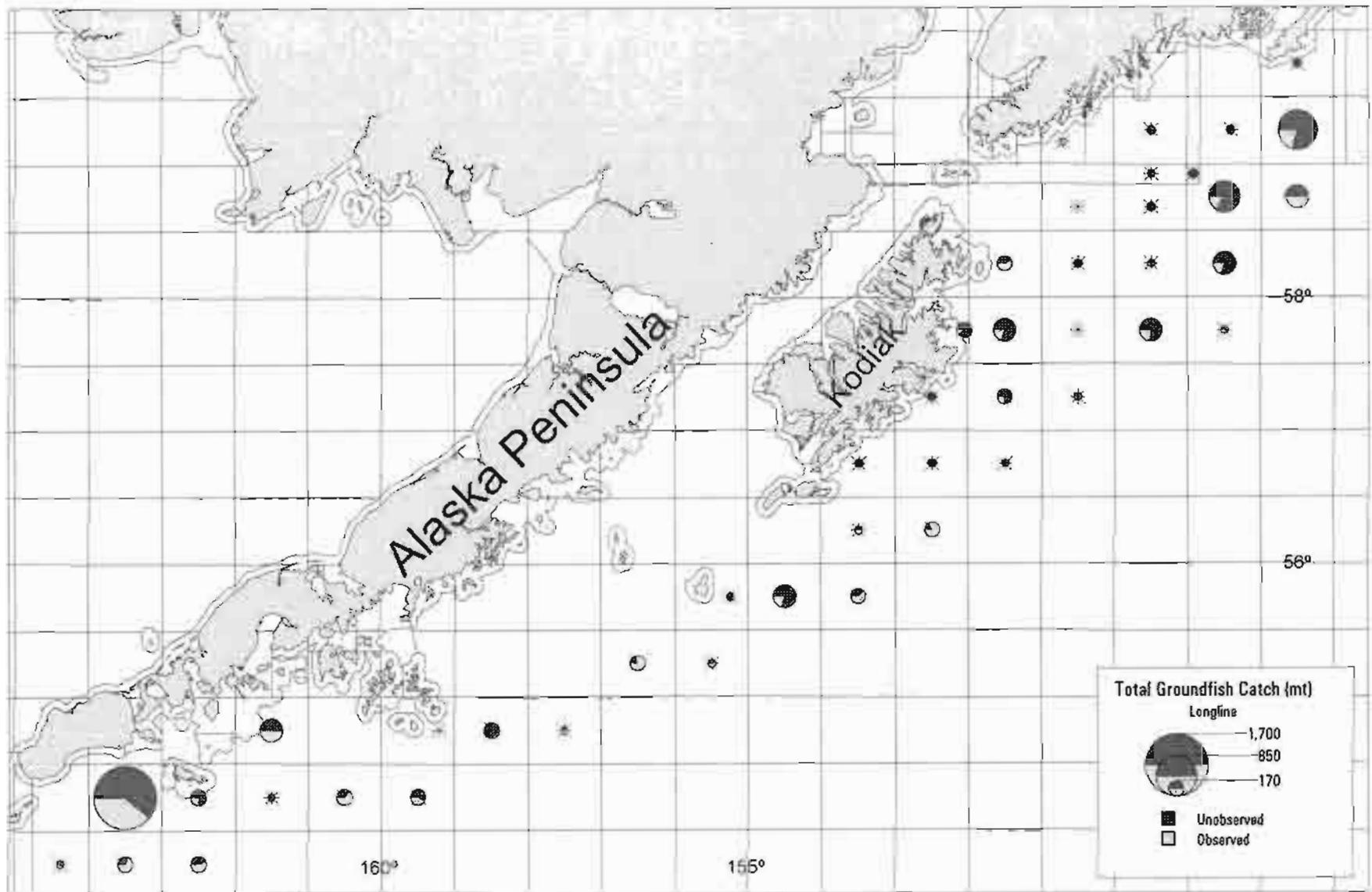


Figure 71. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

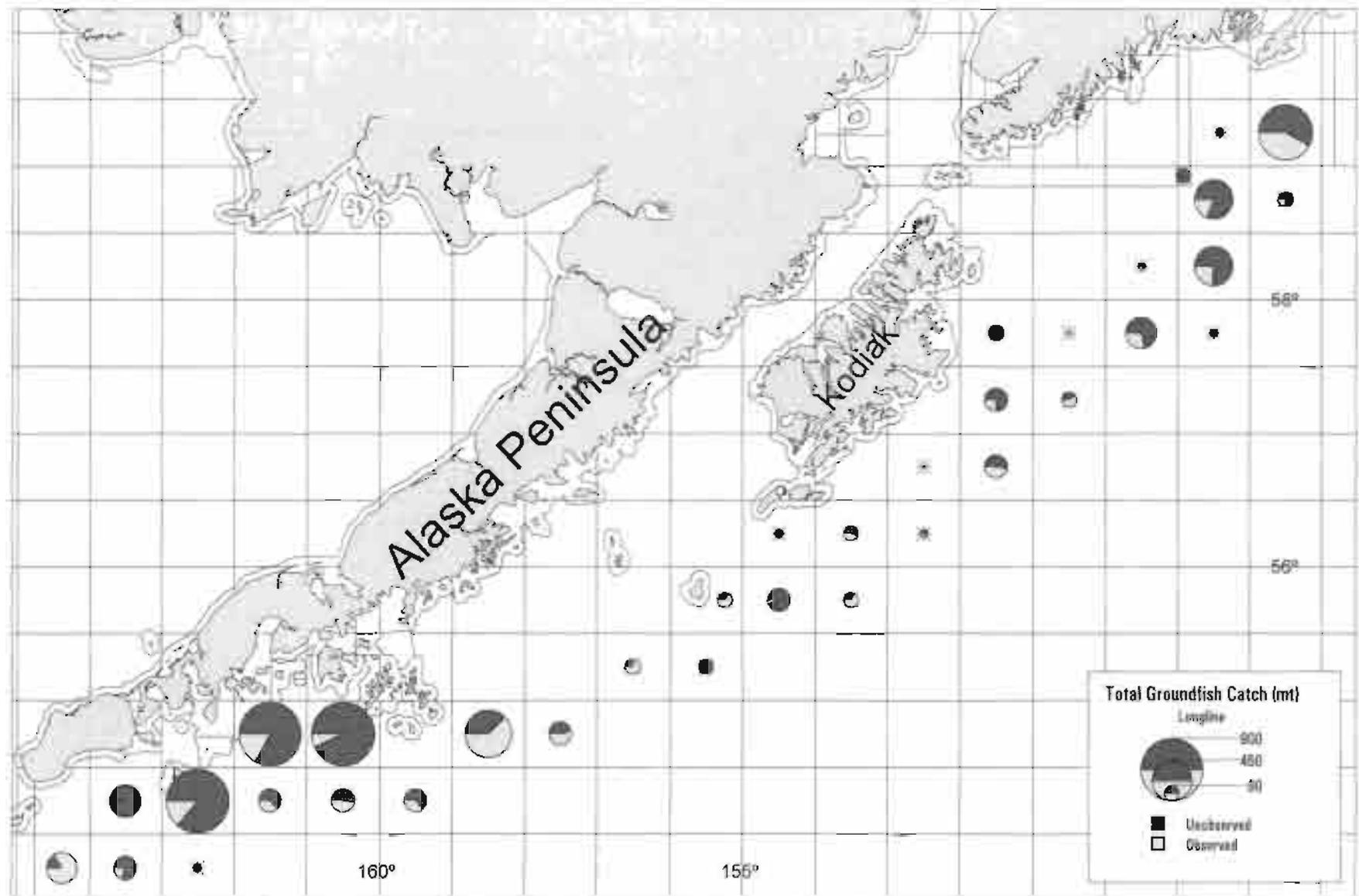


Figure 72. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

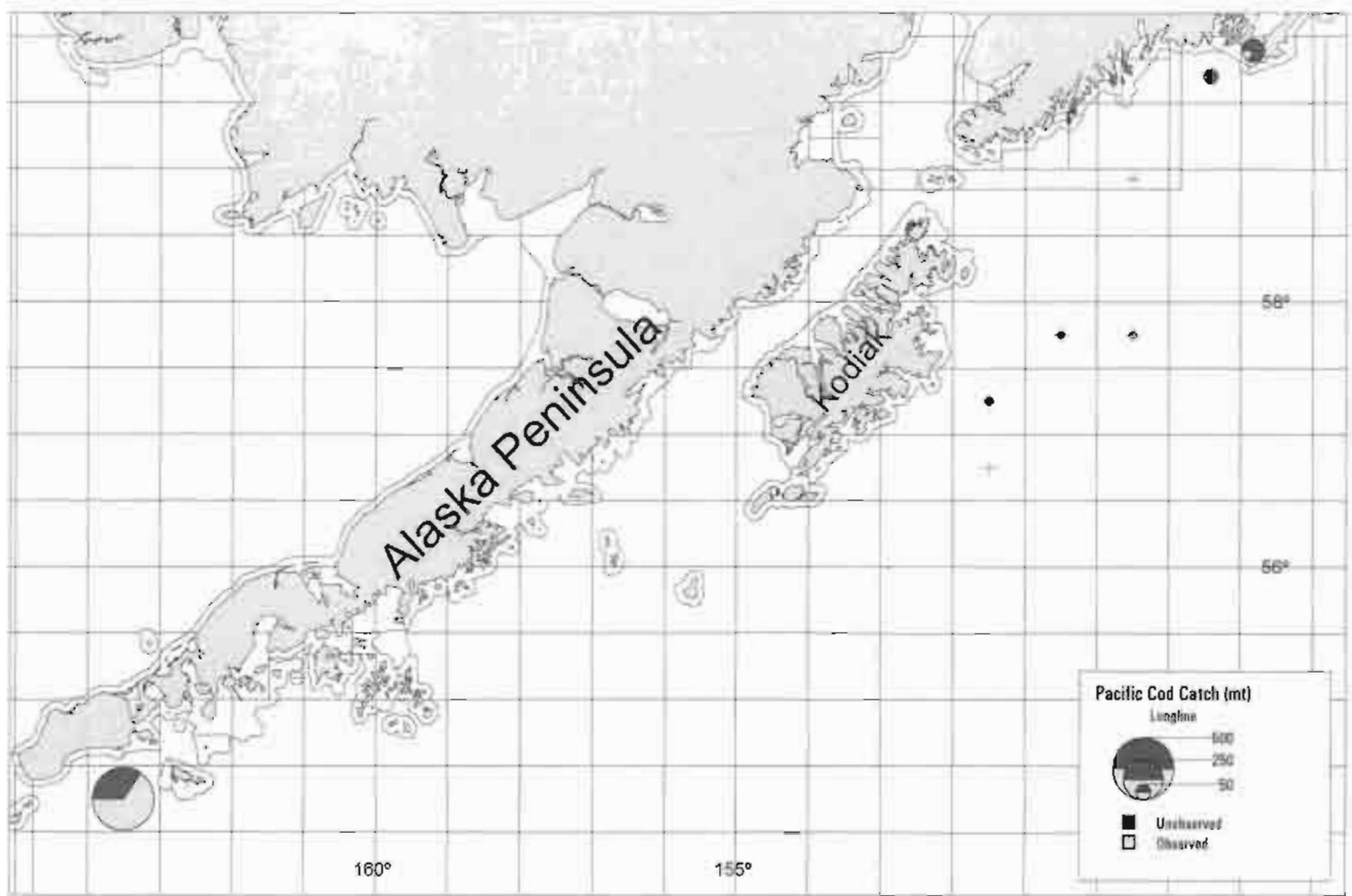


Figure 73. Pacific cod observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

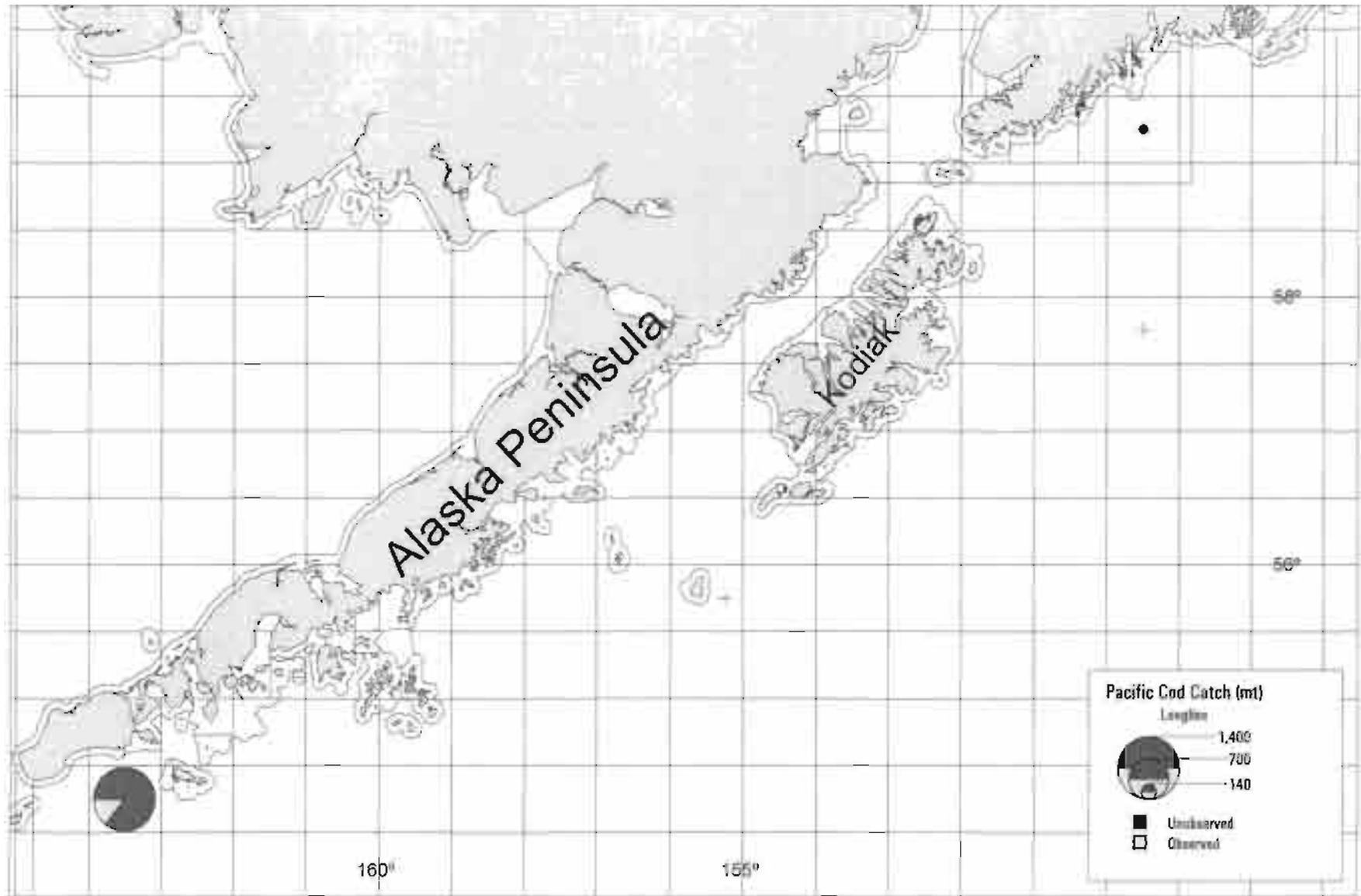


Figure 74. Pacific cod observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

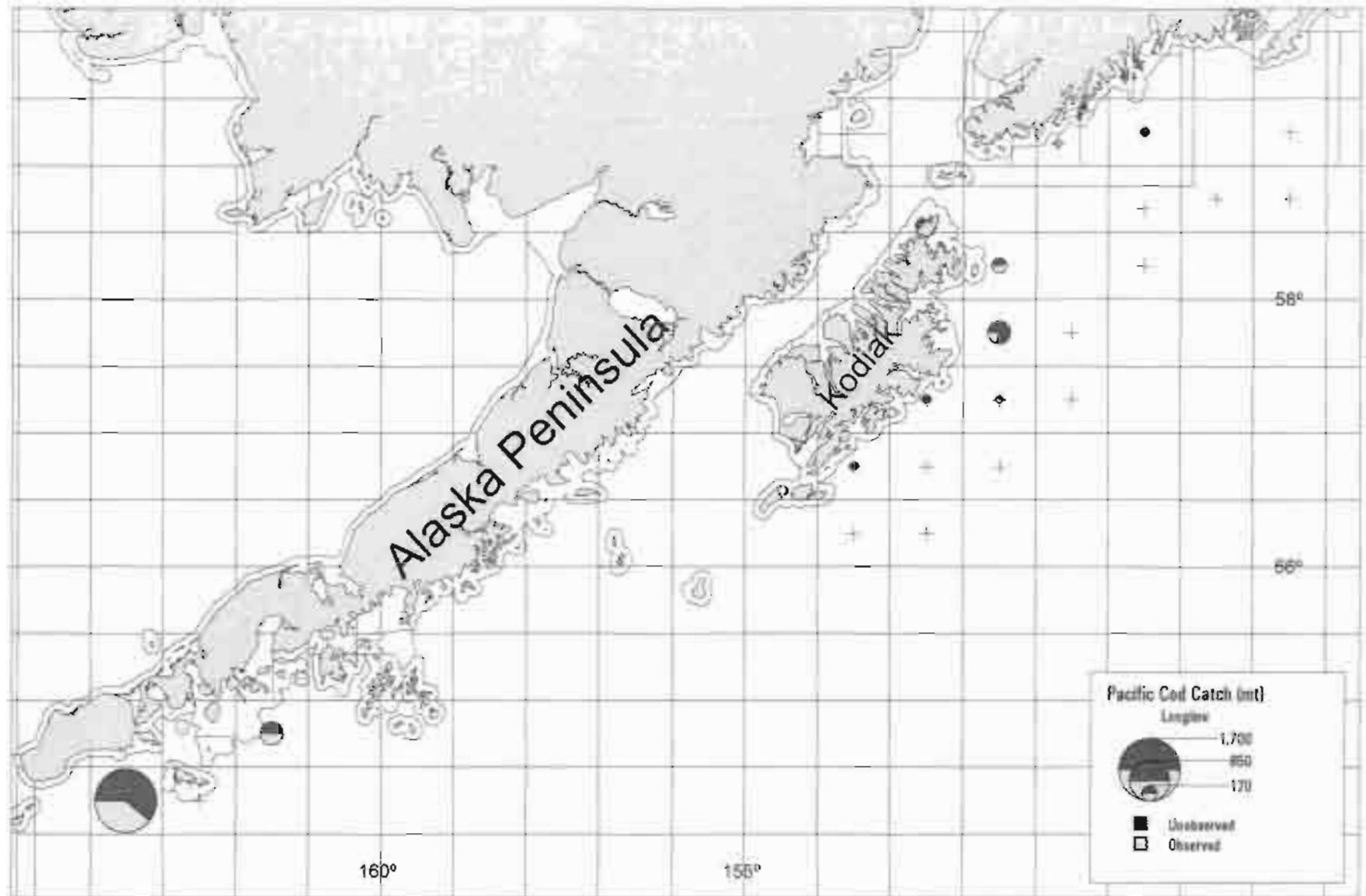


Figure 75. Pacific cod observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

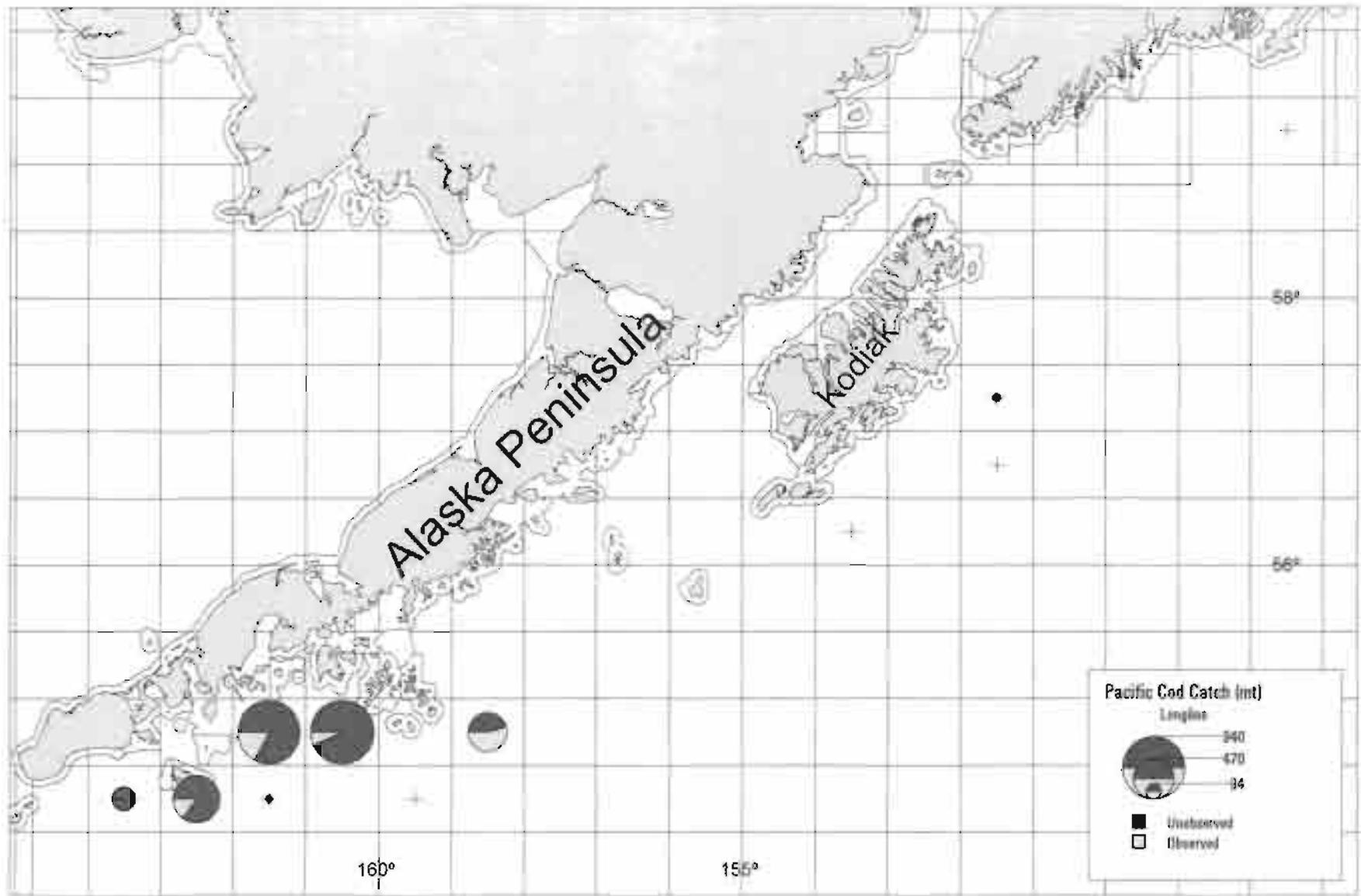


Figure 76 Pacific cod observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

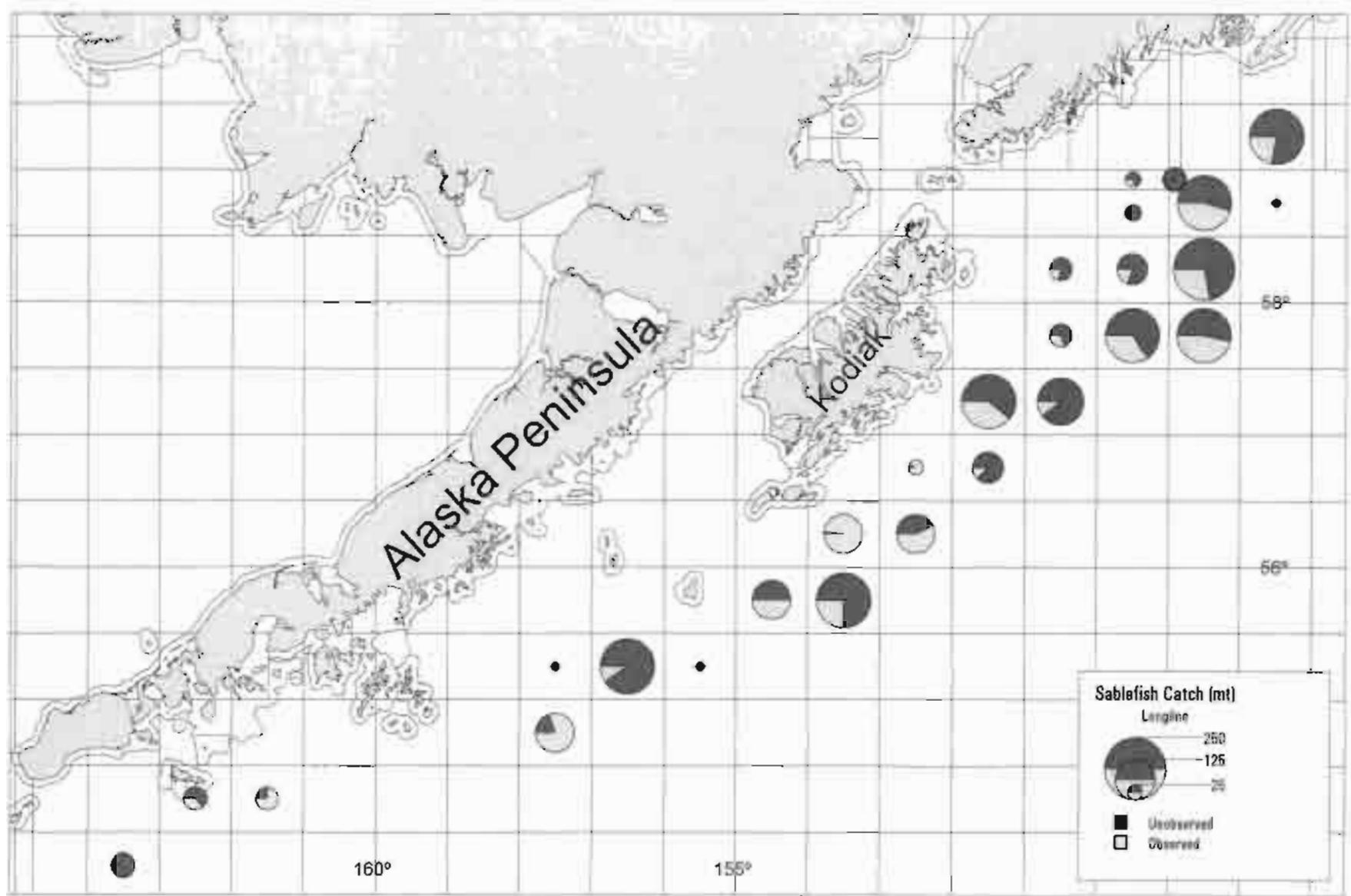


Figure 77 Sablefish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

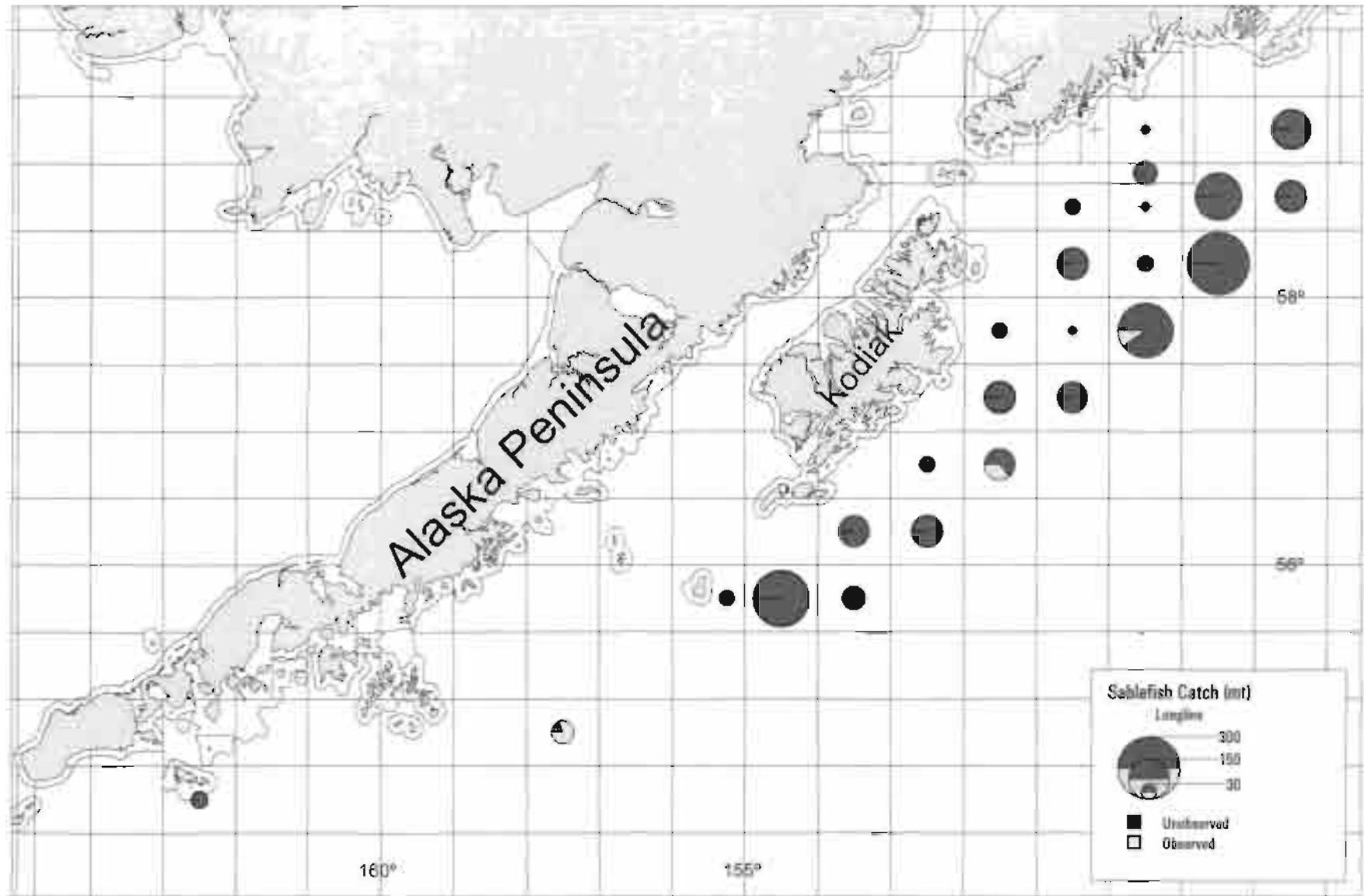


Figure 78 Sablefish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994

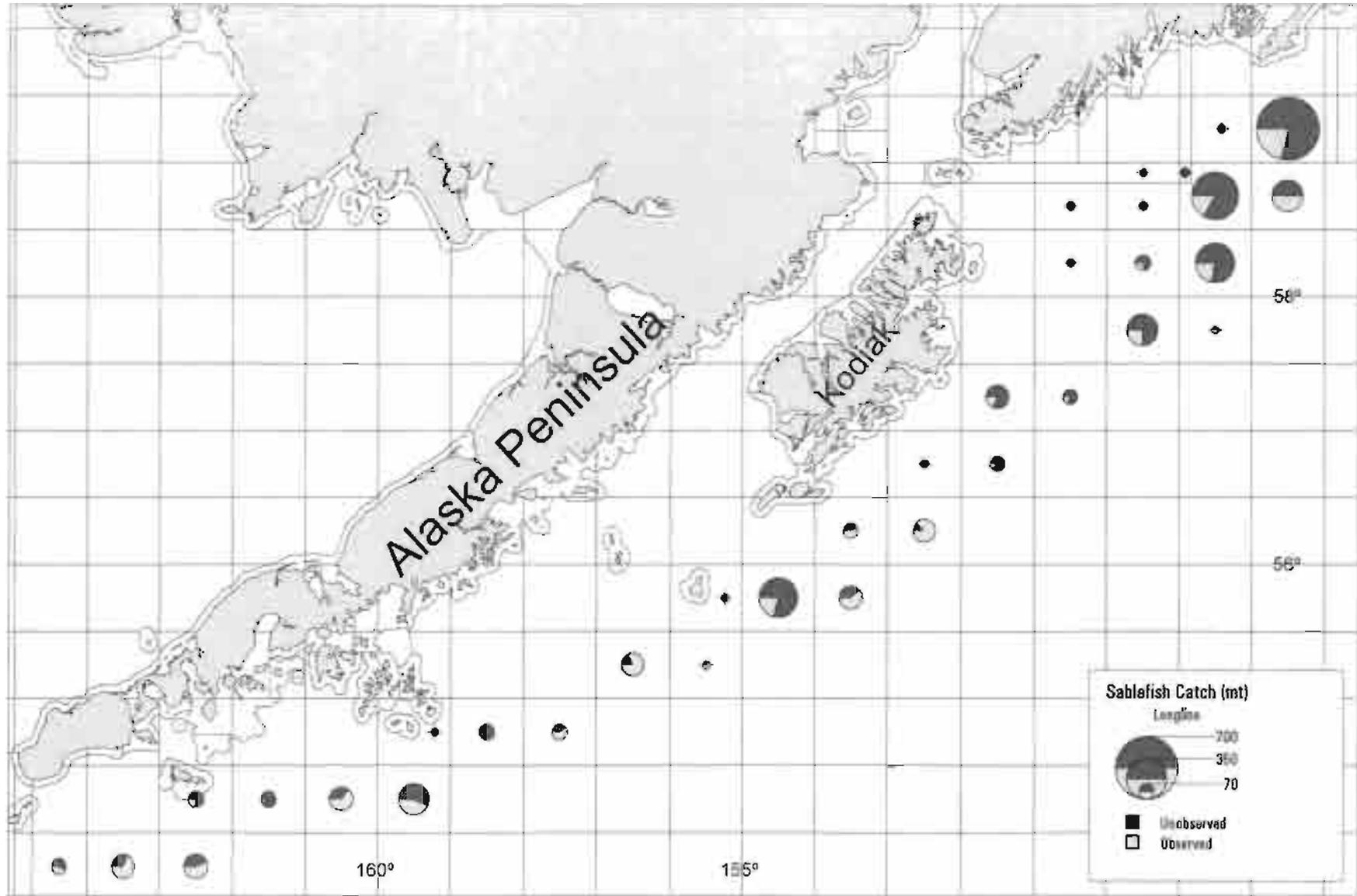


Figure 79. Sablefish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

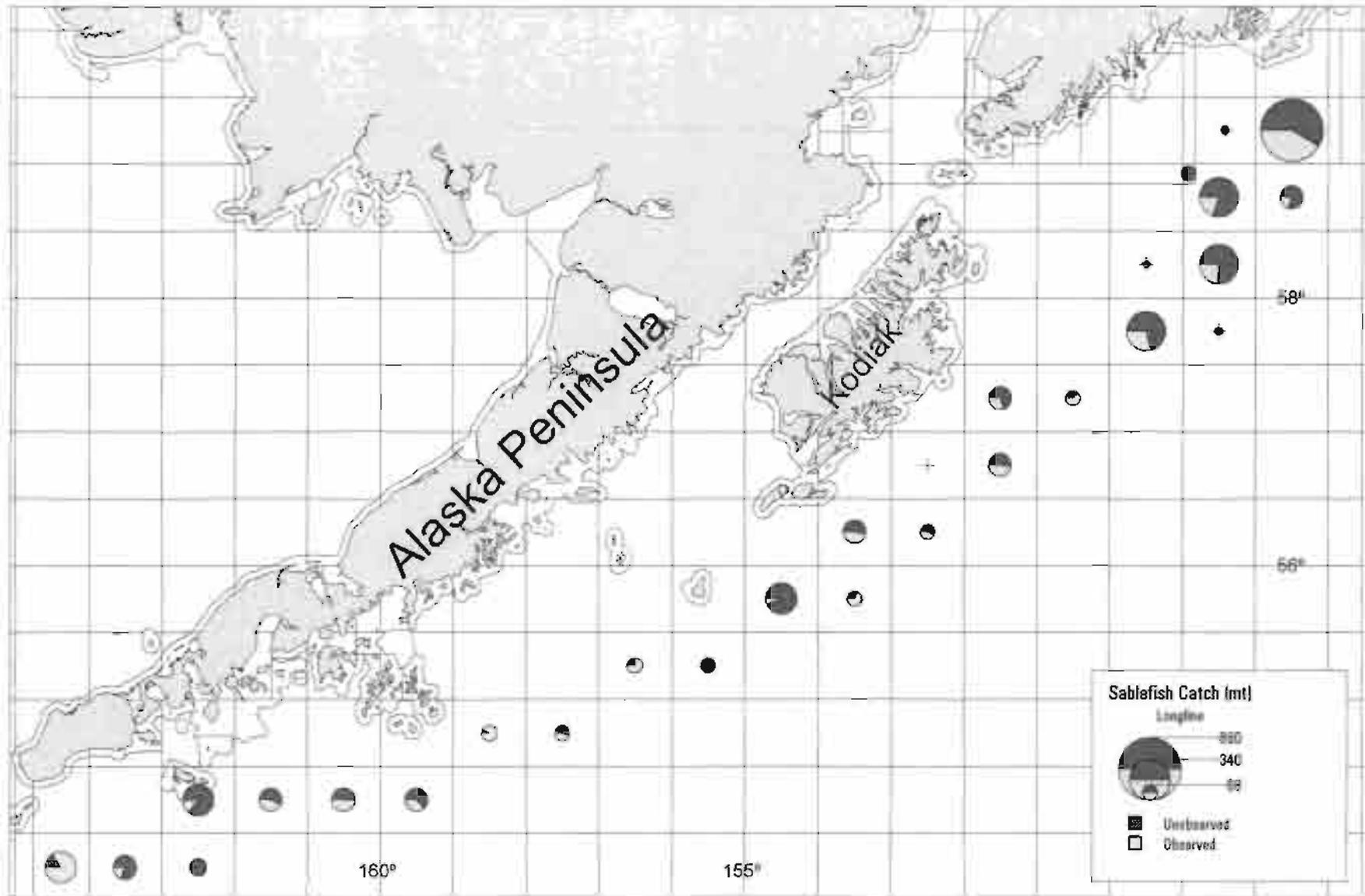


Figure 80 Sablefish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area 1996.

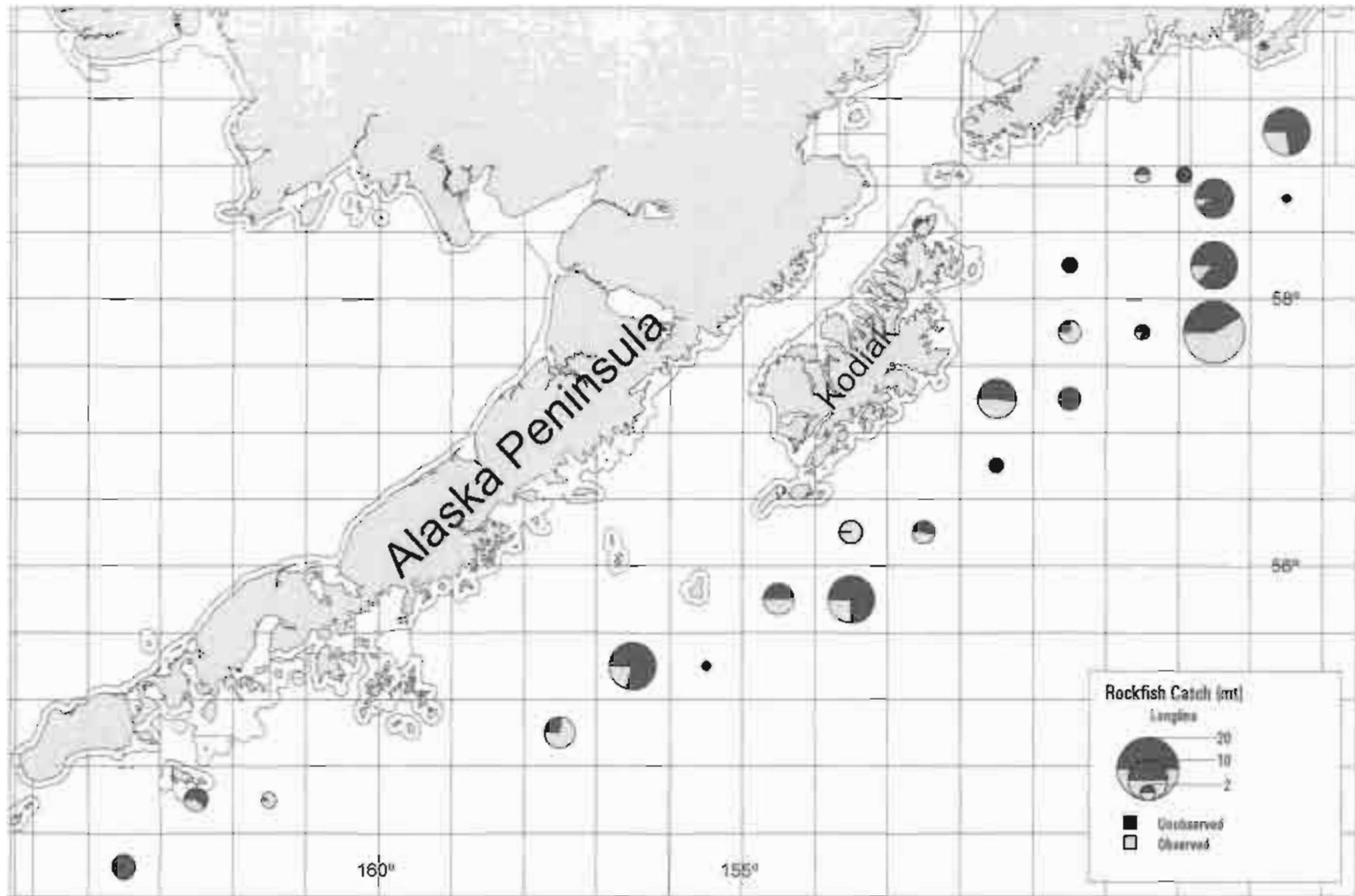


Figure 81. Rockfish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

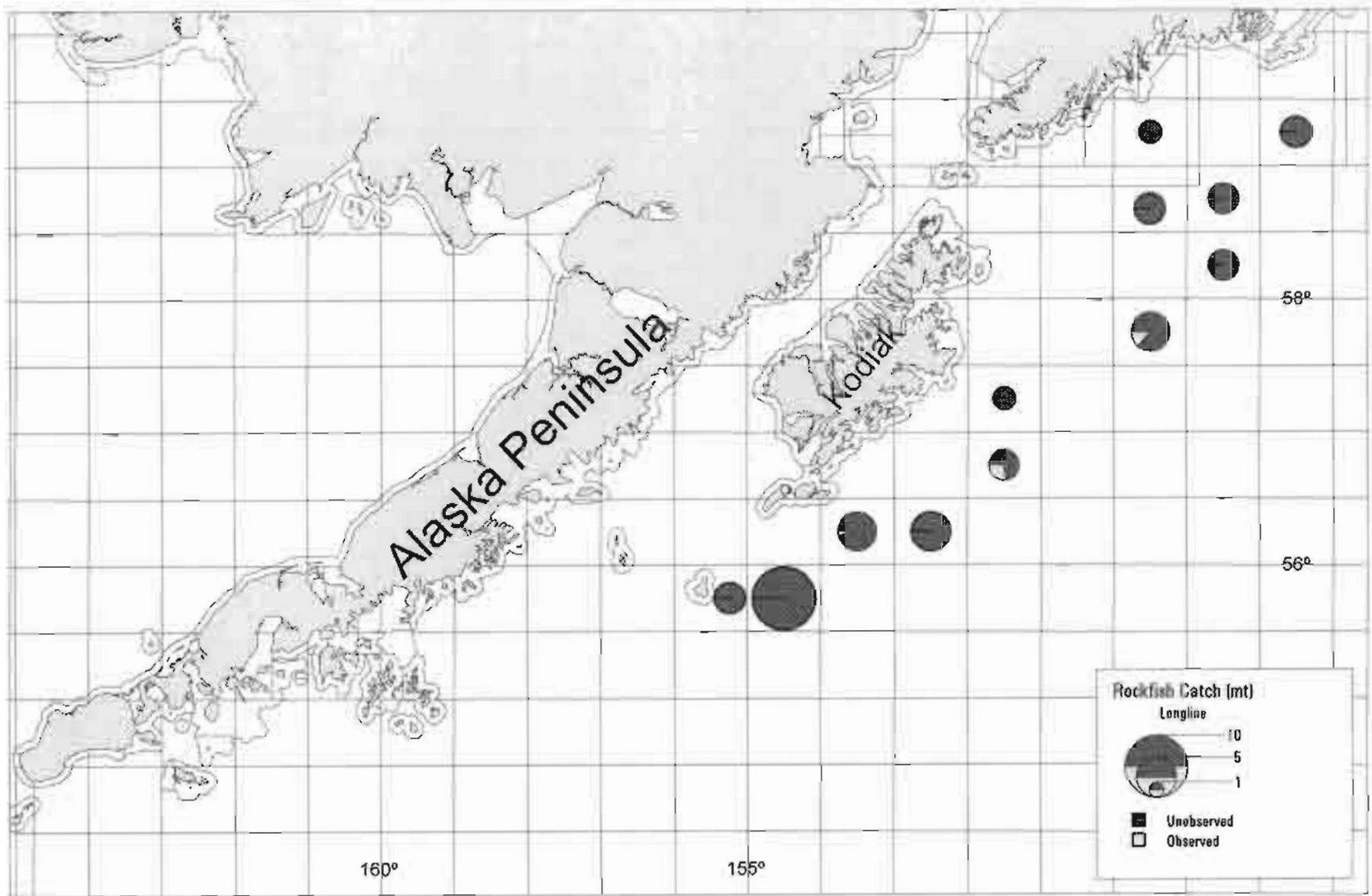


Figure 82. Rockfish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

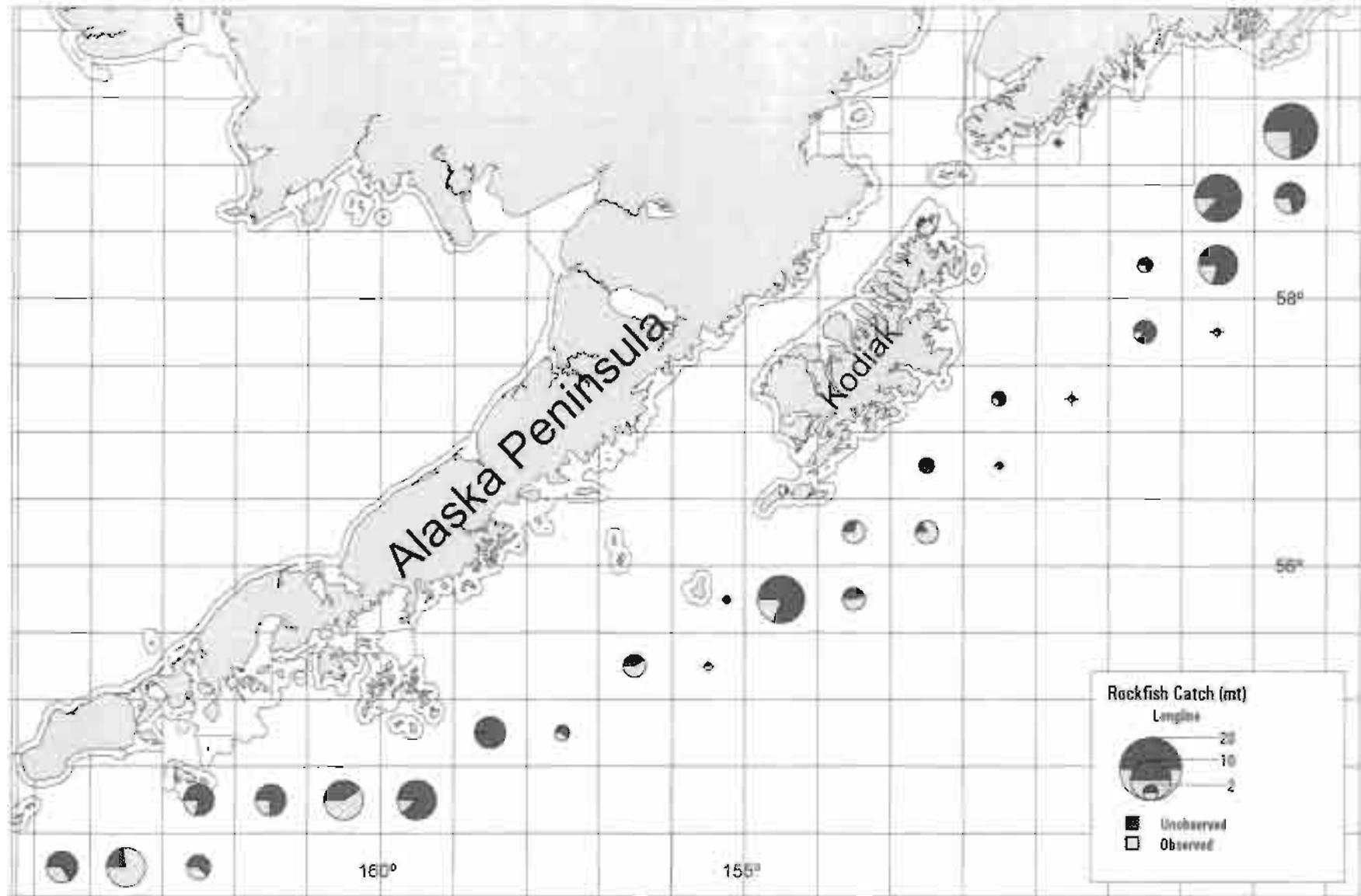


Figure 83. Rockfish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

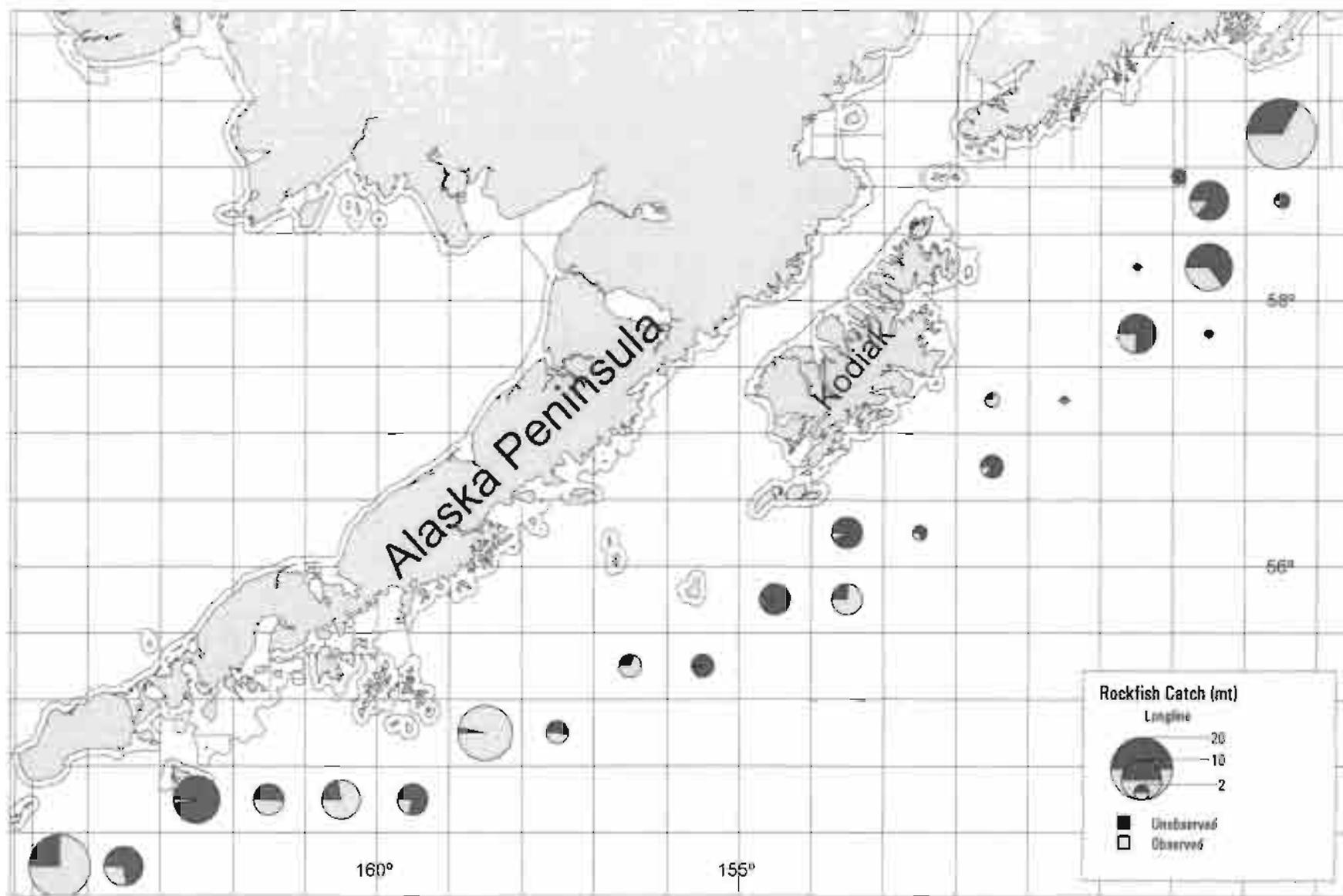


Figure 84. Rockfish observed versus unobserved catch (mt) using longline gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

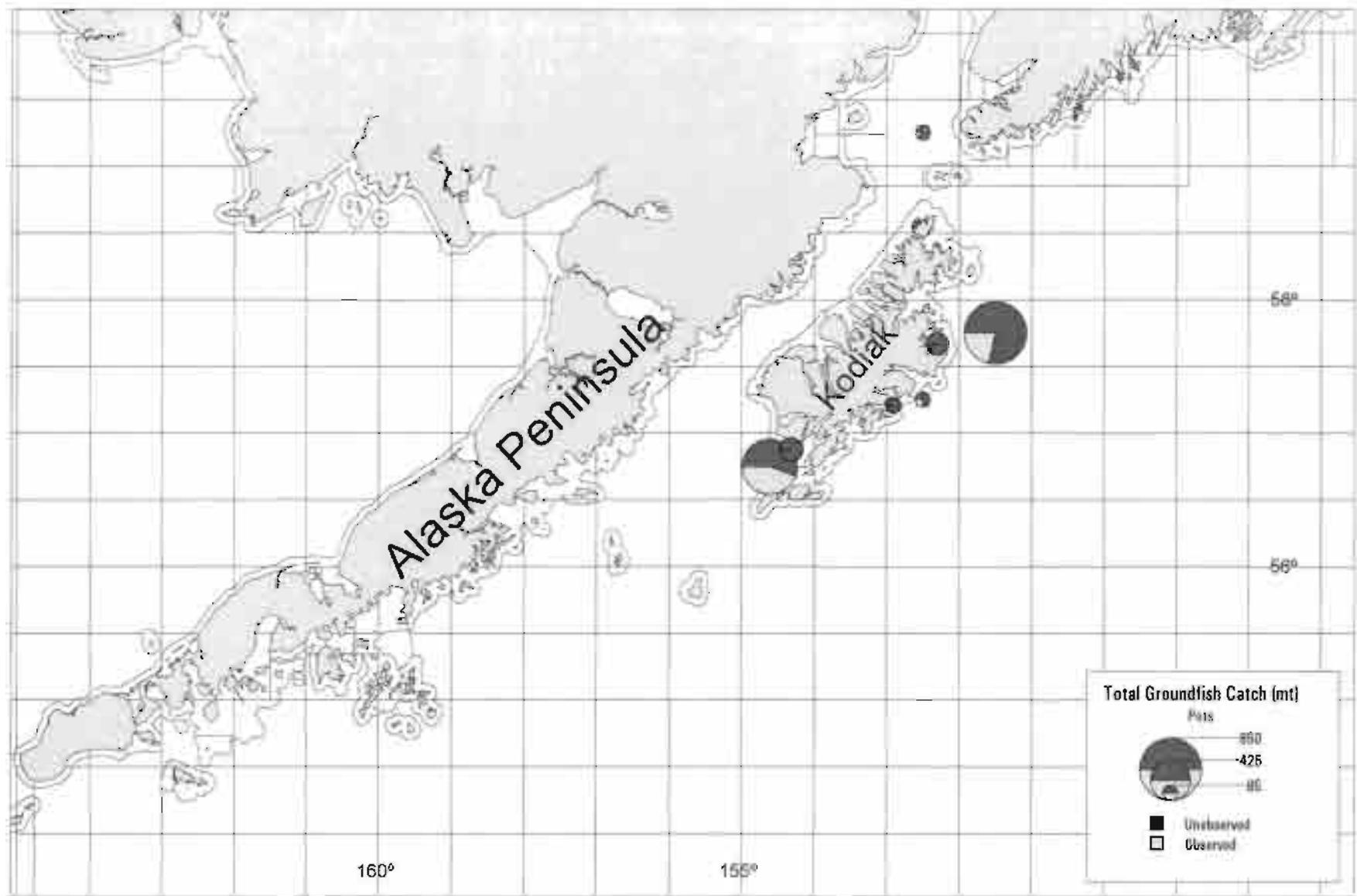


Figure 85. Total observed versus unobserved groundfish catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993.

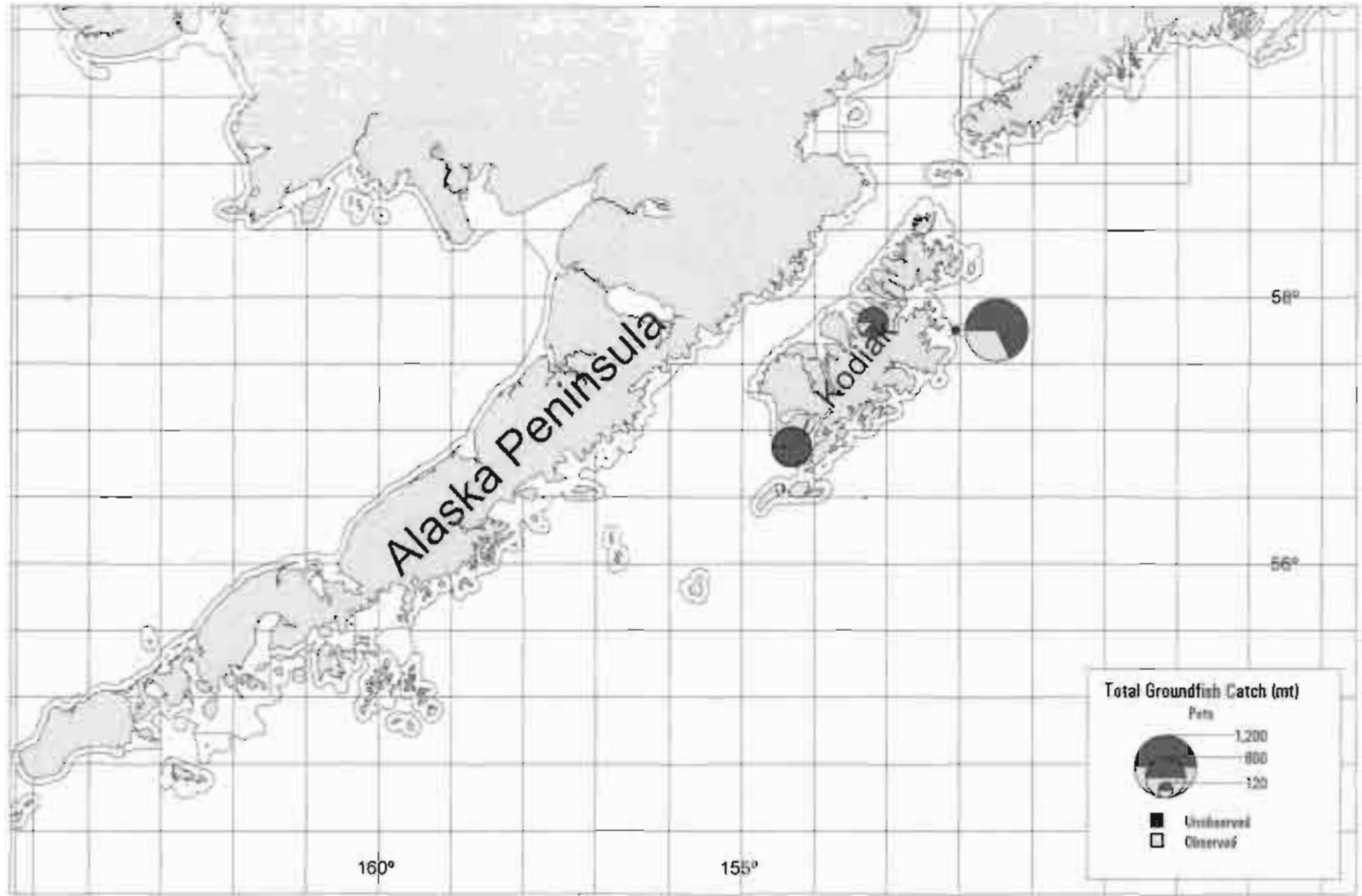


Figure 86 Total observed versus unobserved groundfish catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

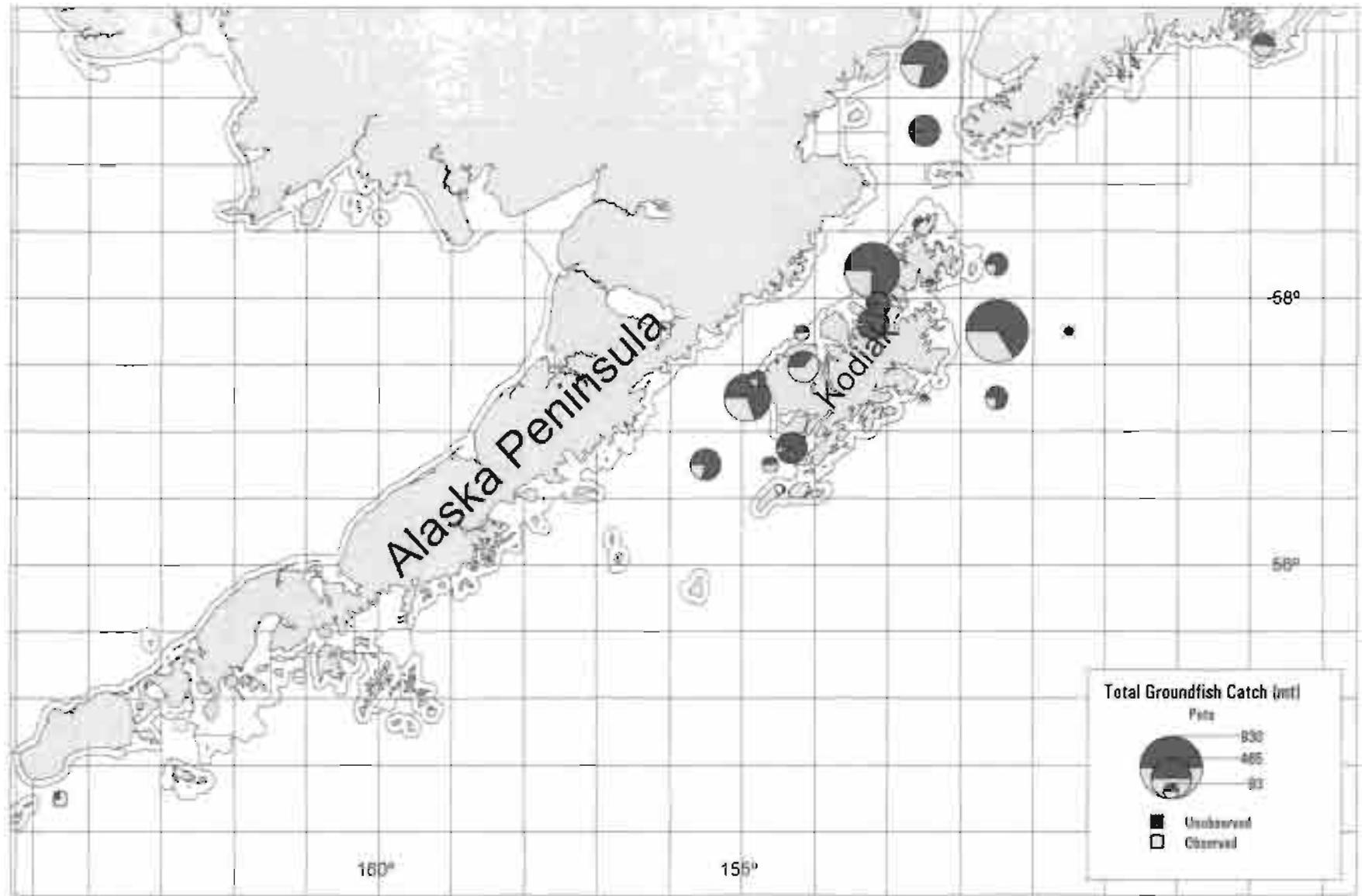


Figure 87 Total observed versus unobserved groundfish catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

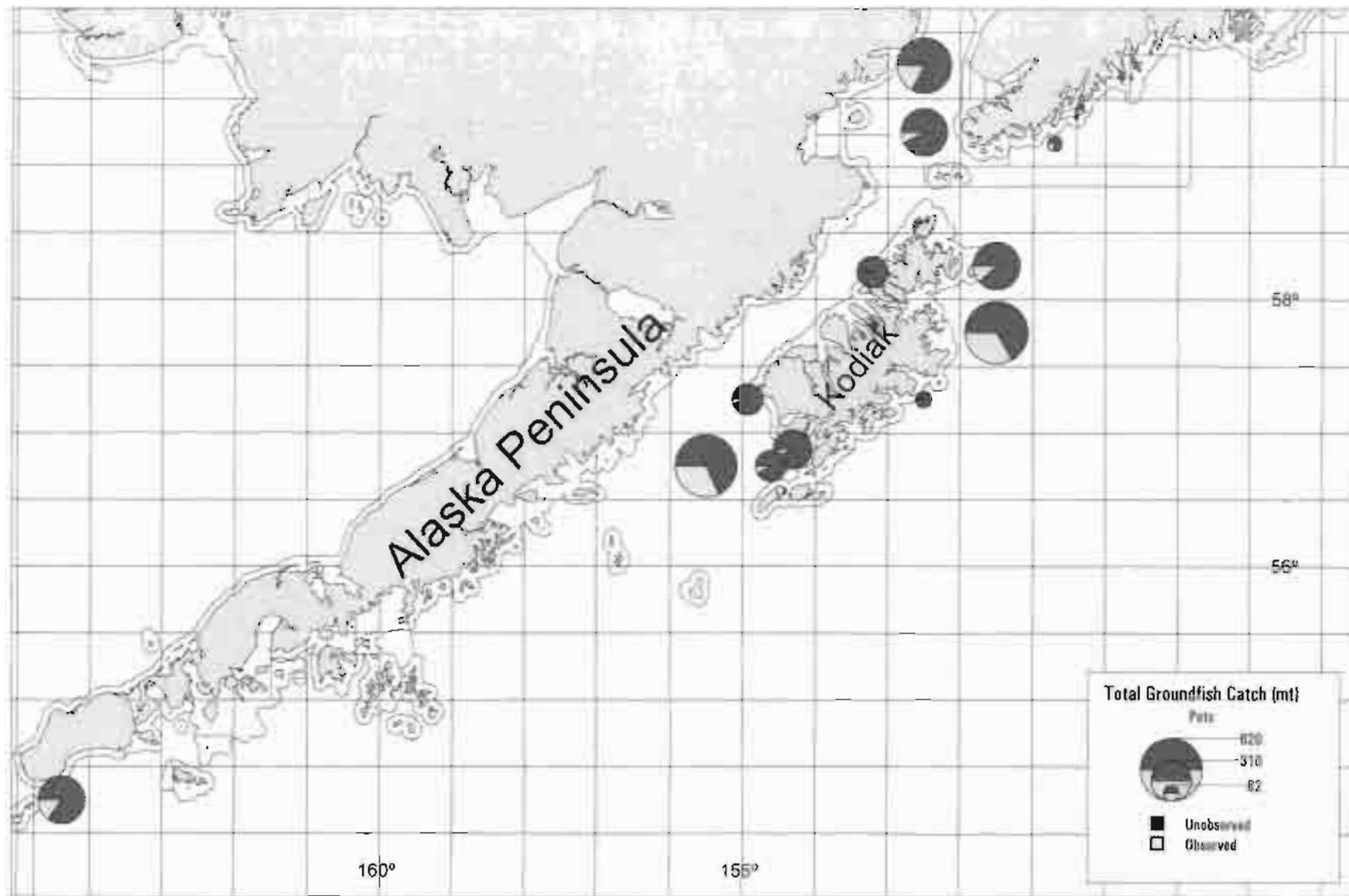


Figure 88. Total observed versus unobserved groundfish catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

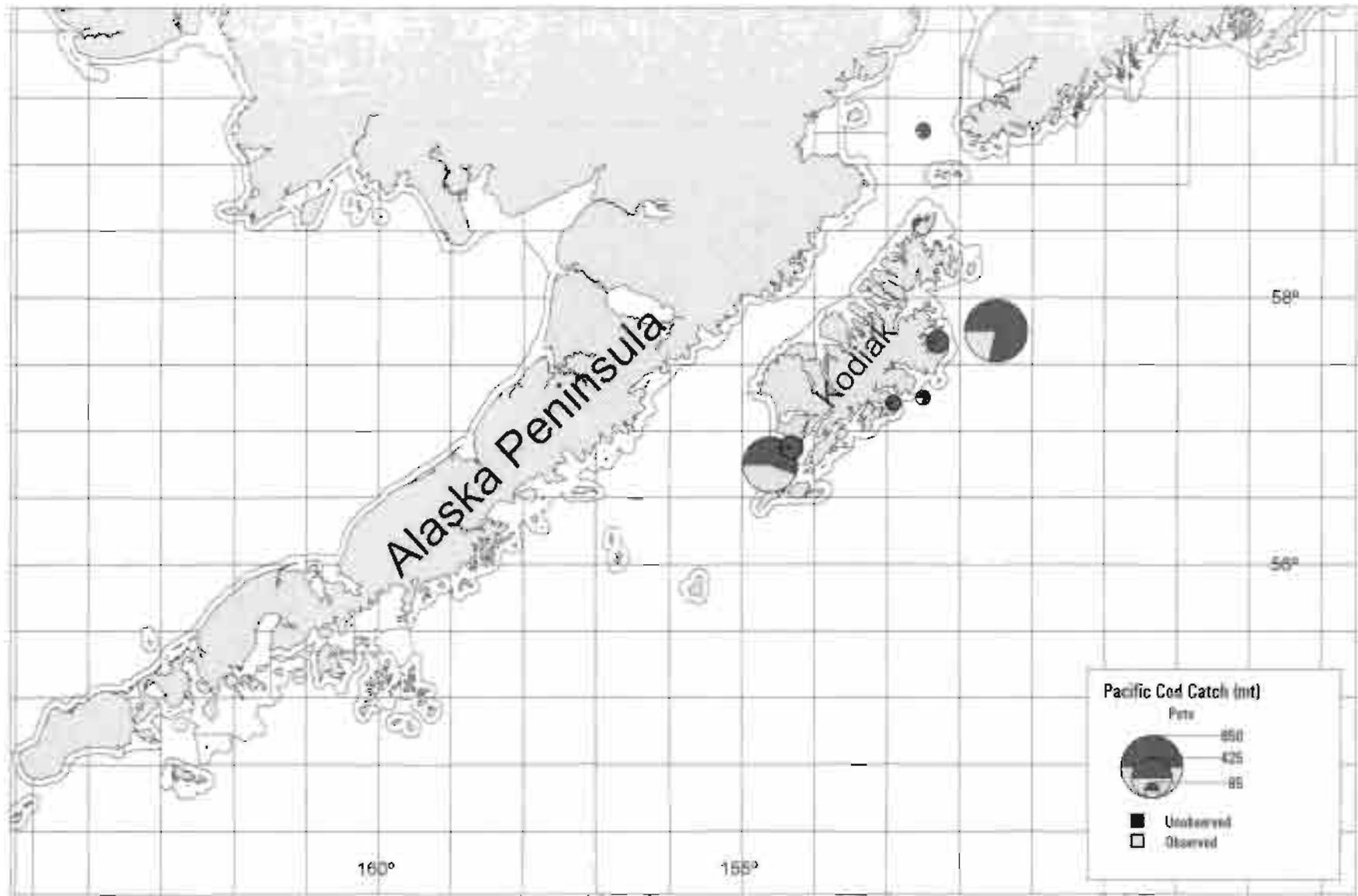


Figure 89. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1993

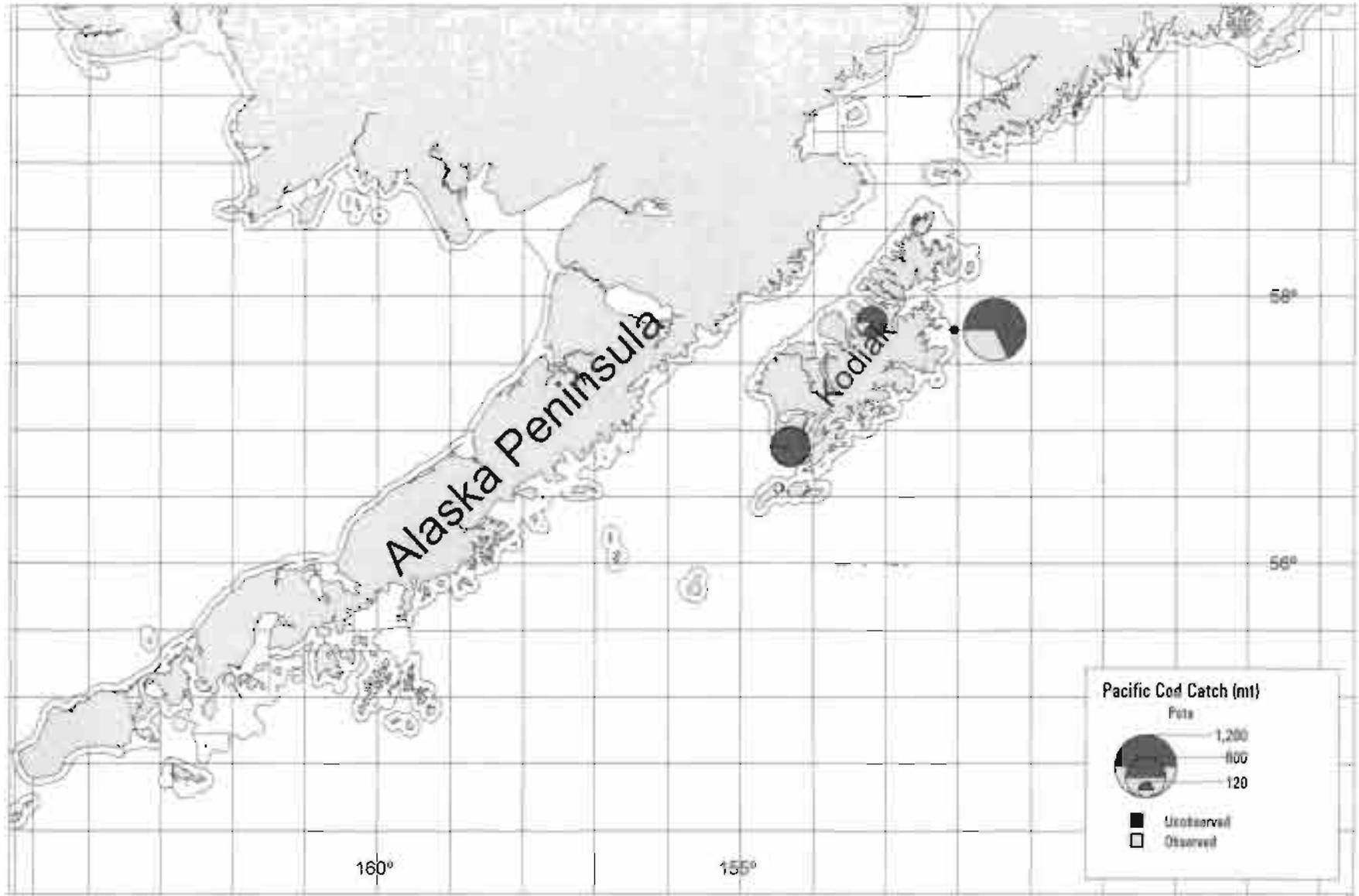


Figure 90. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1994.

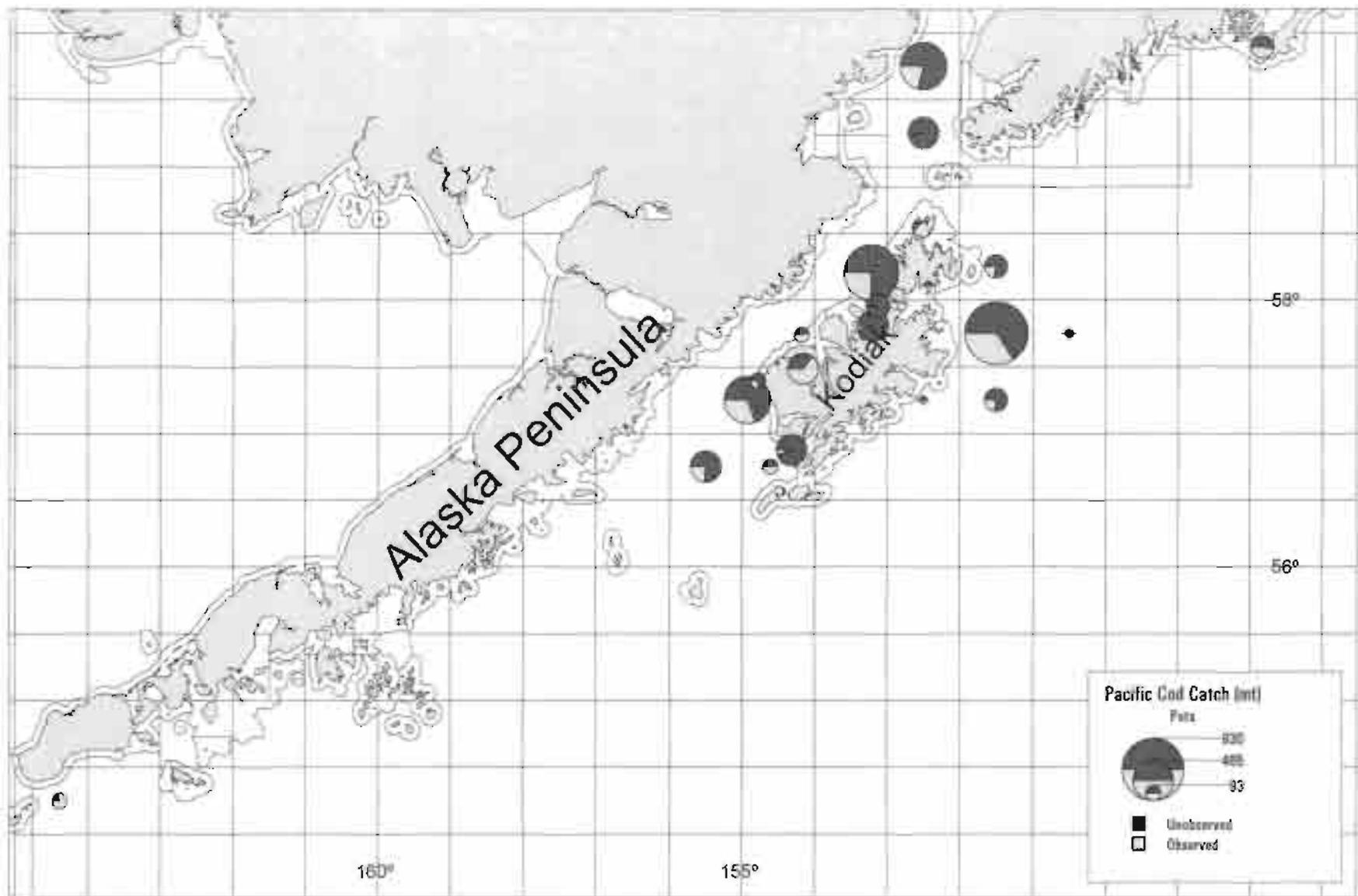


Figure 91. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1995.

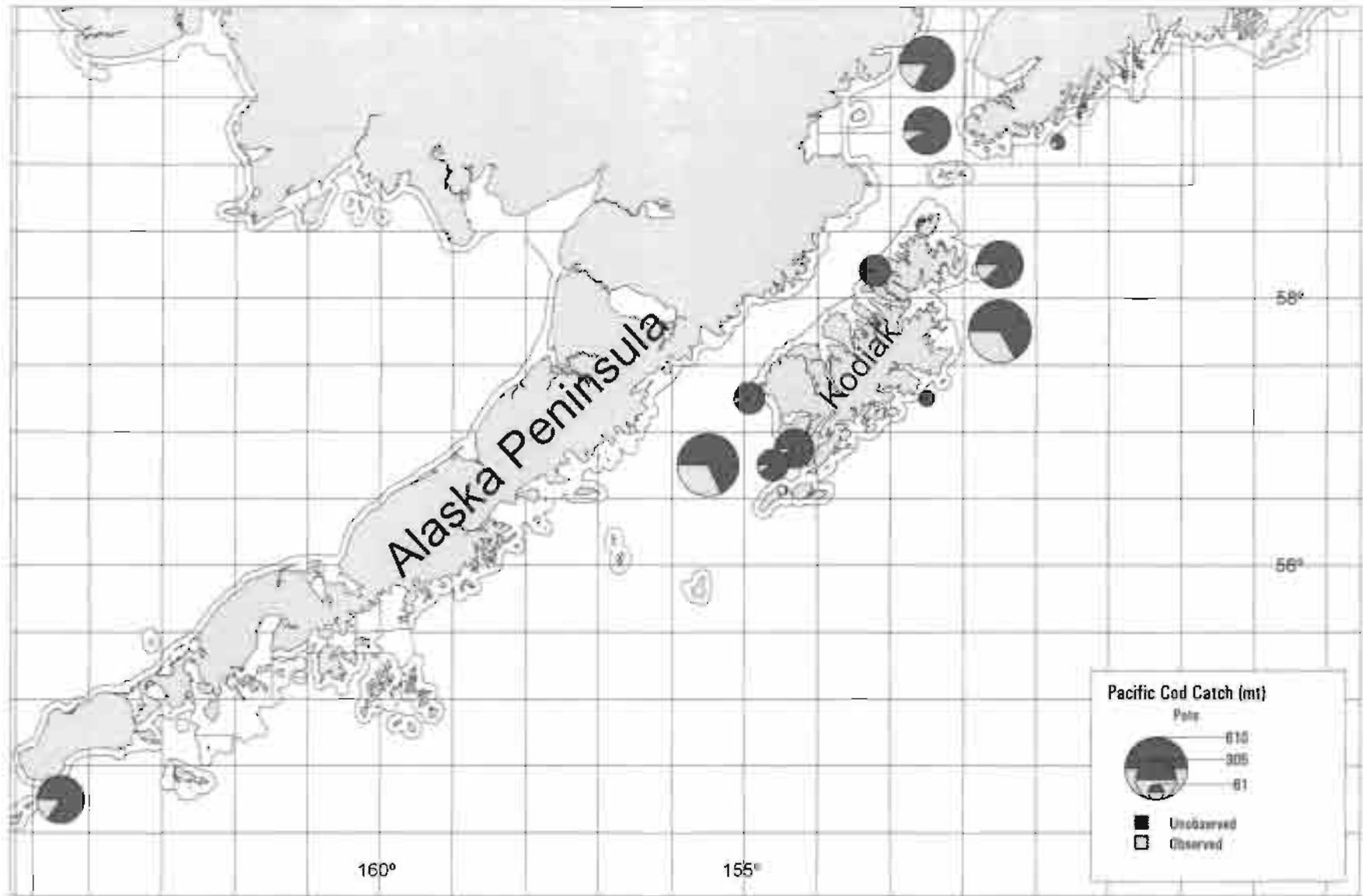


Figure 92. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels between 60 and 124 feet long, within the GOA by ADF&G statistical area, 1996.

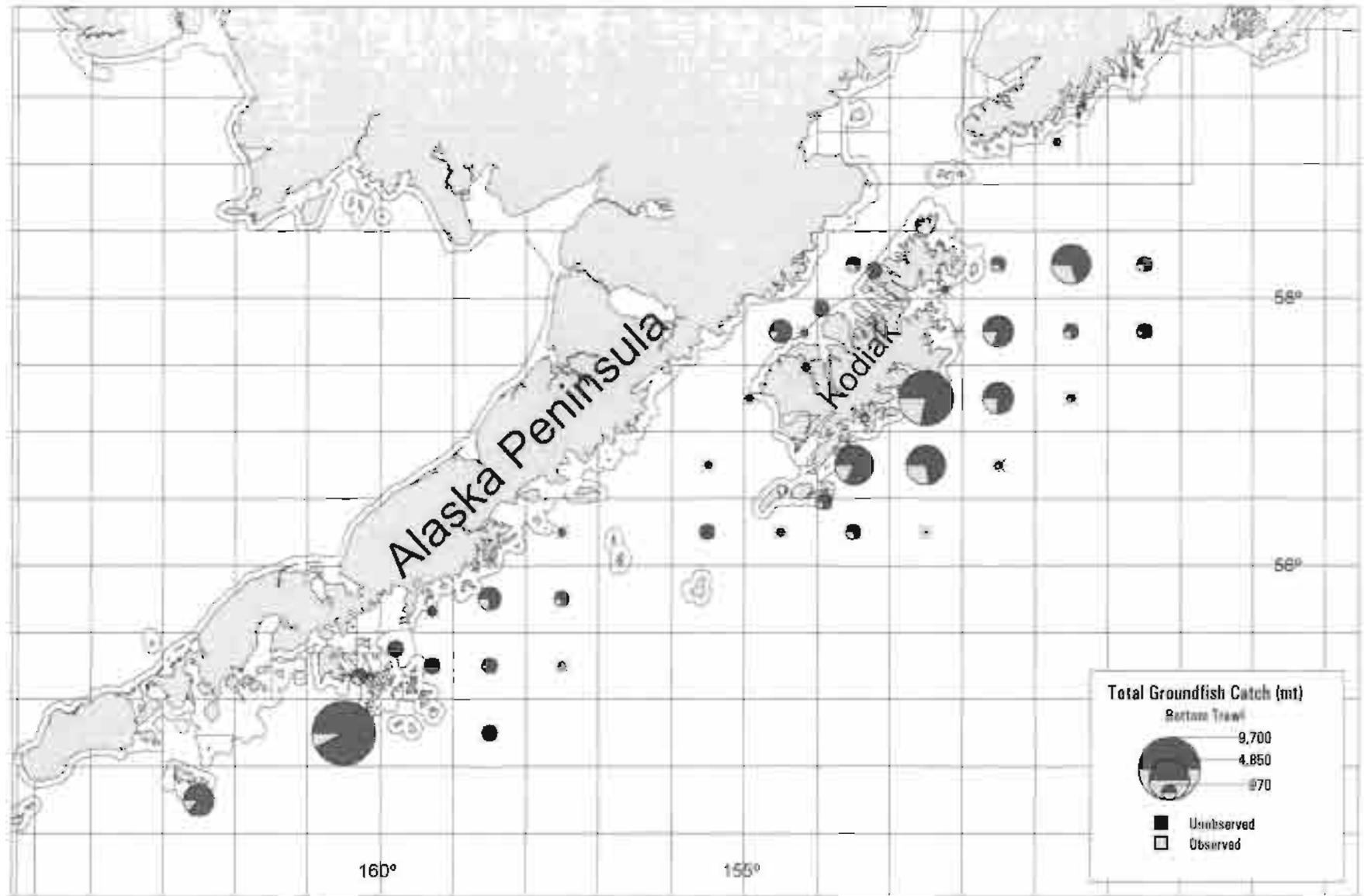


Figure 93. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

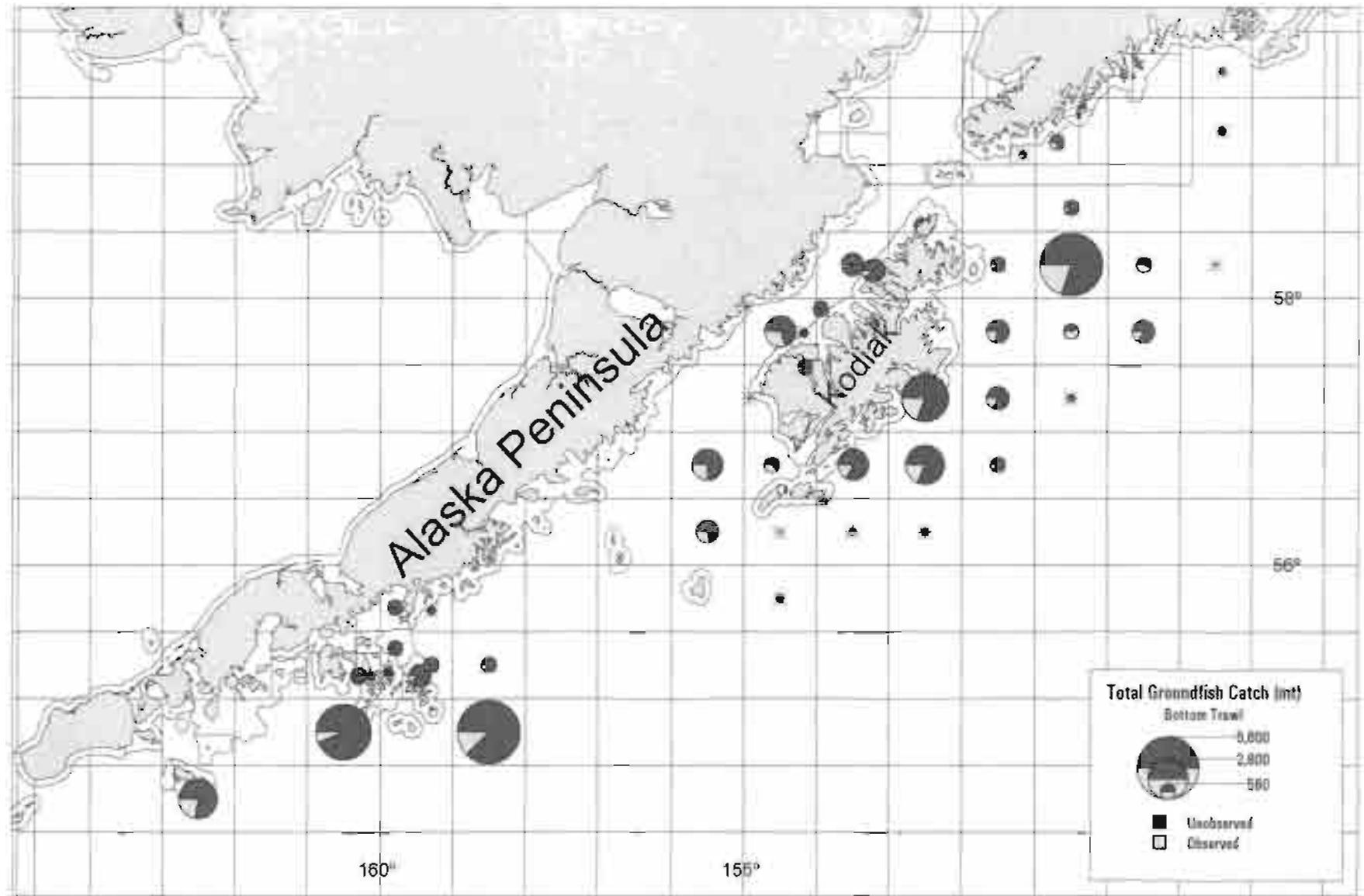


Figure 94. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

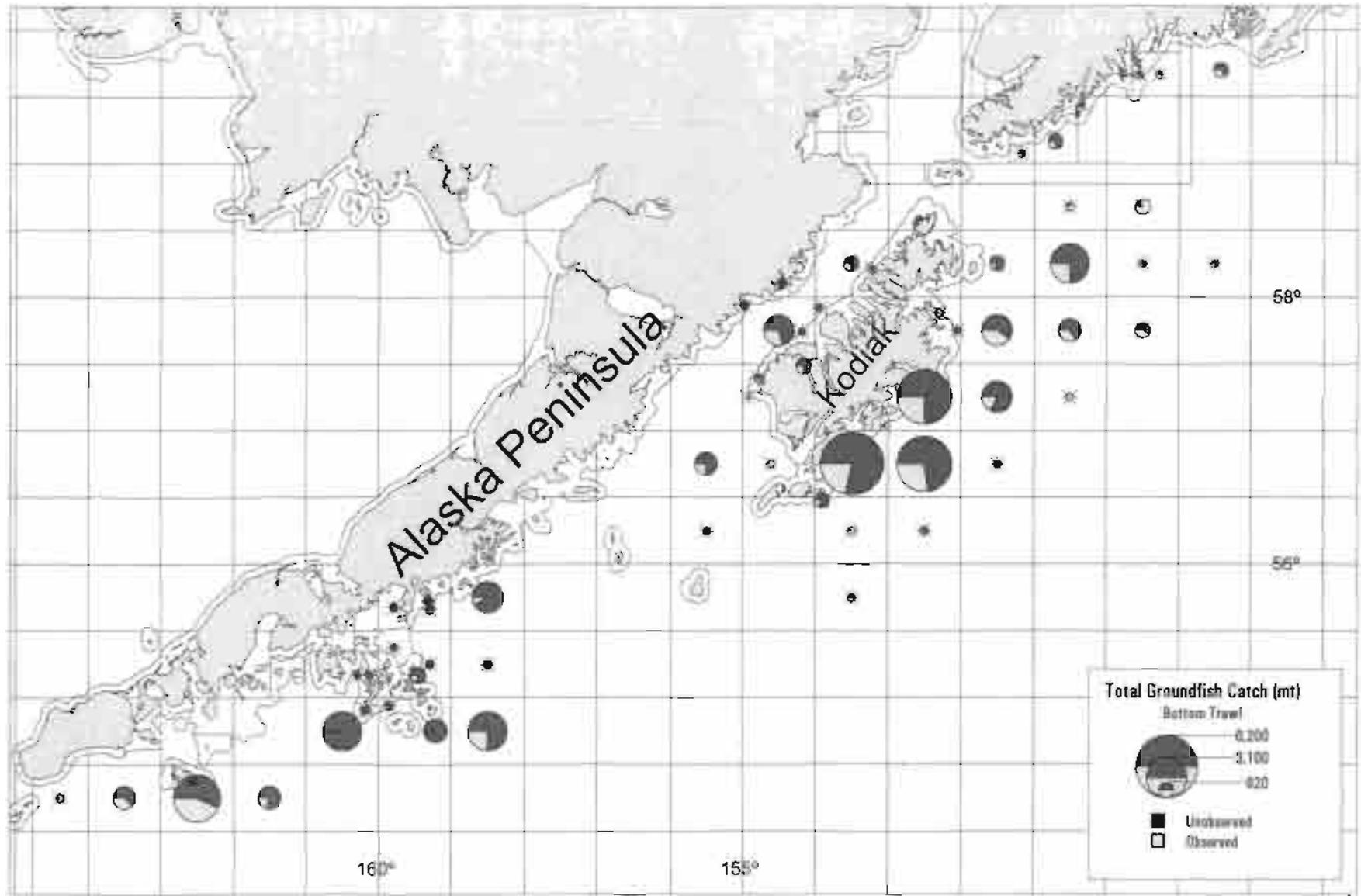


Figure 95. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

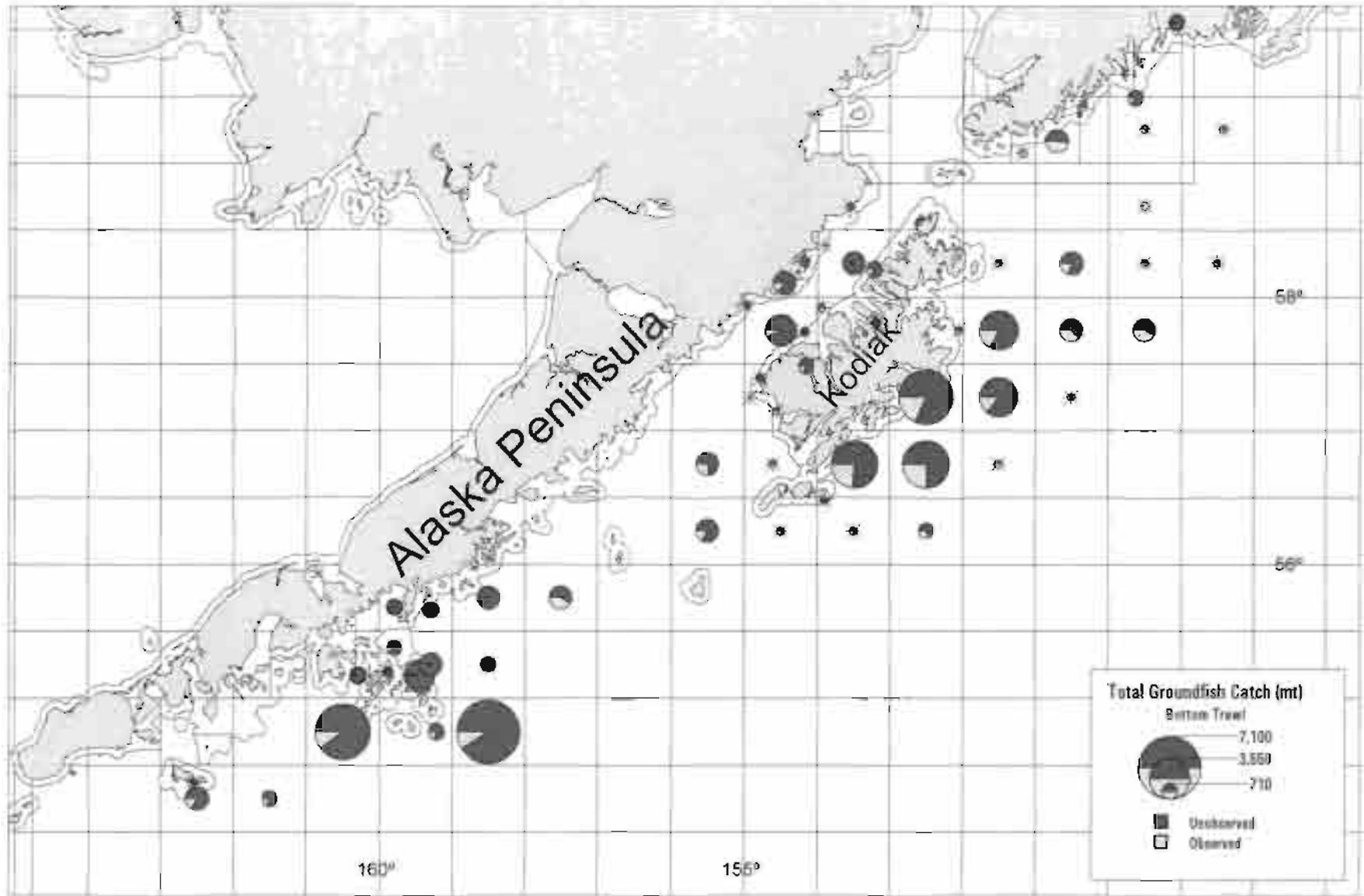


Figure 96. Total observed versus unobserved groundfish catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area. 1996.

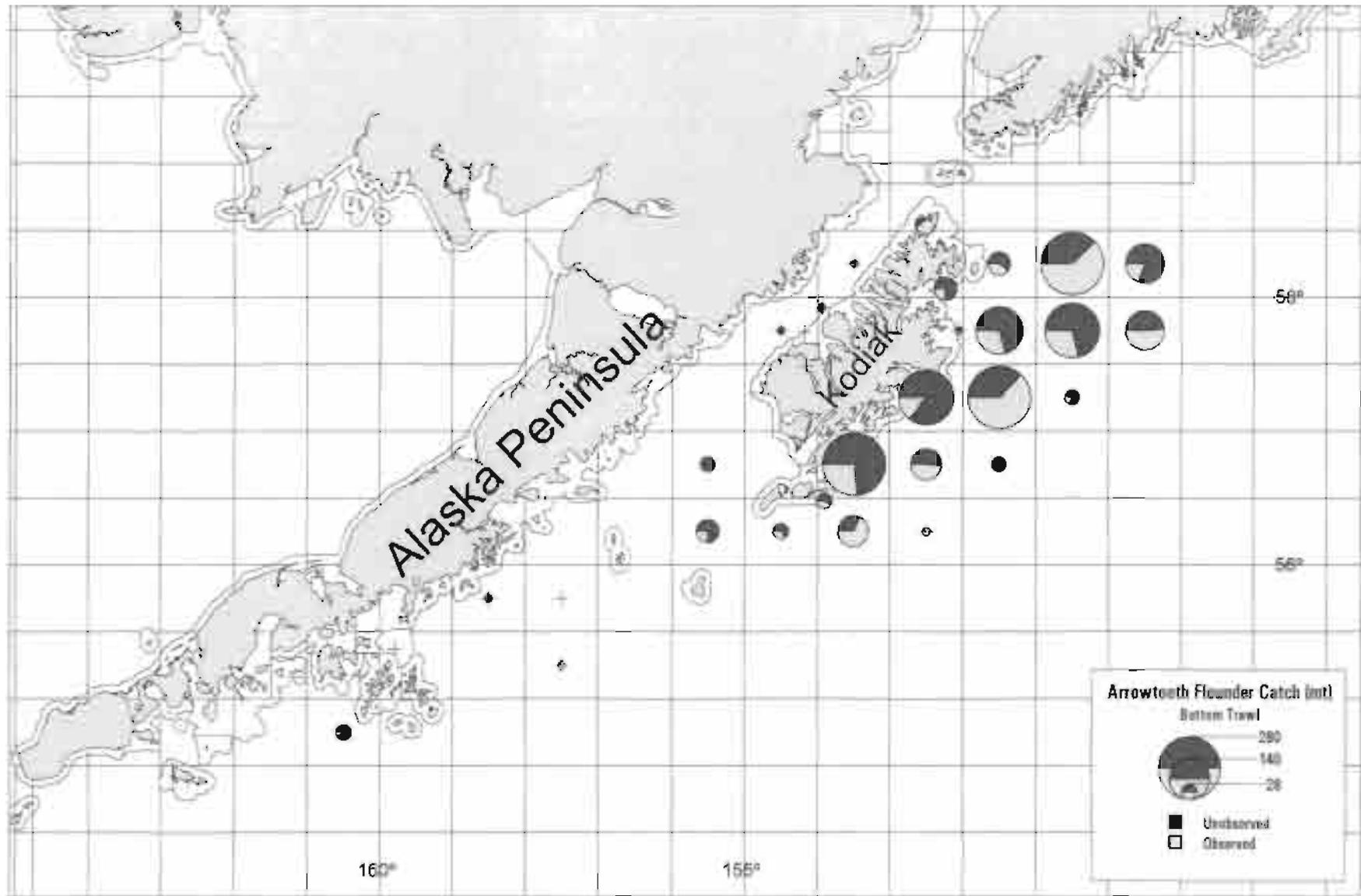


Figure 97. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

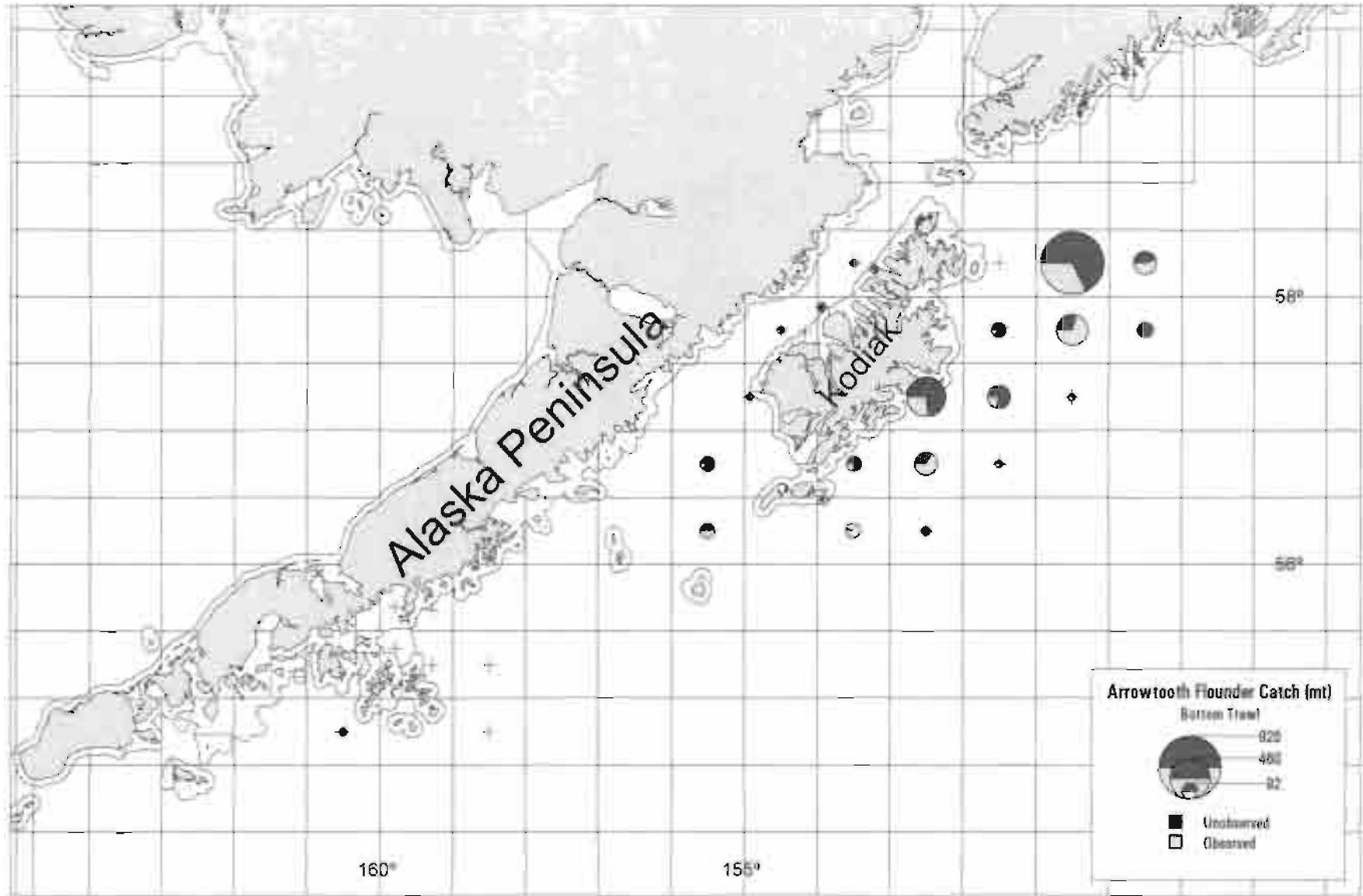


Figure 98. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

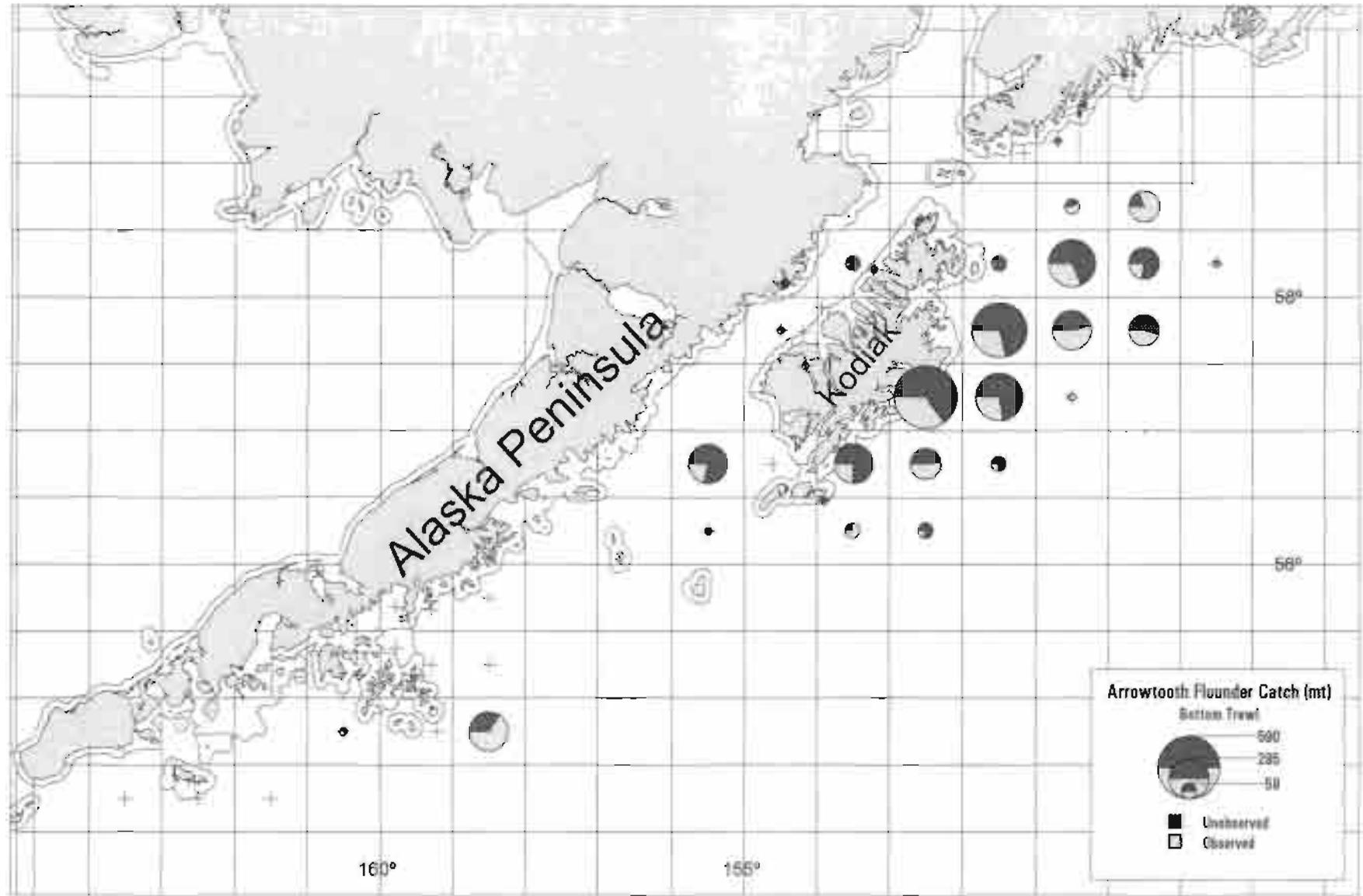


Figure 99. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

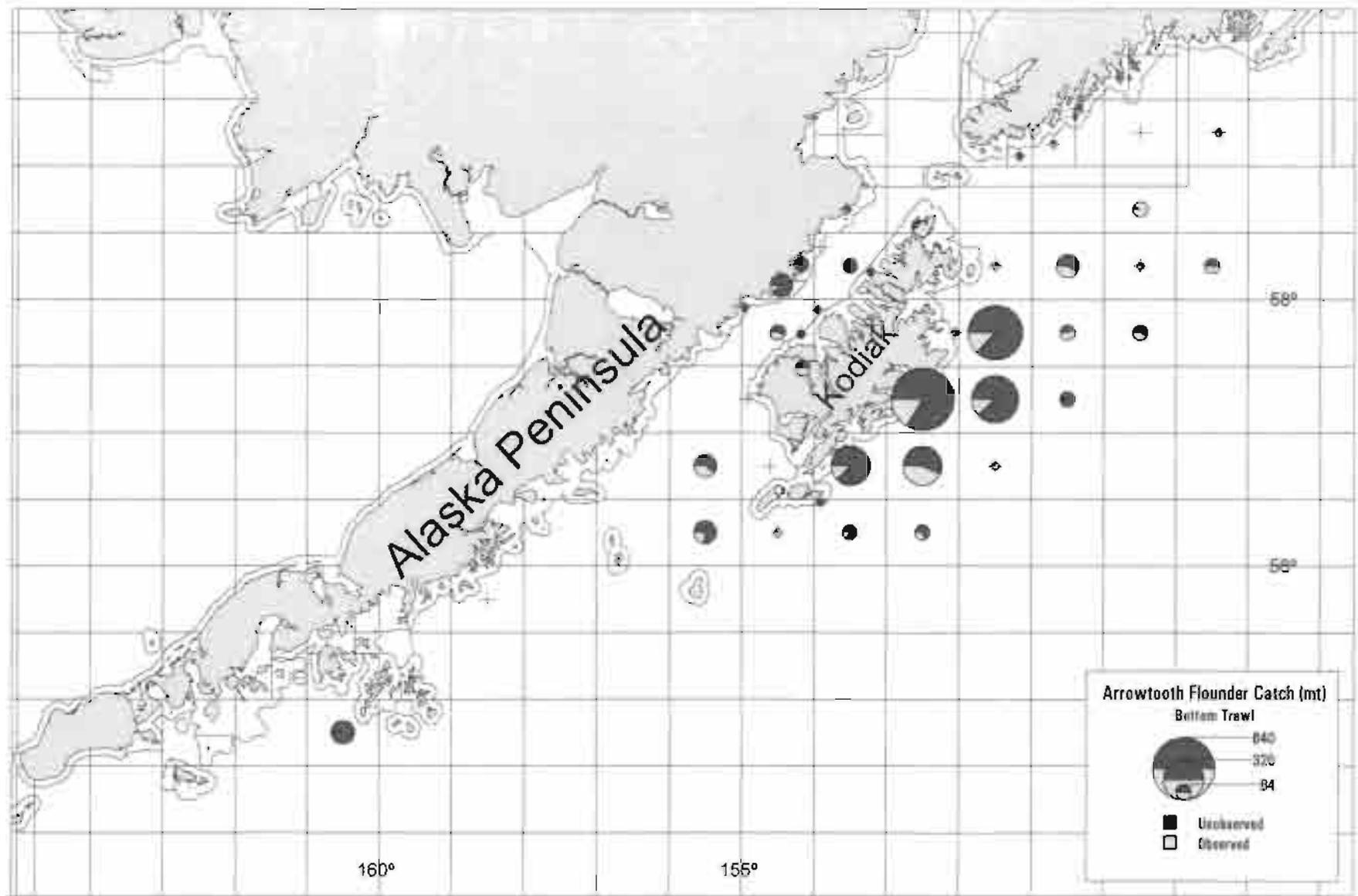


Figure 100. Arrowtooth flounder observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

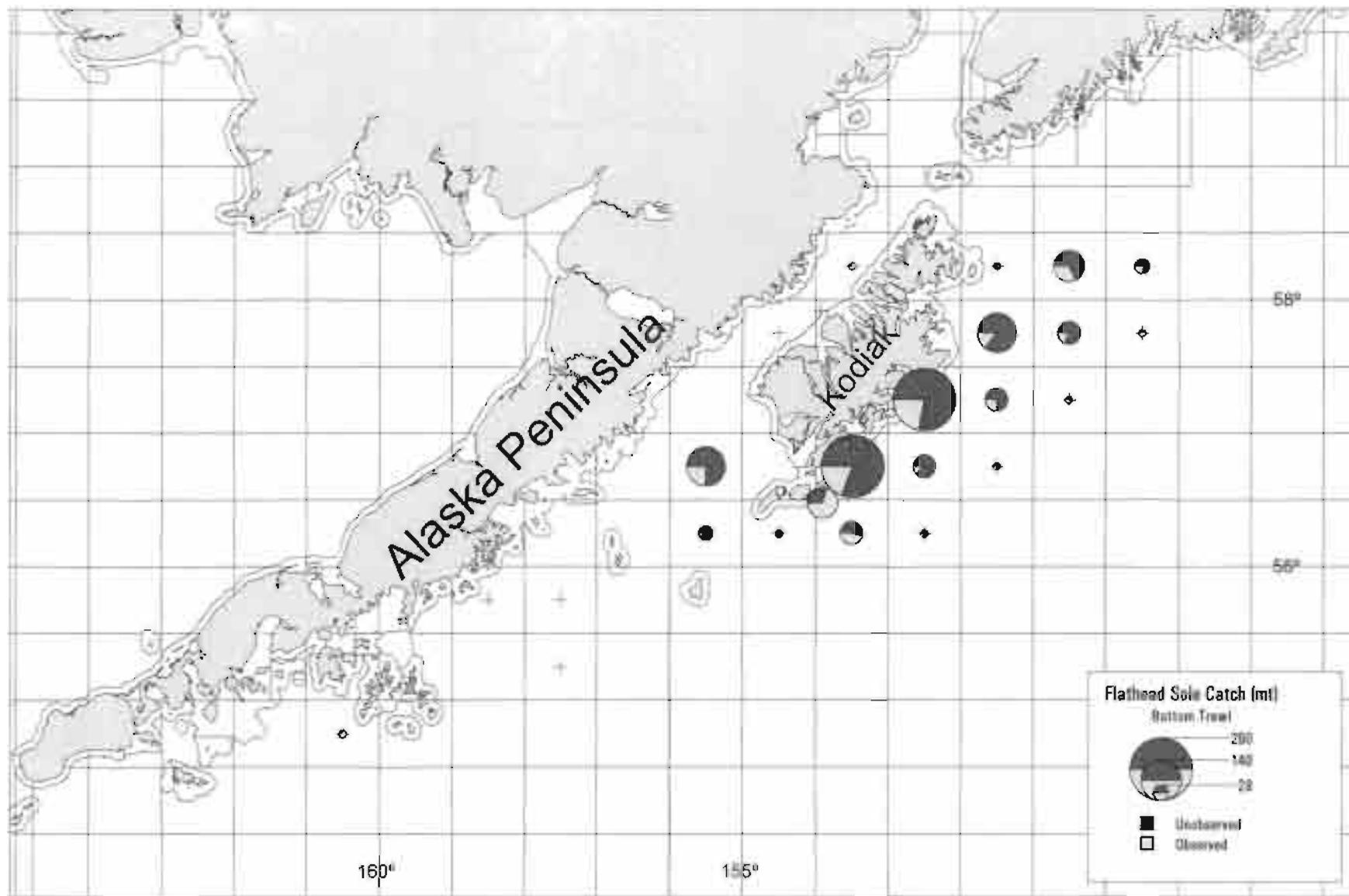


Figure 101. Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

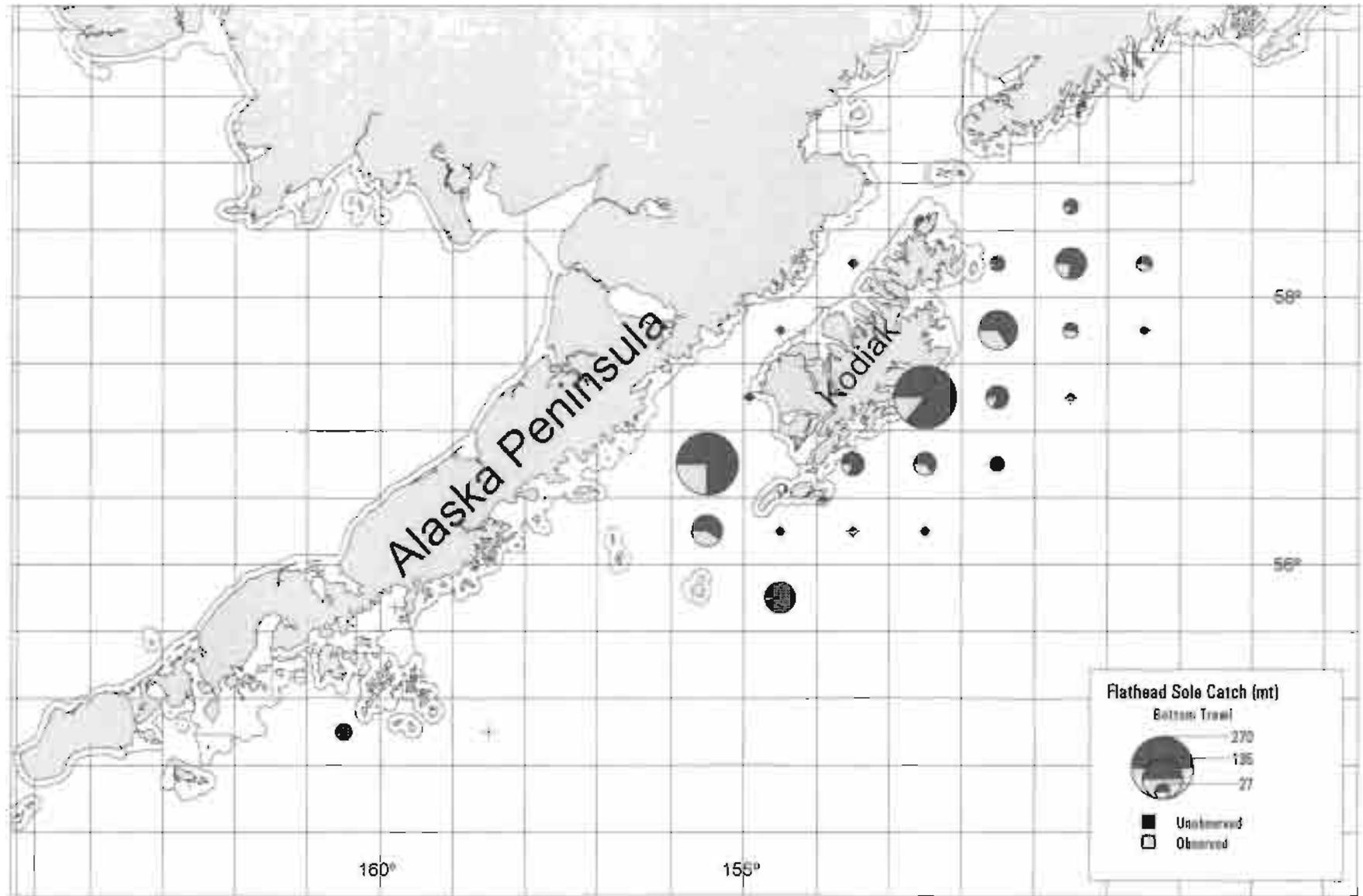


Figure 102 Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

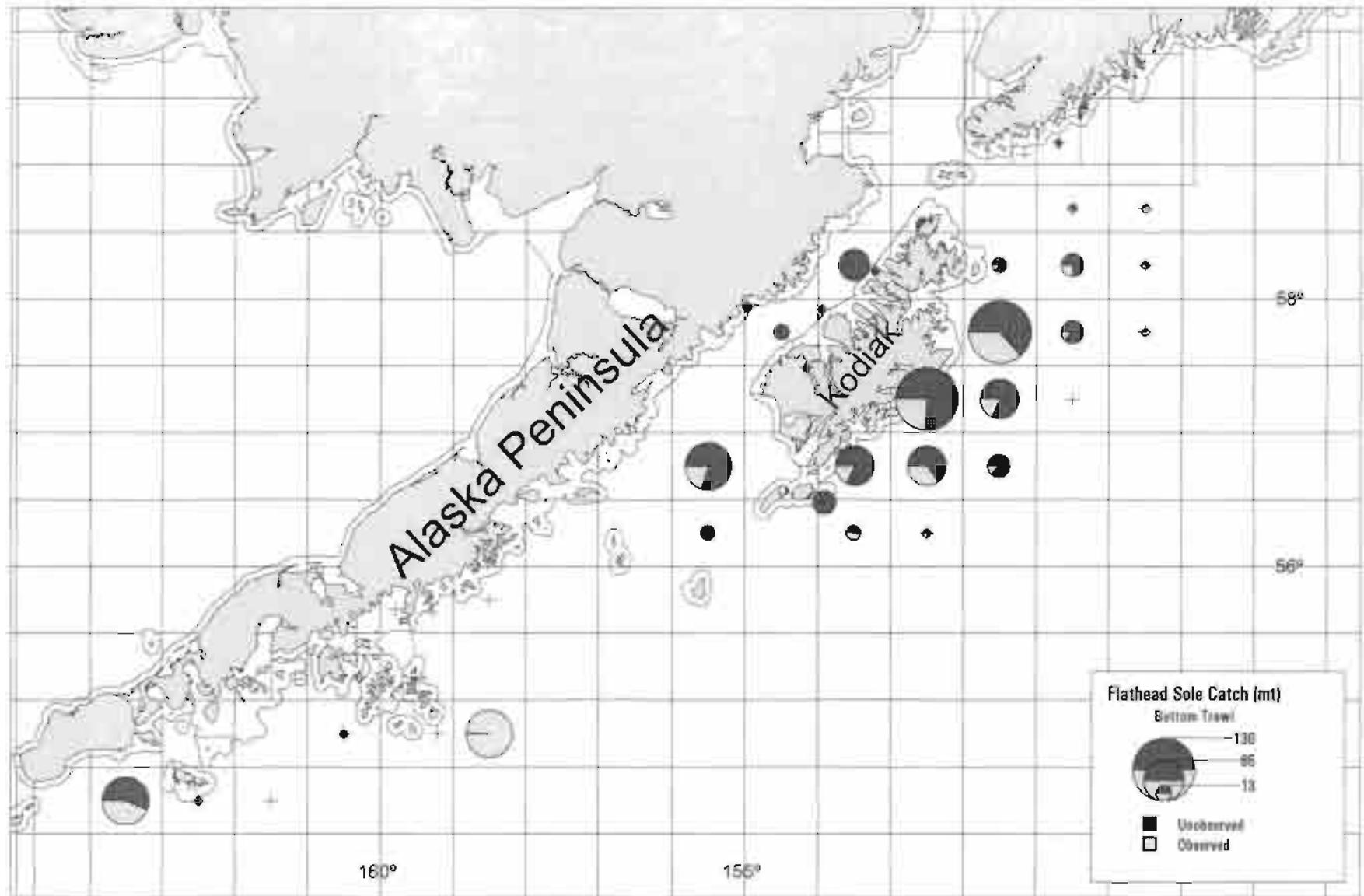


Figure 103. Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADP&G statistical area, 1995.

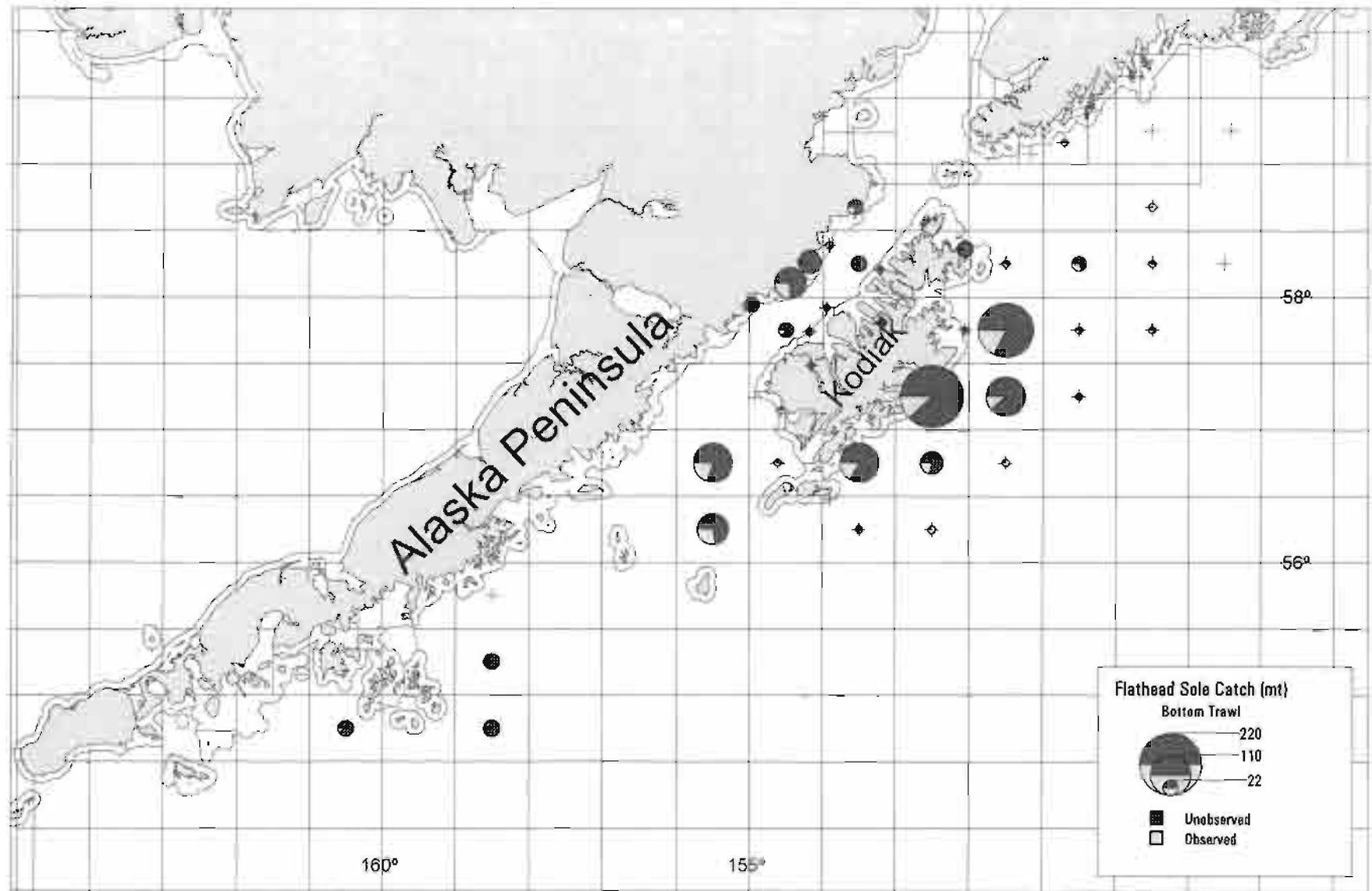


Figure 104. Flathead sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

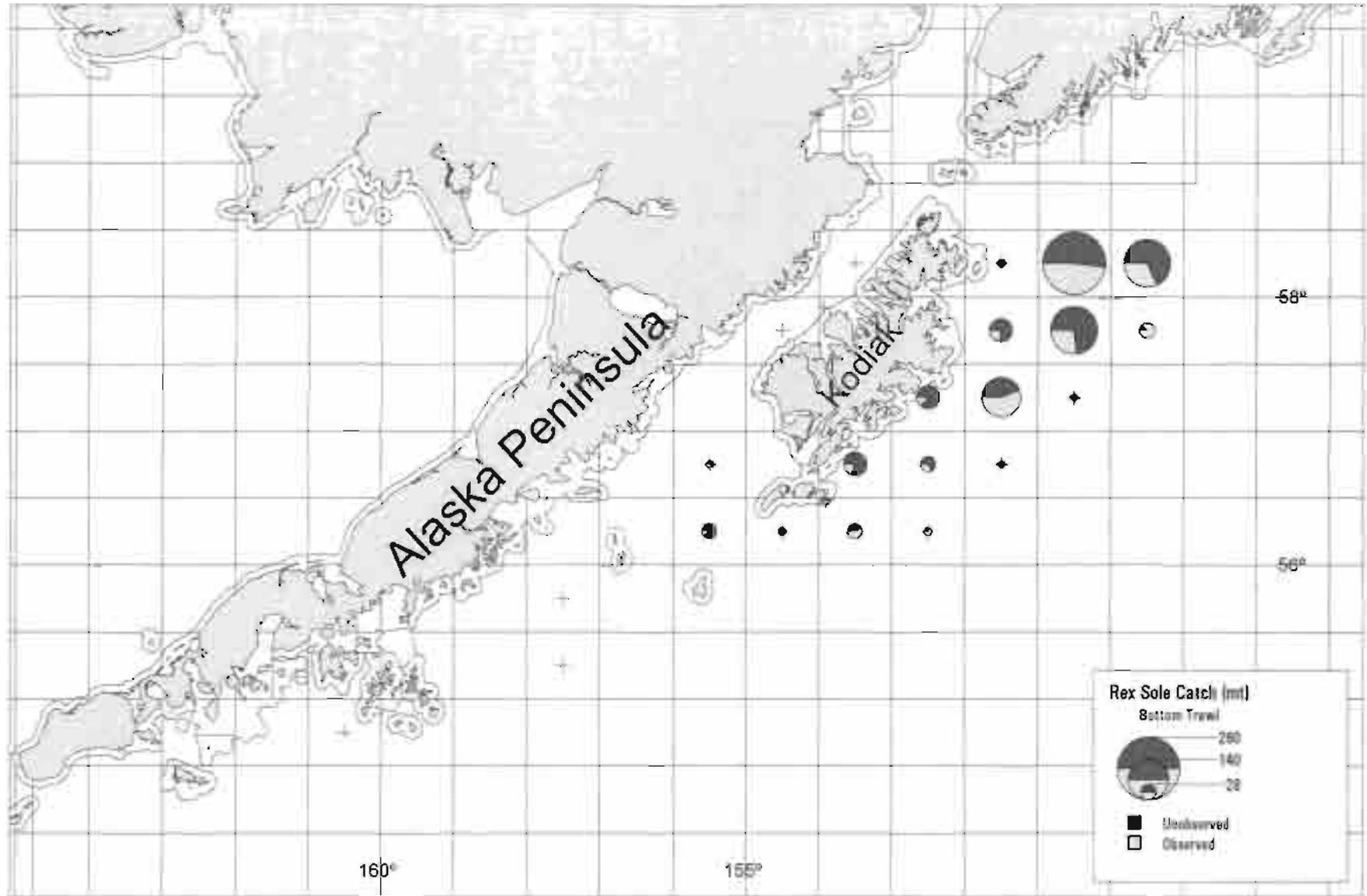


Figure 105. Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

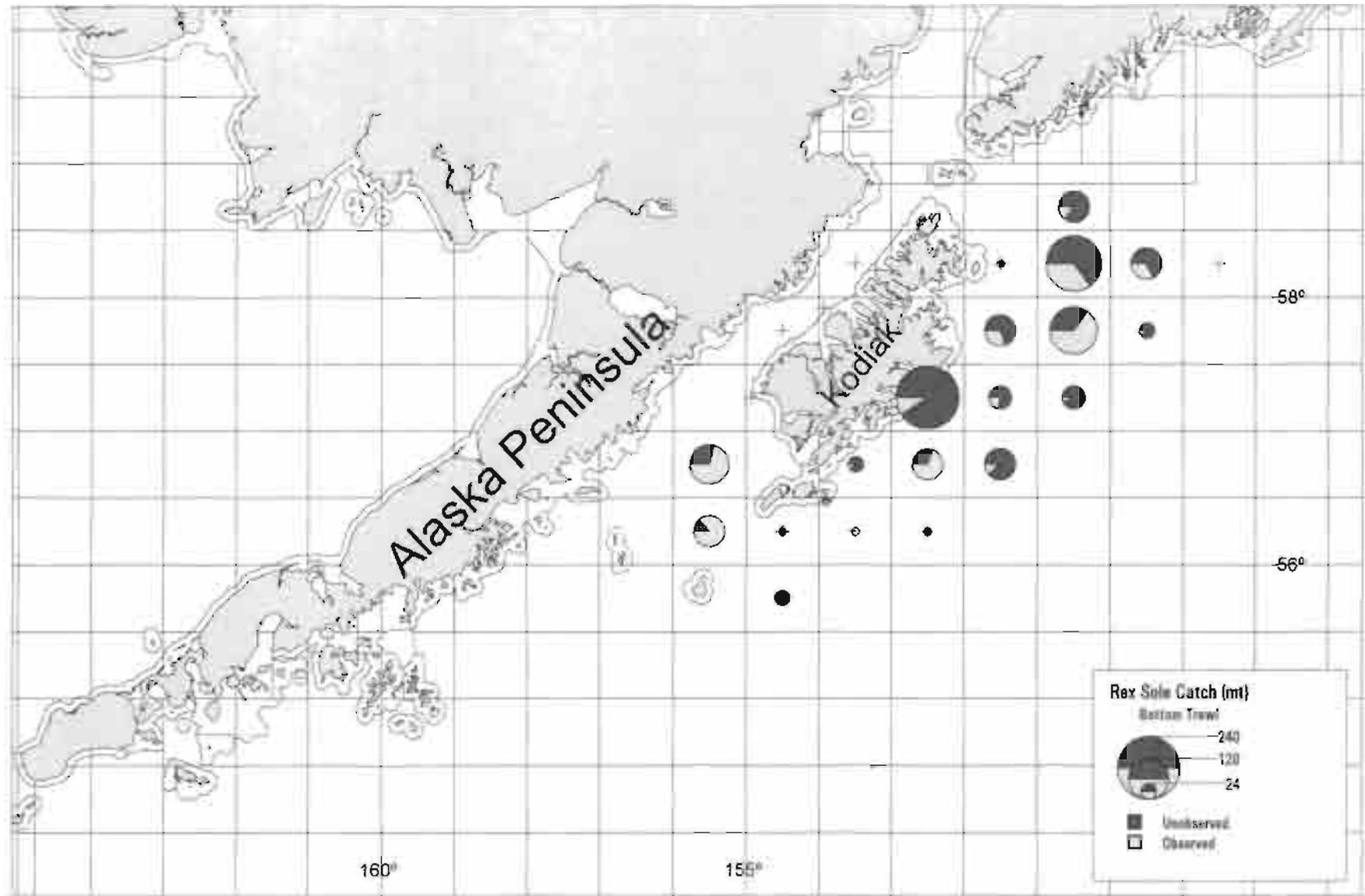


Figure 106 Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994

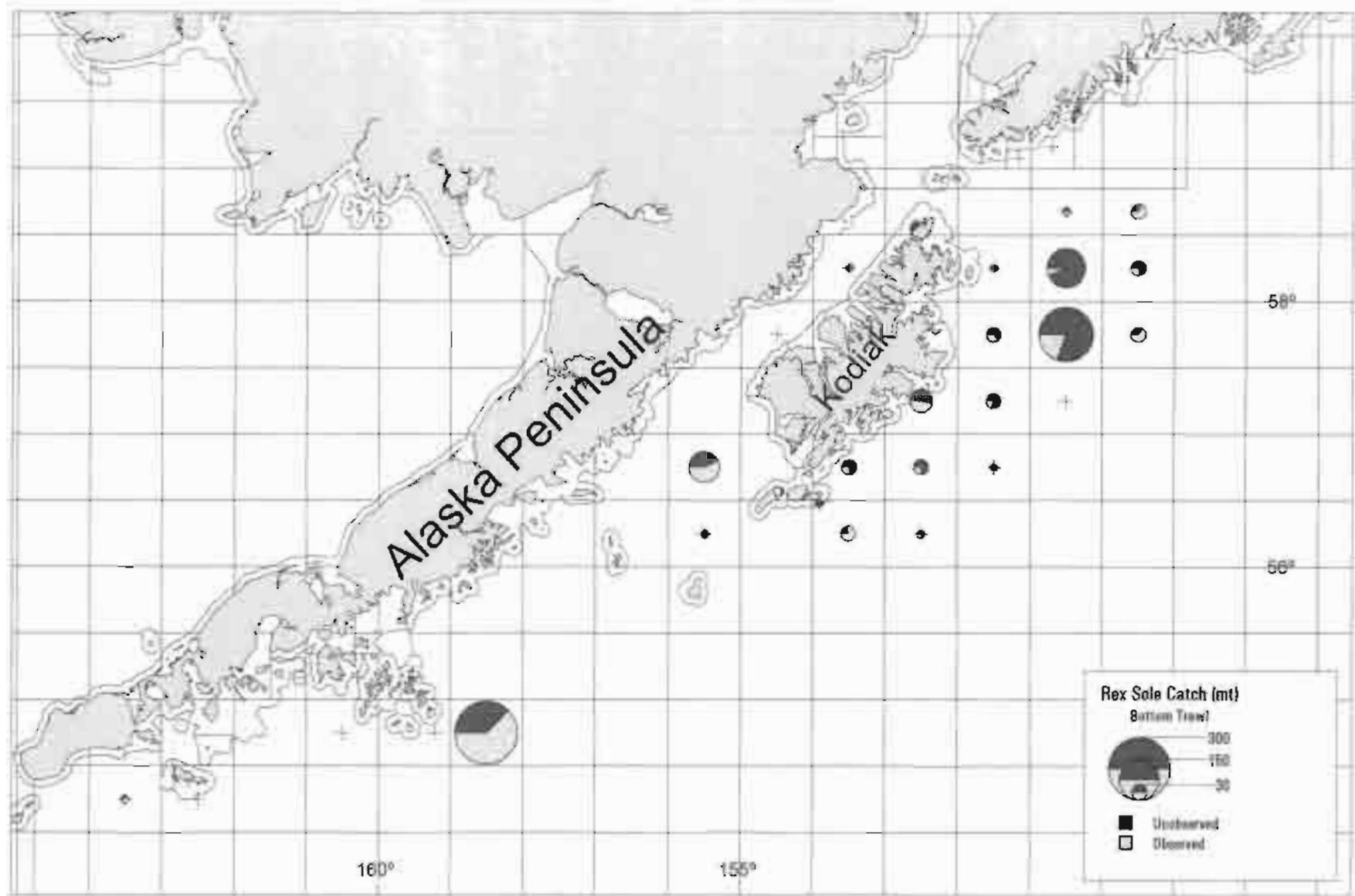


Figure 107. Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995

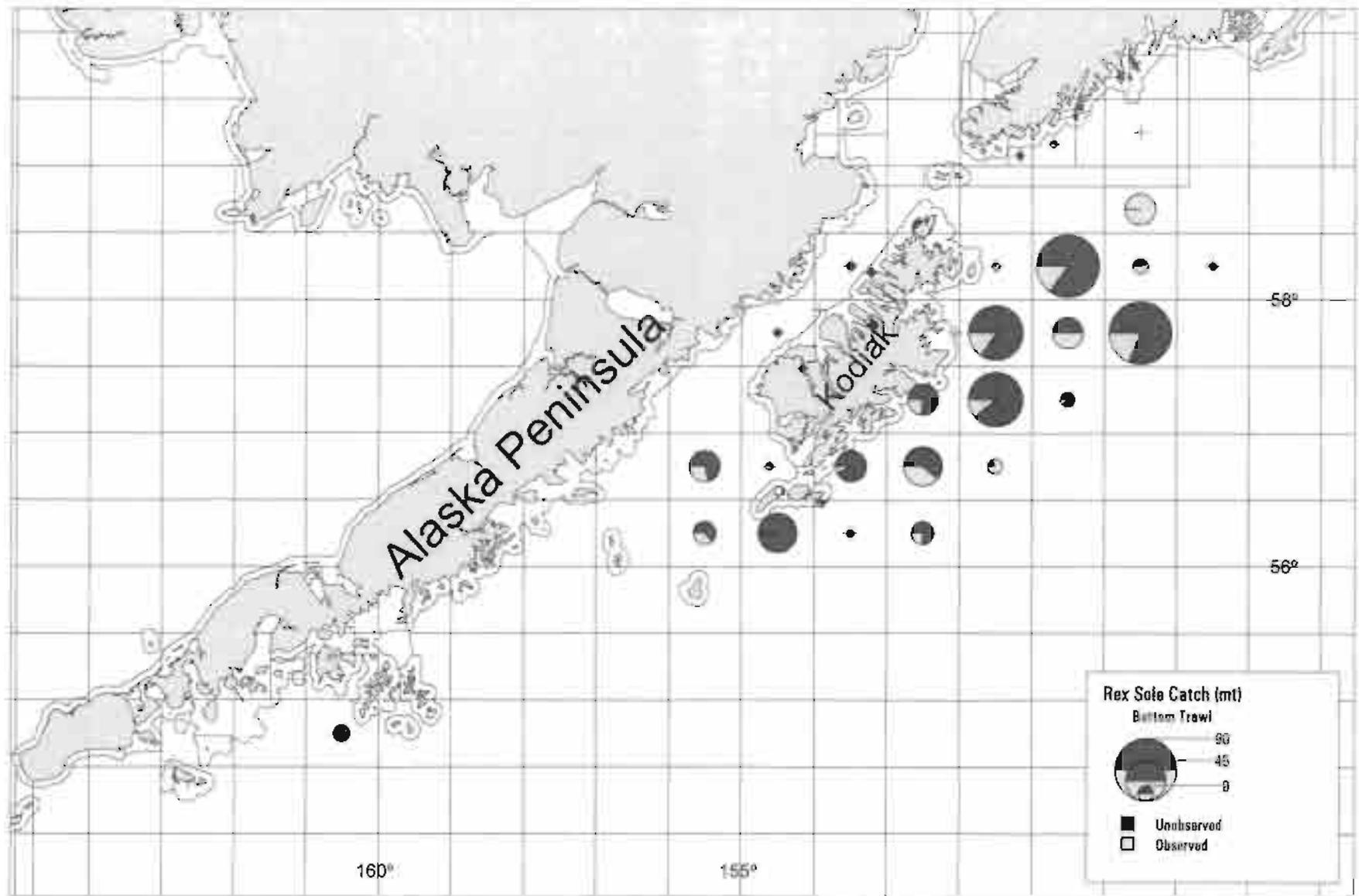


Figure 108. Rex sole observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

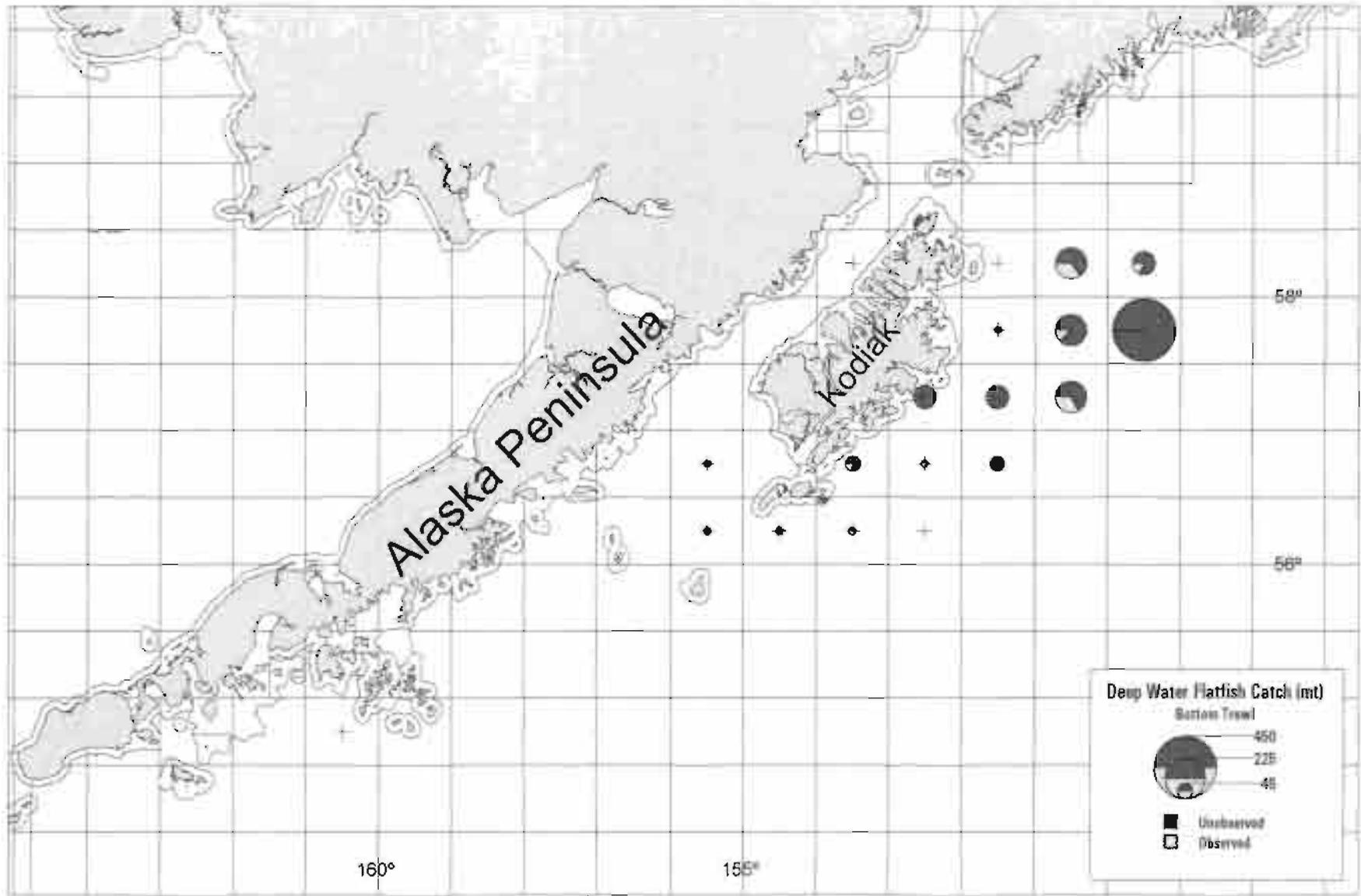


Figure 109. Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

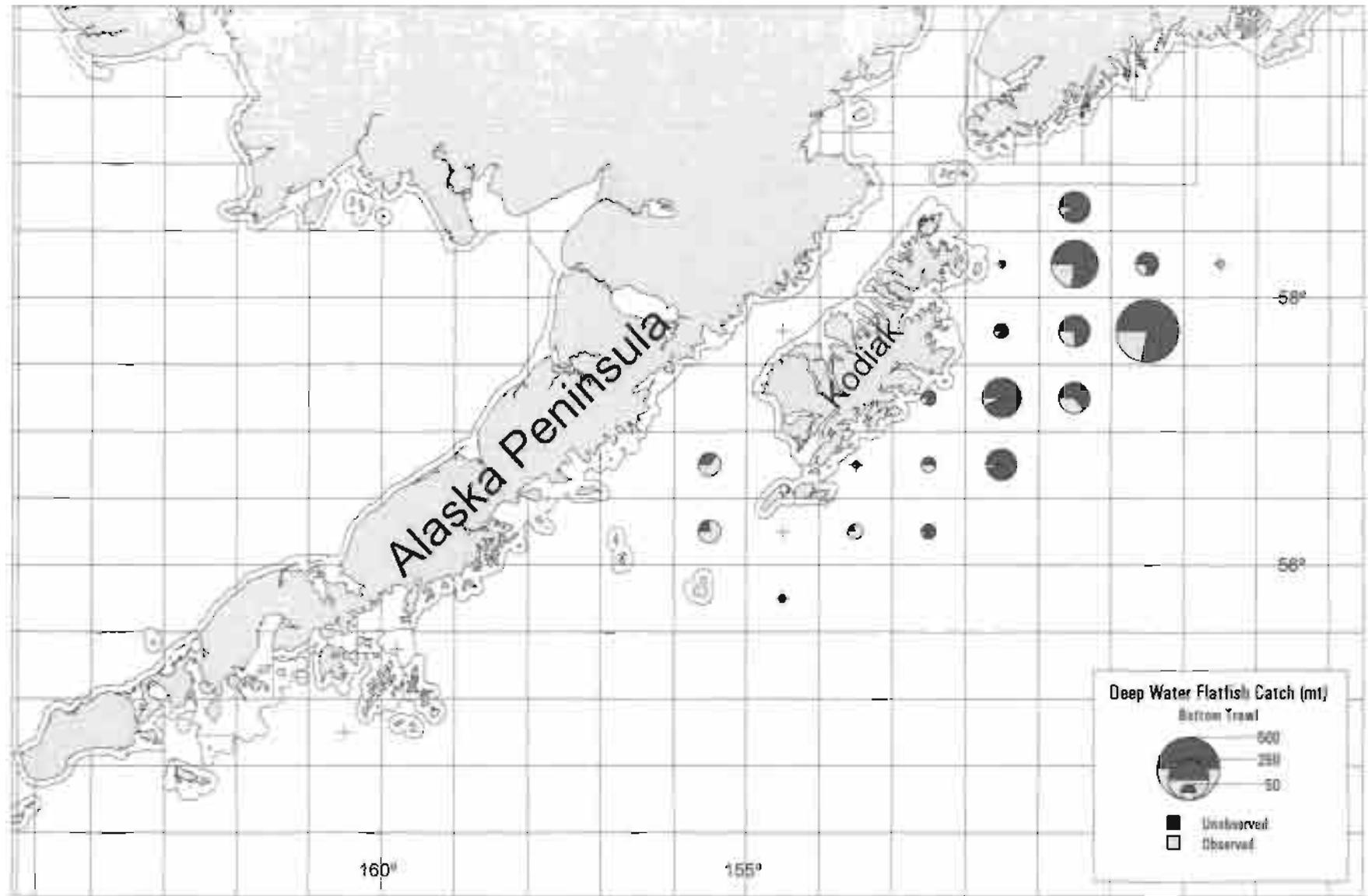


Figure 110. Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

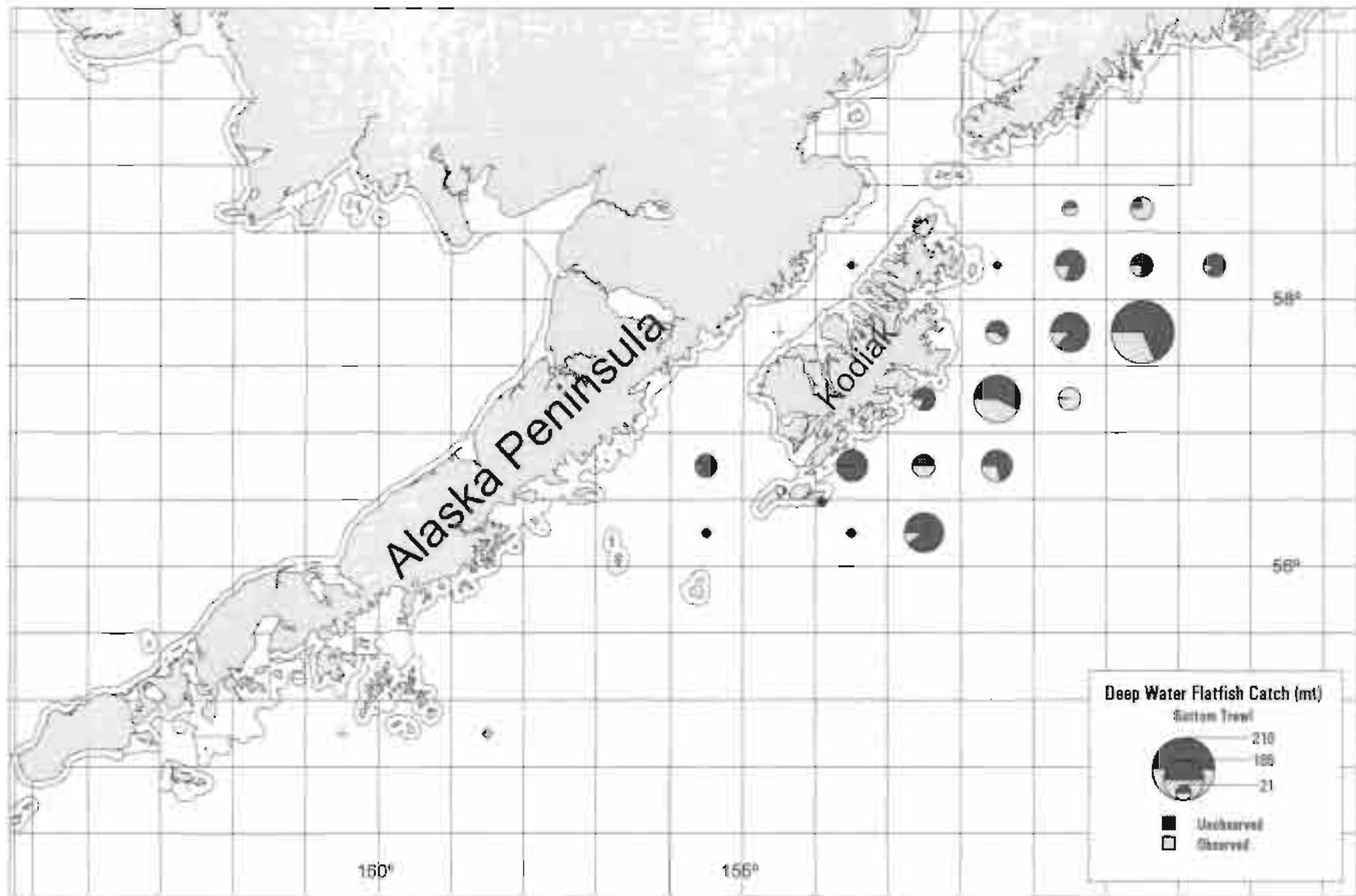


Figure 111. Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

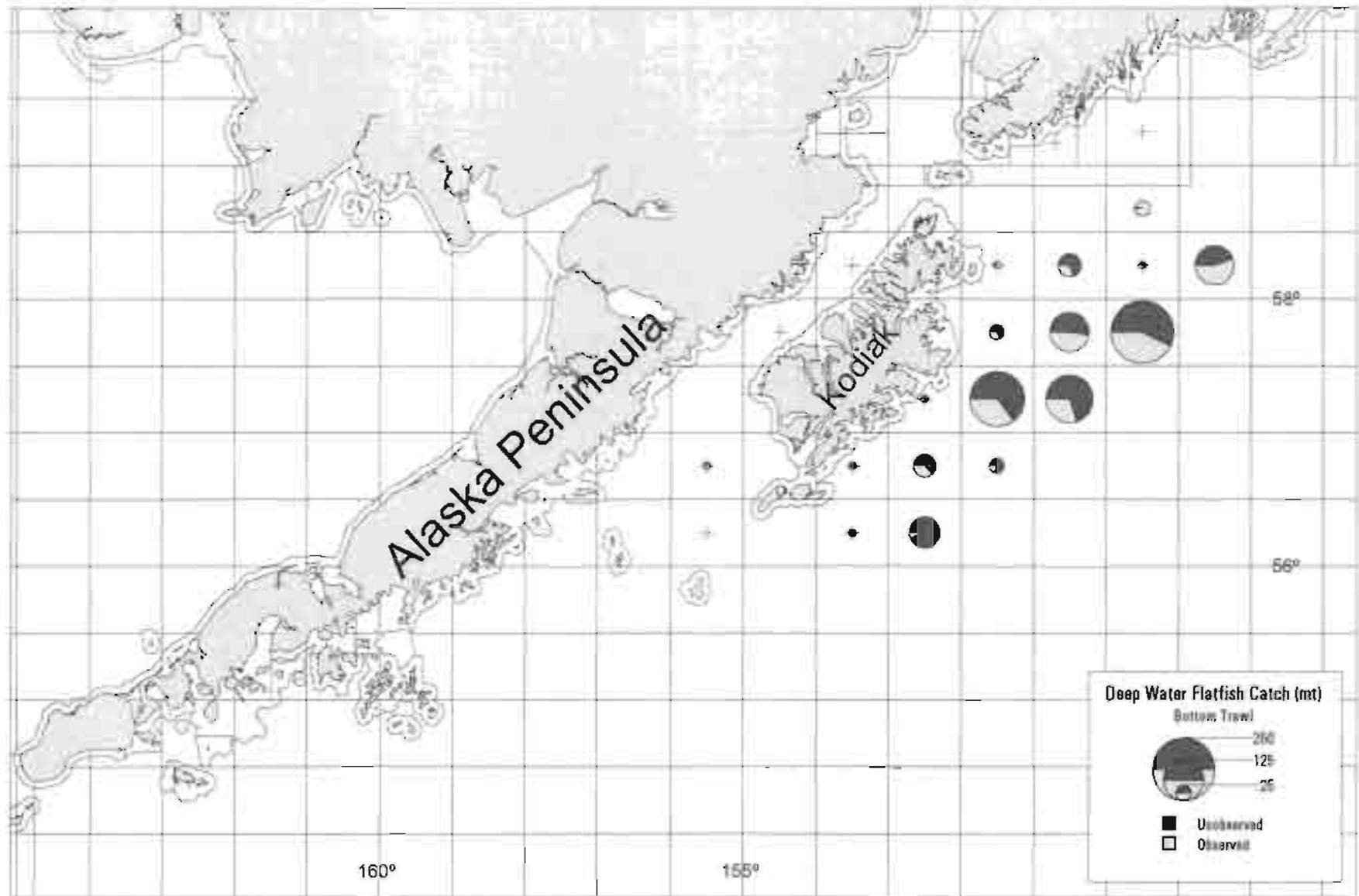


Figure 112 Deep water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

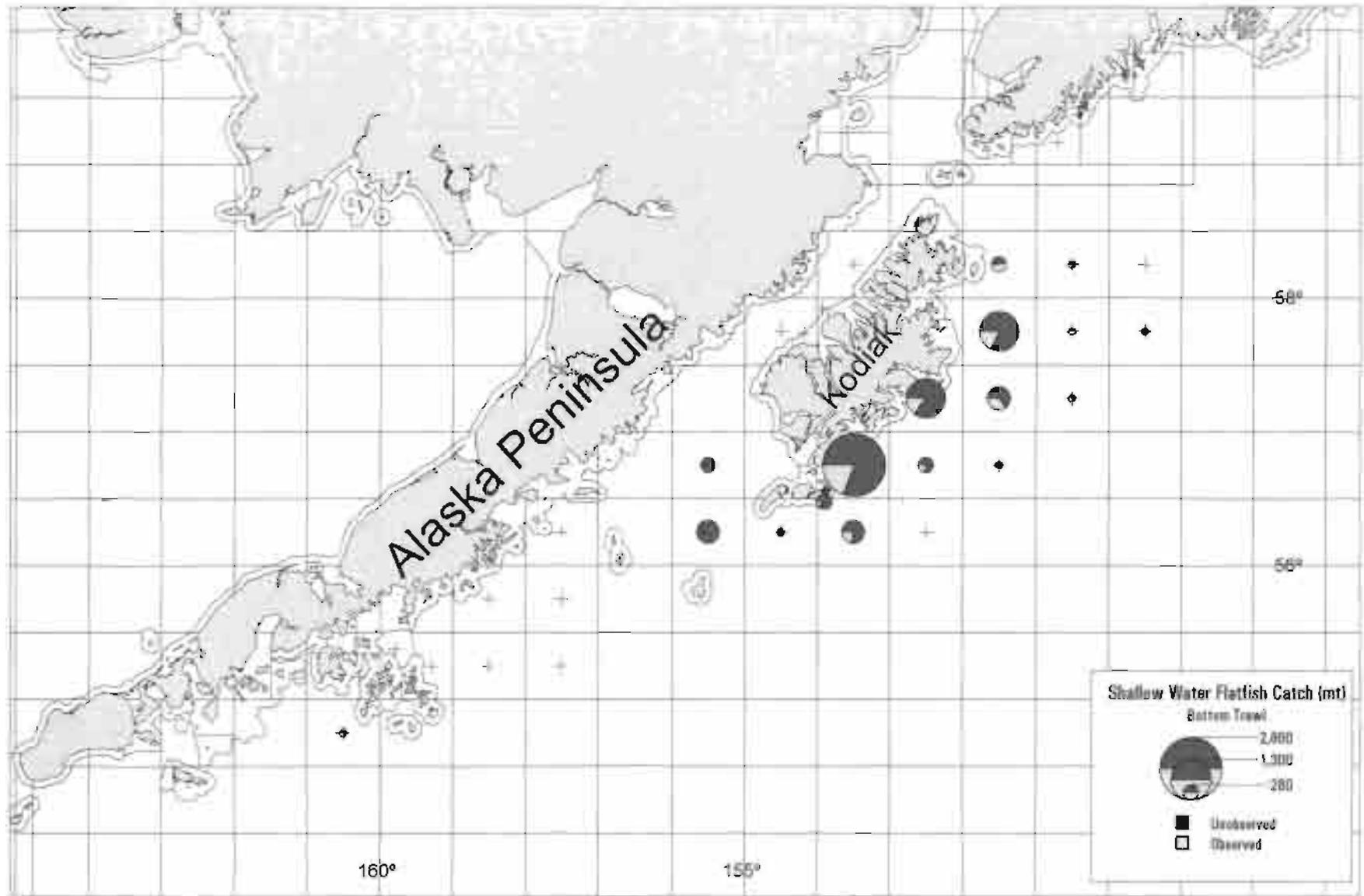


Figure 113. Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

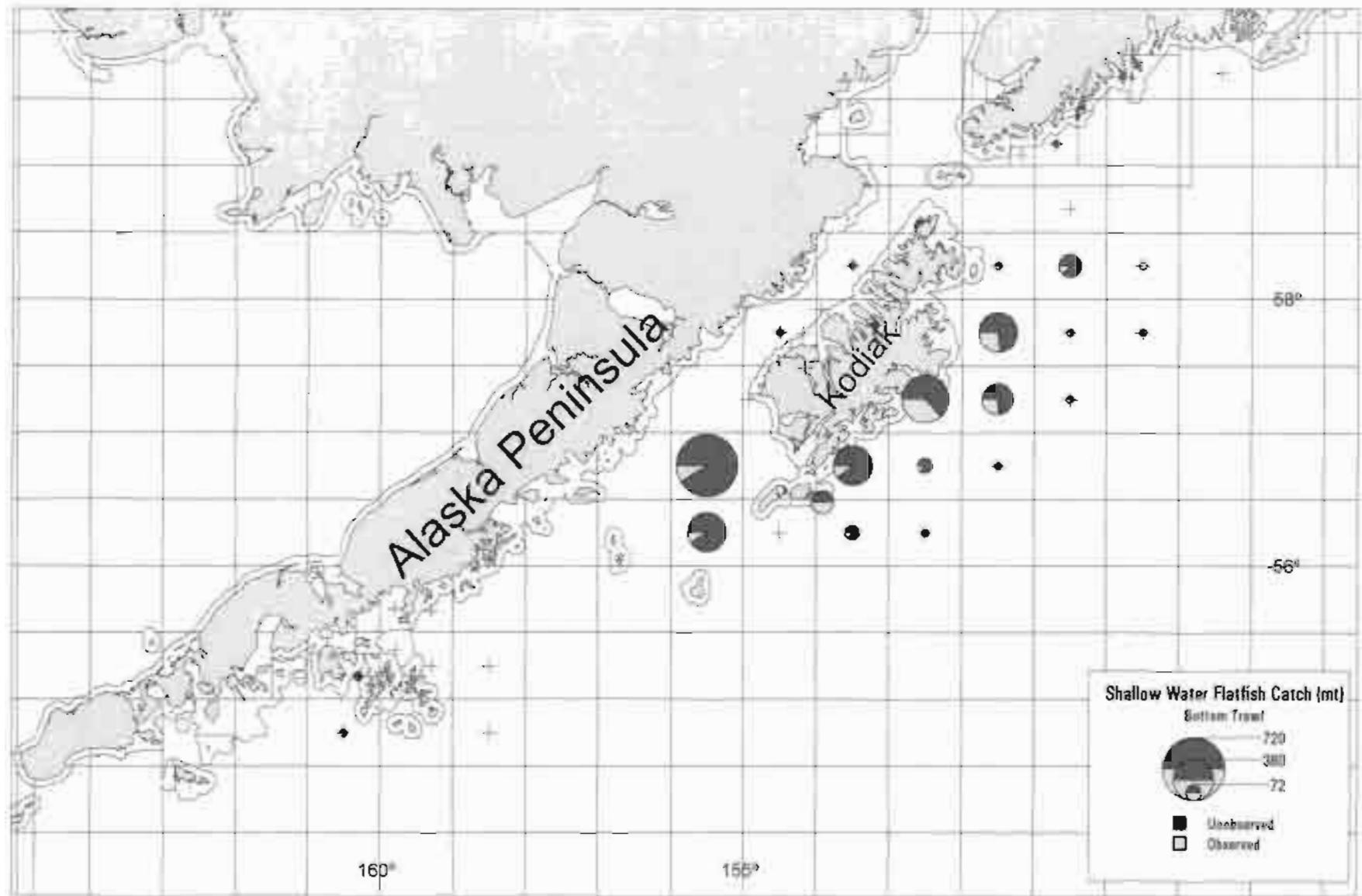


Figure 114. Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

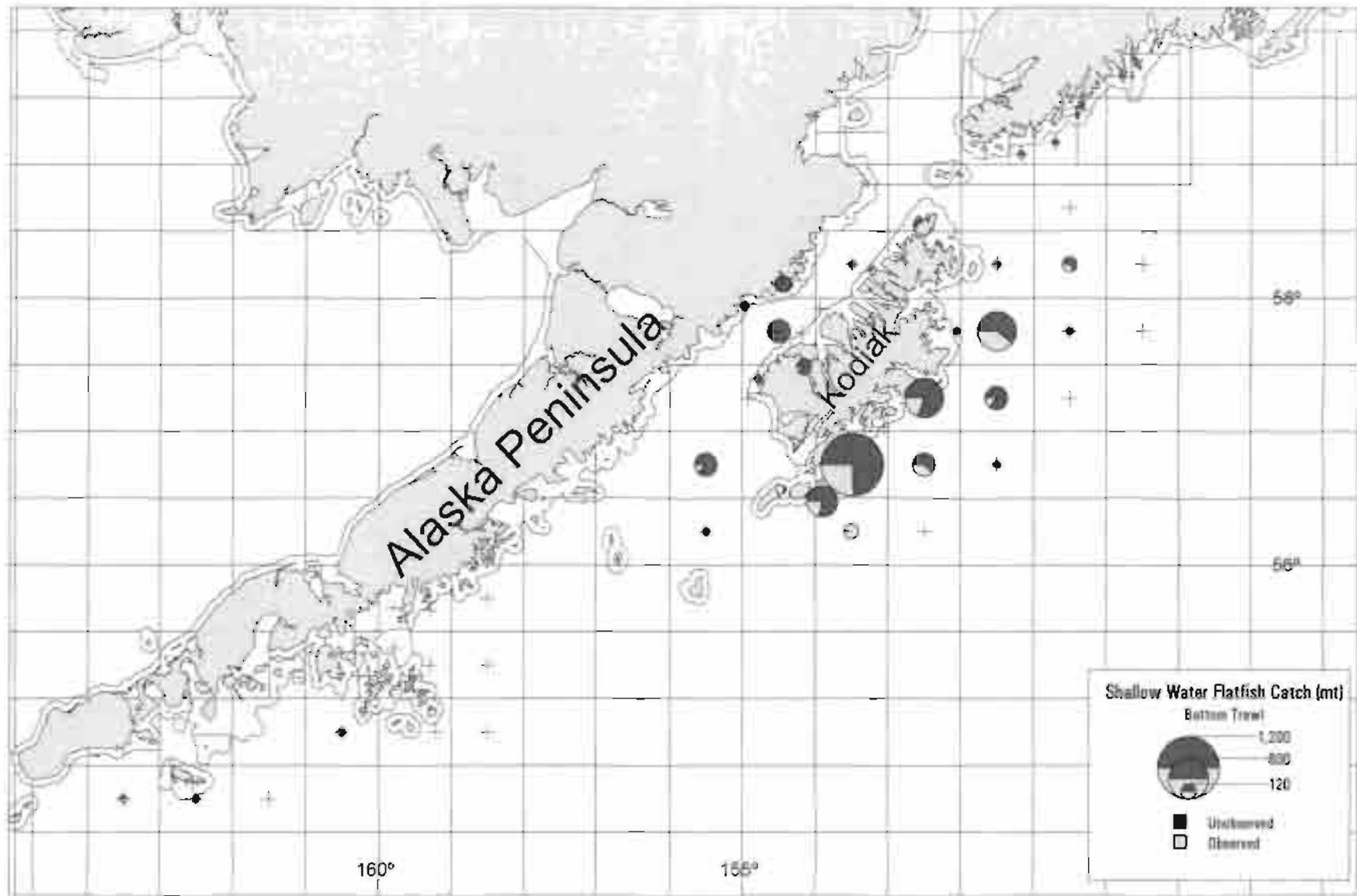


Figure 115. Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area 1995.

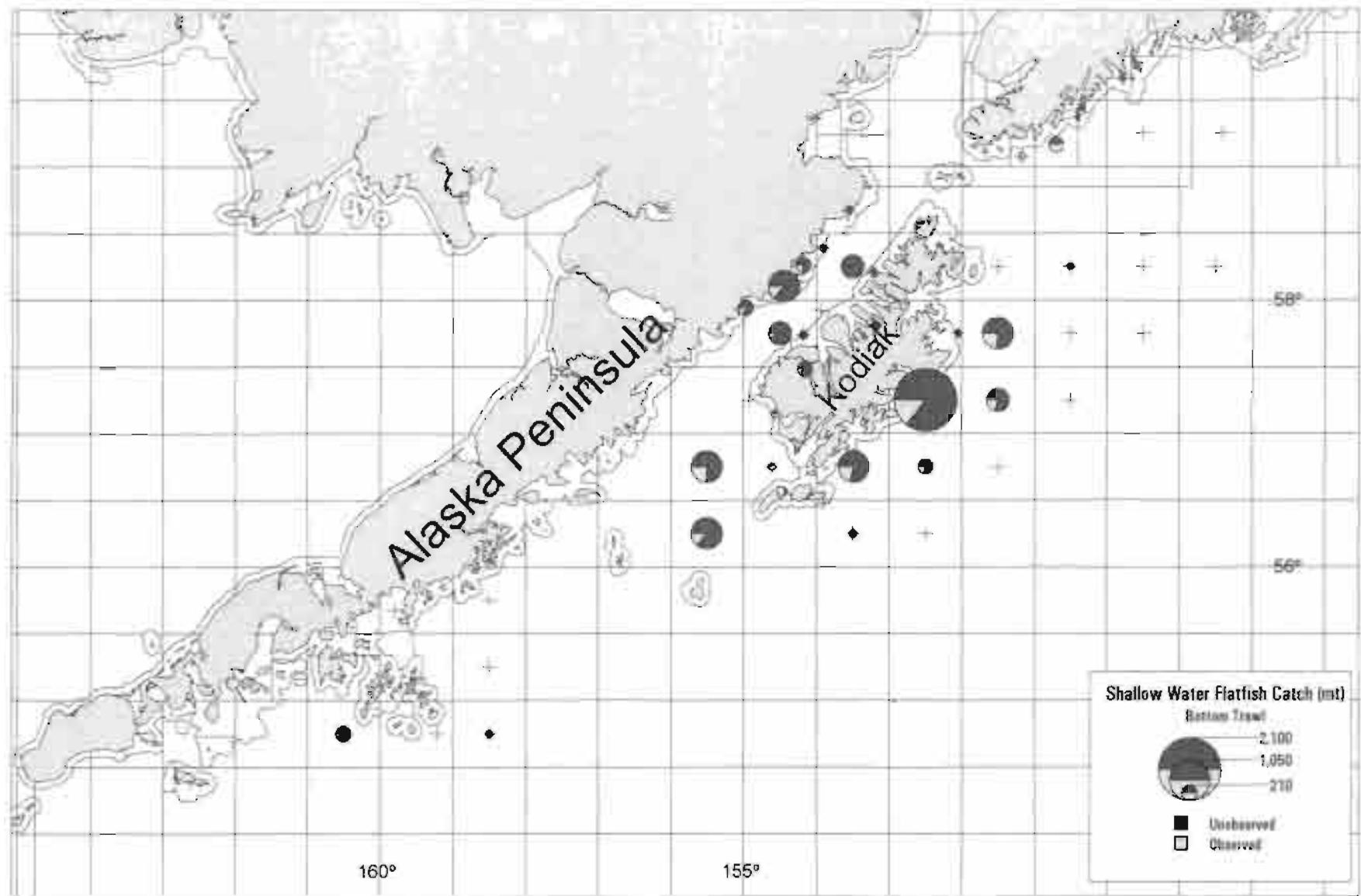


Figure 116. Shallow water flatfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

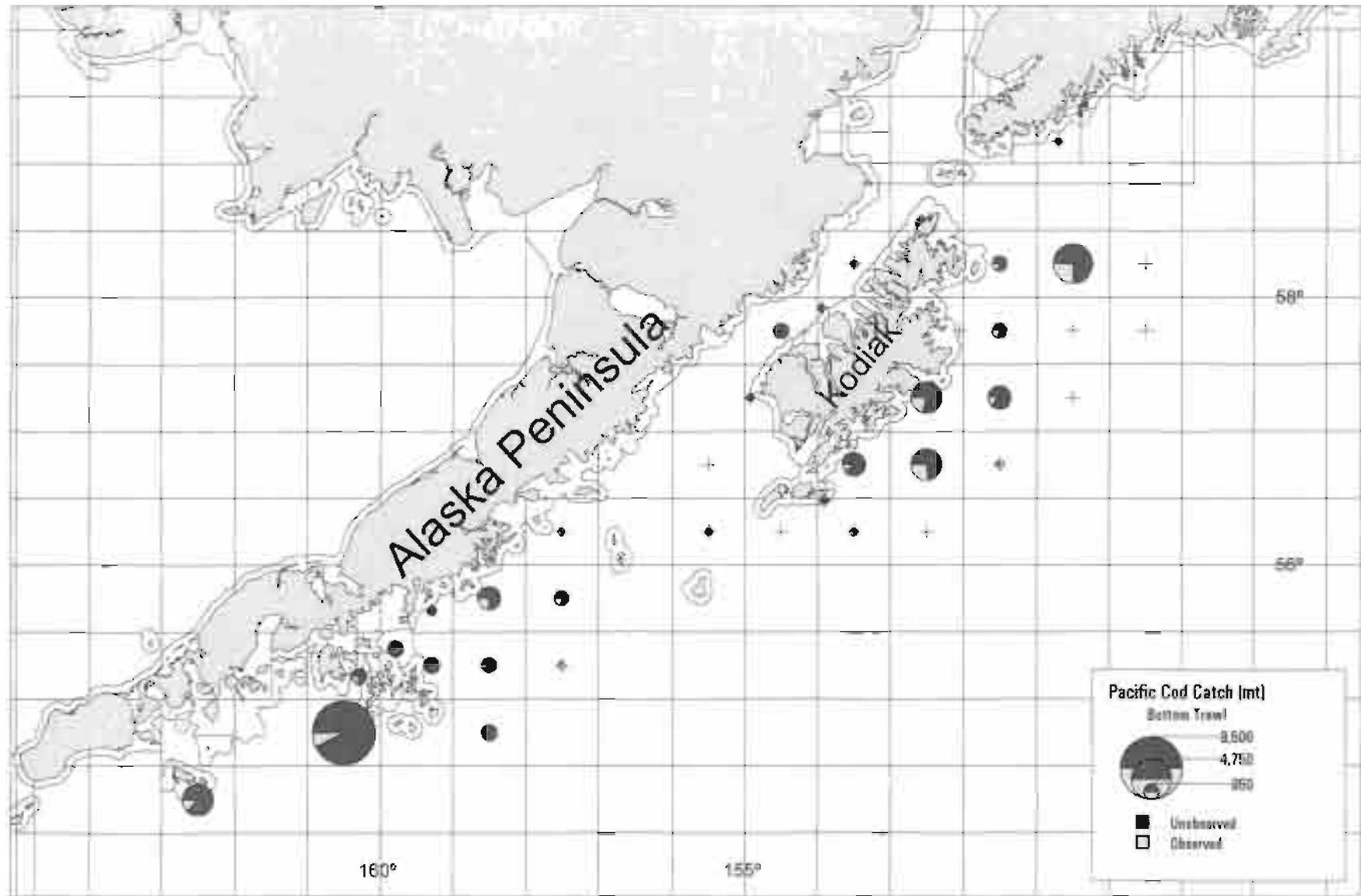


Figure 117. Pacific cod observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

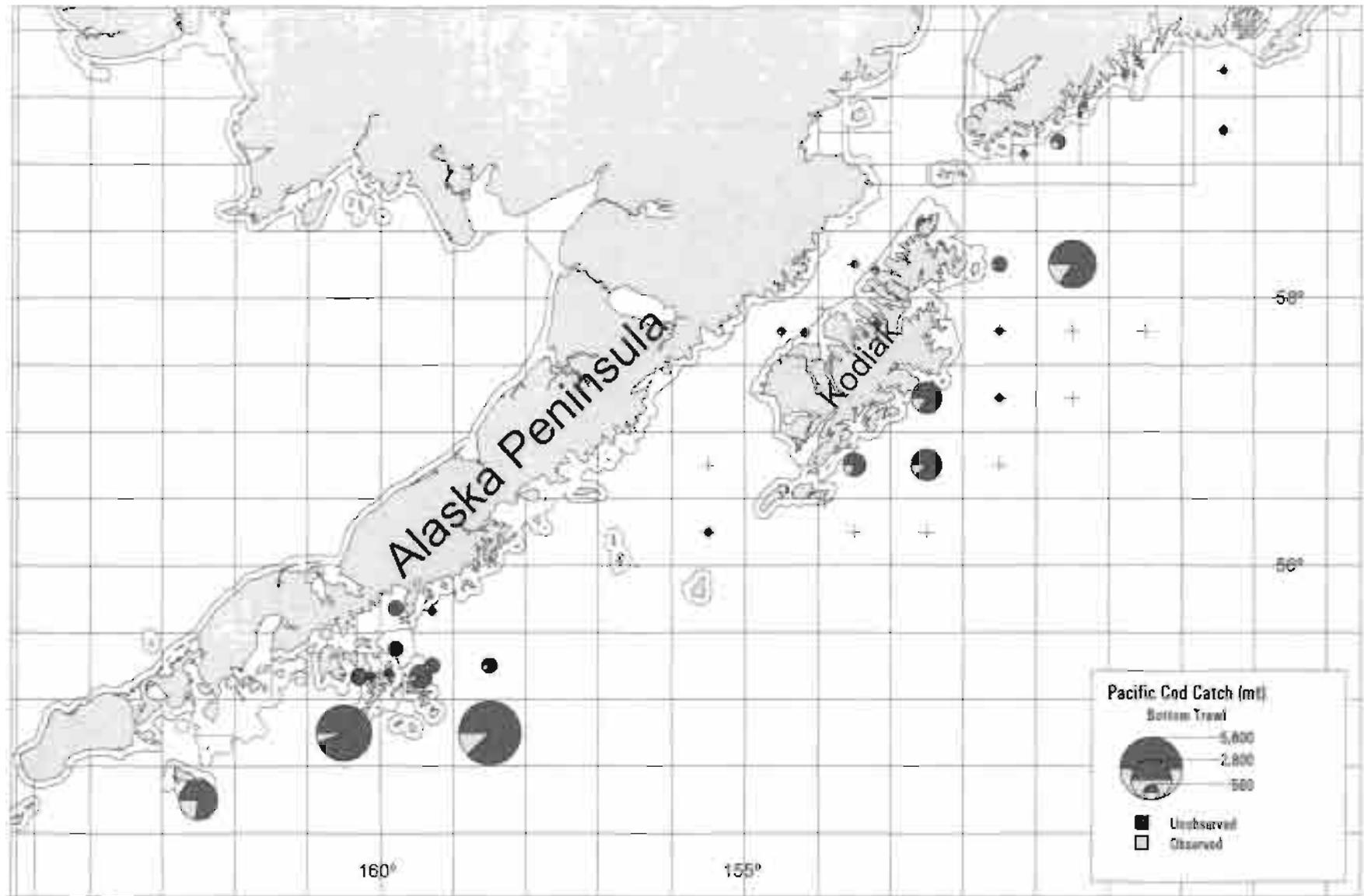


Figure 118 Pacific cod observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statisticians' area 1994.

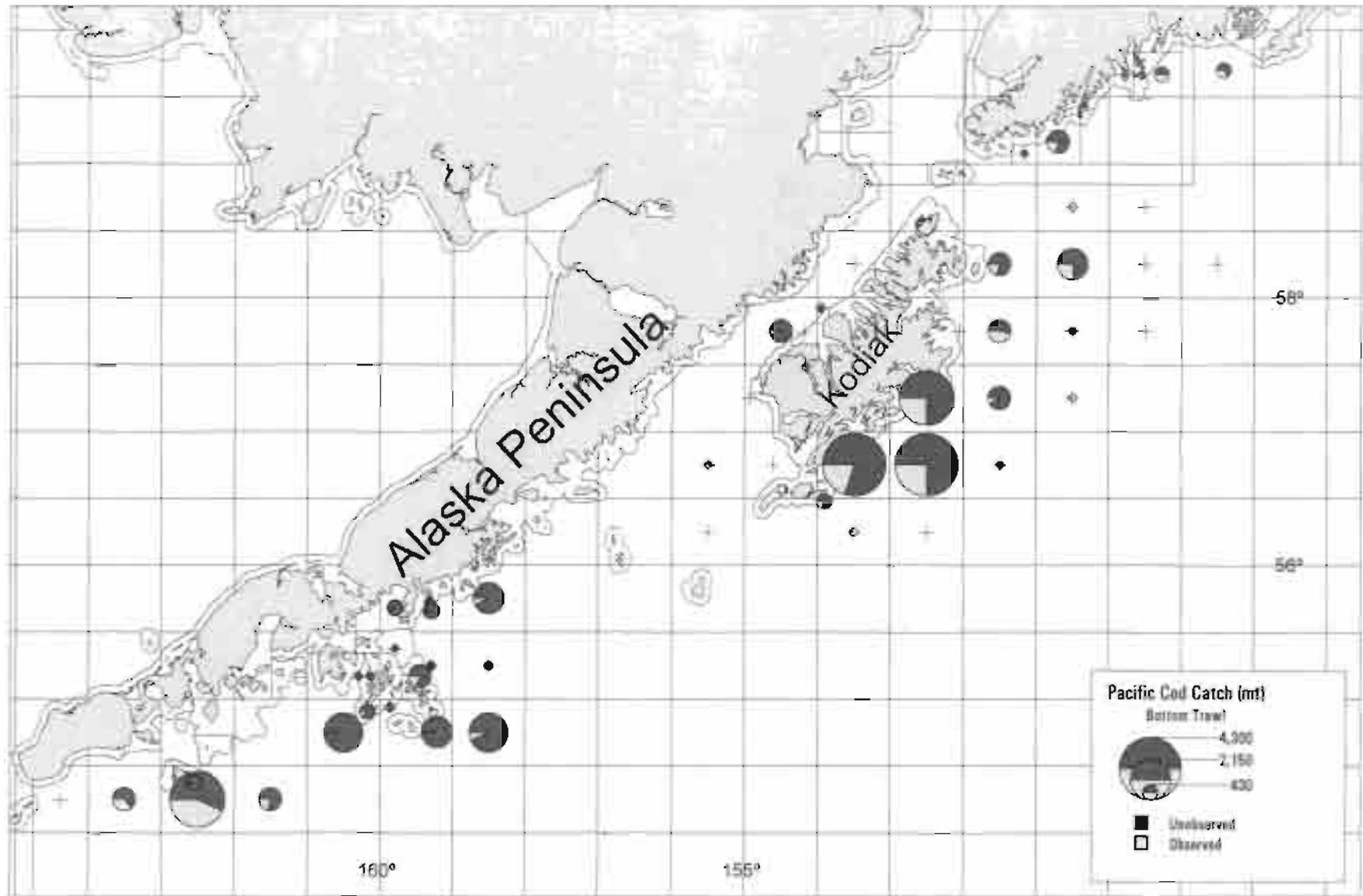


Figure 119. Pacific cod observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

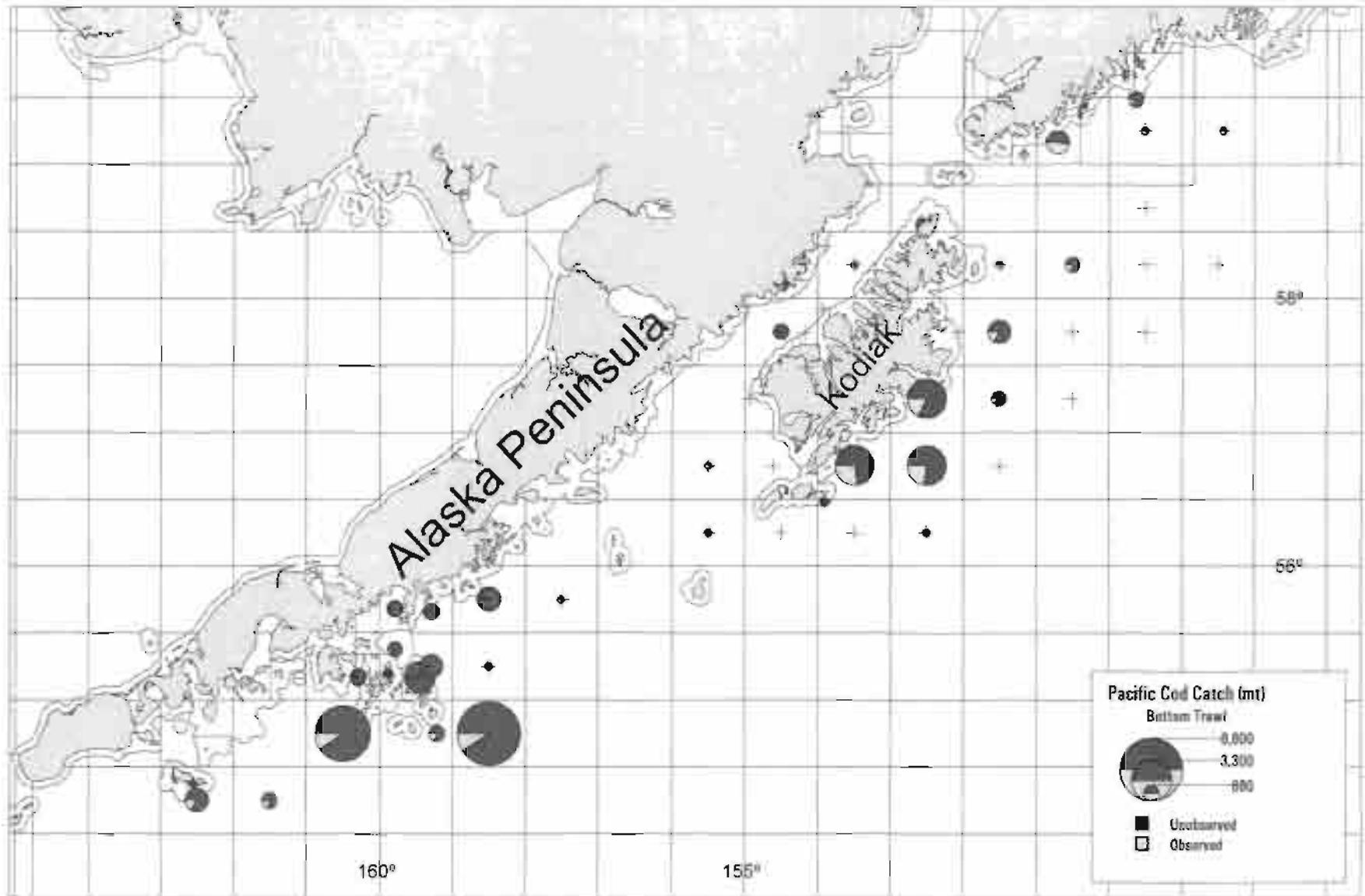


Figure 120 Pacific cod observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

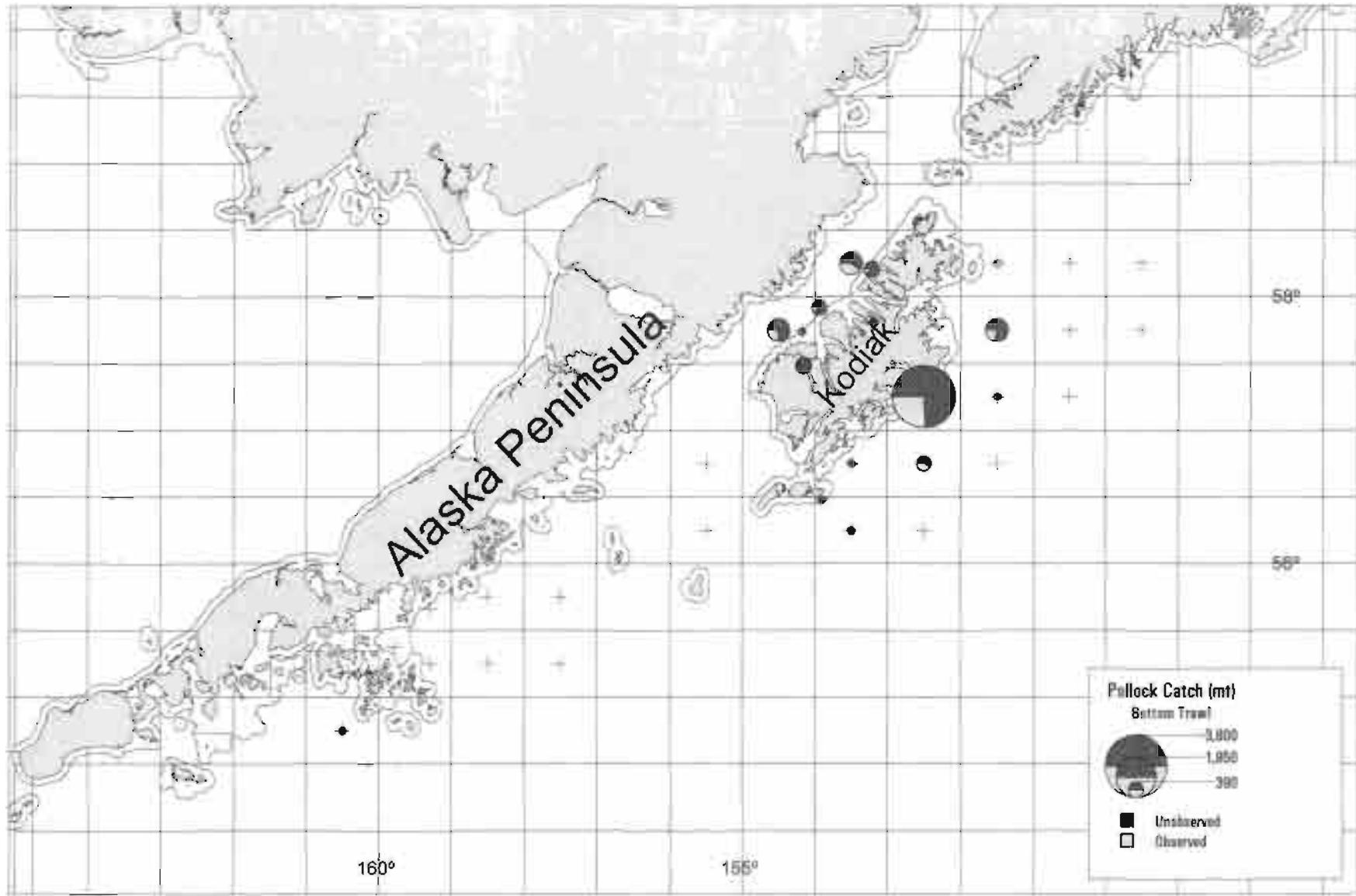


Figure 121. Pollock observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

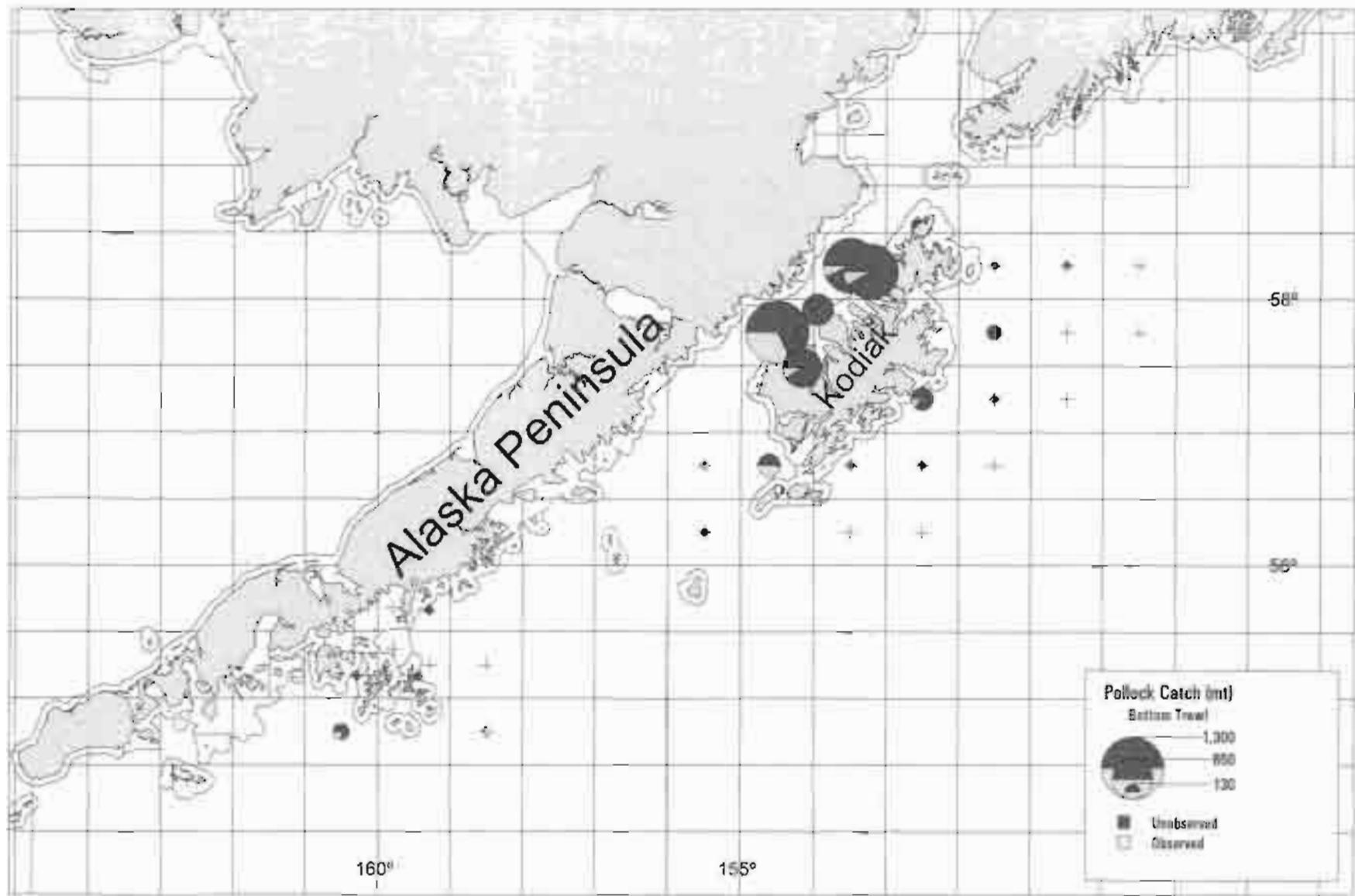


Figure 122. Pollock observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

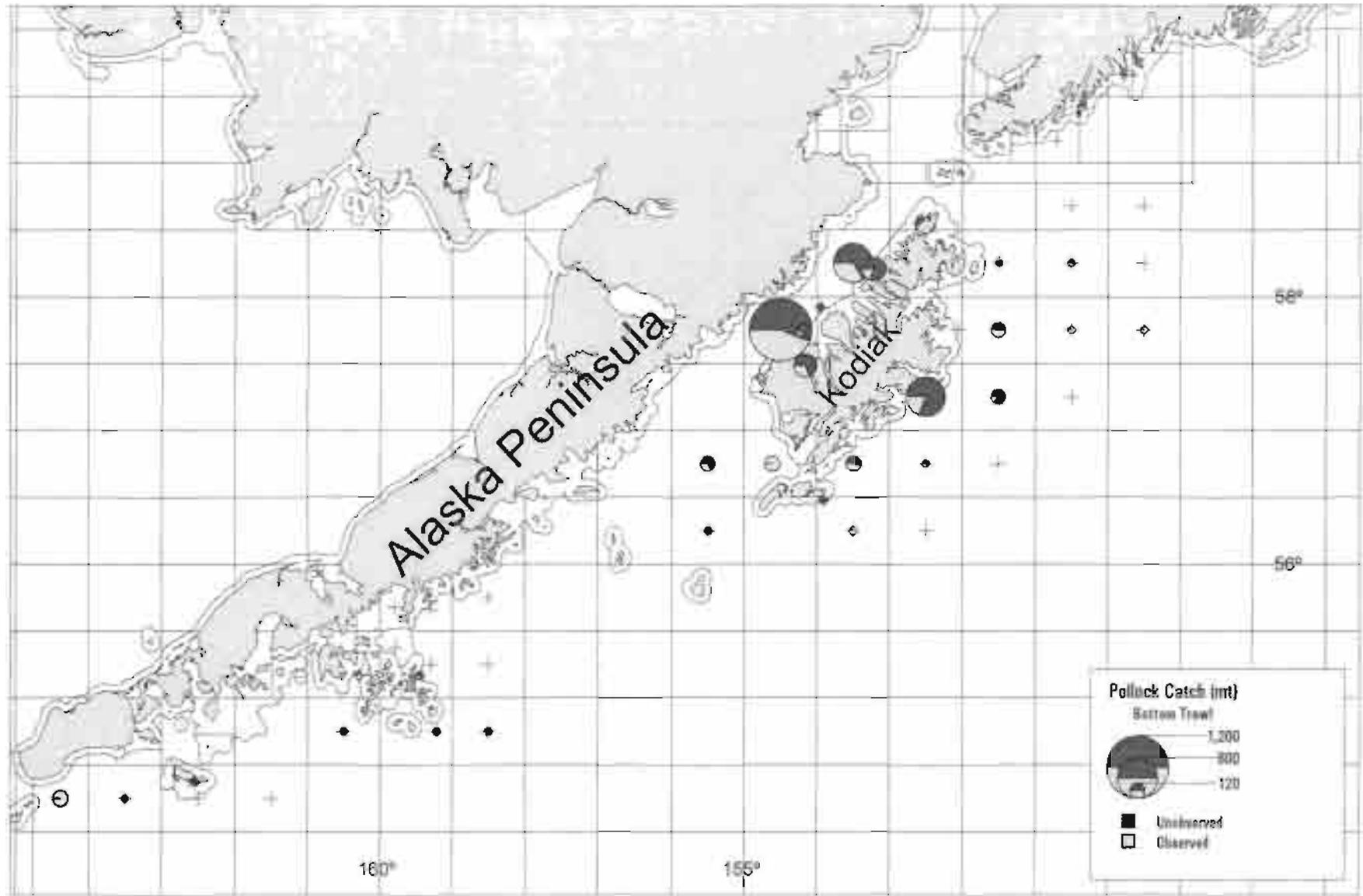


Figure 123. Pollock observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995

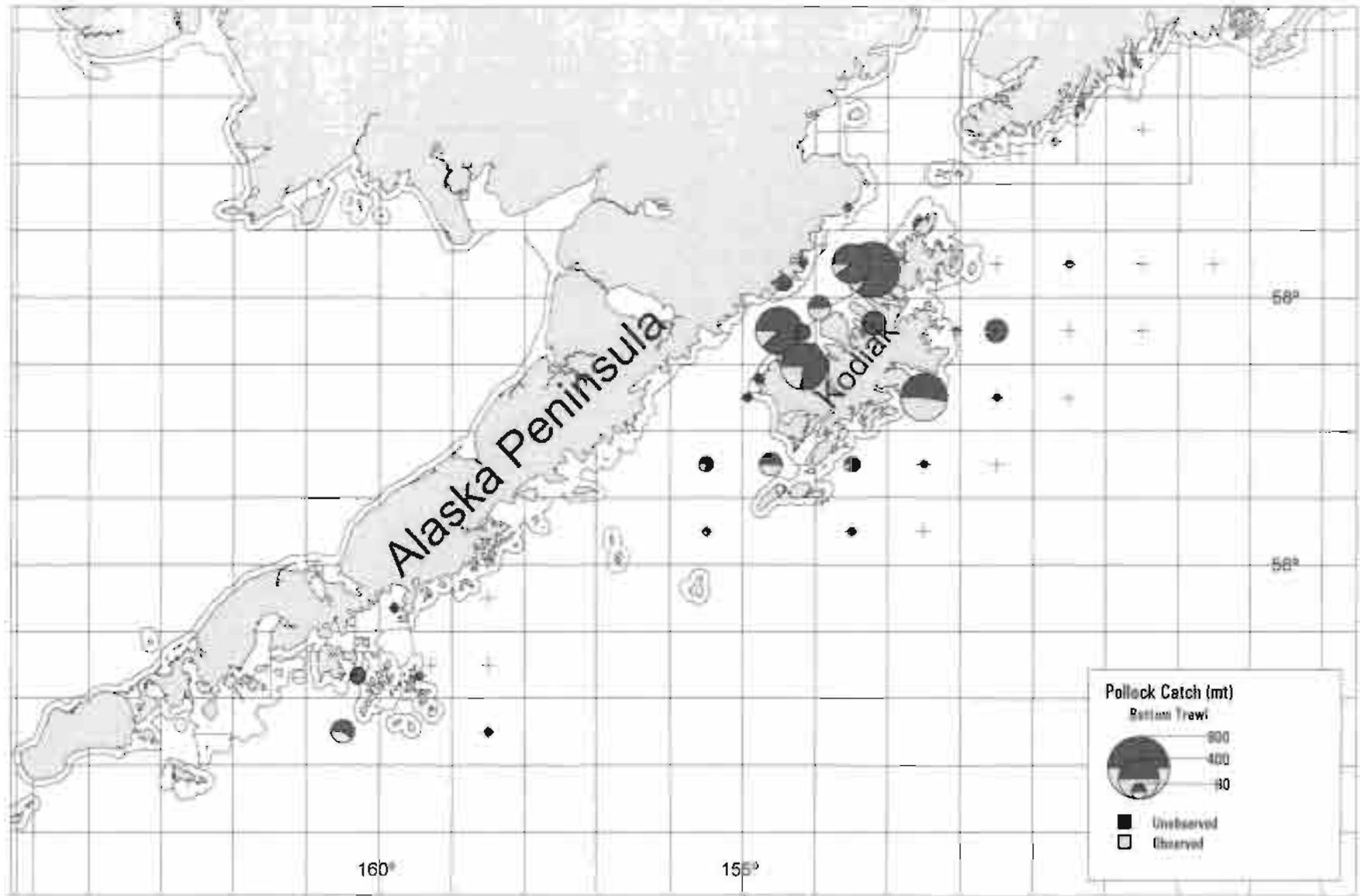


Figure 124. Pollock observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

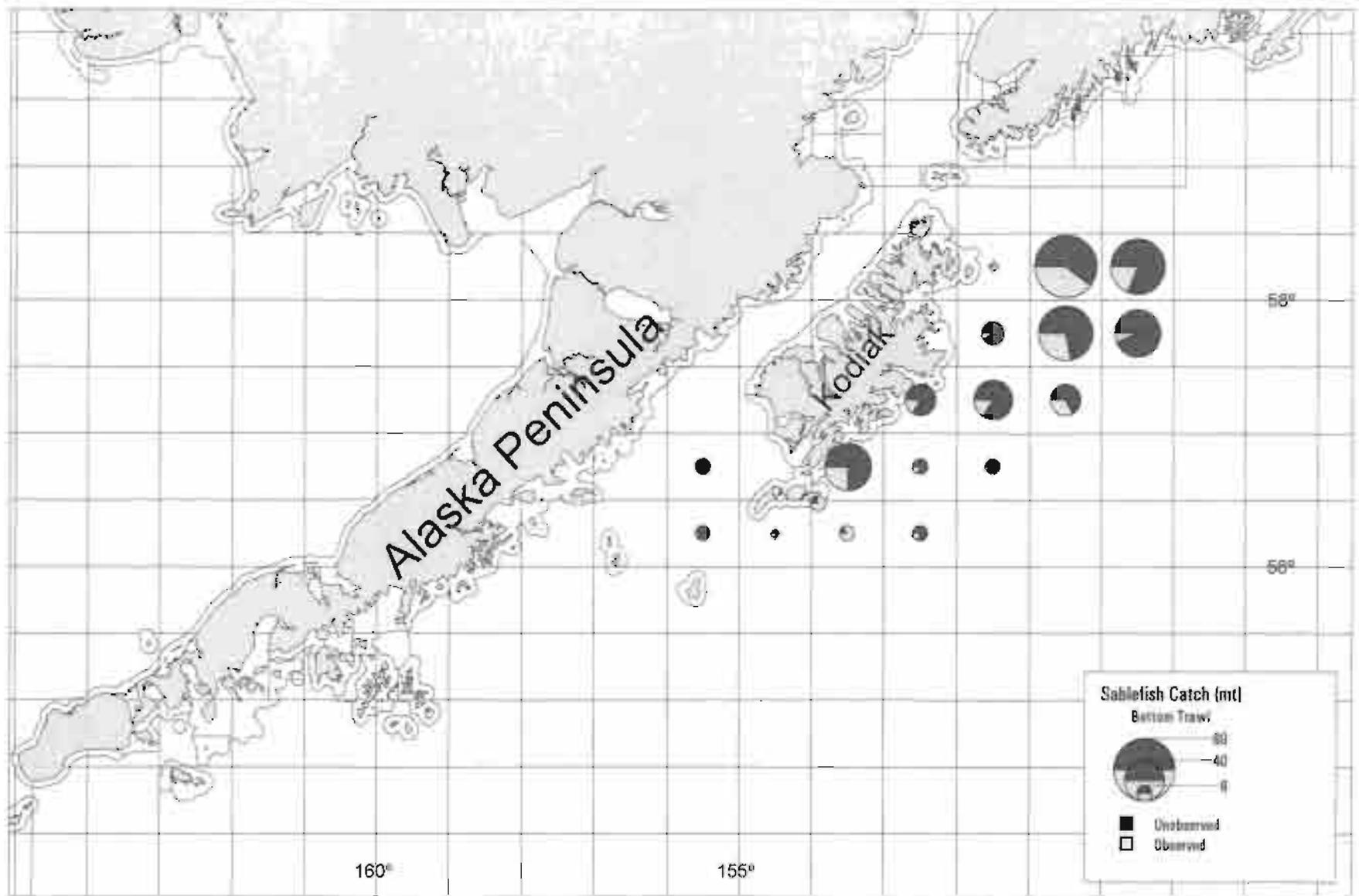


Figure 125. Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

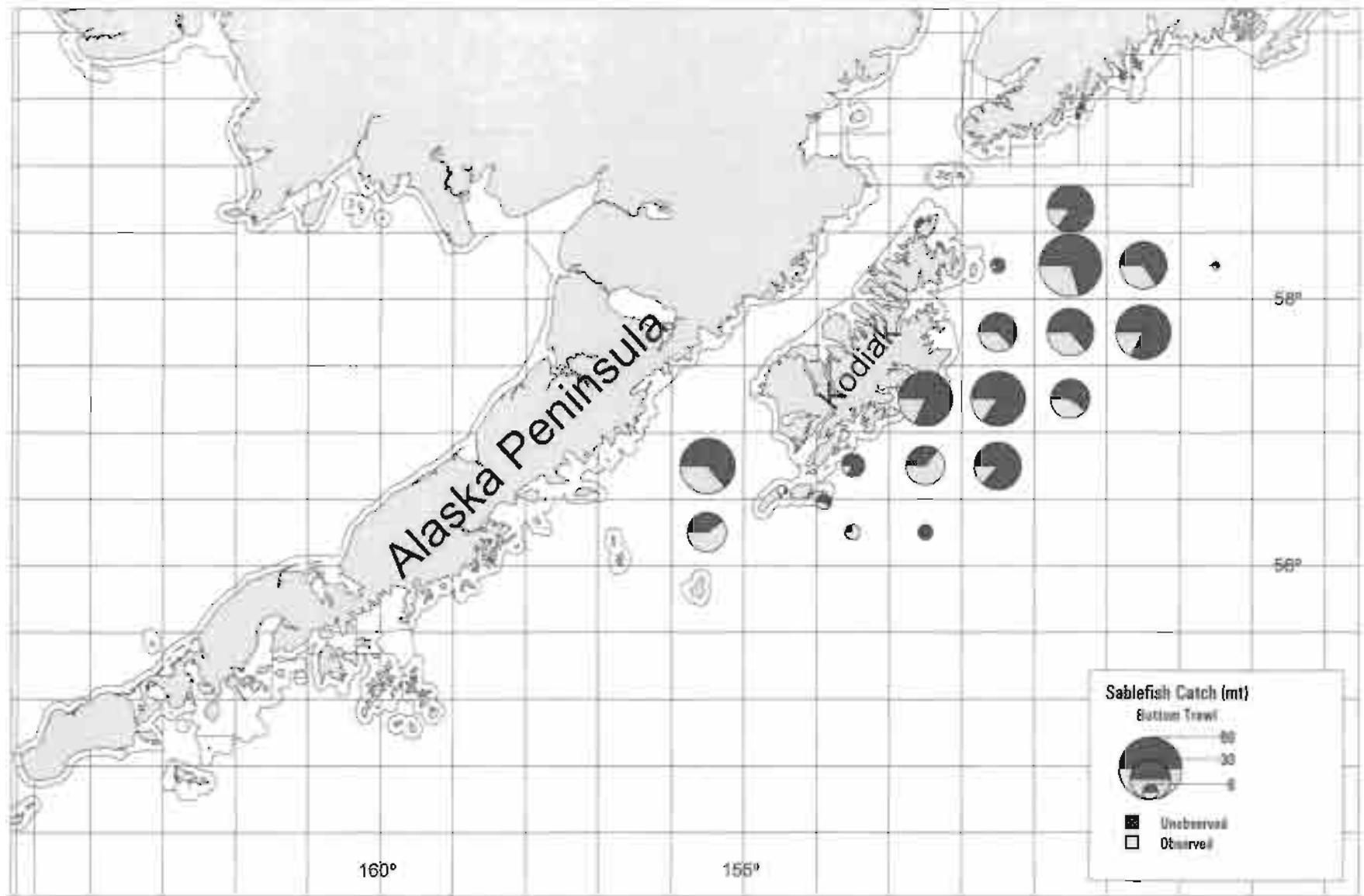


Figure 126. Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994

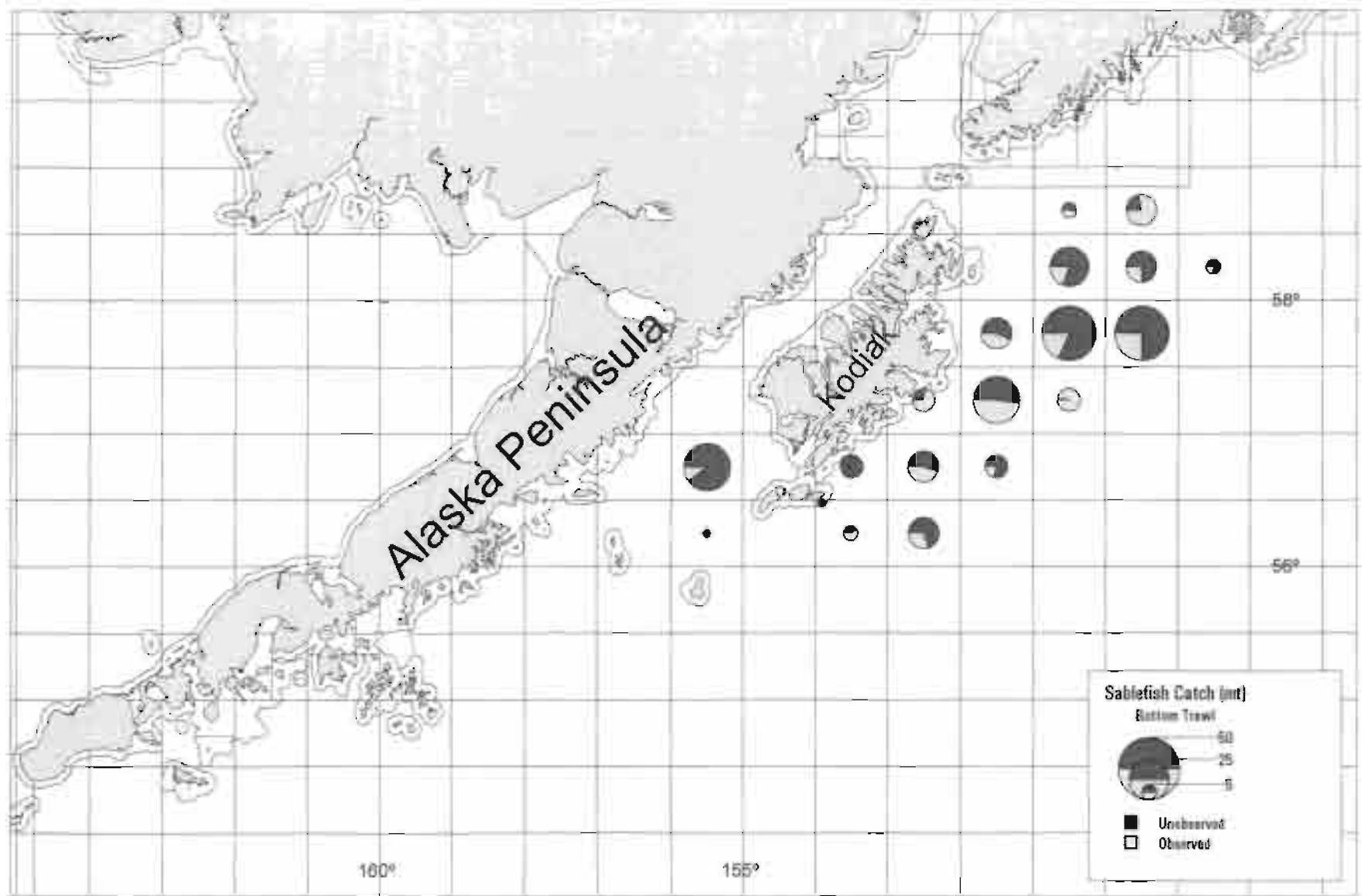


Figure 127. Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

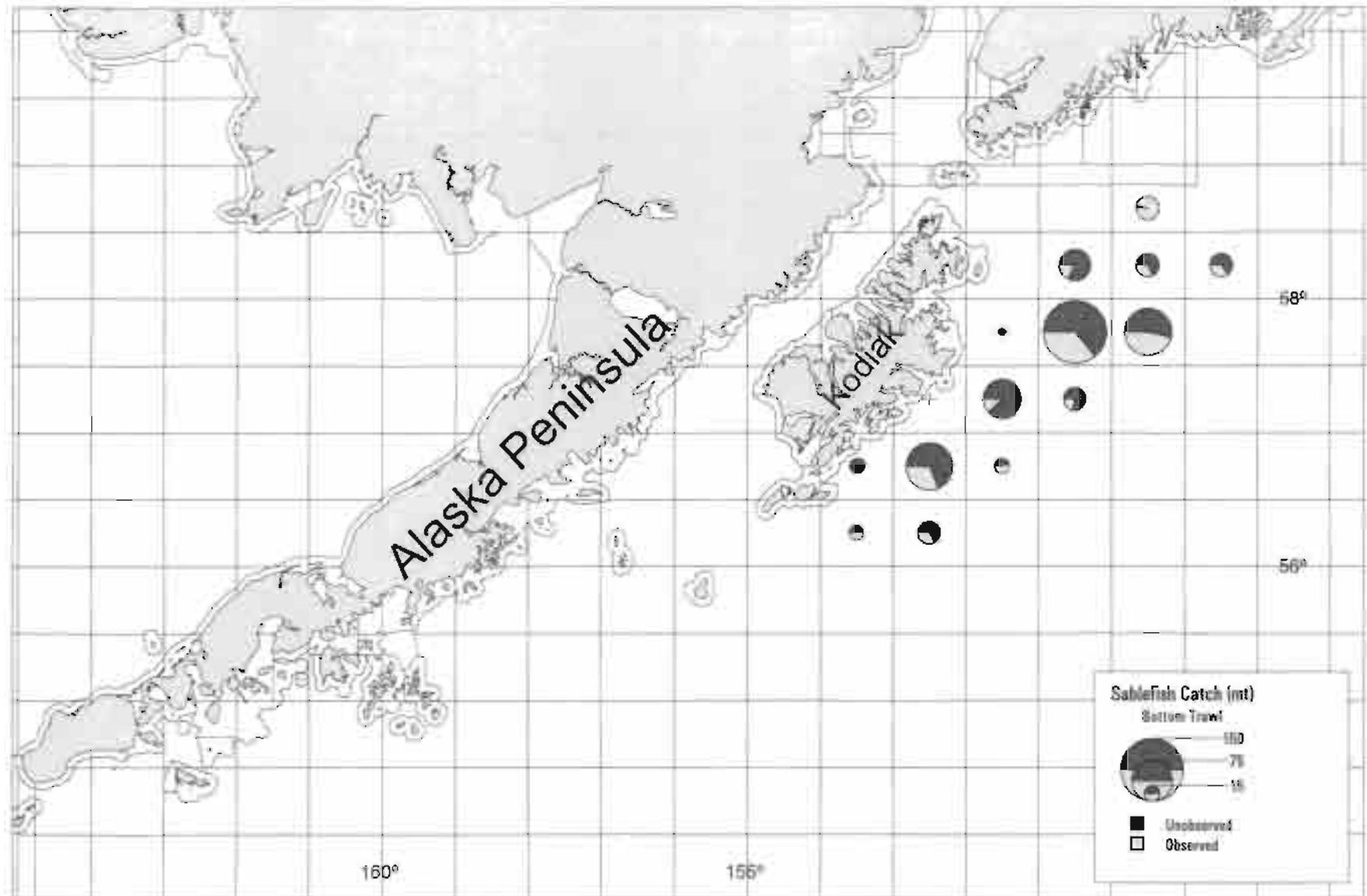


Figure 128. Sablefish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long within the GOA by ADF&G statistical area, 1996

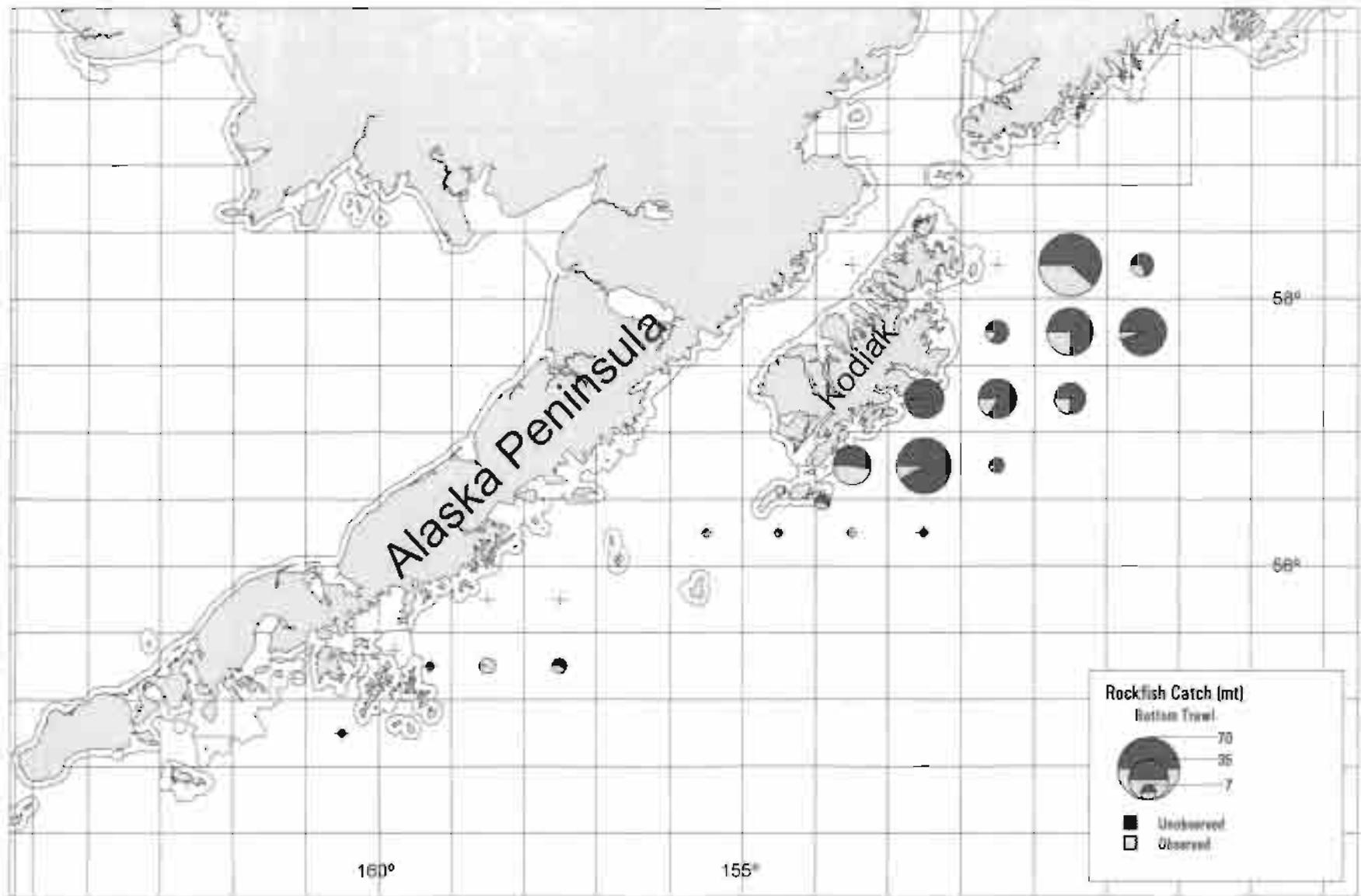


Figure 129. Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

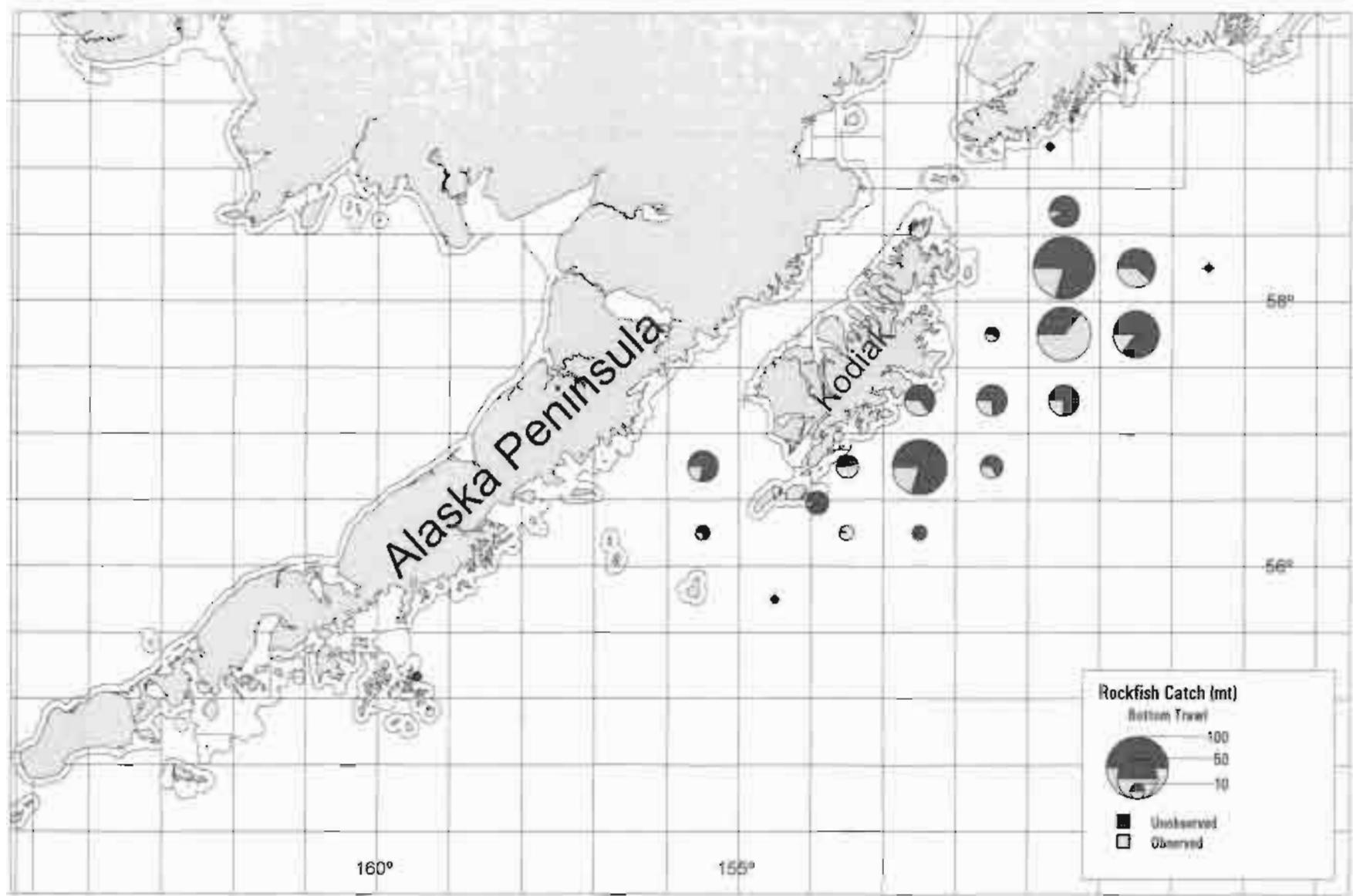


Figure 130. Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADP&G statistical area, 1994

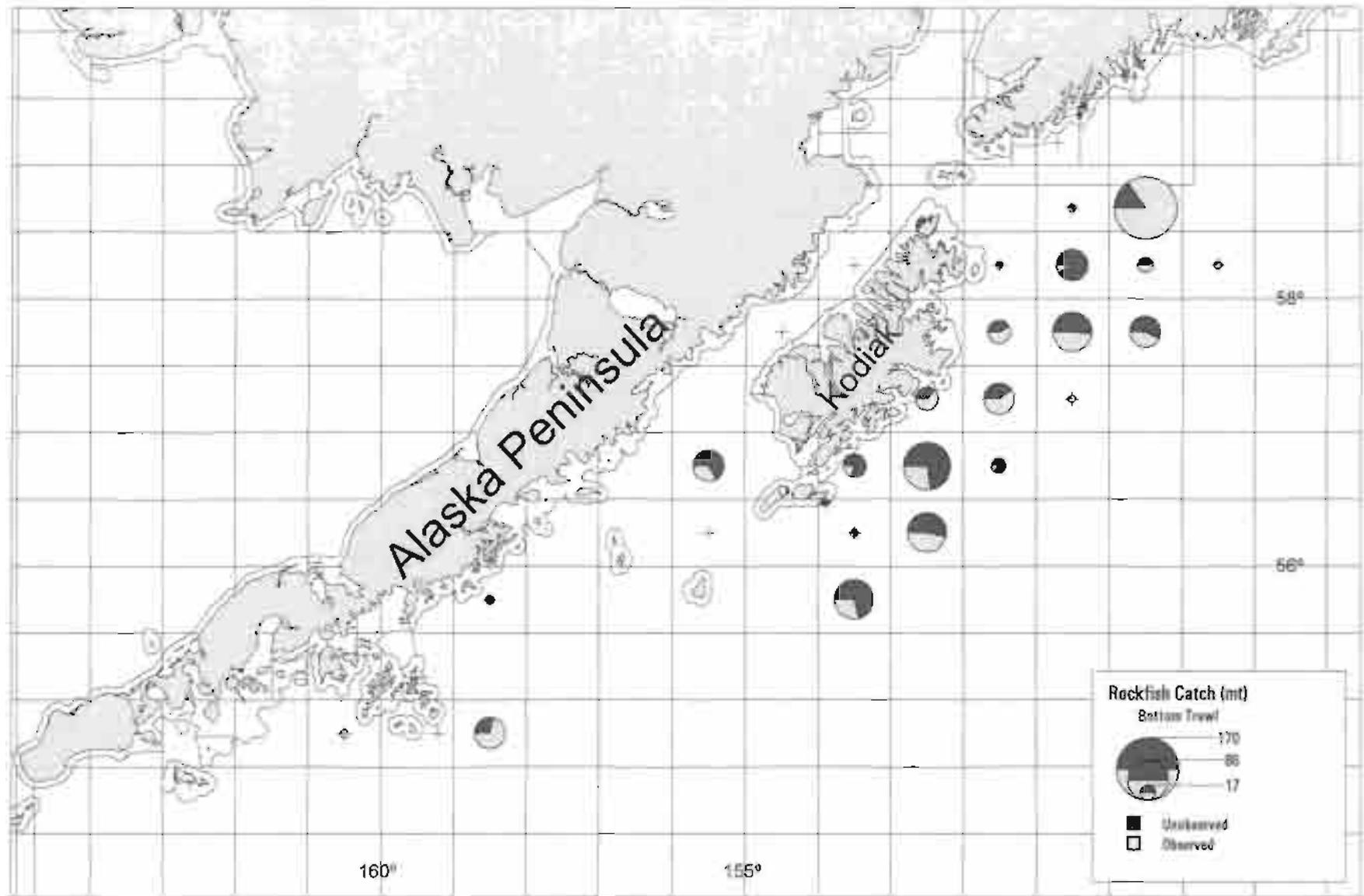


Figure 131. Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

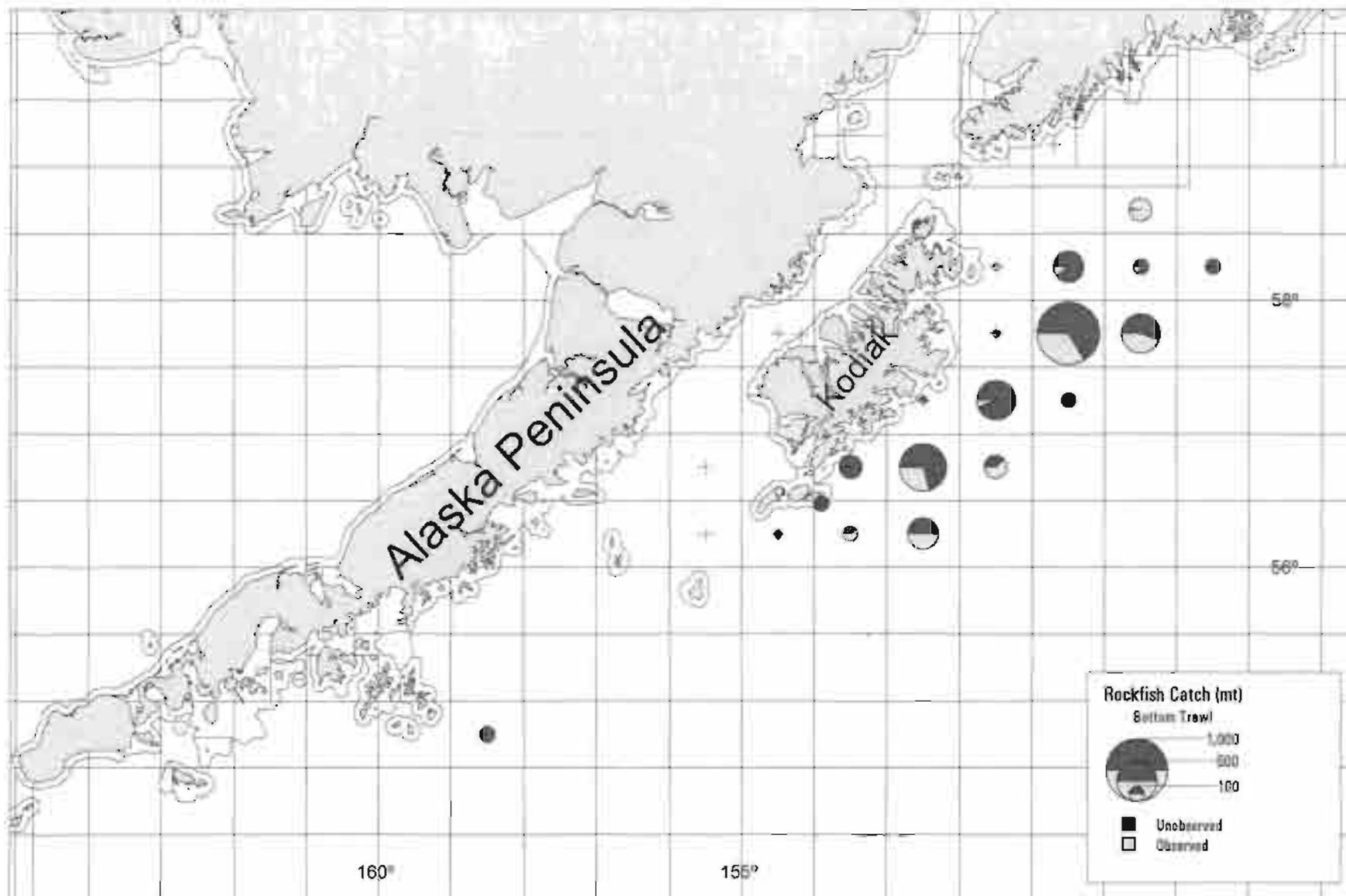


Figure 132 Rockfish observed versus unobserved catch (mt) using bottom trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

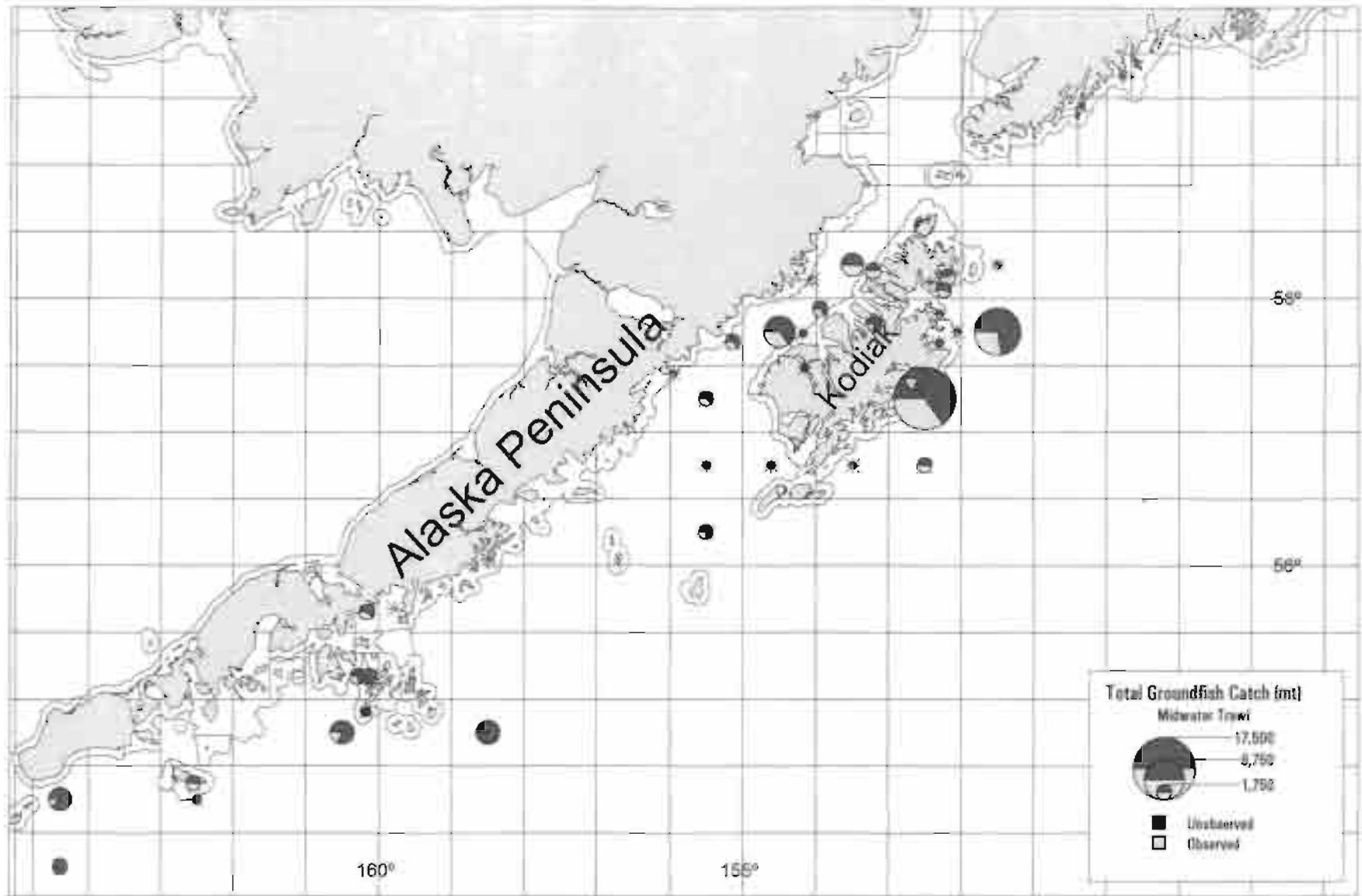


Figure 133 Total observed versus unobserved groundfish catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

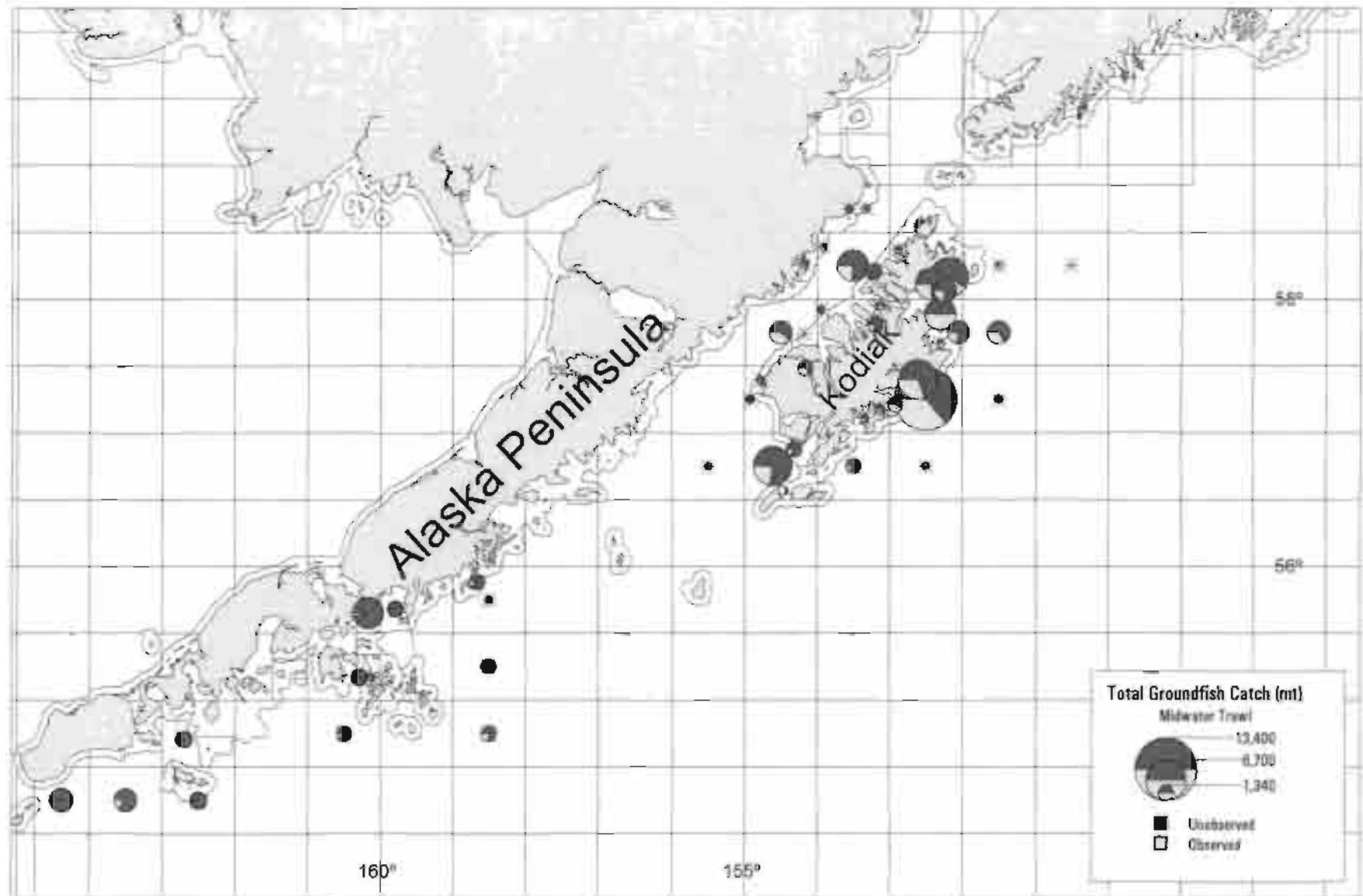


Figure 134. Total observed versus unobserved groundfish catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

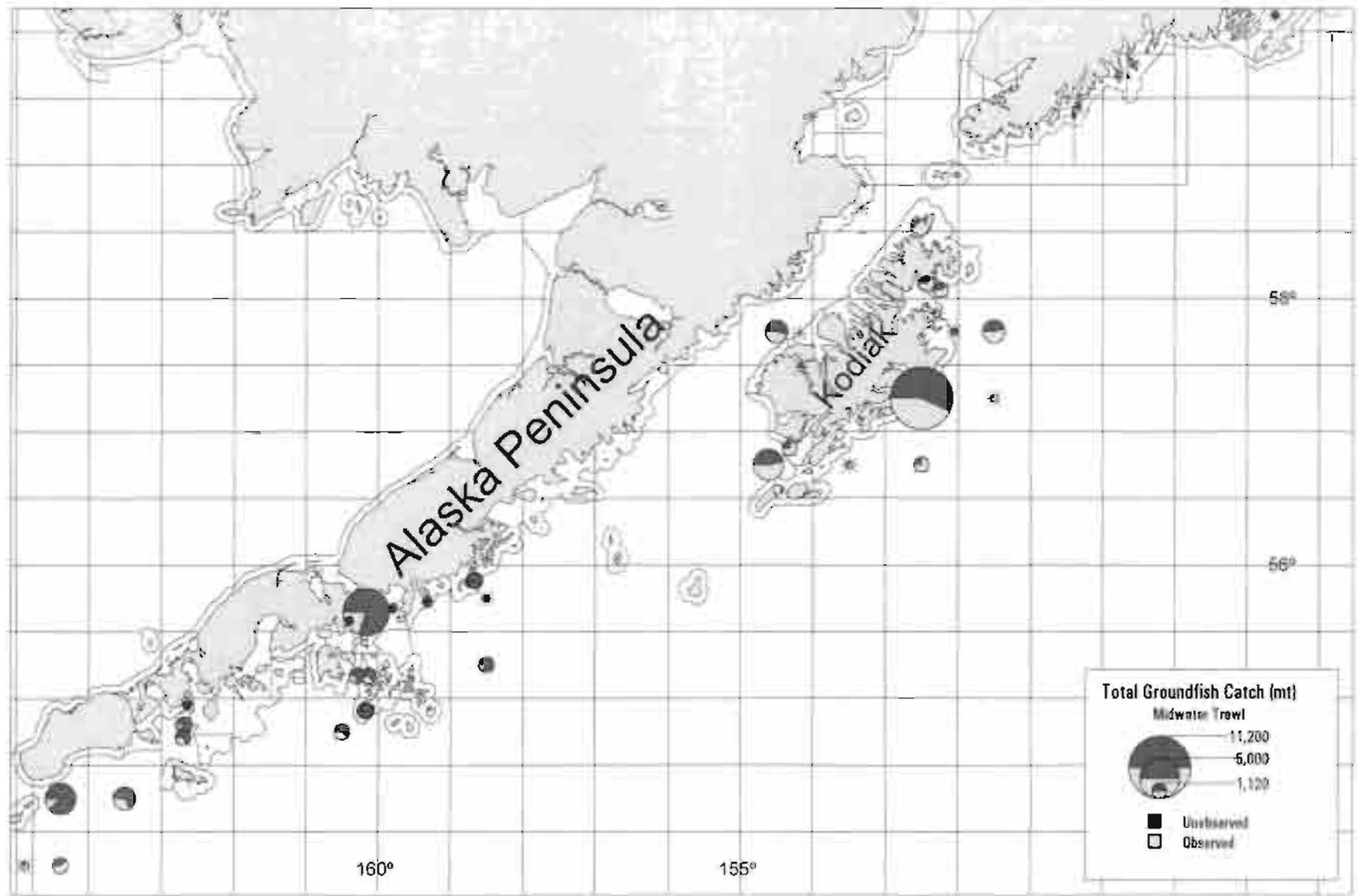


Figure 135. Total observed versus unobserved groundfish catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

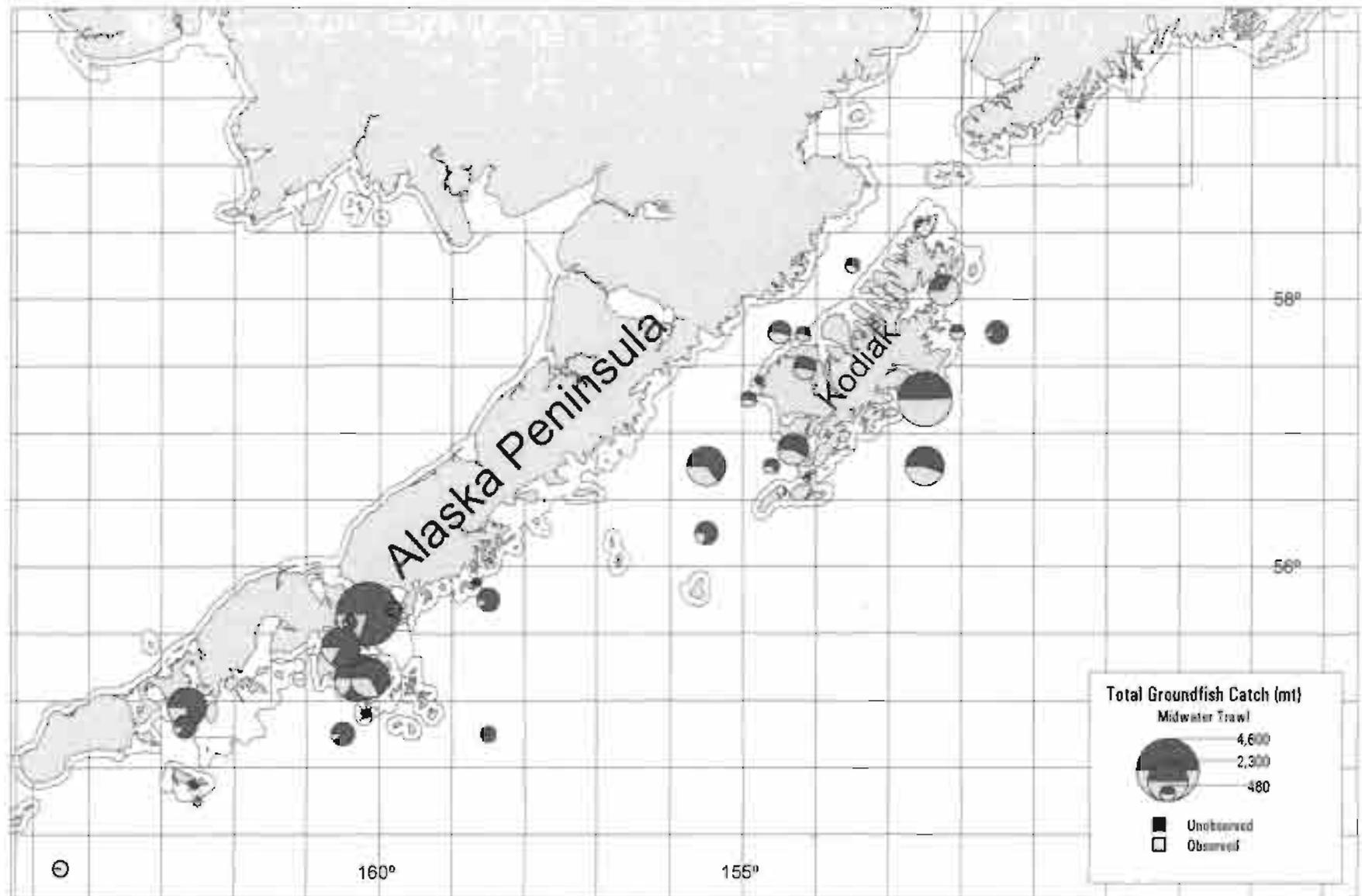


Figure 136. Total observed versus unobserved groundfish catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

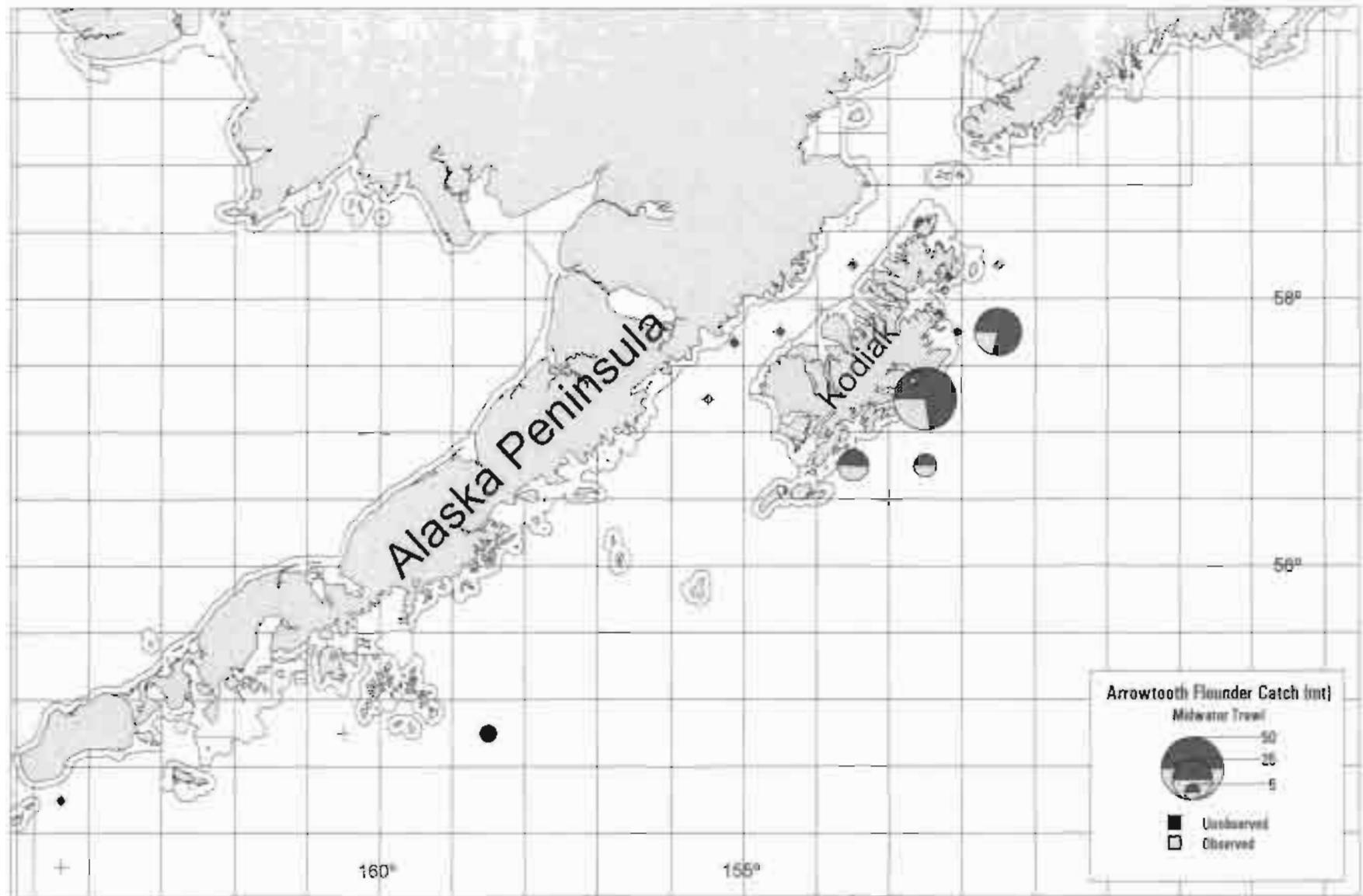


Figure 137. Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

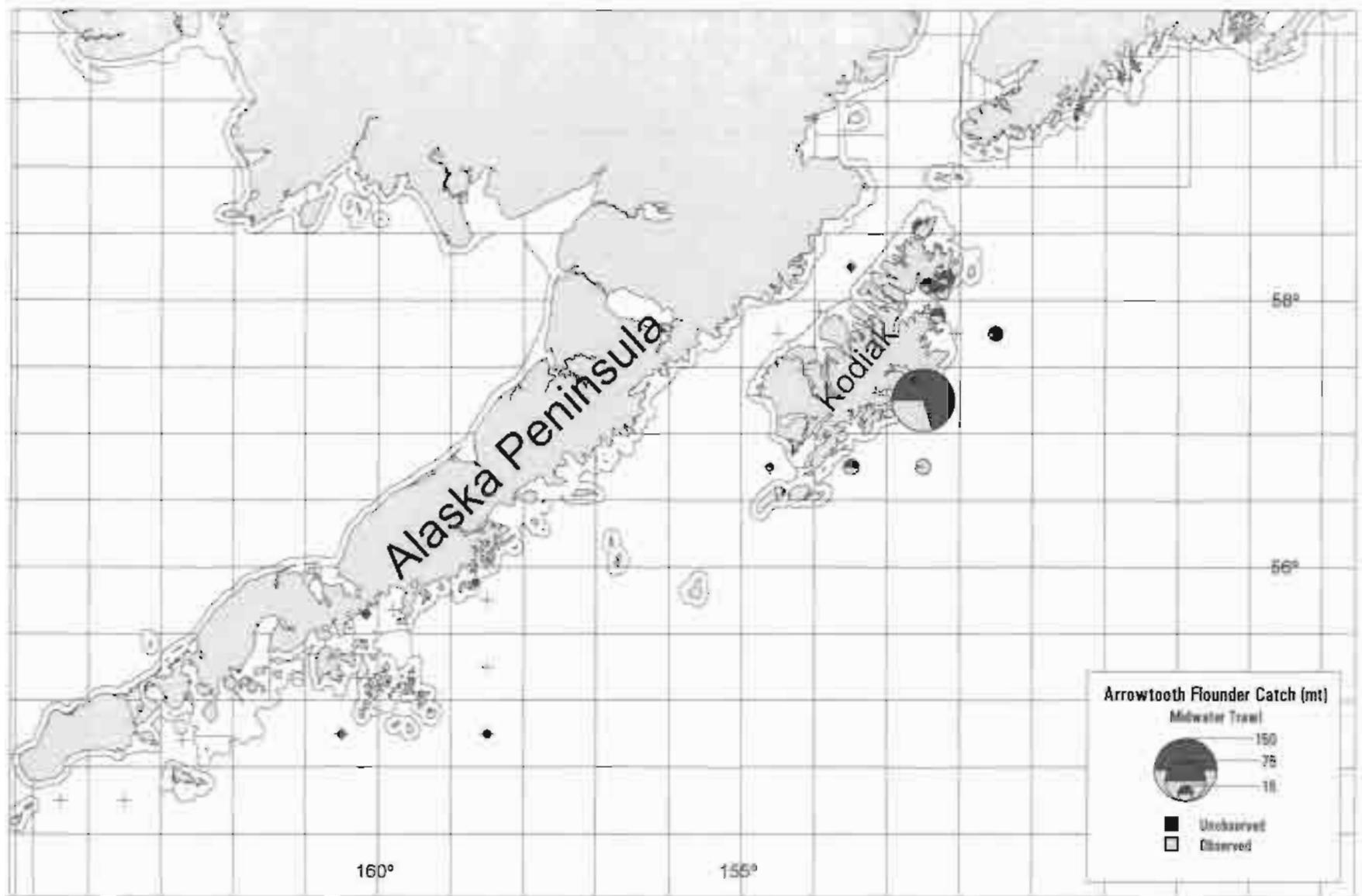


Figure 138. Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

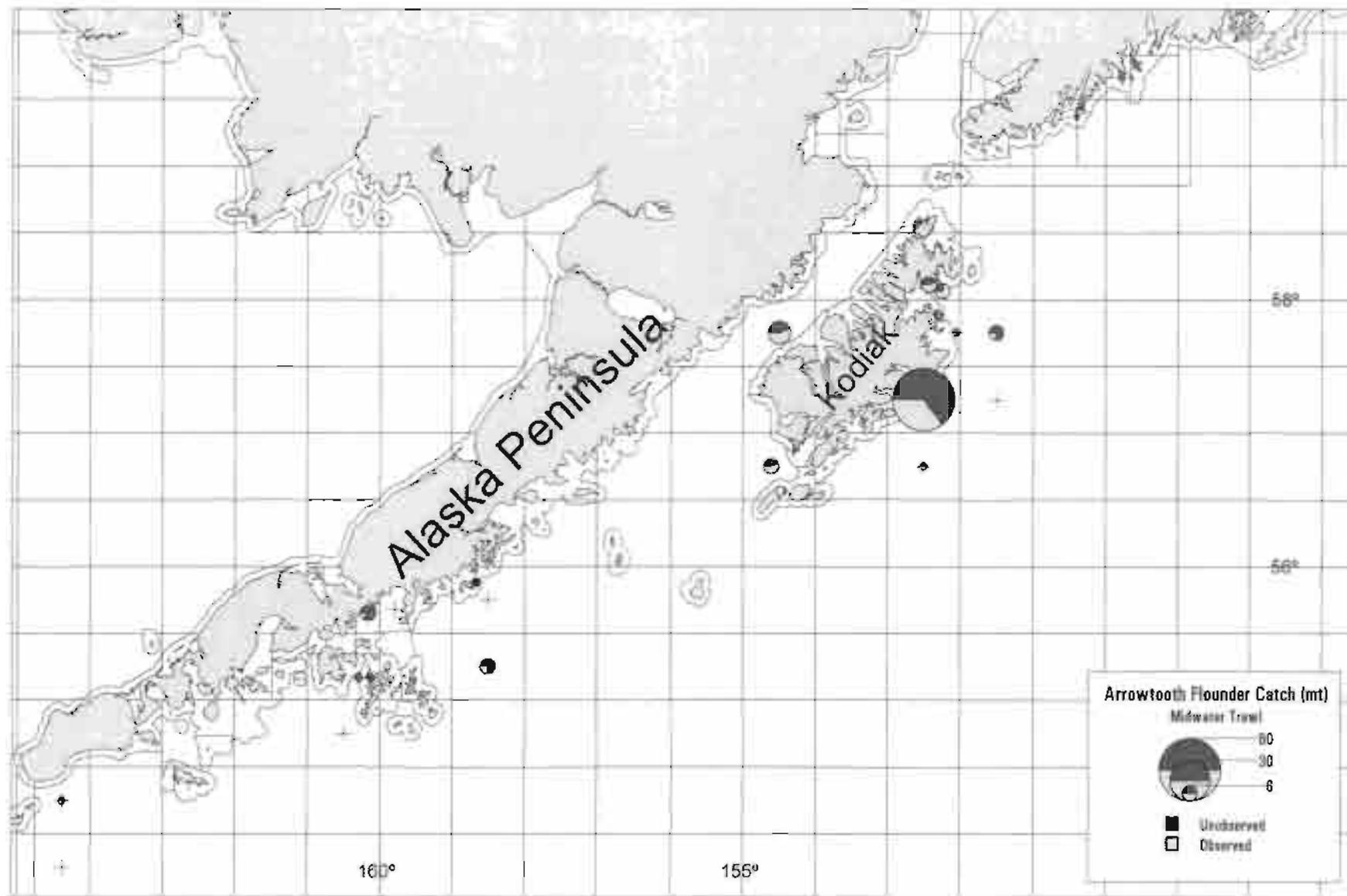


Figure 139. Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

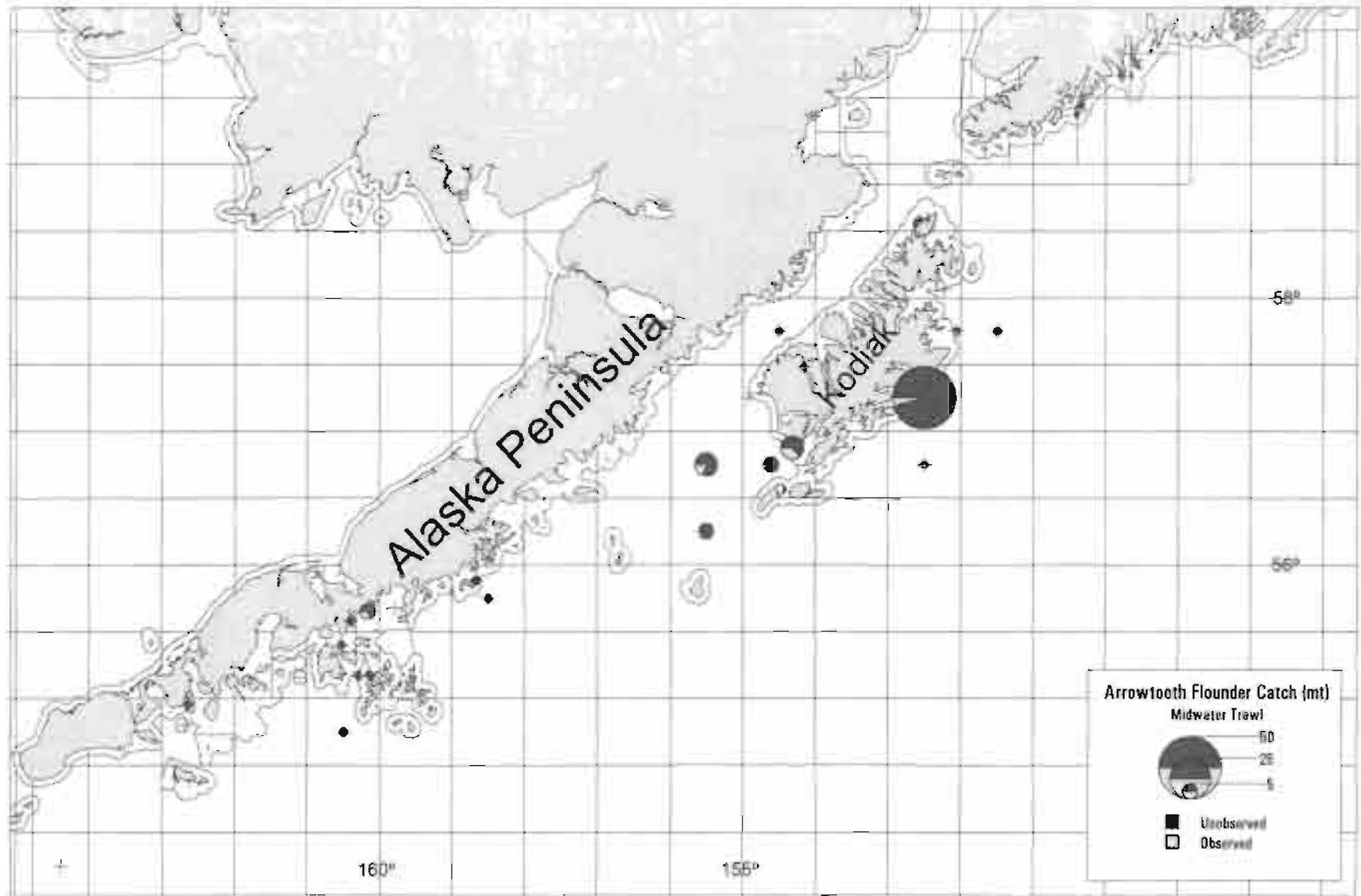


Figure 140. Arrowtooth flounder observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

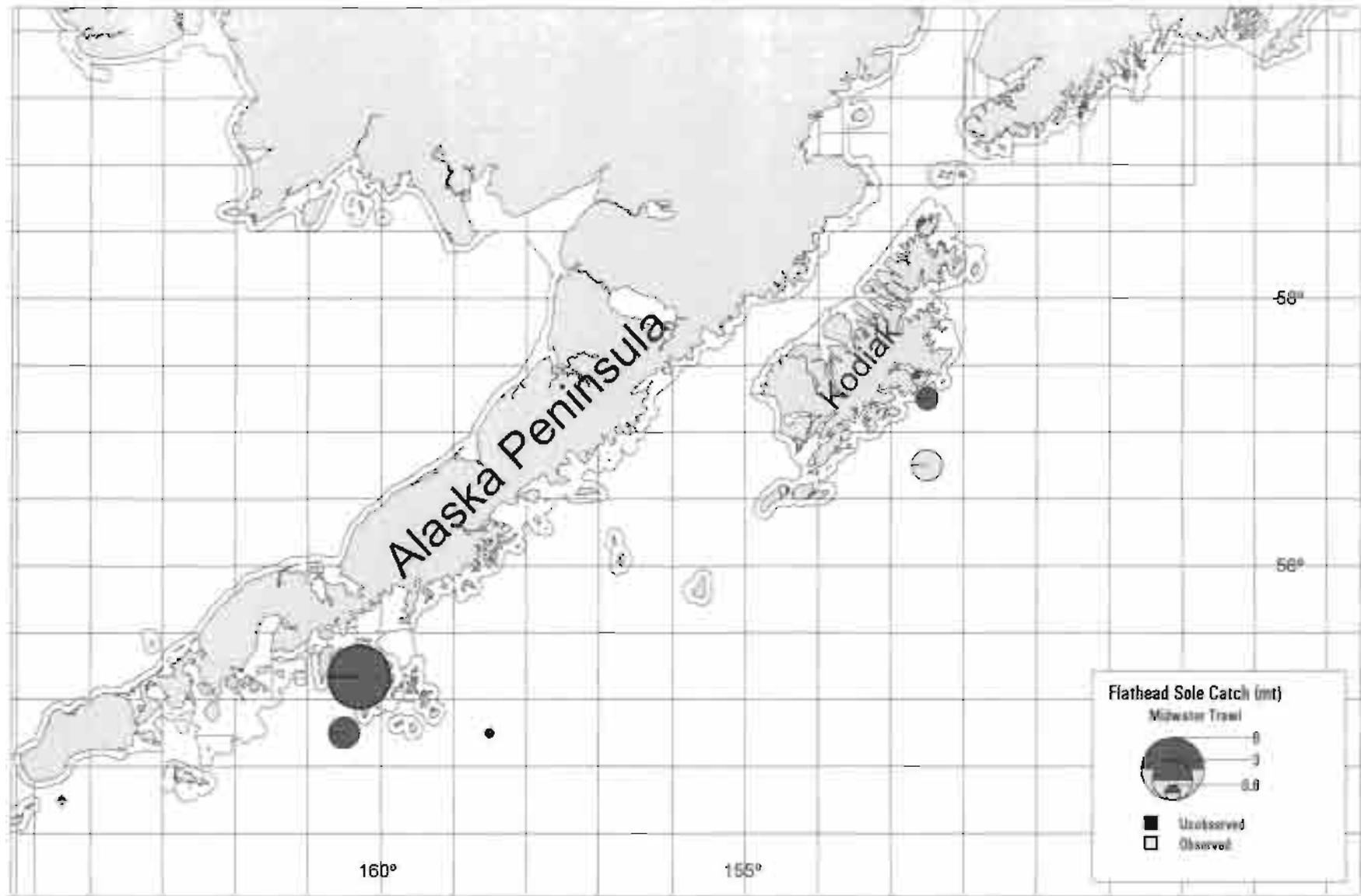


Figure 141. Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

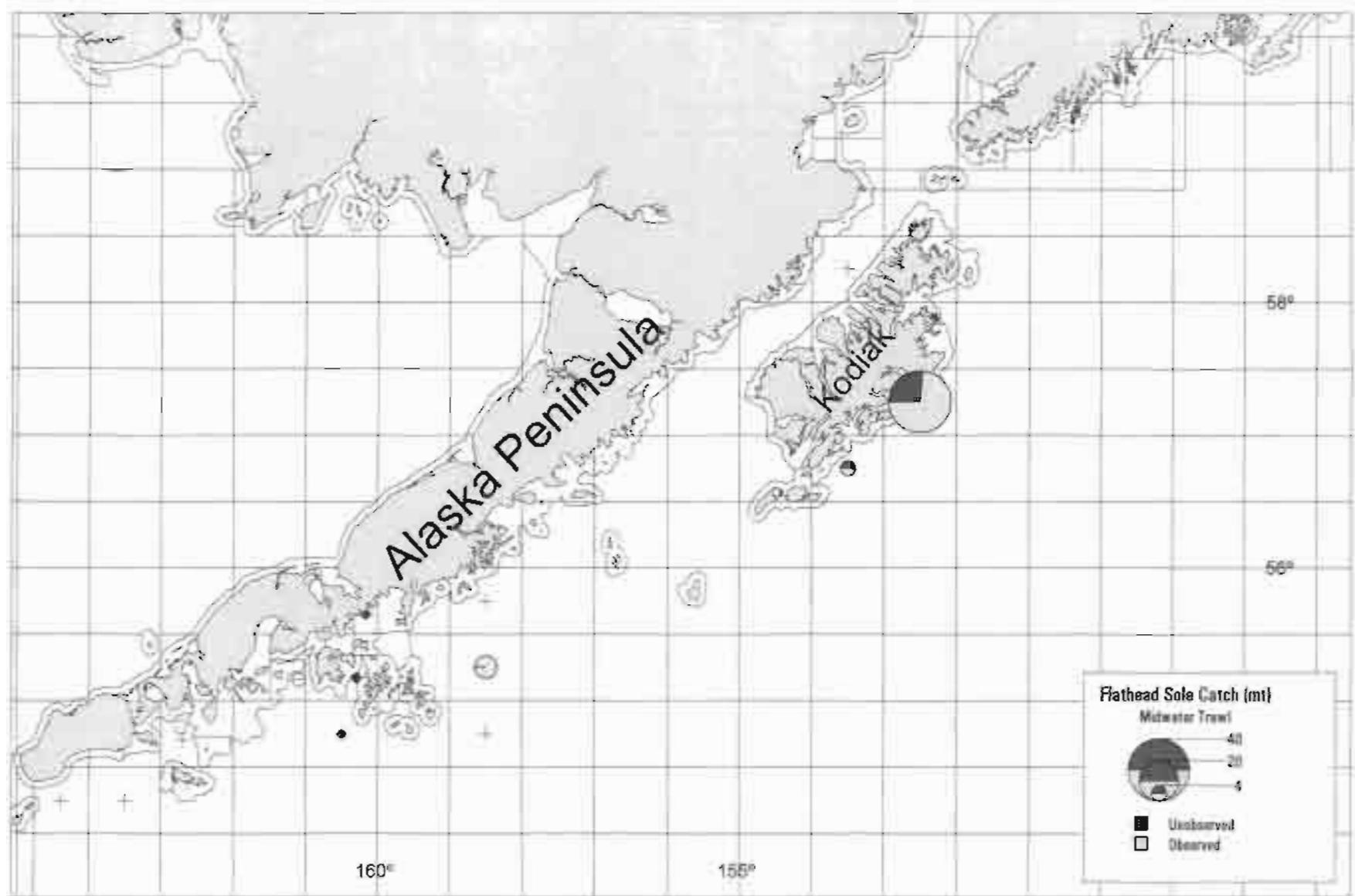


Figure 142. Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

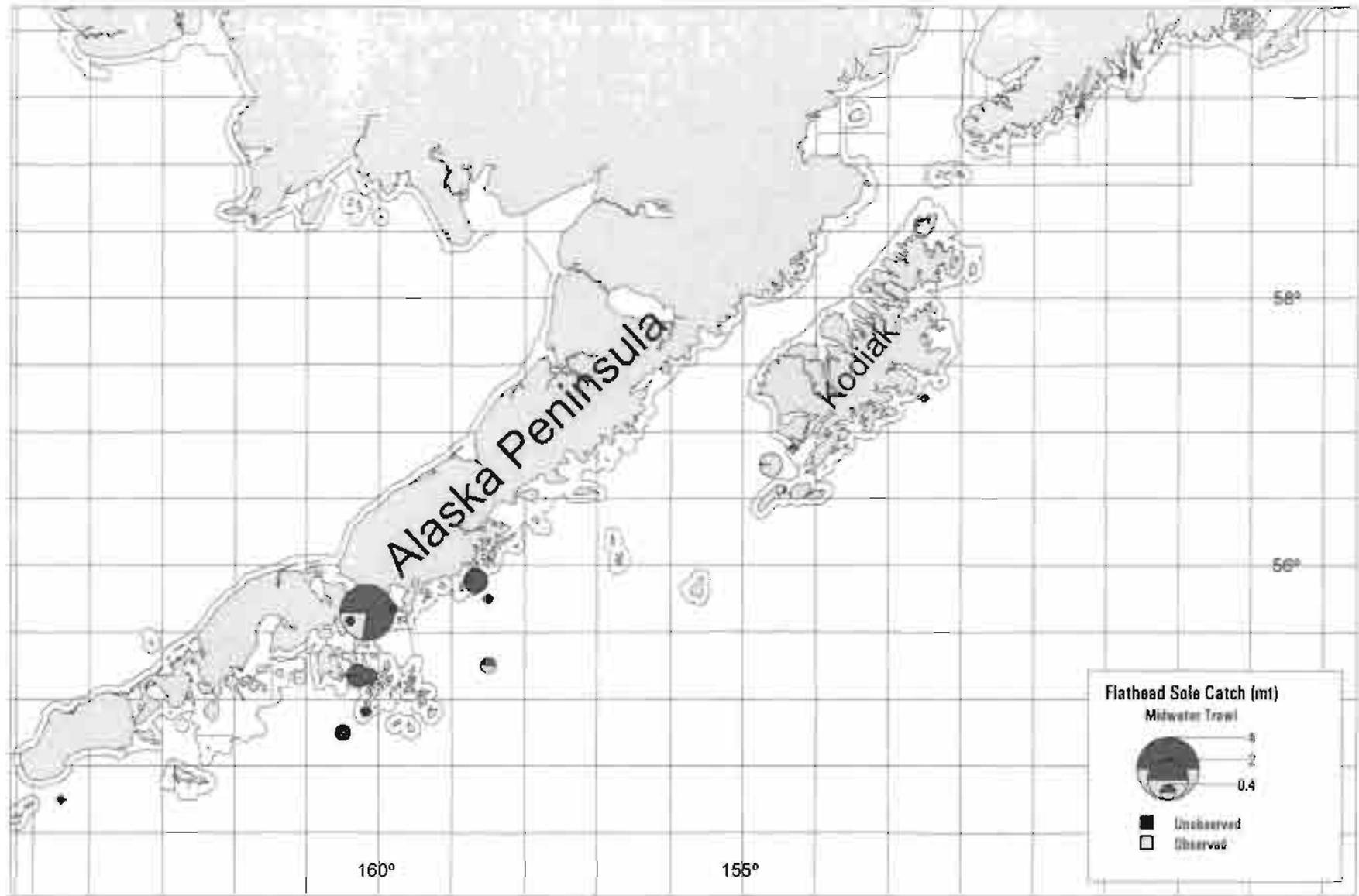


Figure 143. Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

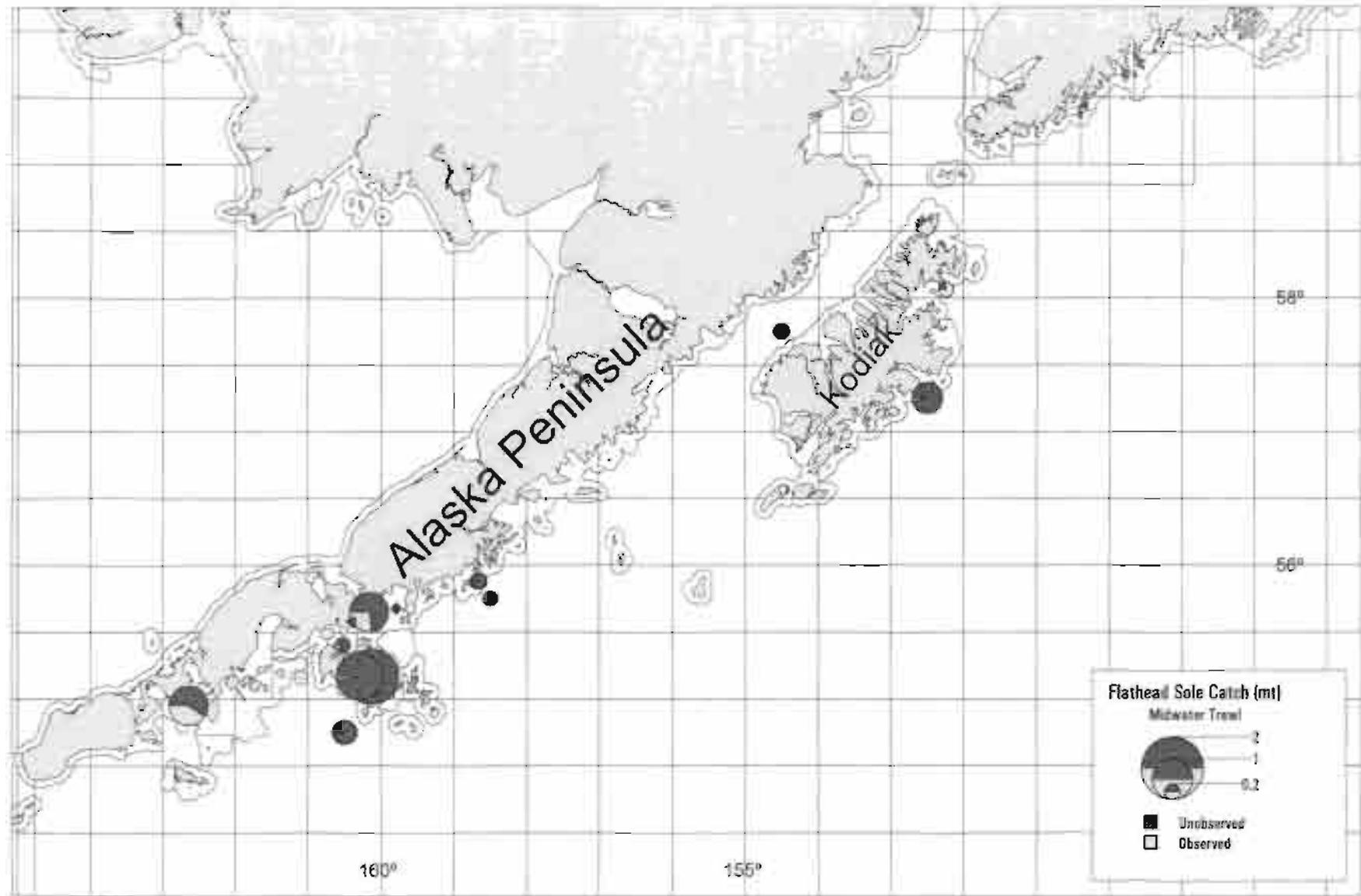


Figure 144 Flathead sole observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

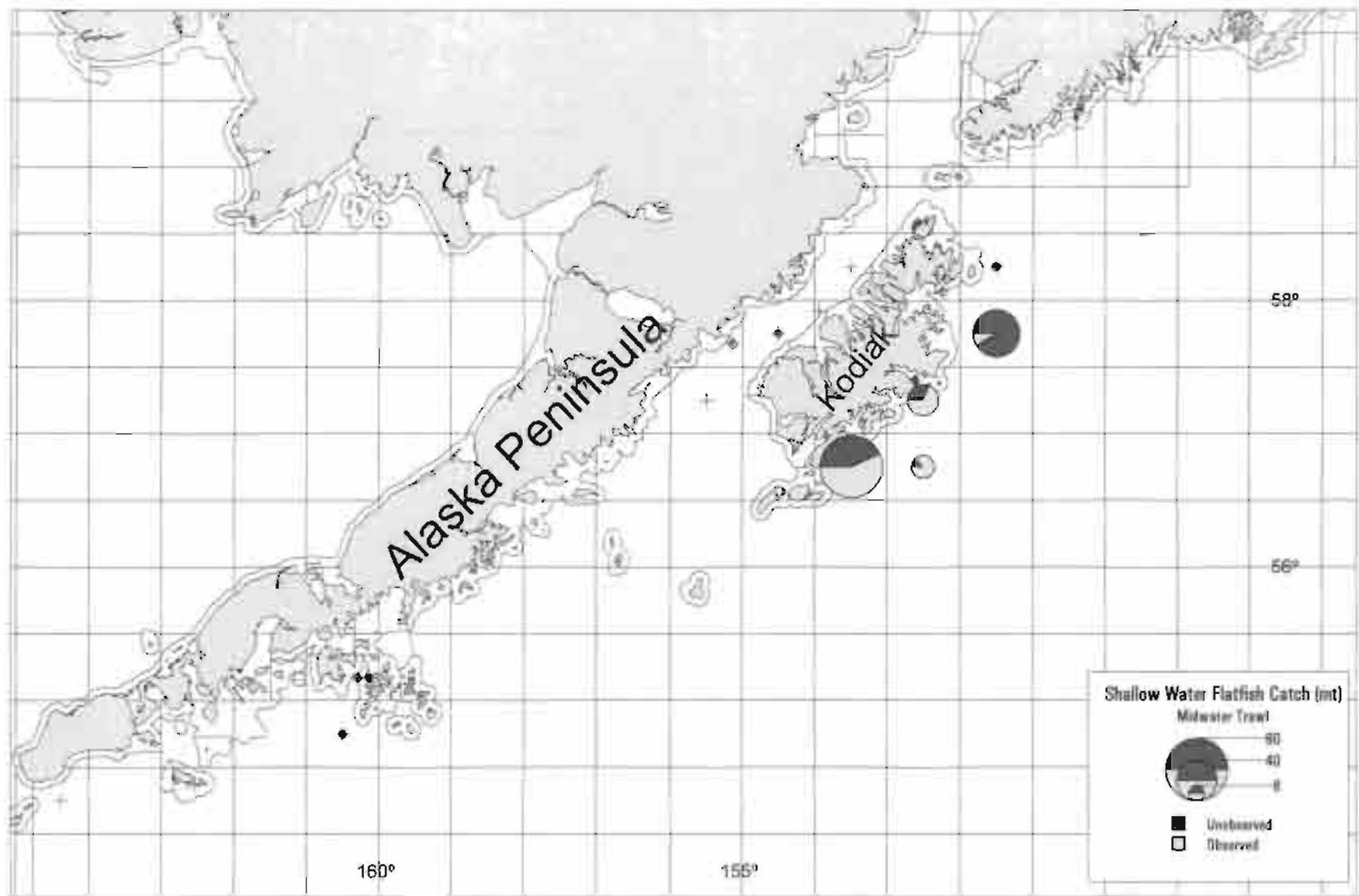


Figure 145. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

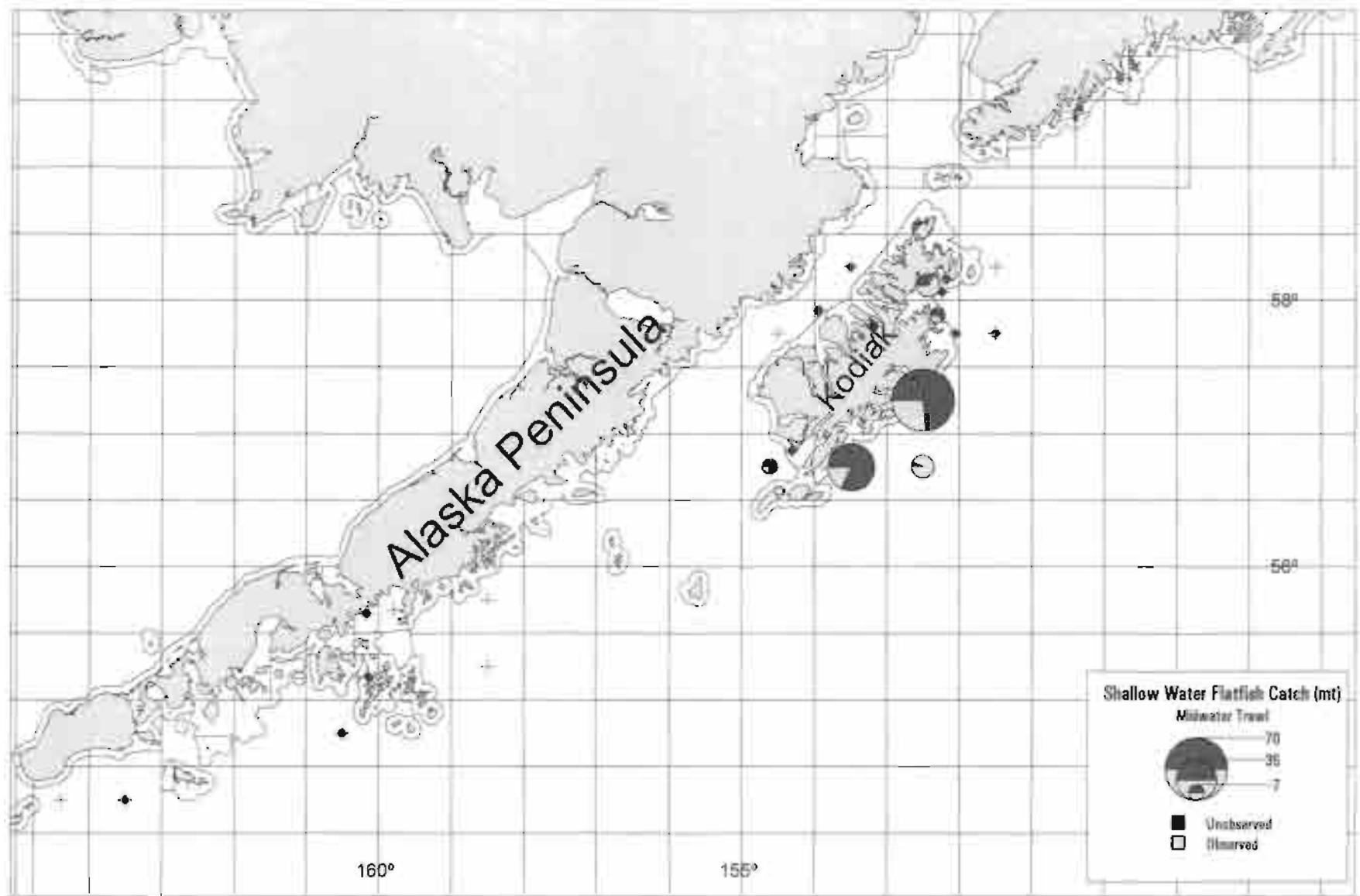


Figure 146. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

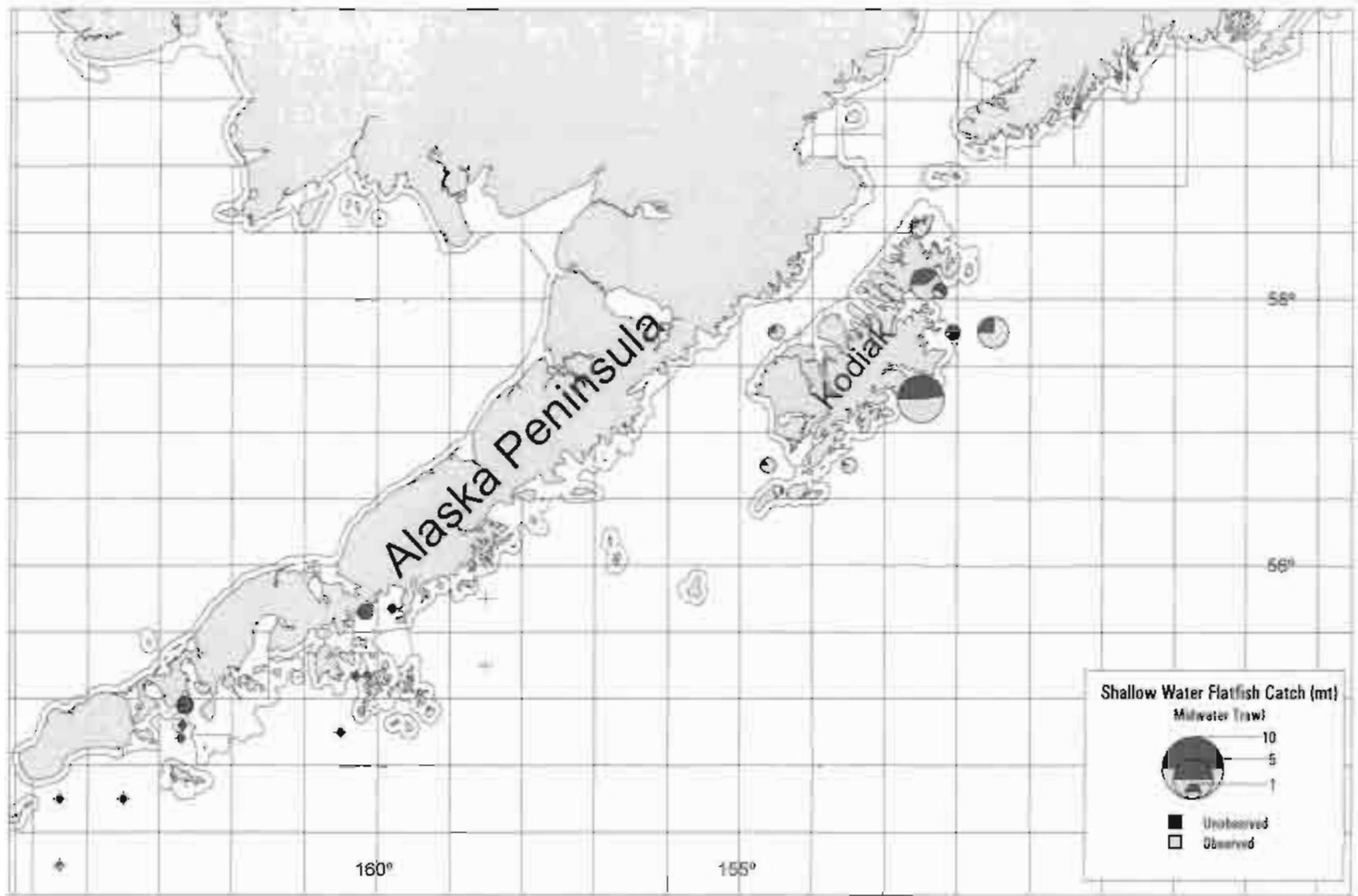


Figure 147. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

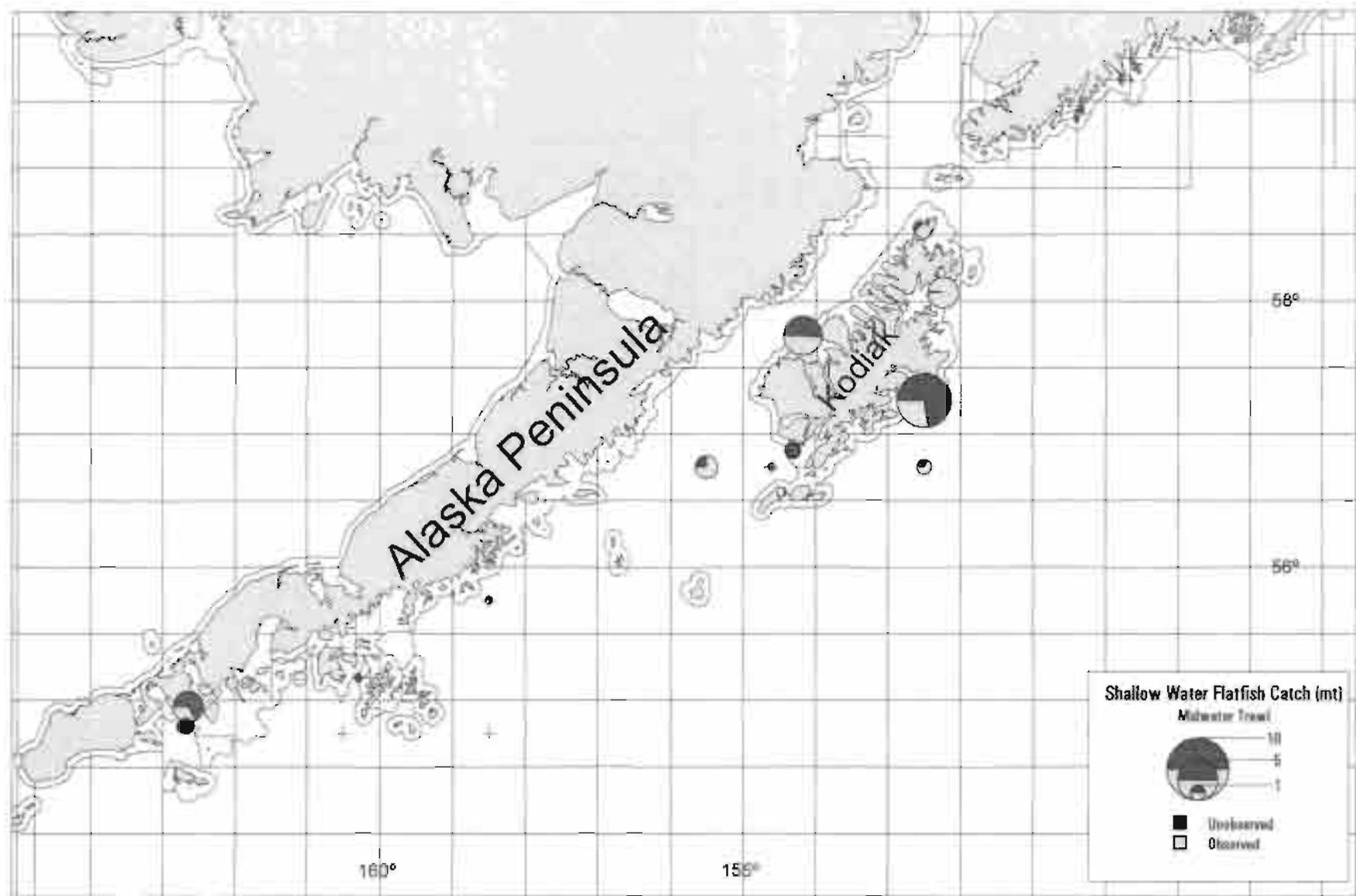


Figure 148. Shallow water flatfish observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

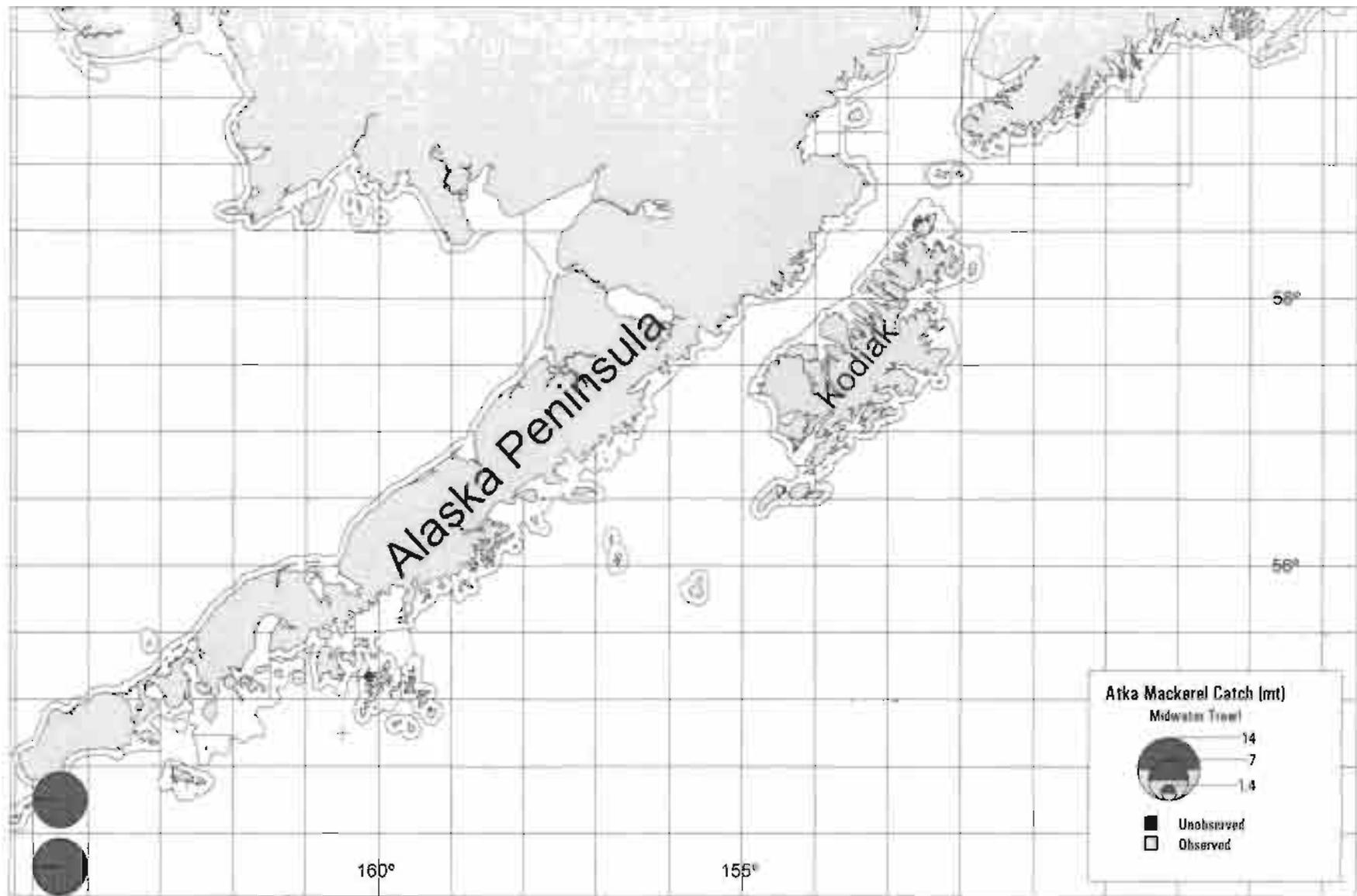


Figure 149 Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

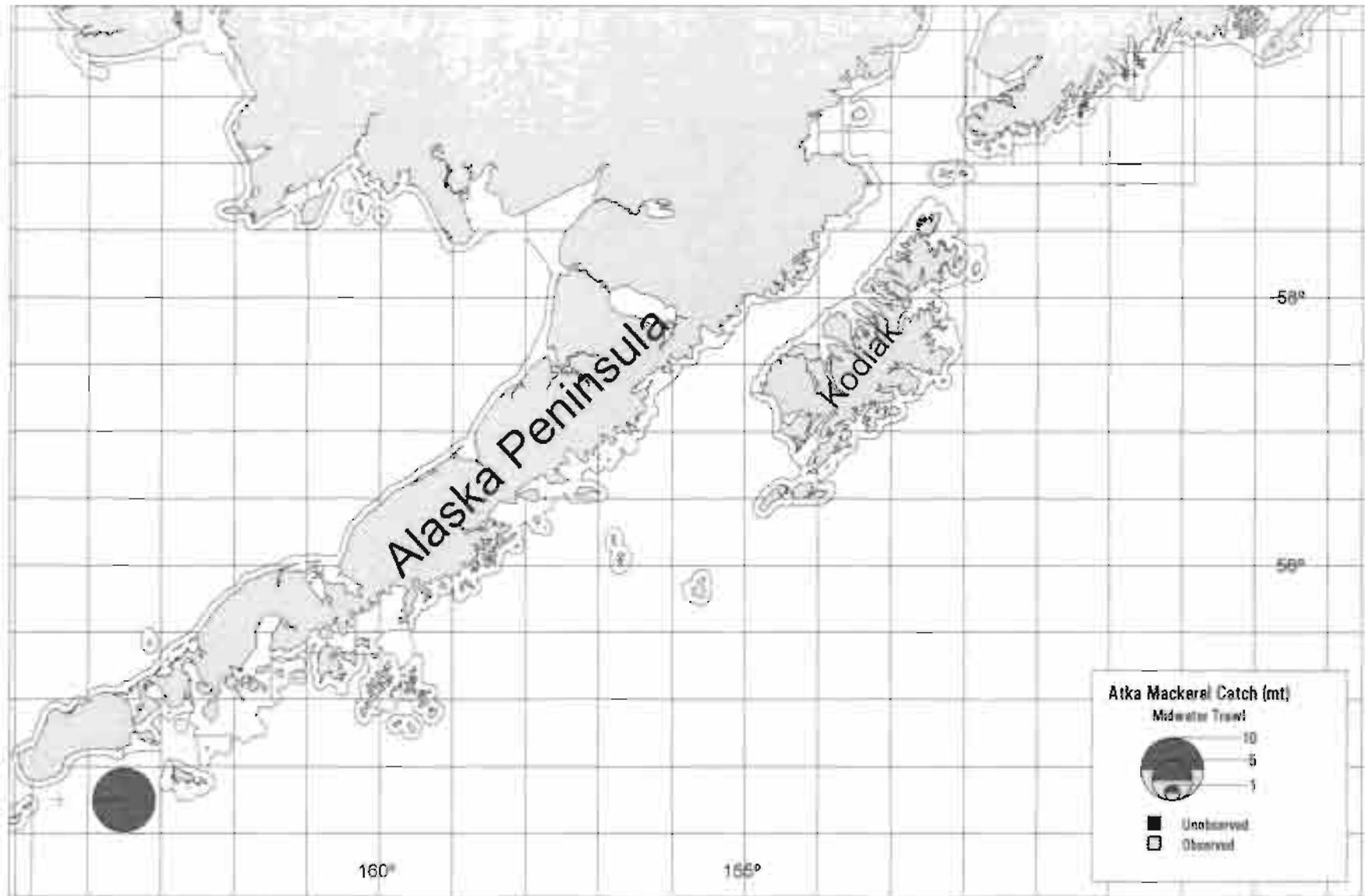


Figure 150. Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

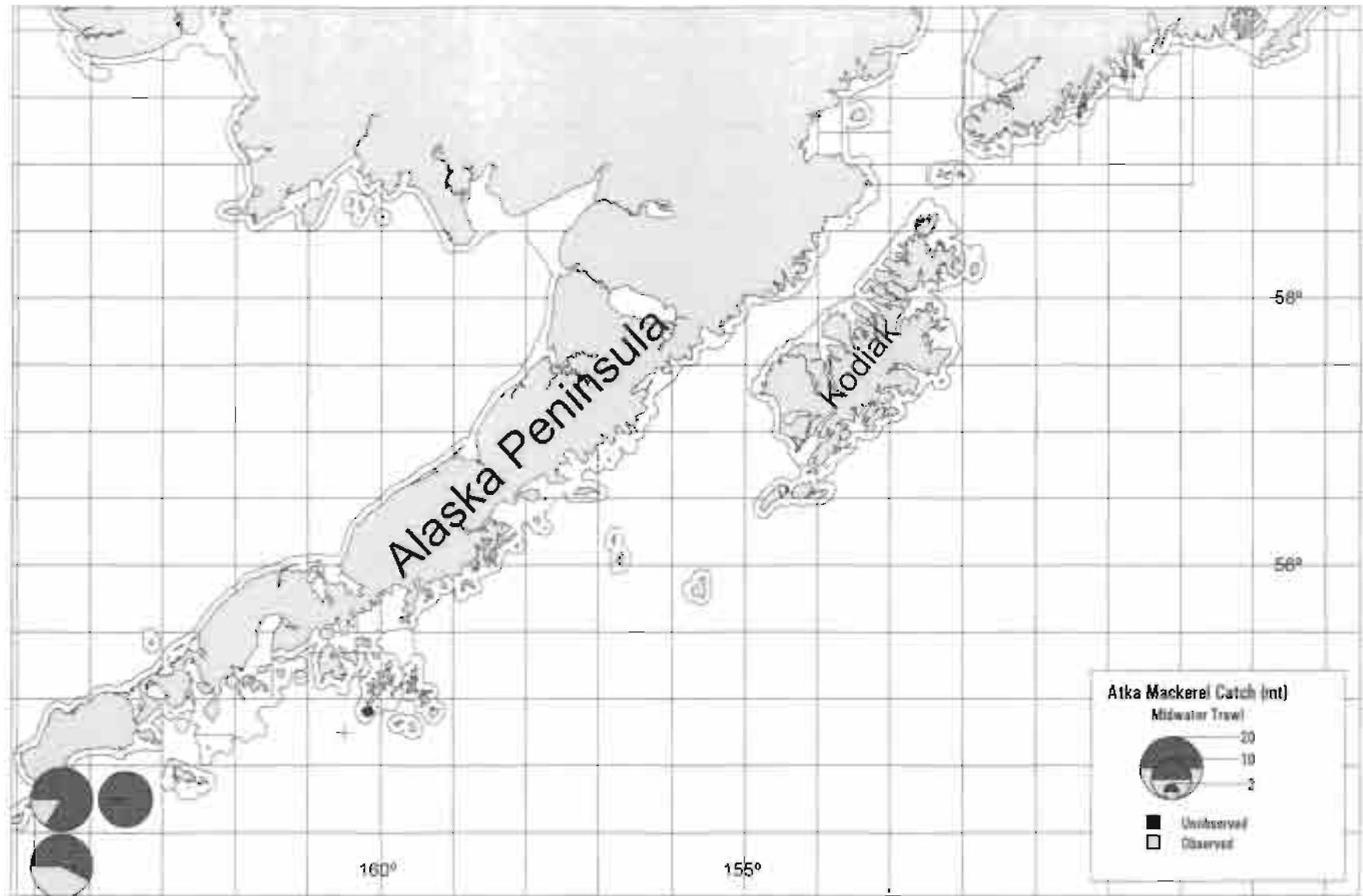


Figure 151. Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

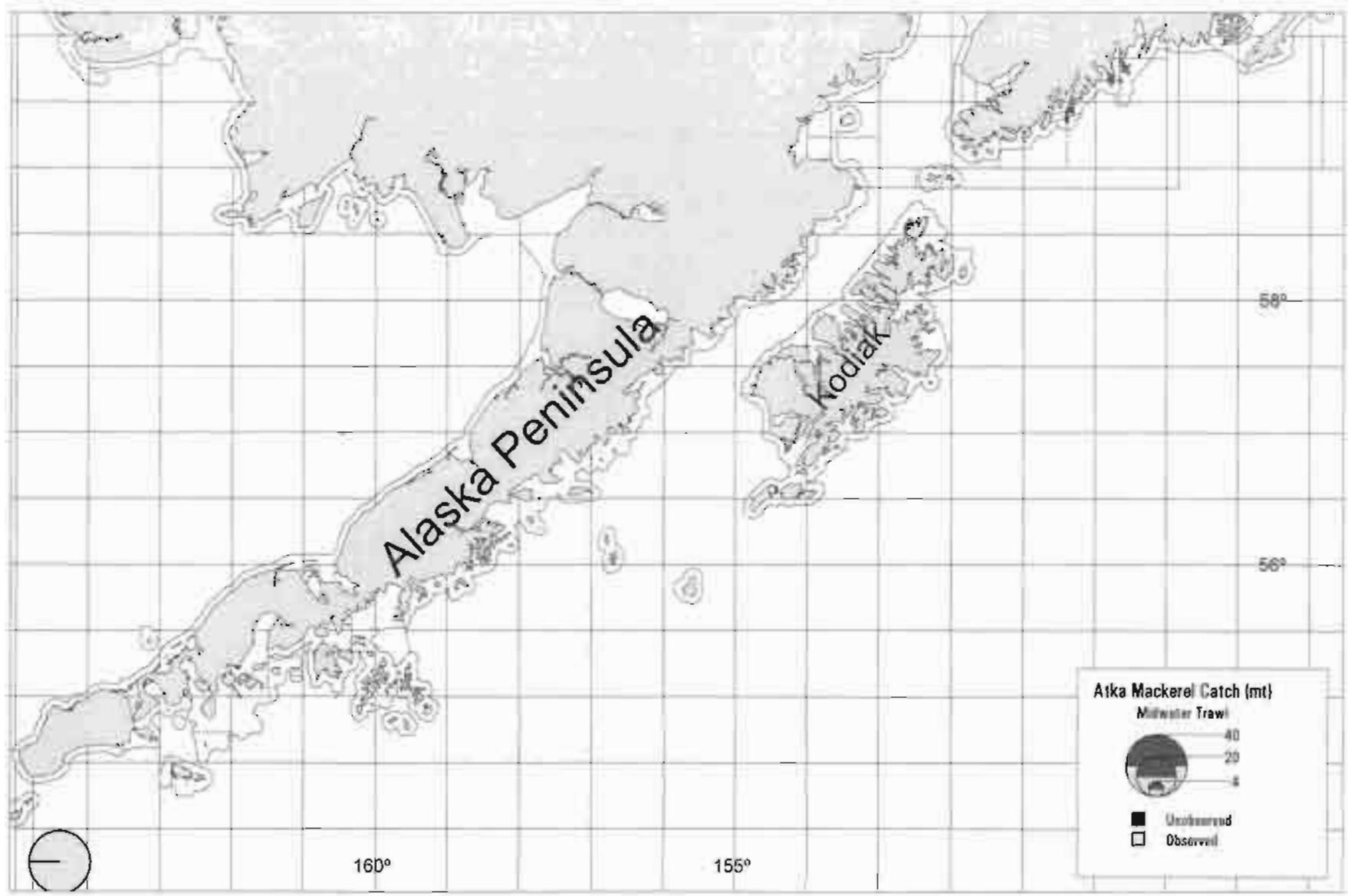


Figure 152. Atka mackerel observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

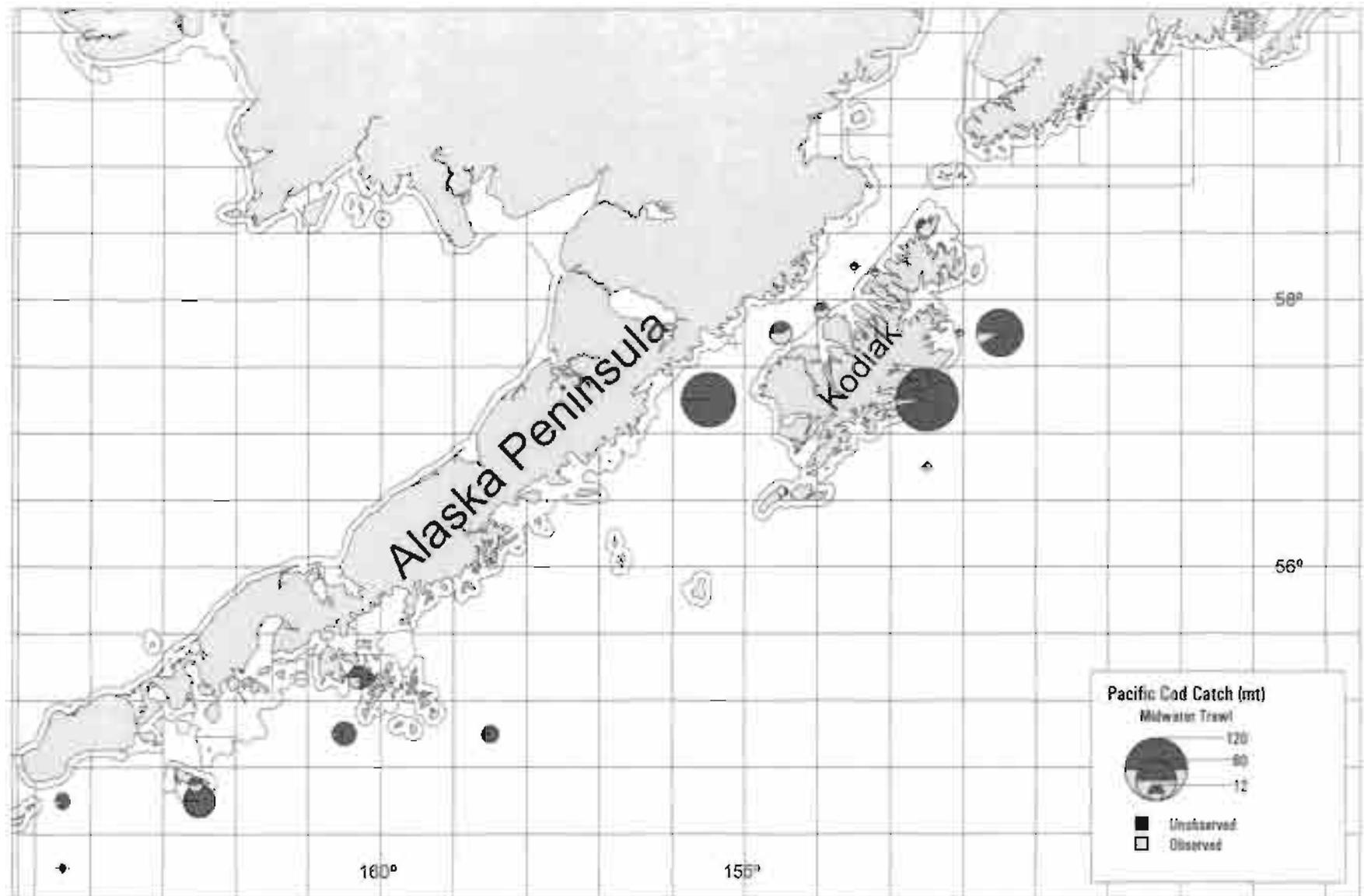


Figure 153 Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

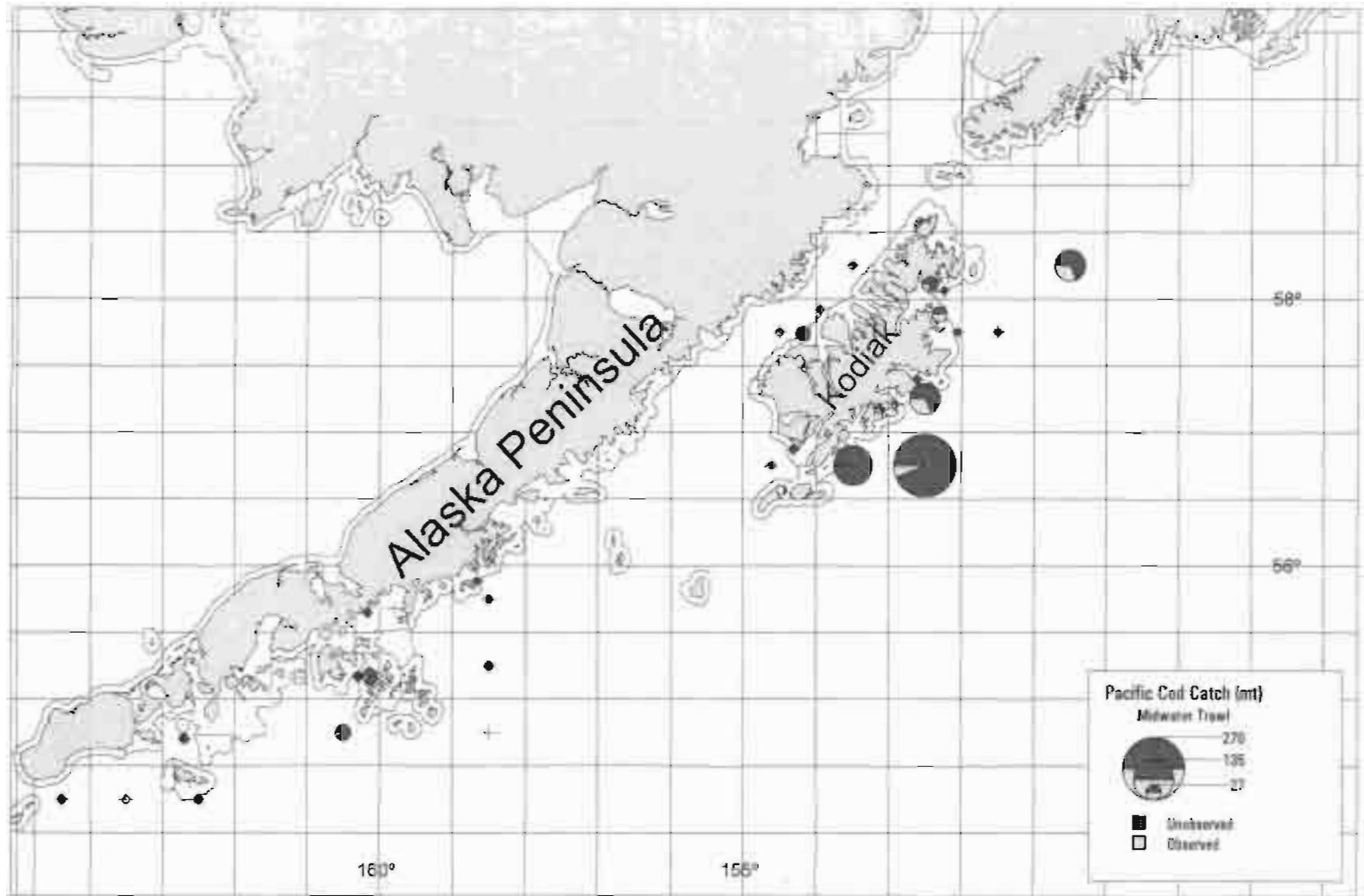


Figure 154. Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

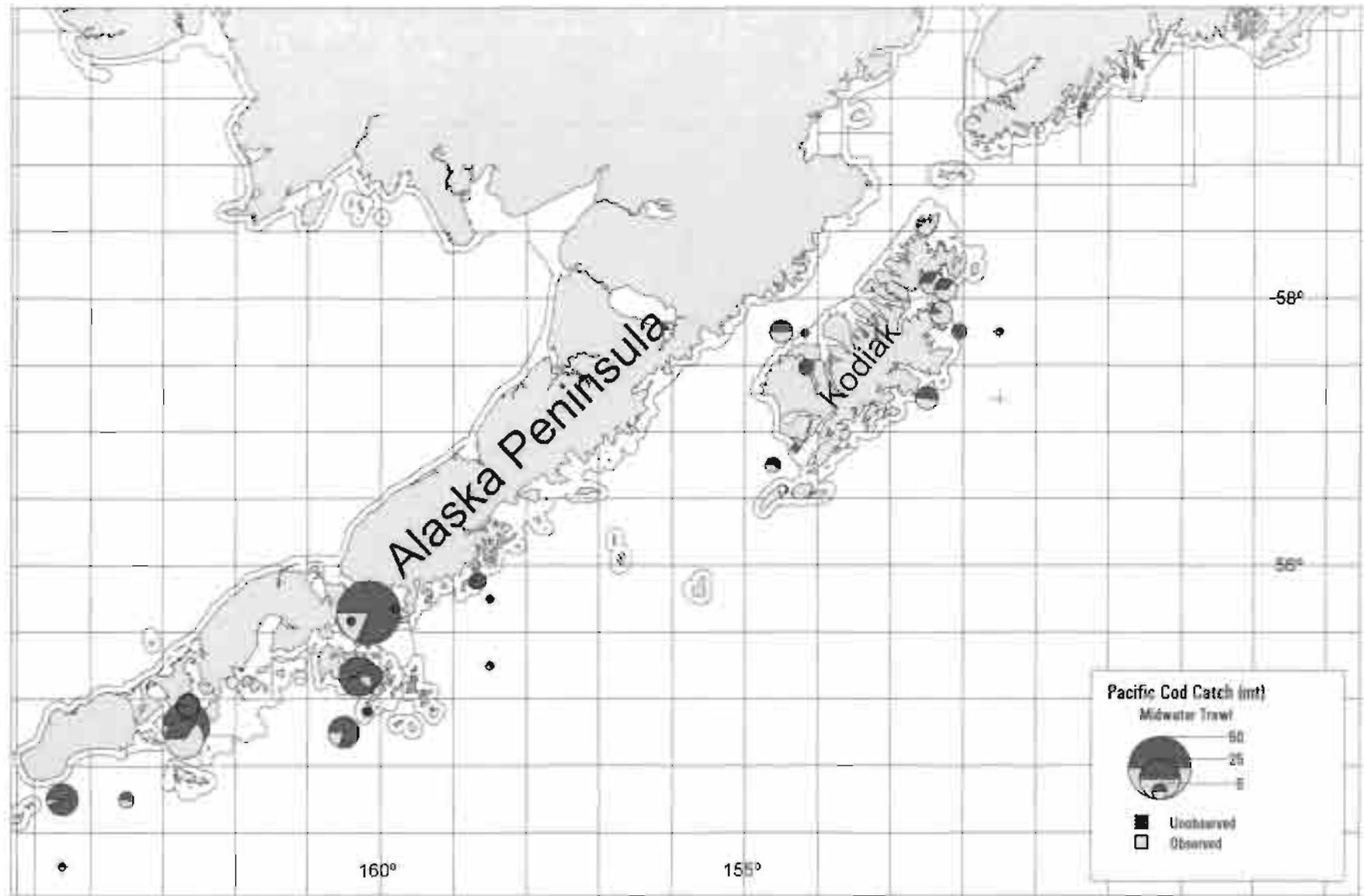


Figure 155. Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

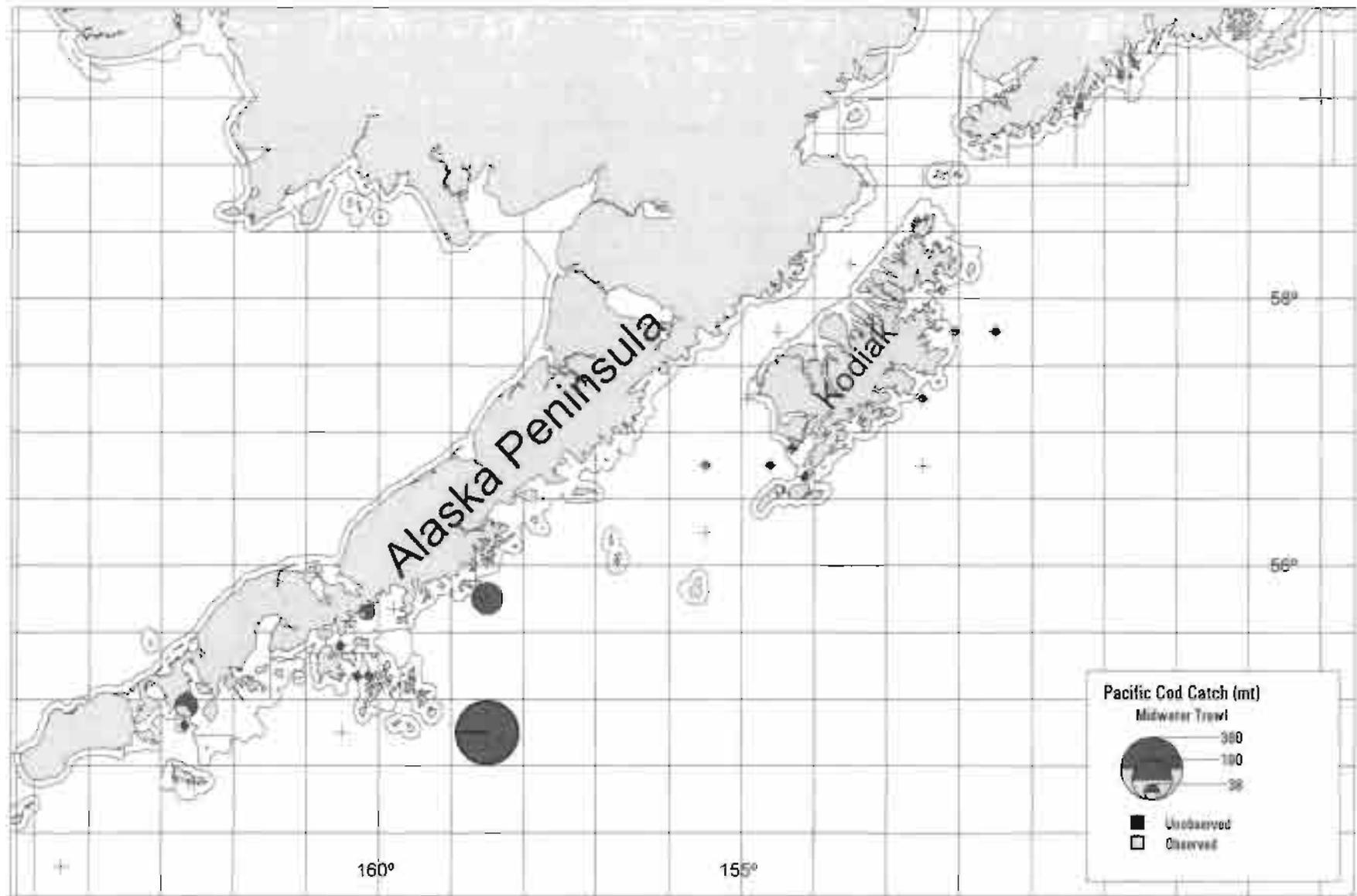


Figure 156. Pacific cod observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

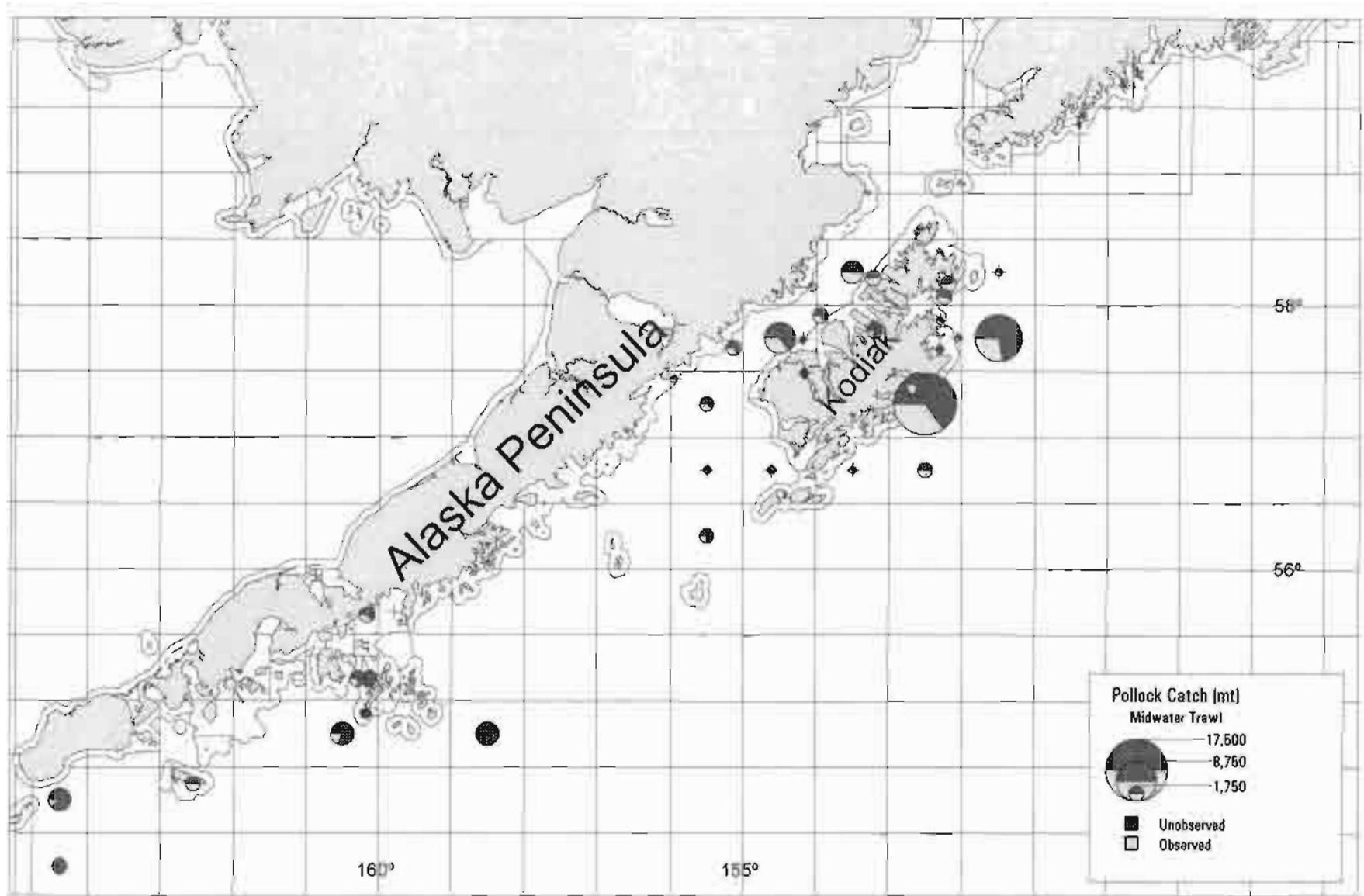


Figure 157 Pollock observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993

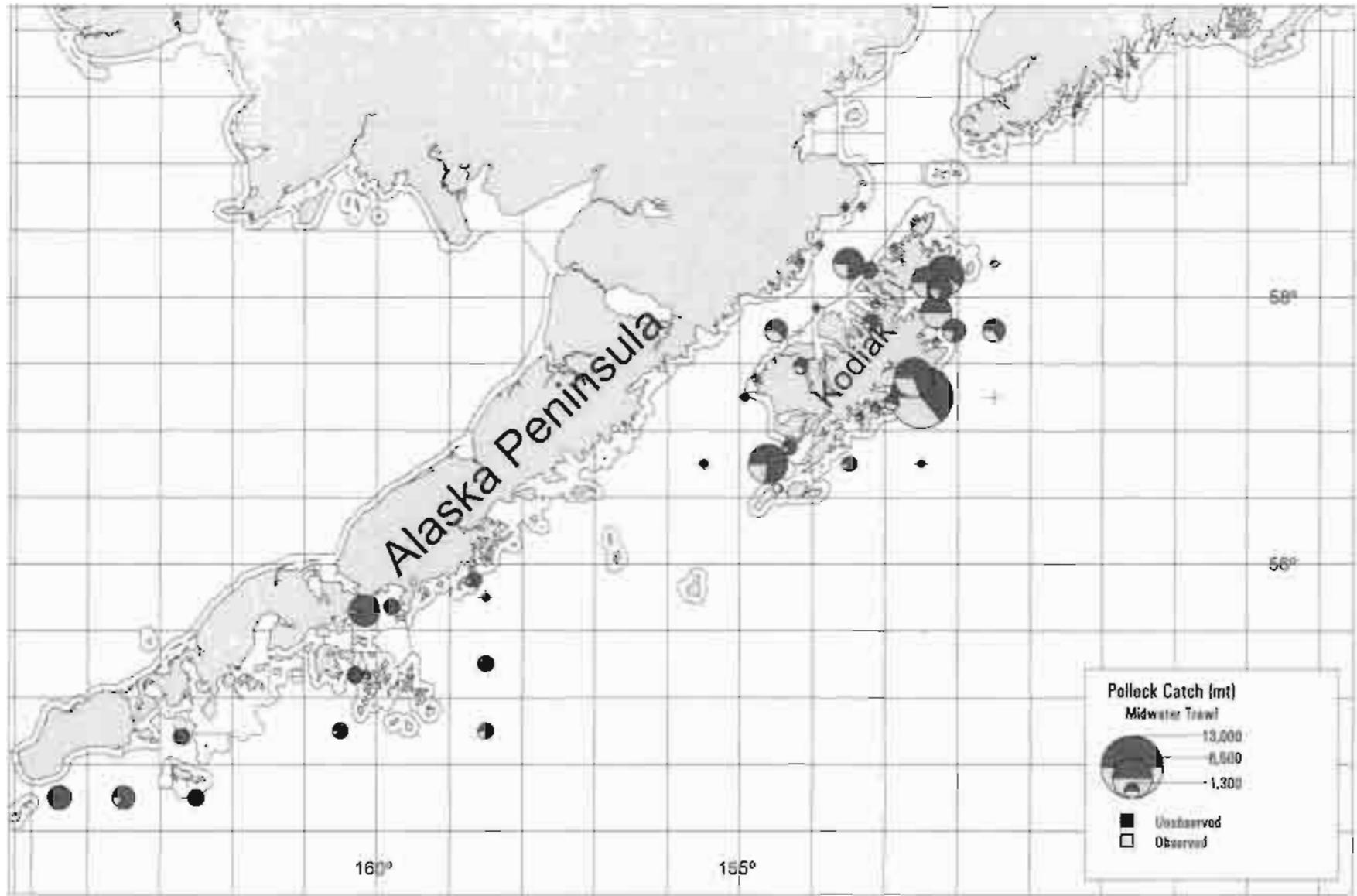


Figure 158. Pollock observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

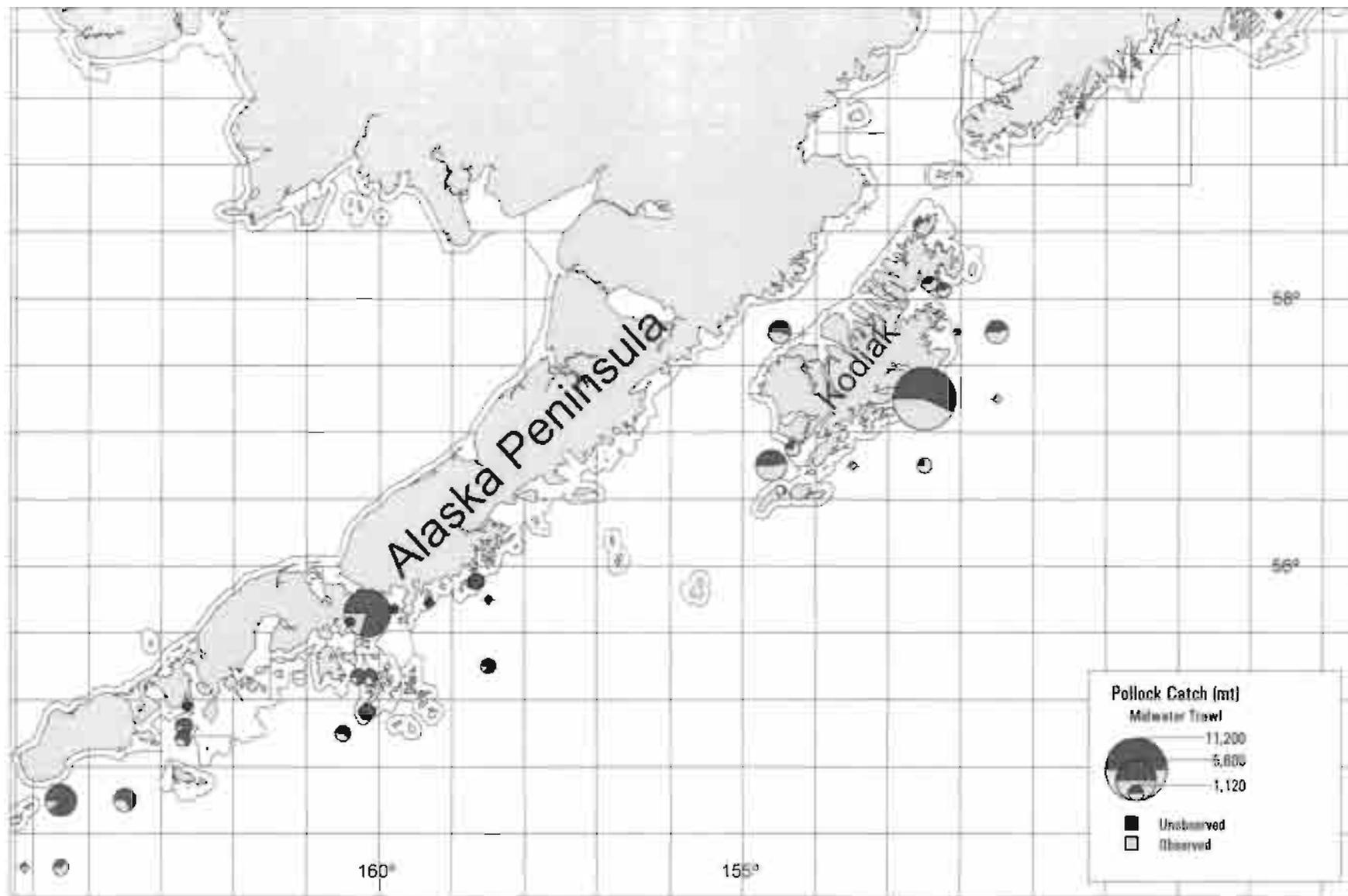


Figure 159. Pollock observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

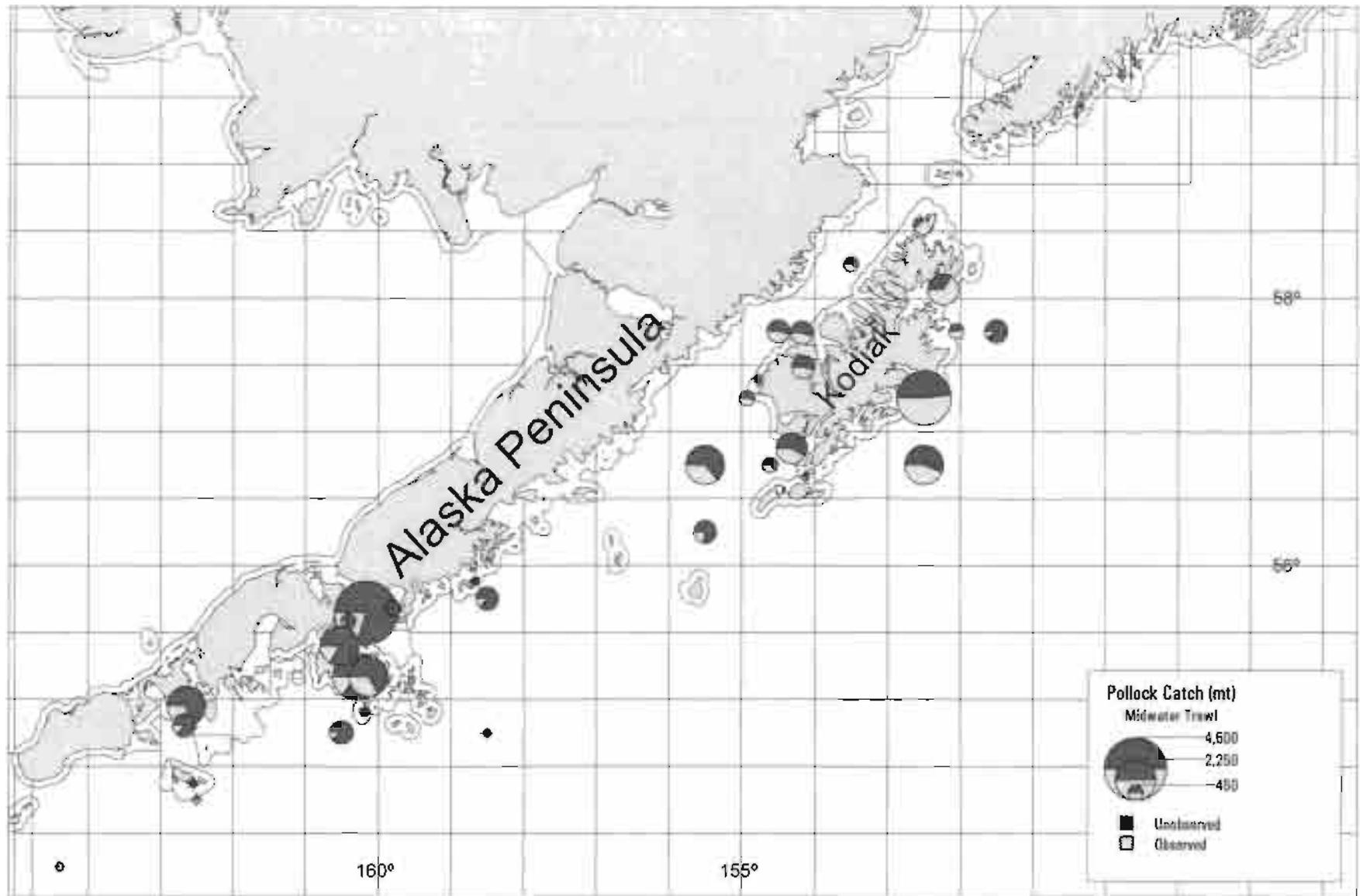


Figure 160. Pollock observed versus unobserved catch (mt) using midwater trawls from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

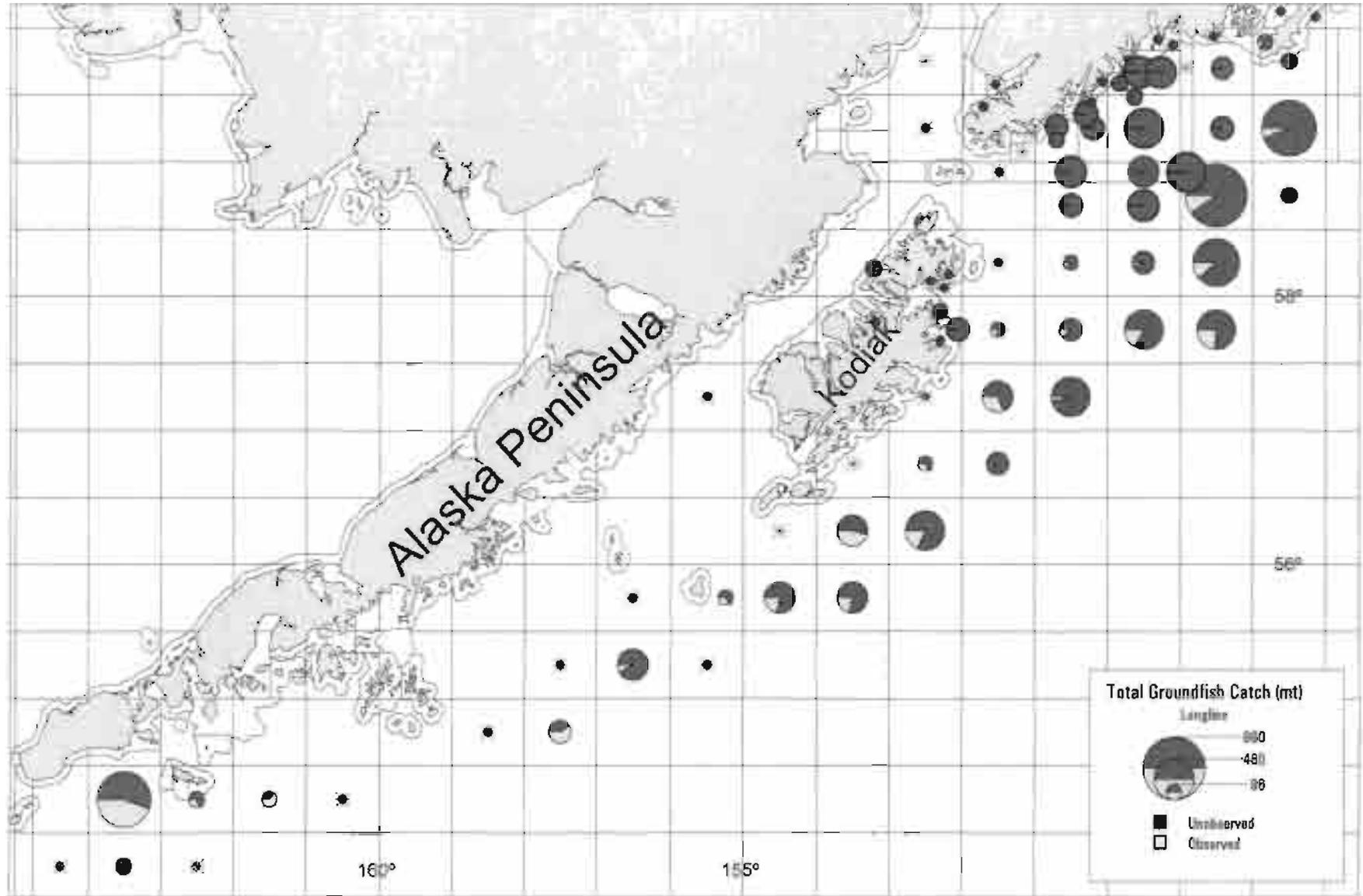


Figure 161. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

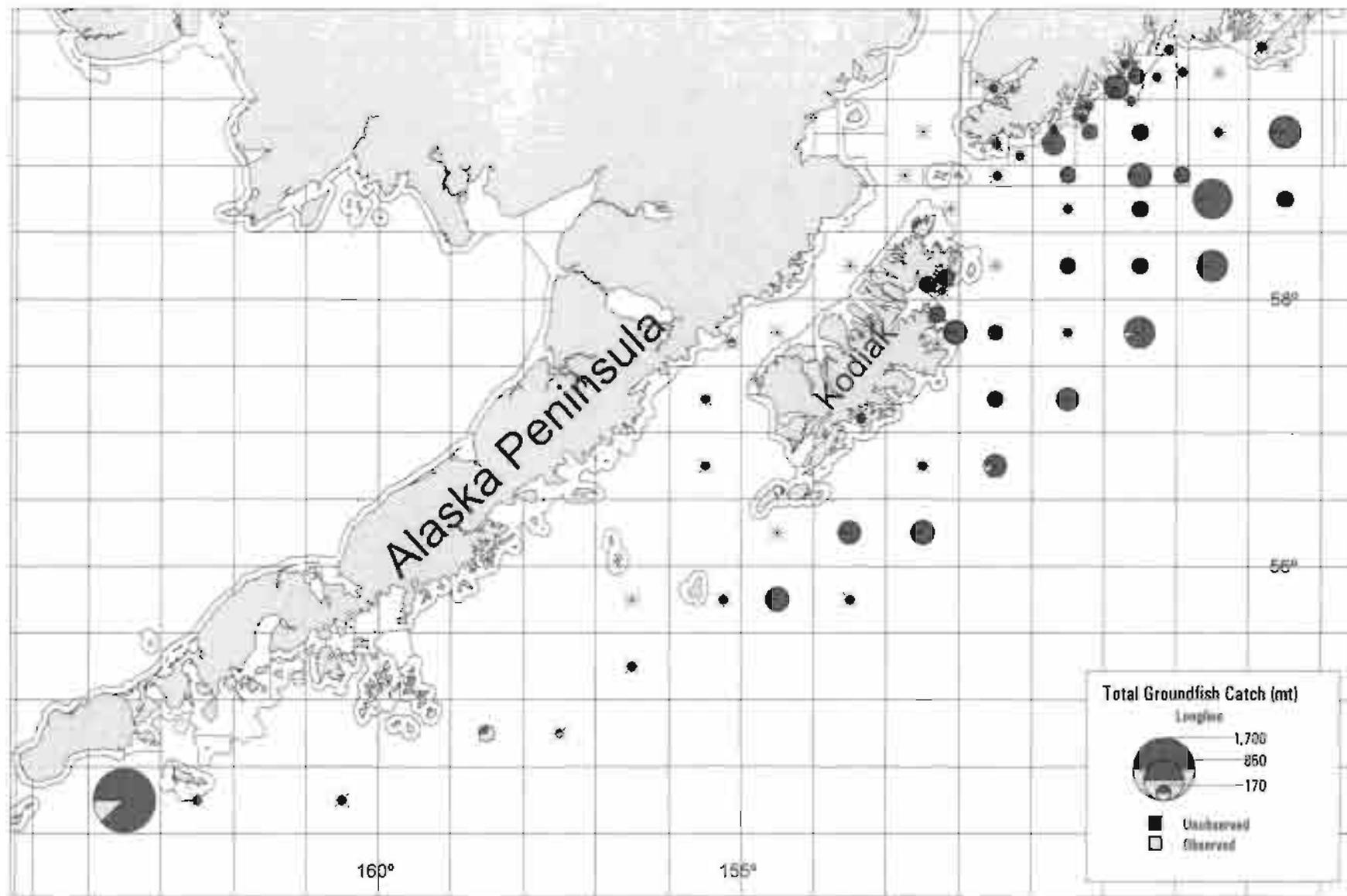


Figure 162. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

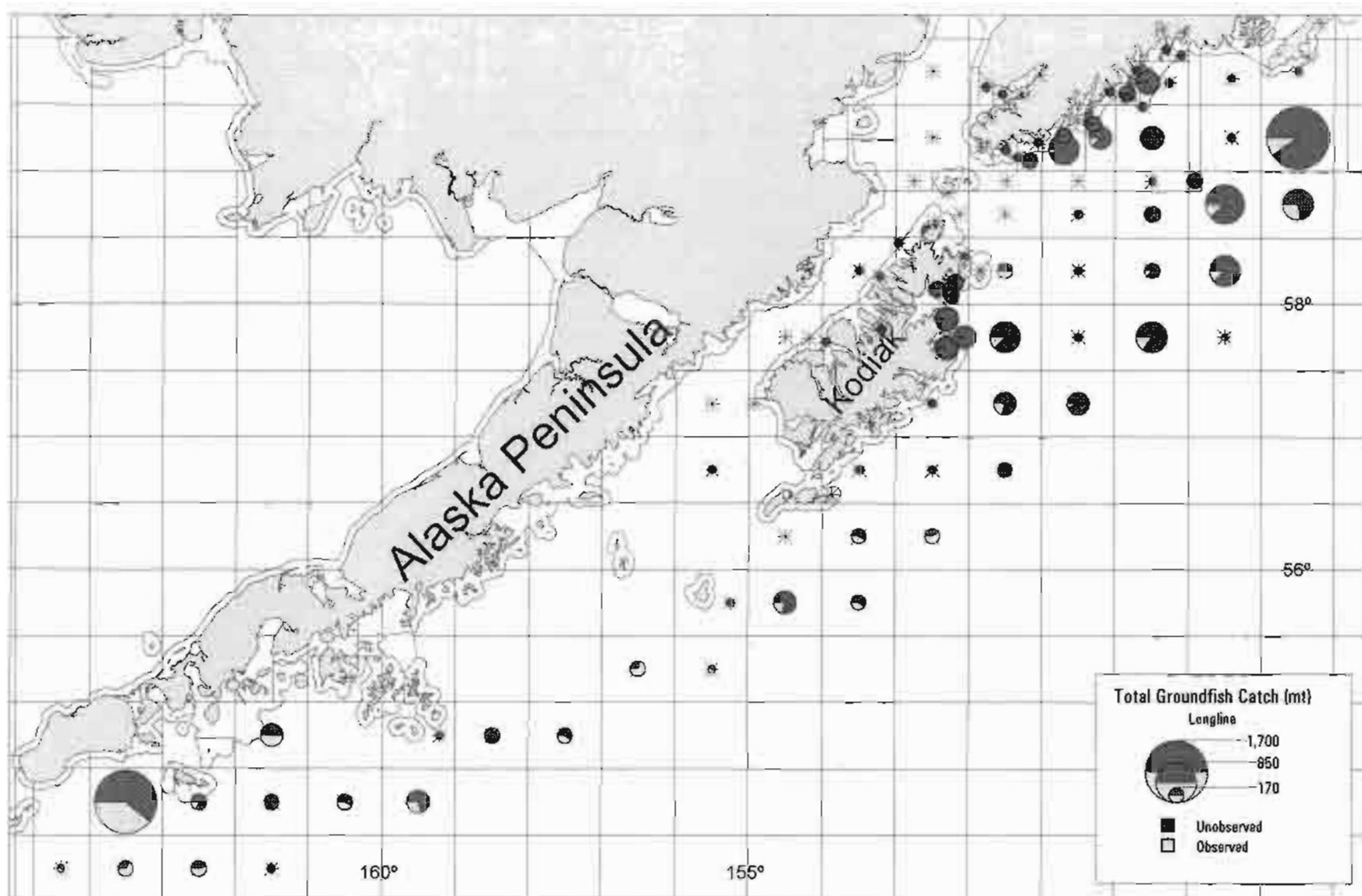


Figure 163. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

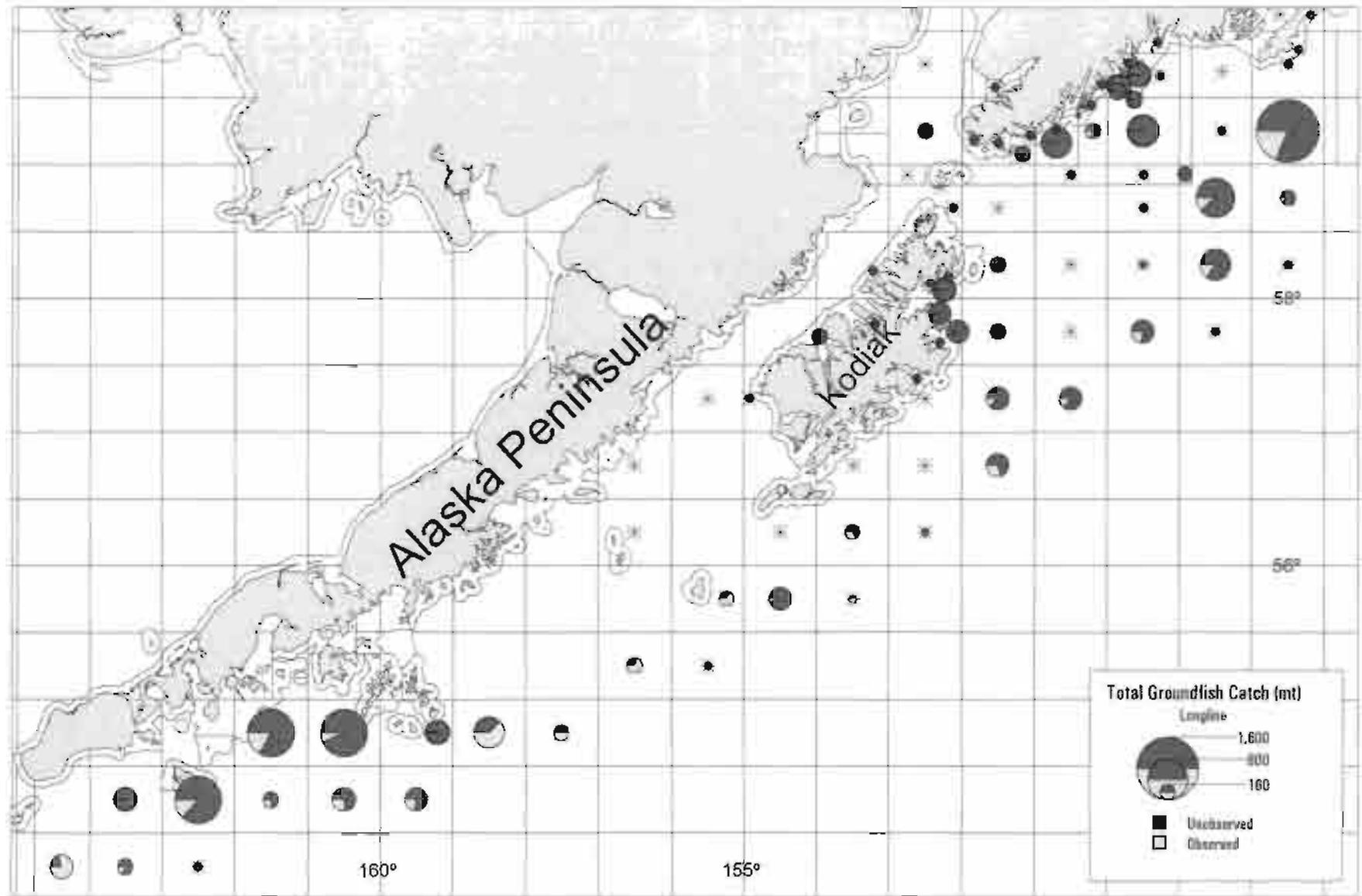


Figure 164. Total observed versus unobserved groundfish catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

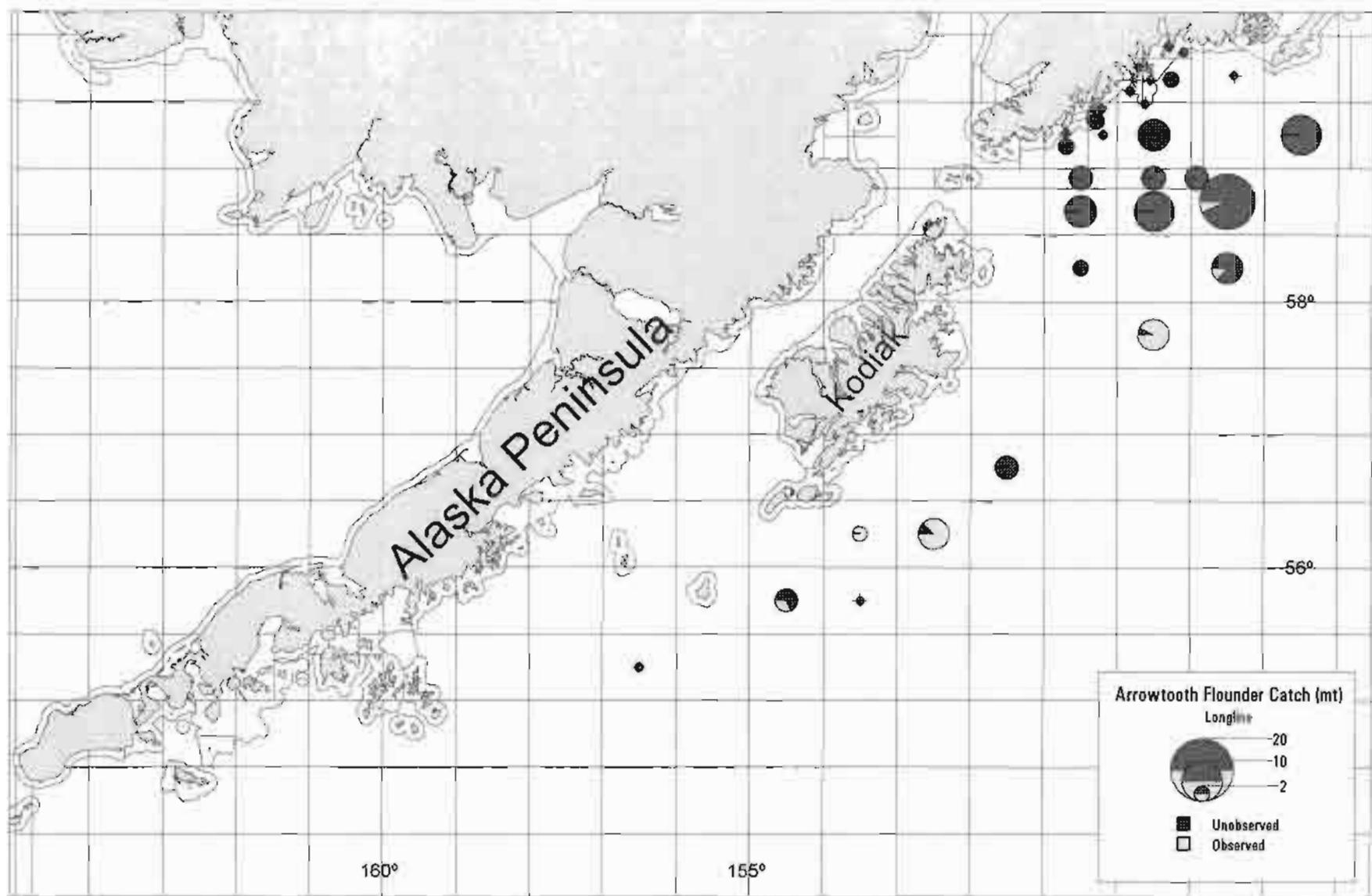


Figure 165. Arrowtooth flounder observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

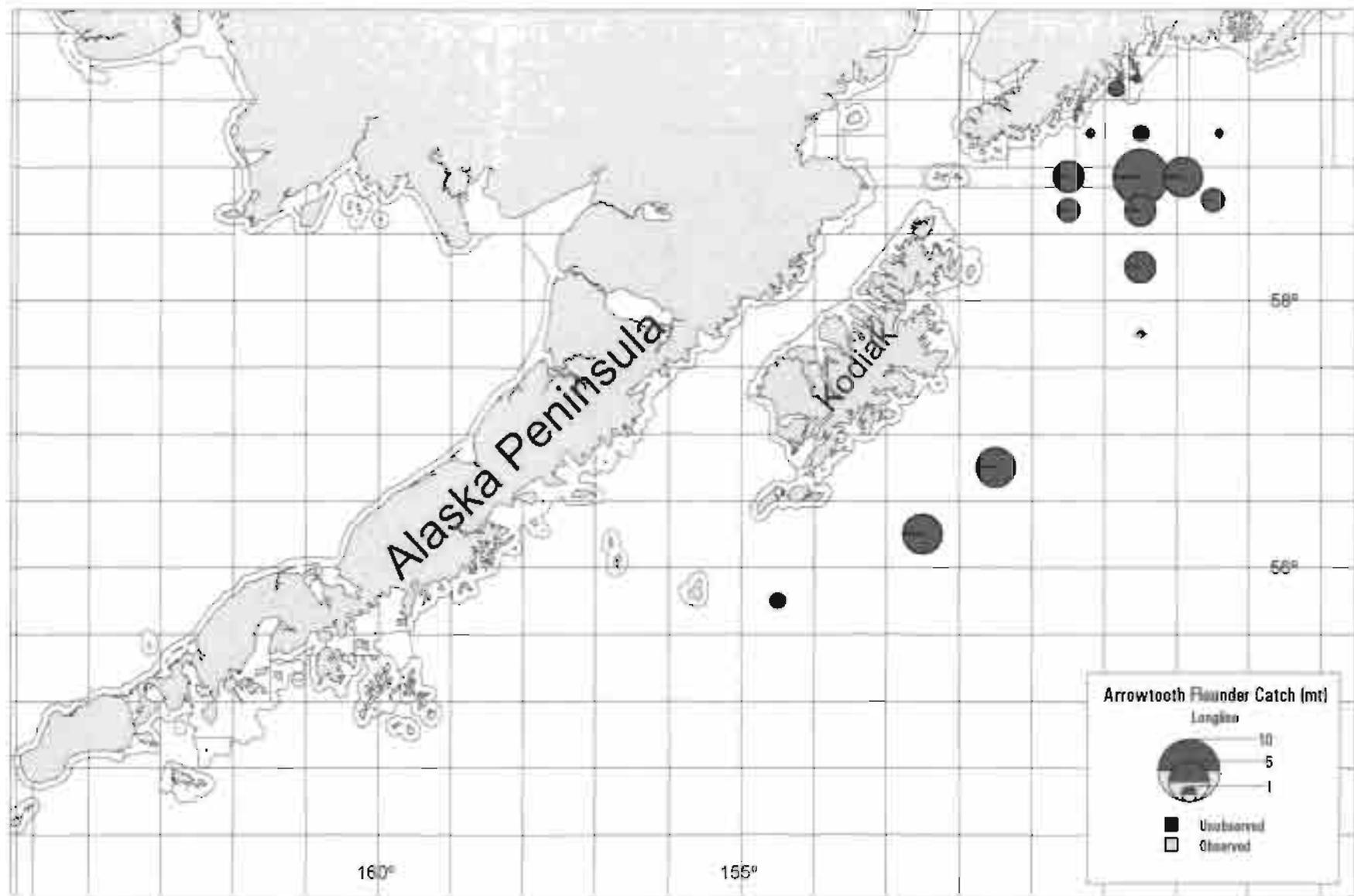


Figure 166. Arrowtooth flounder observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

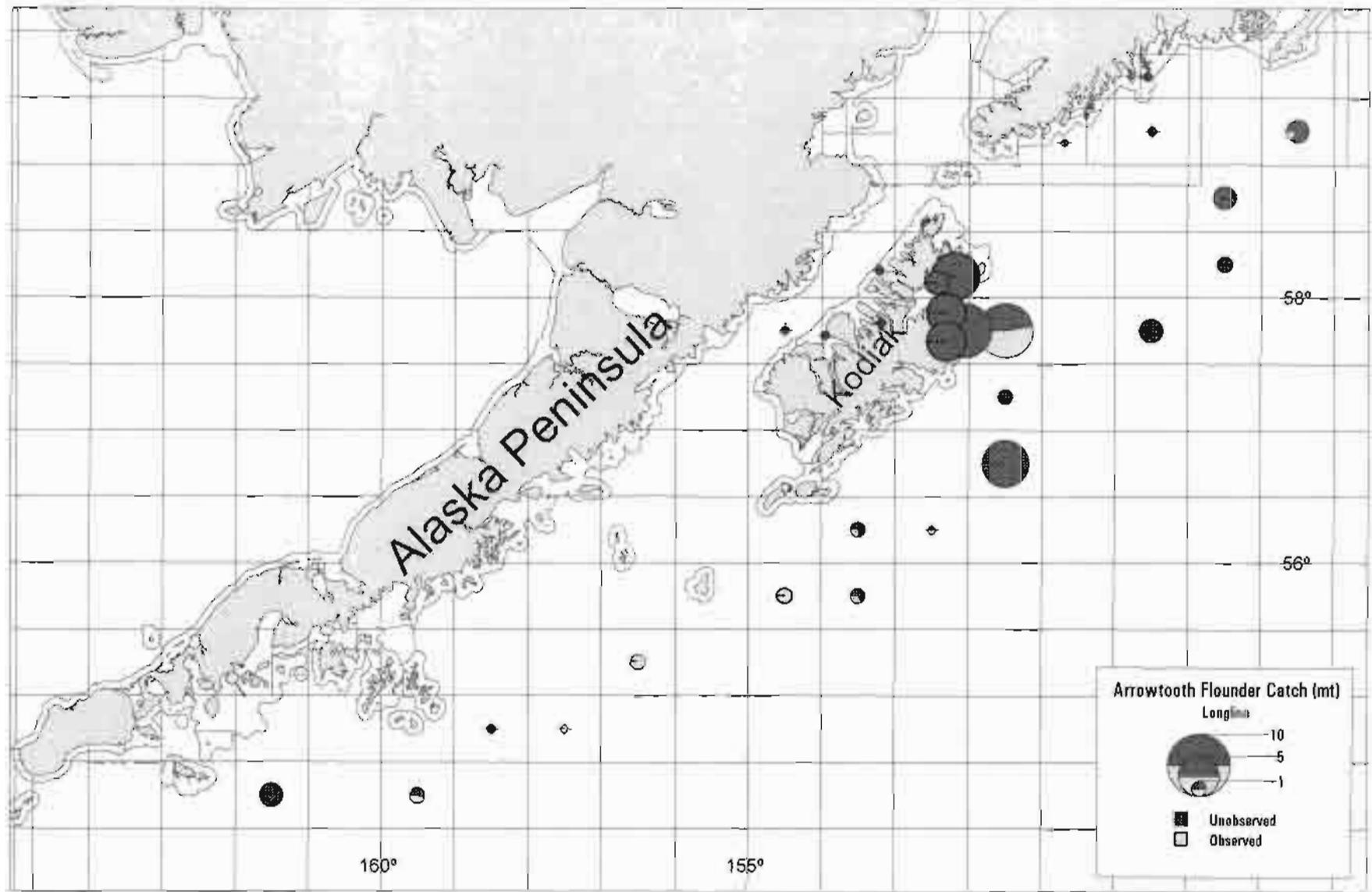


Figure 167. Arrowtooth flounder observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

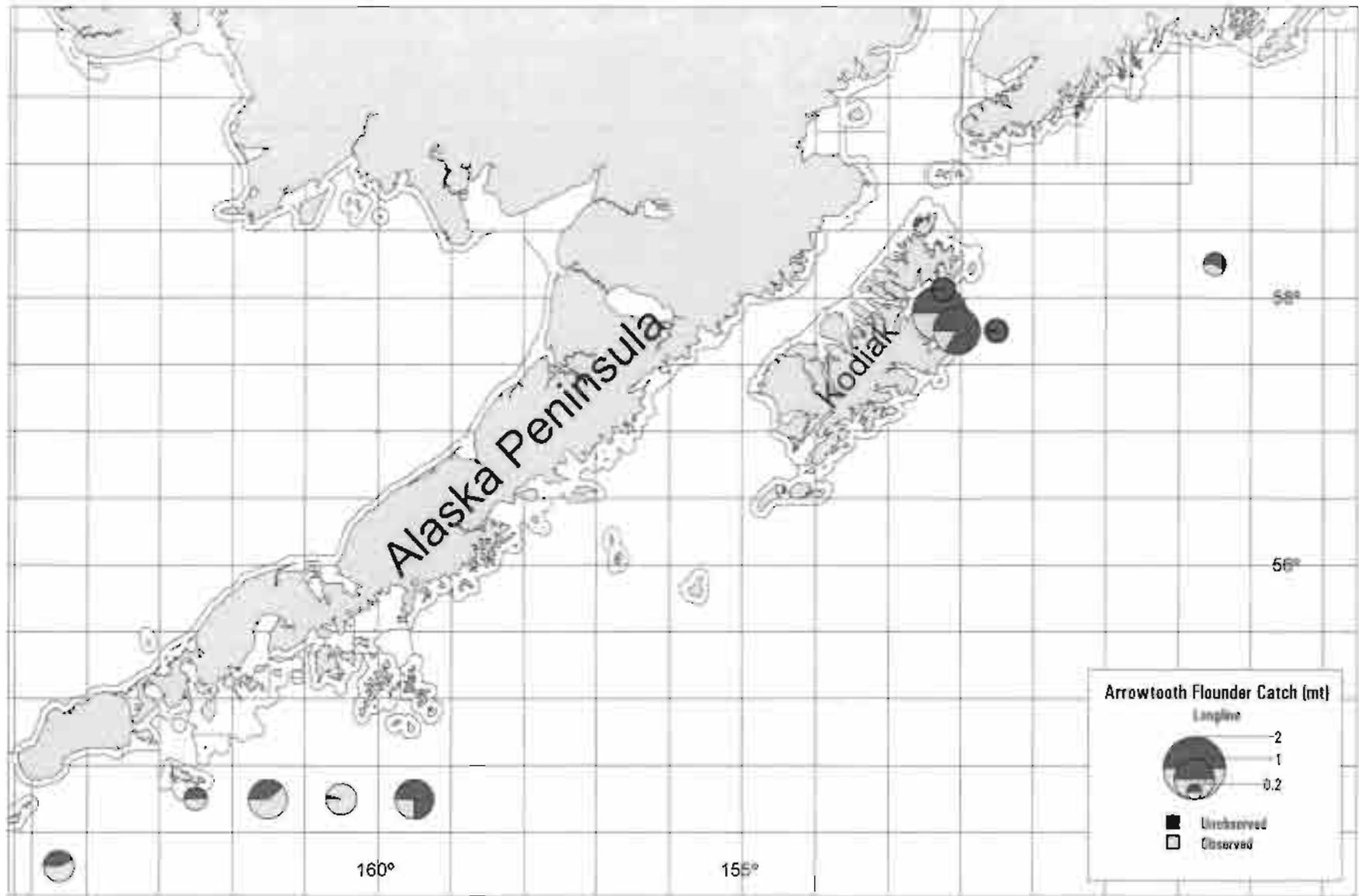


Figure 168. Arrowtooth flounder observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

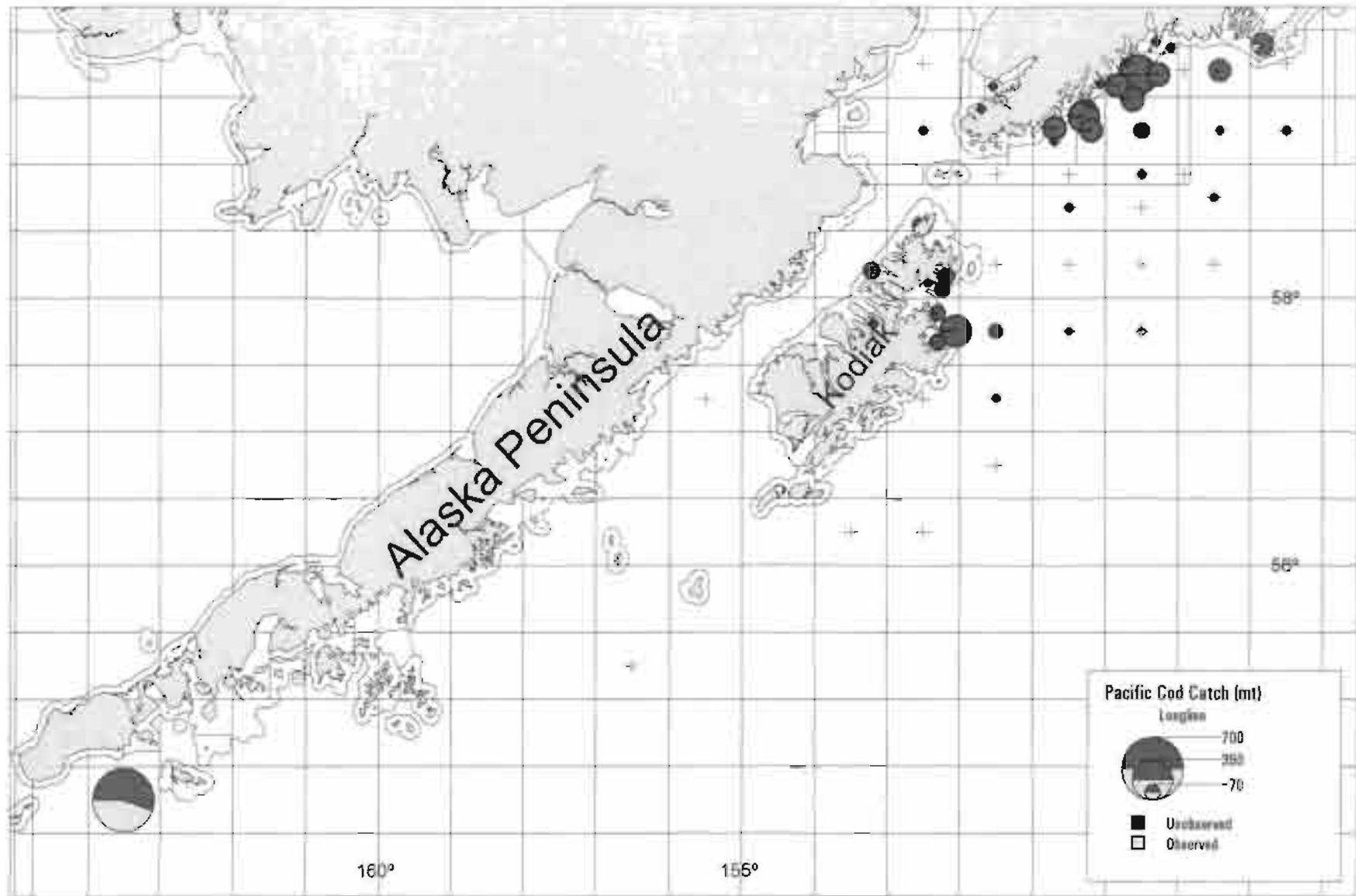


Figure 169. Pacific cod observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

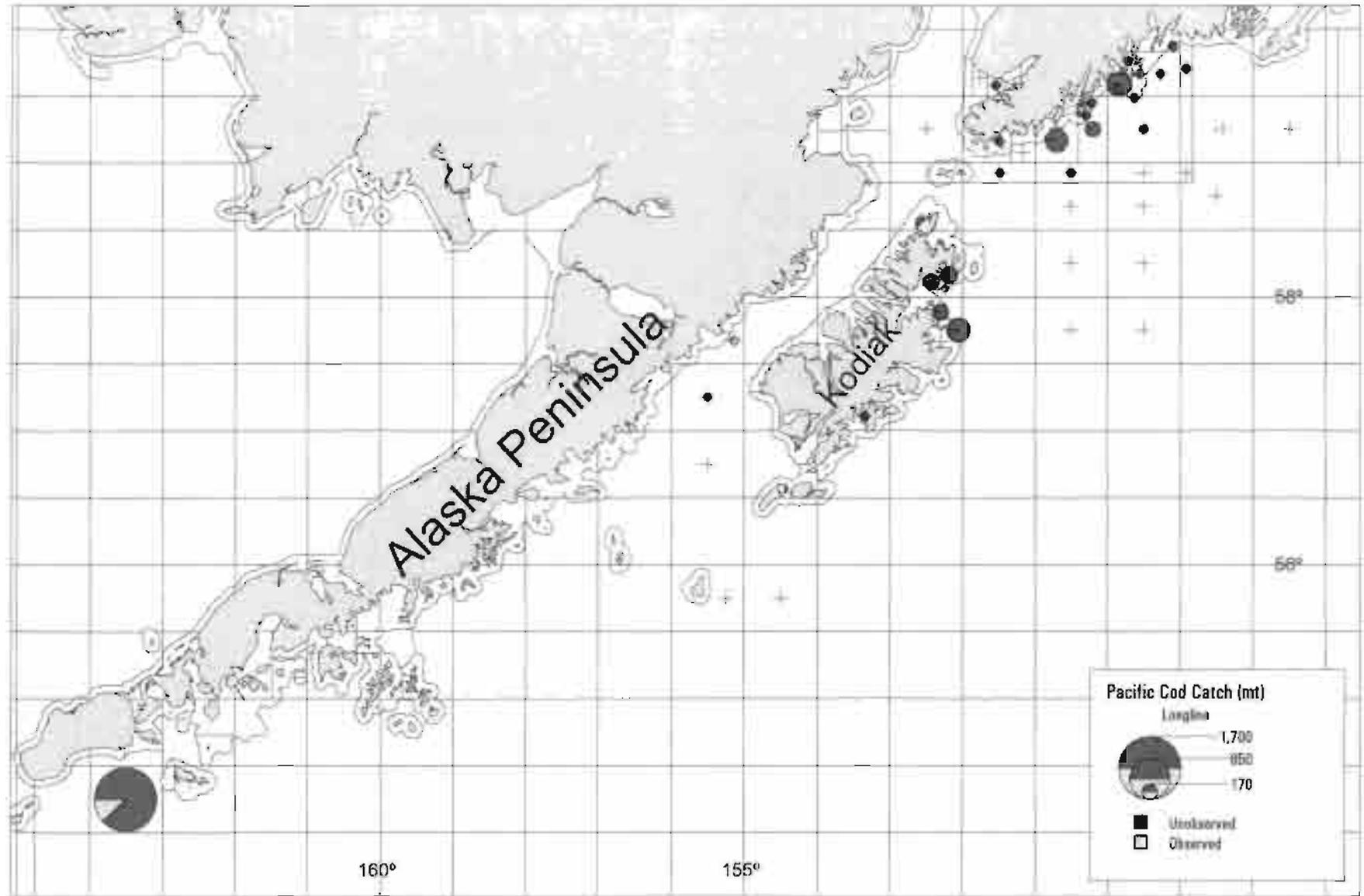


Figure 170. Pacific cod observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

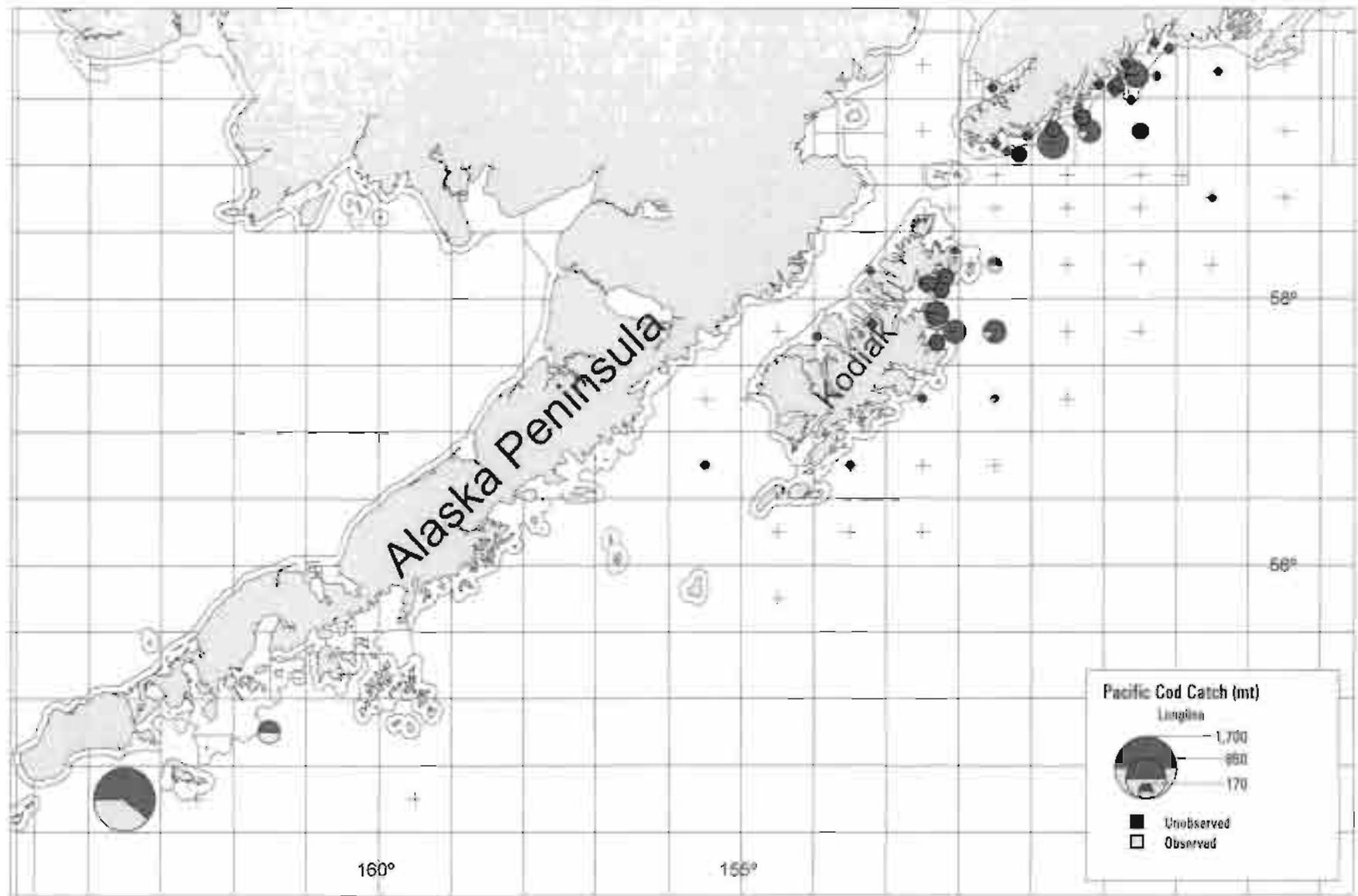


Figure 171. Pacific cod observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

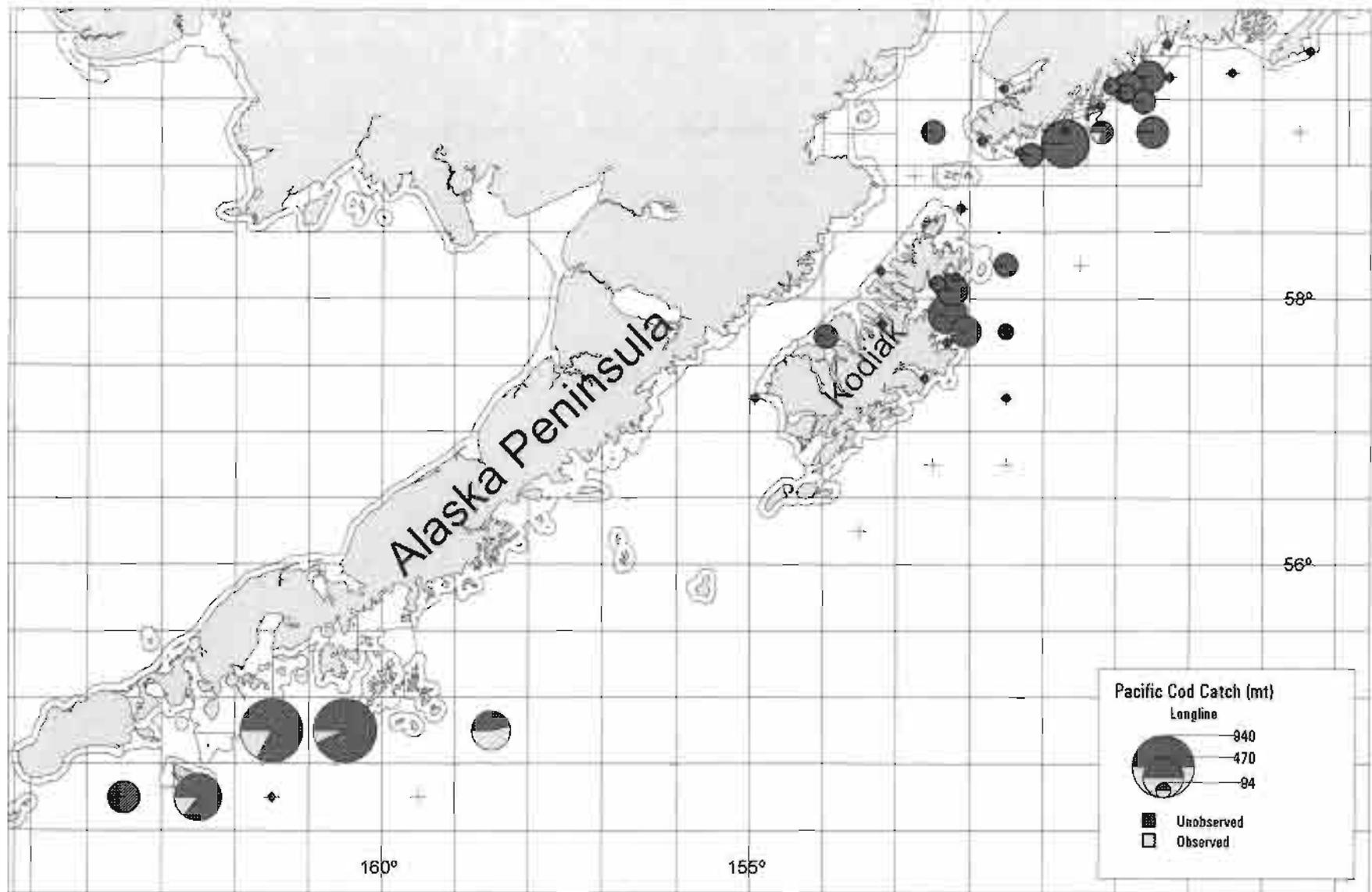


Figure 172. Pacific cod observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

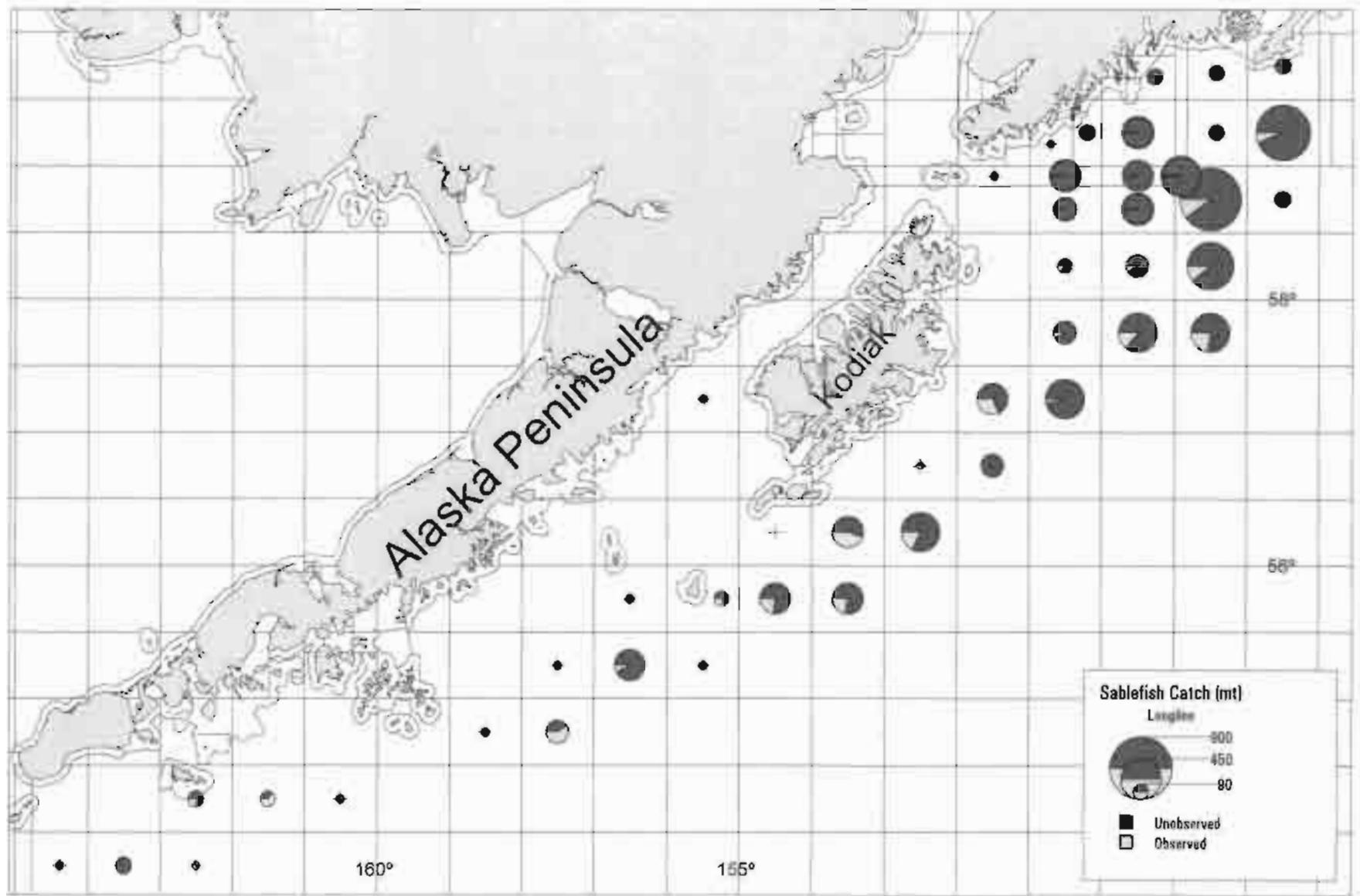


Figure 173. Sablefish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

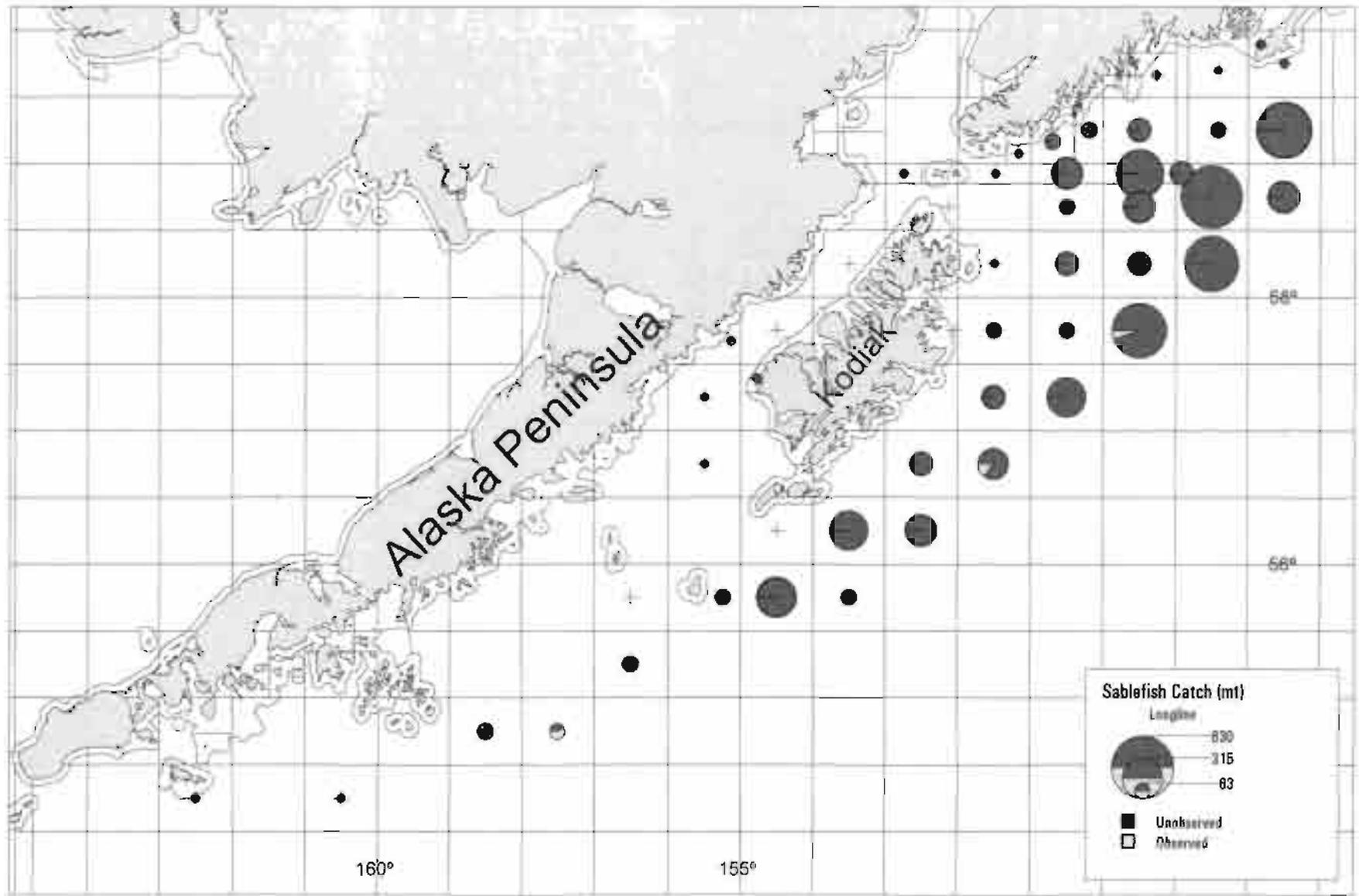


Figure 174. Sablefish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

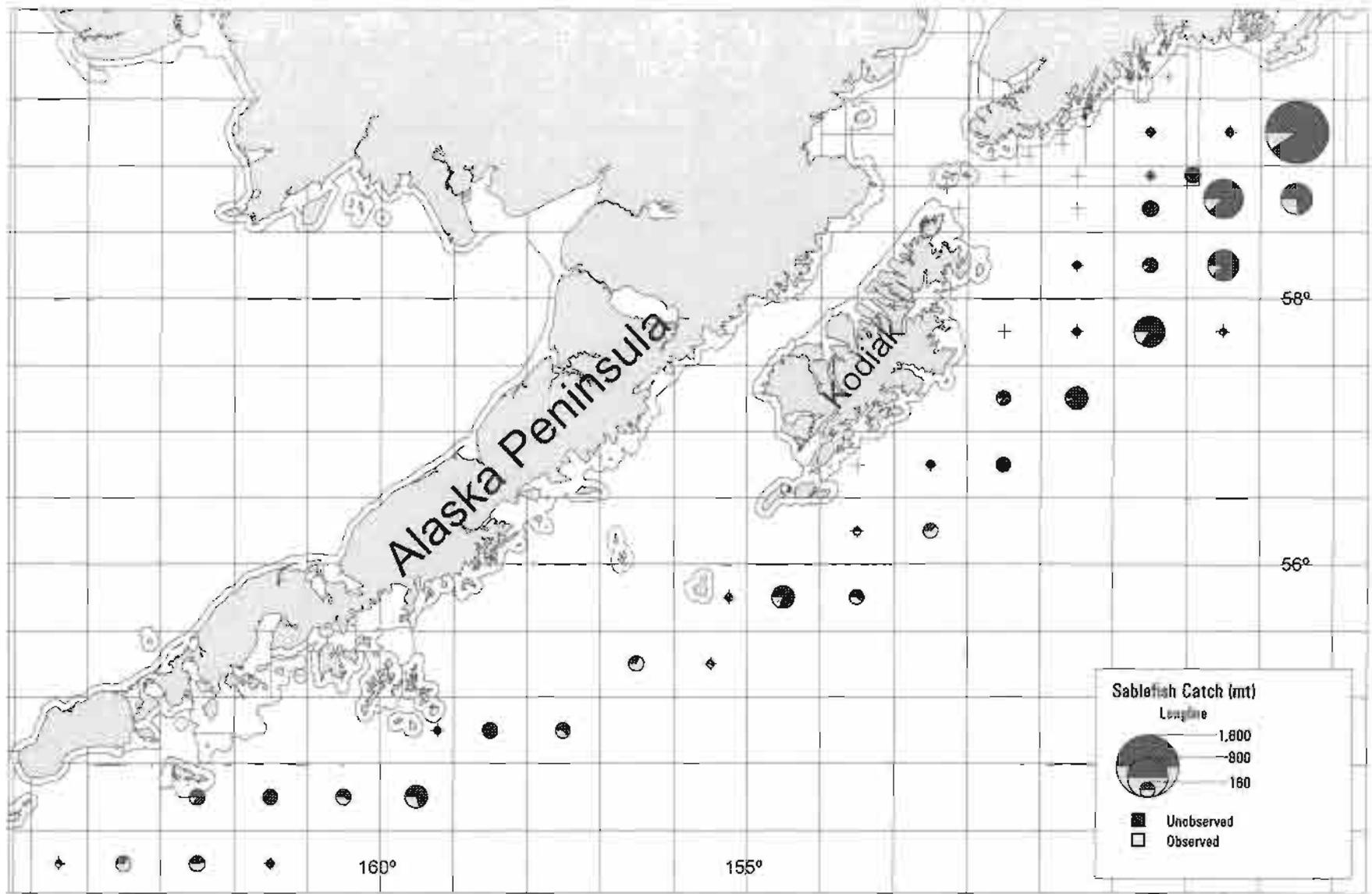


Figure 175 Sablefish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

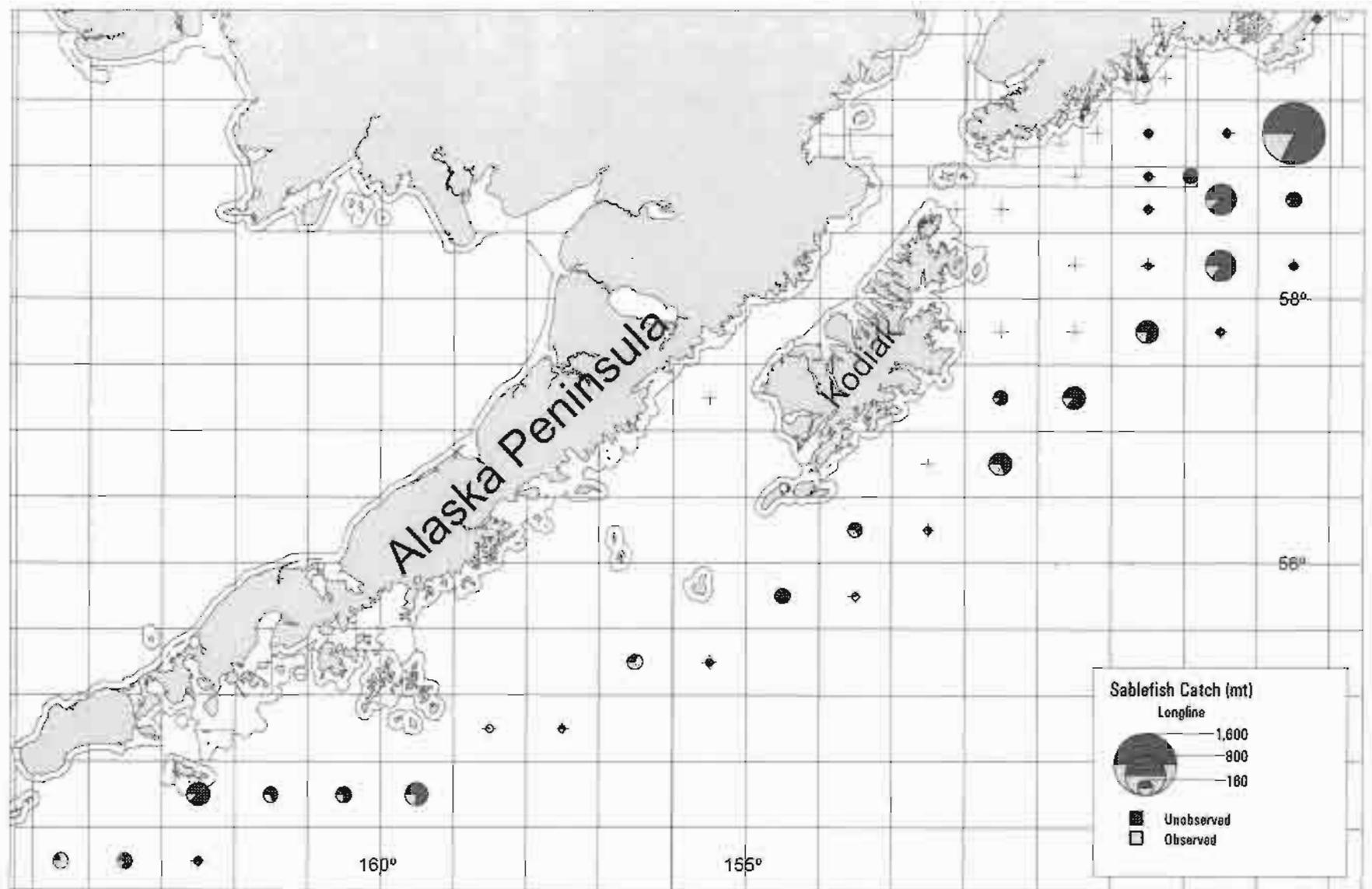


Figure 176. Sablefish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

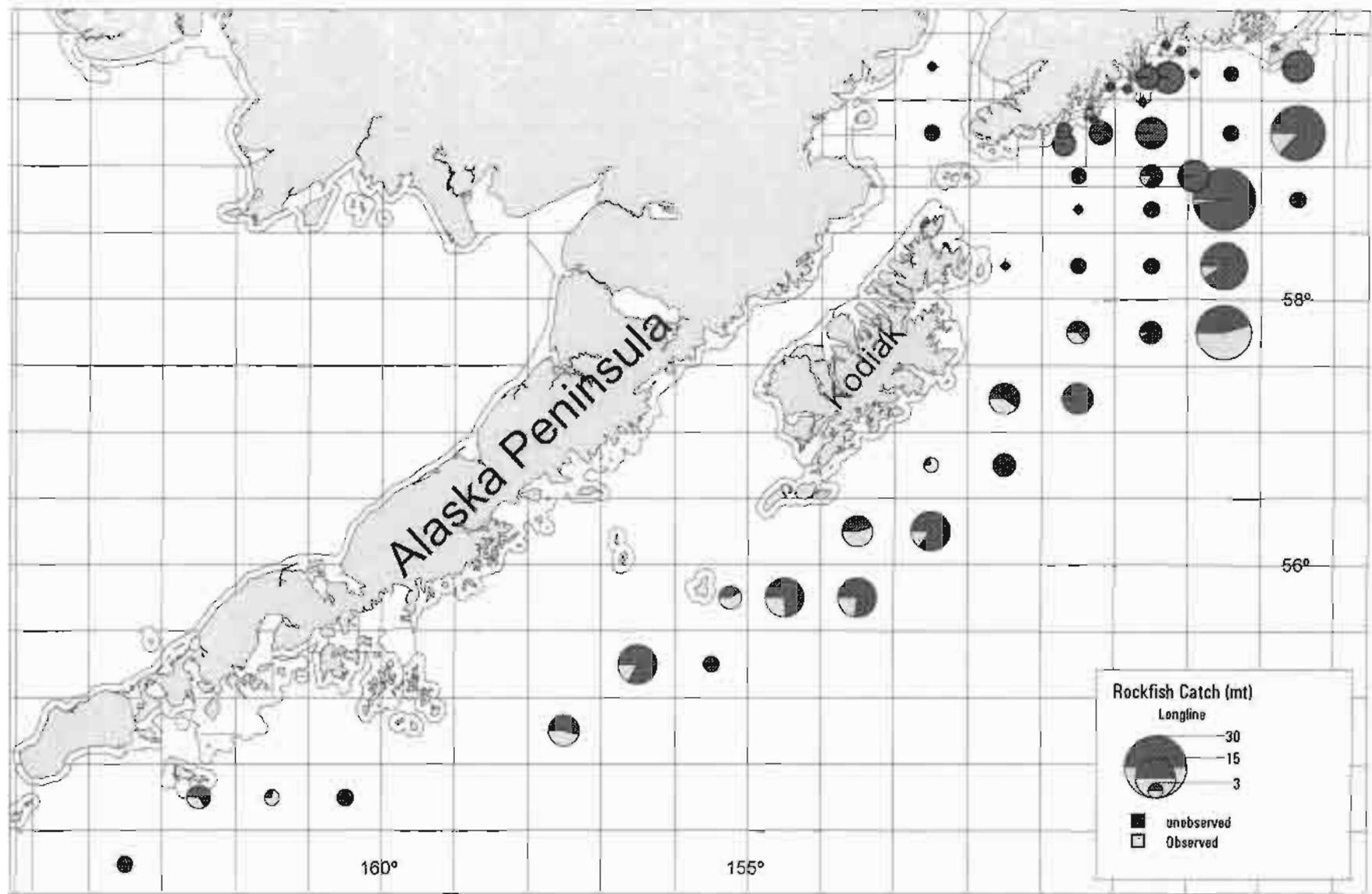


Figure 177. Rockfish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

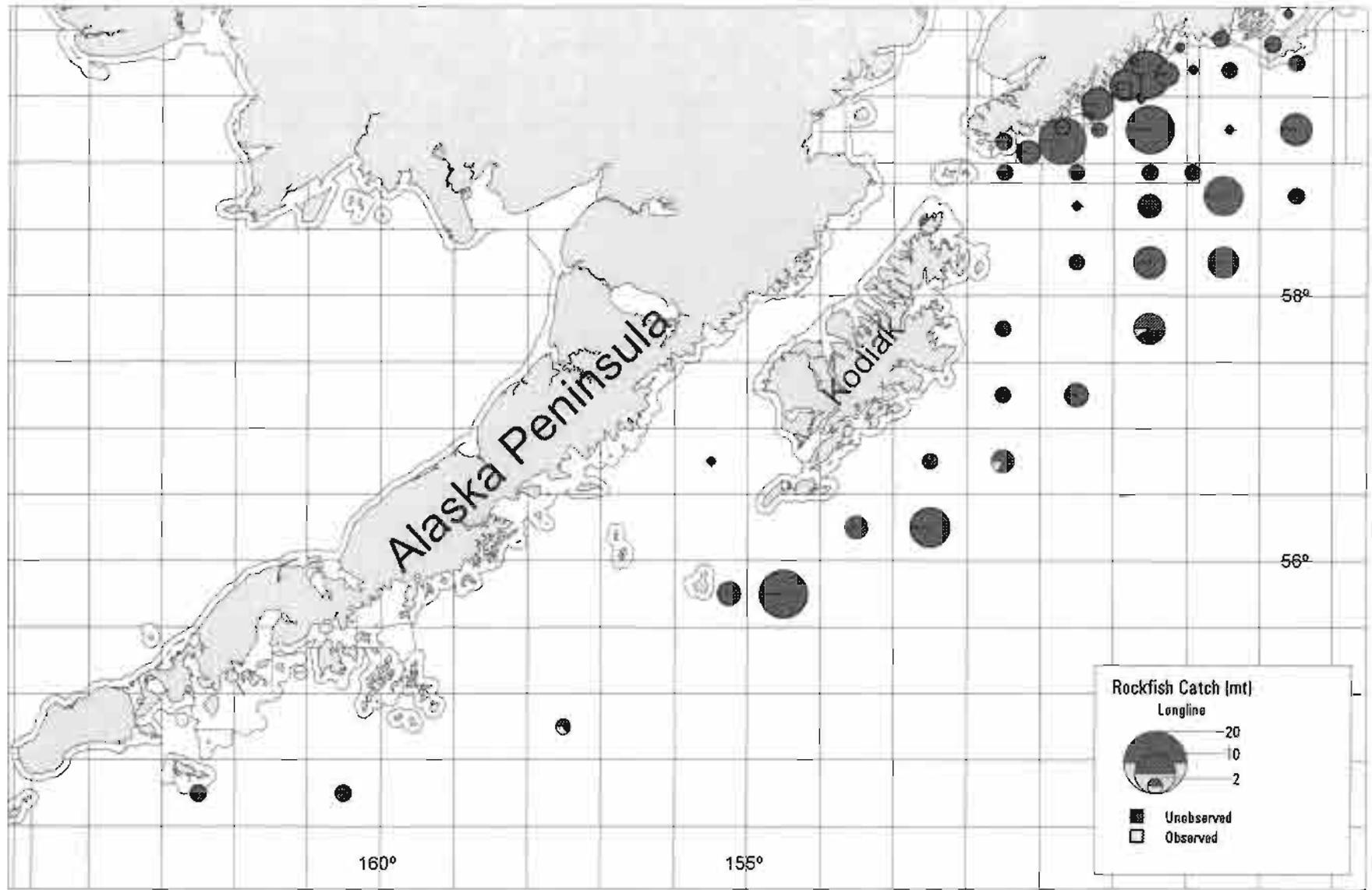


Figure 178. Rockfish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

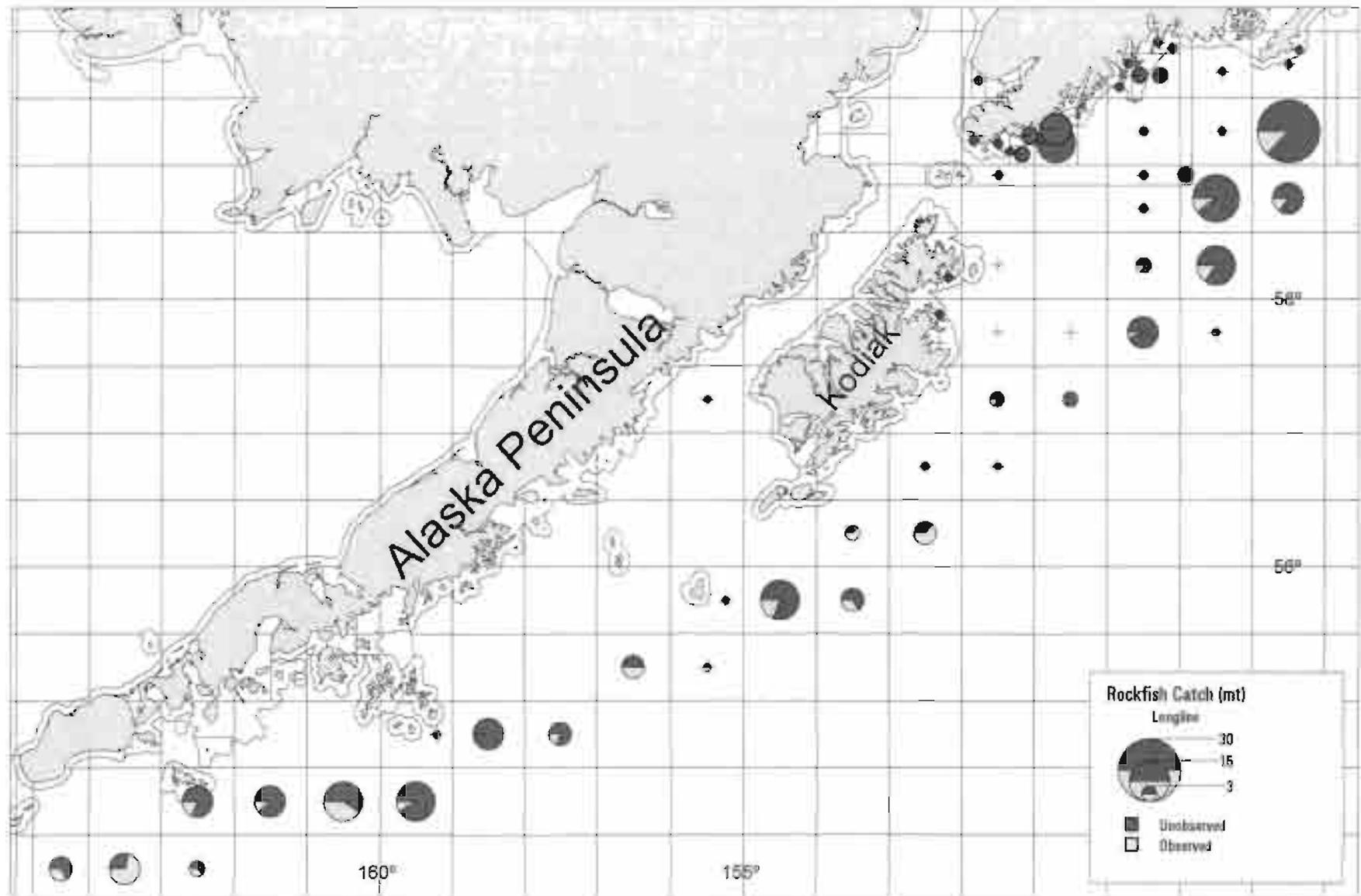


Figure 179. Rockfish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

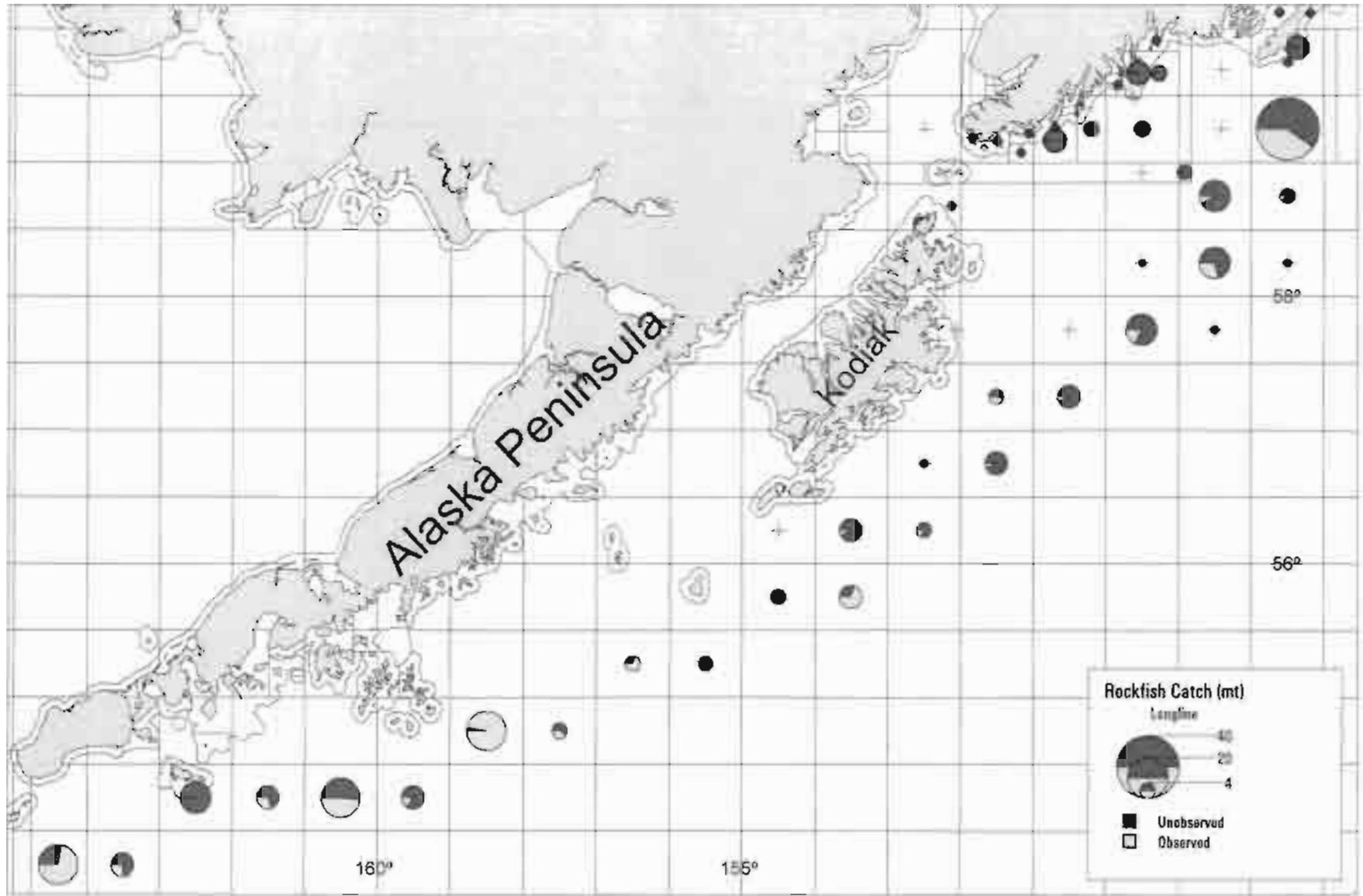


Figure 180. Rockfish observed versus unobserved catch (mt) using longline gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

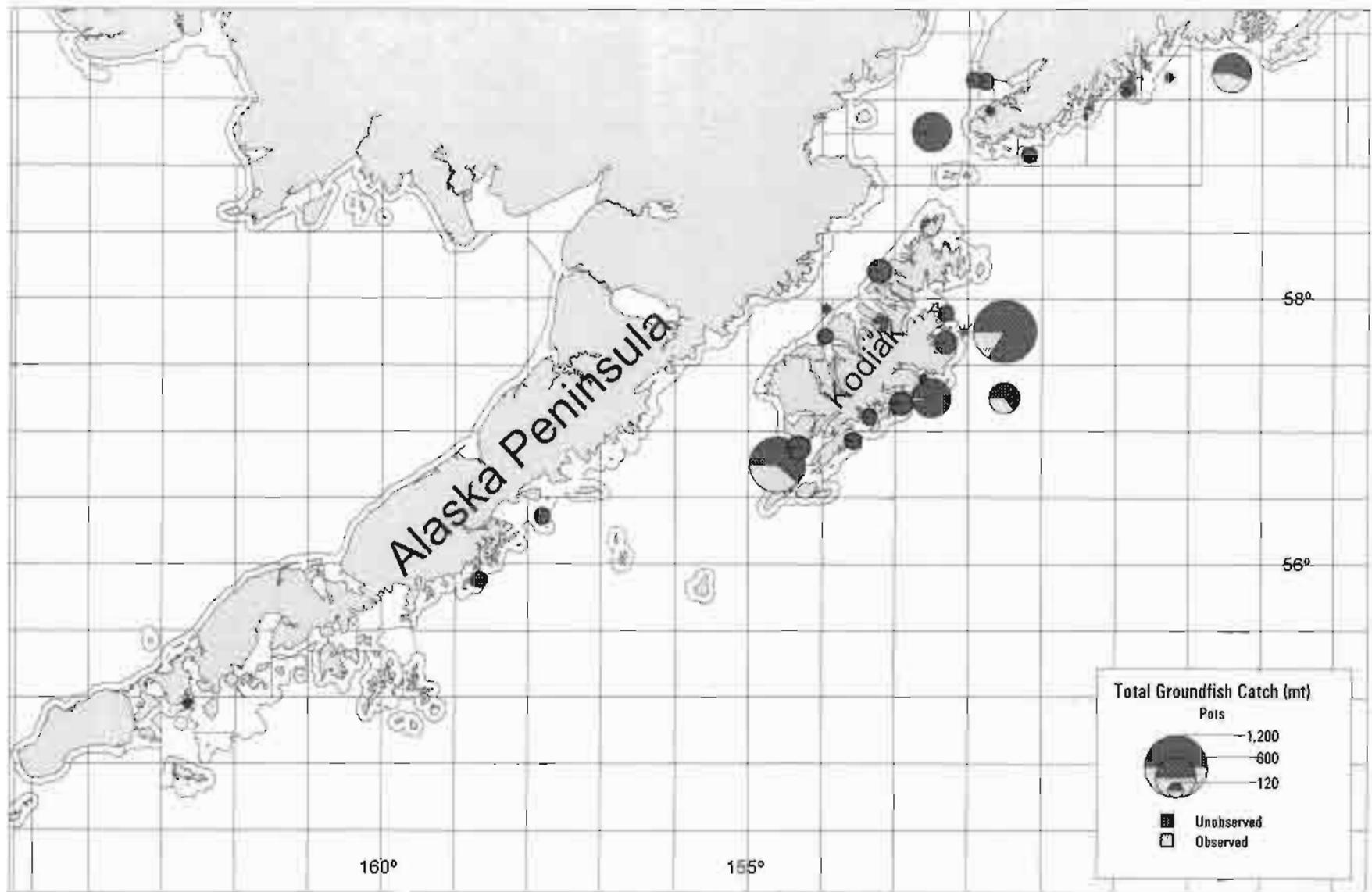


Figure 181. Total observed versus unobserved groundfish catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

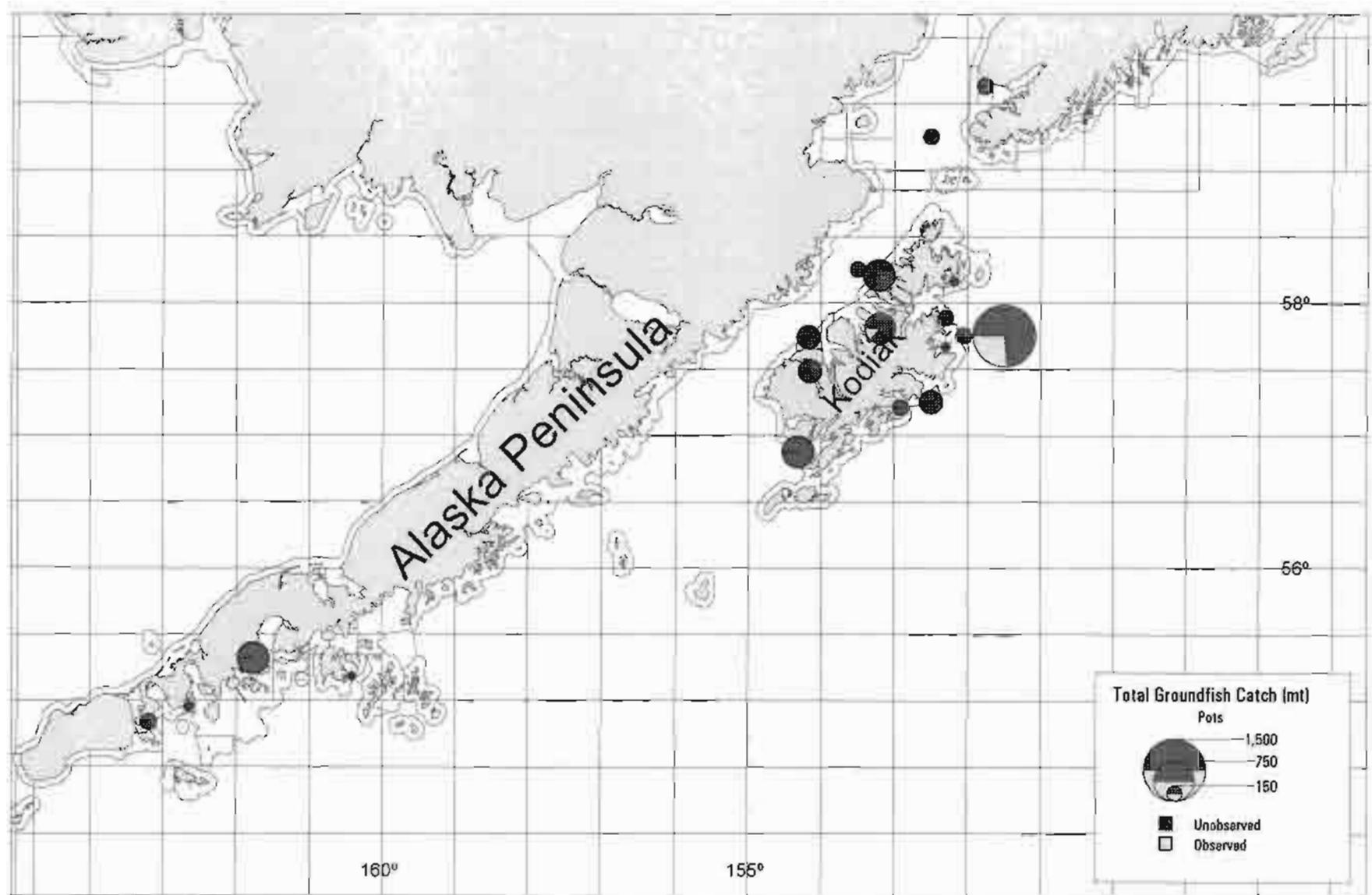


Figure 182. Total observed versus unobserved groundfish catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

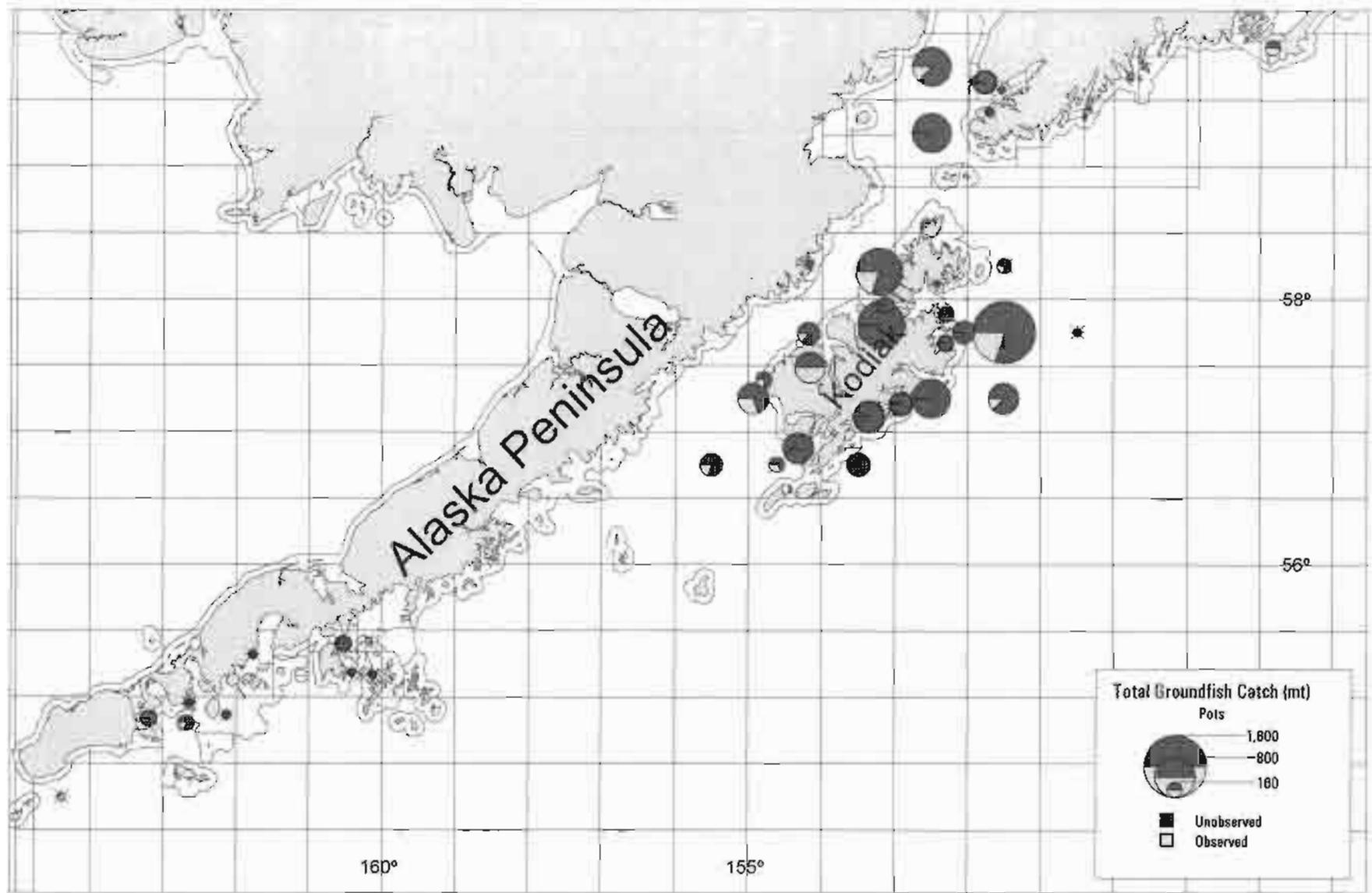


Figure 183. Total observed versus unobserved groundfish catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

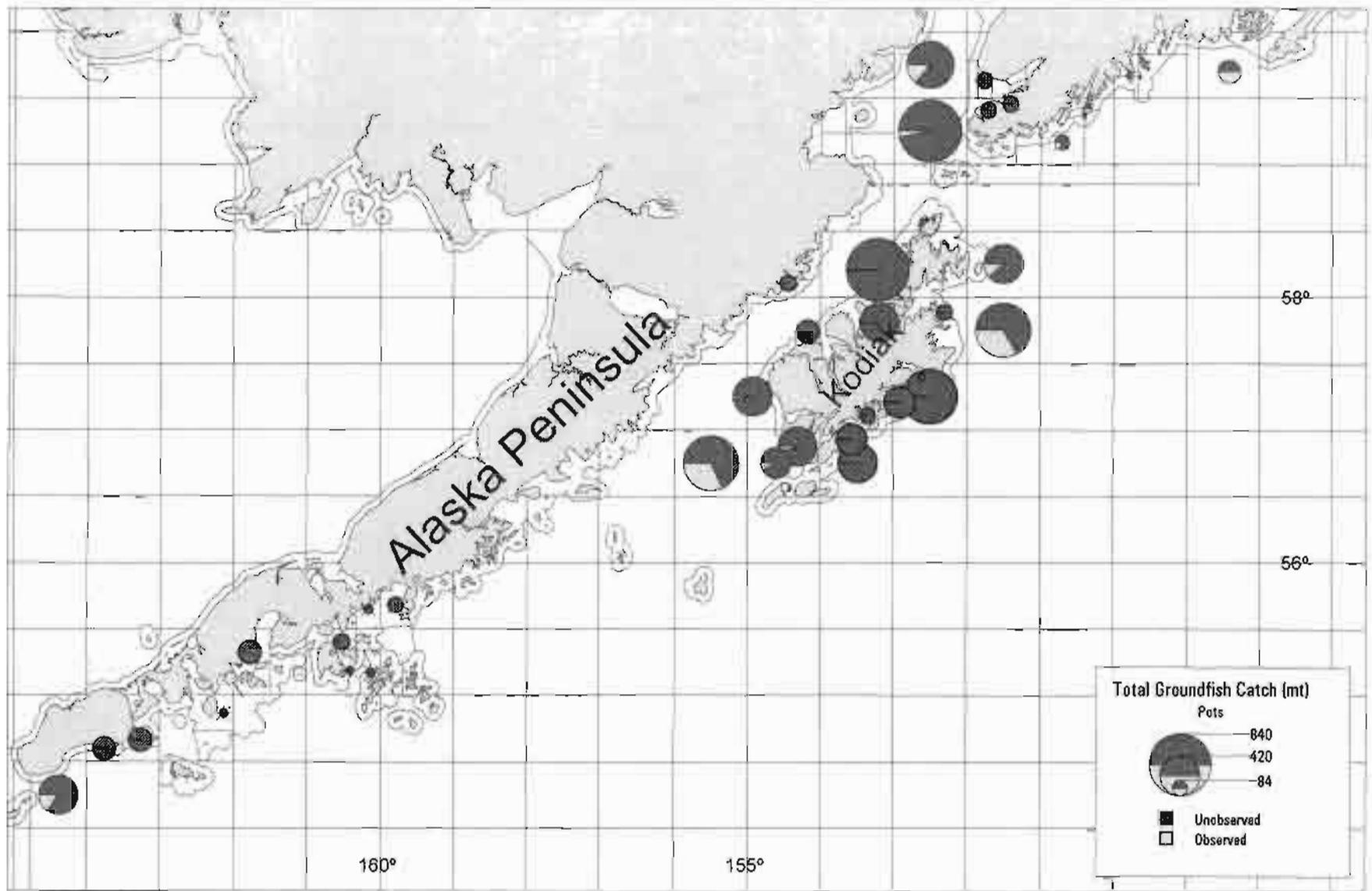


Figure 184. Total observed versus unobserved groundfish catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

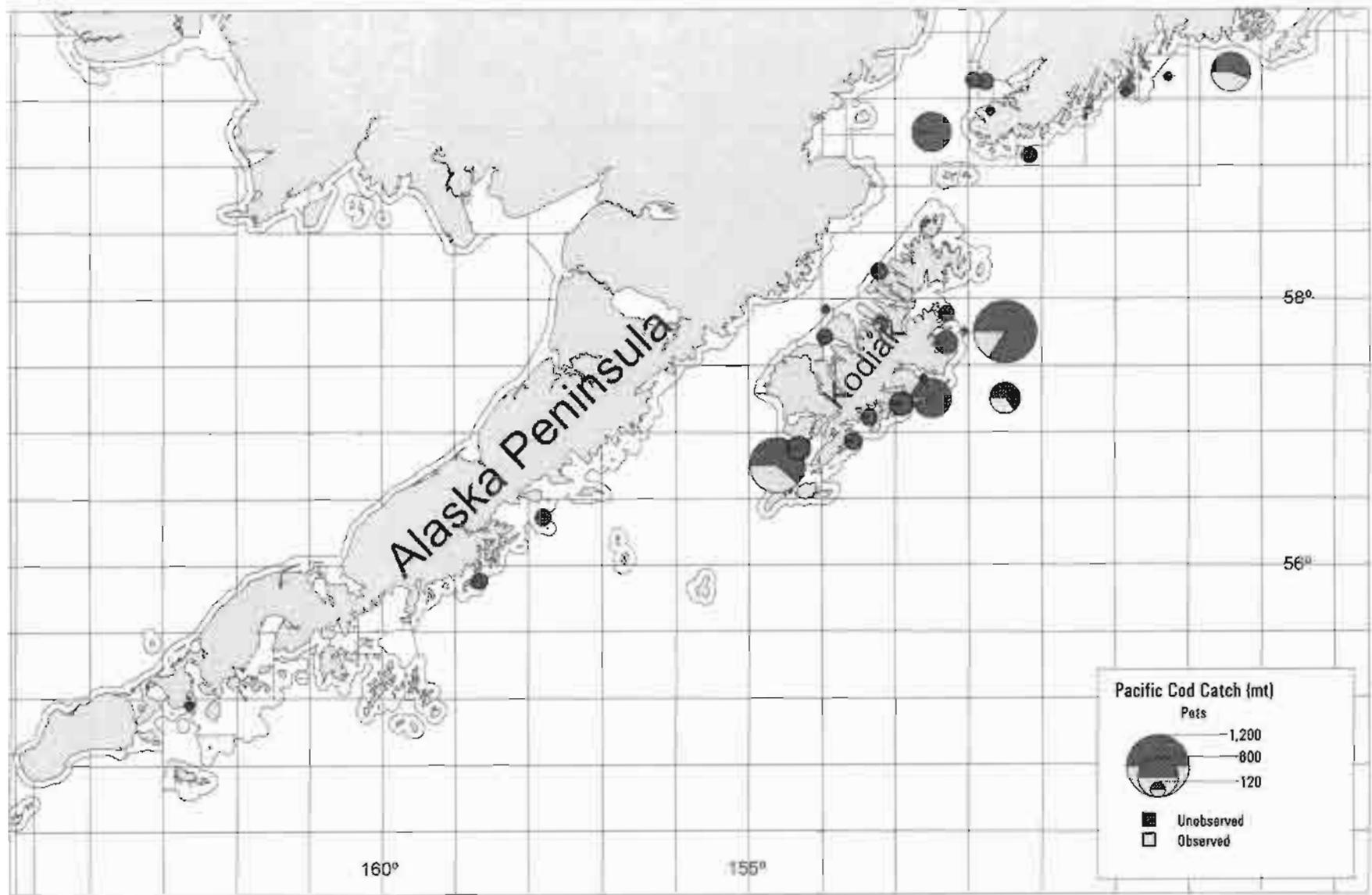


Figure 185. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1993.

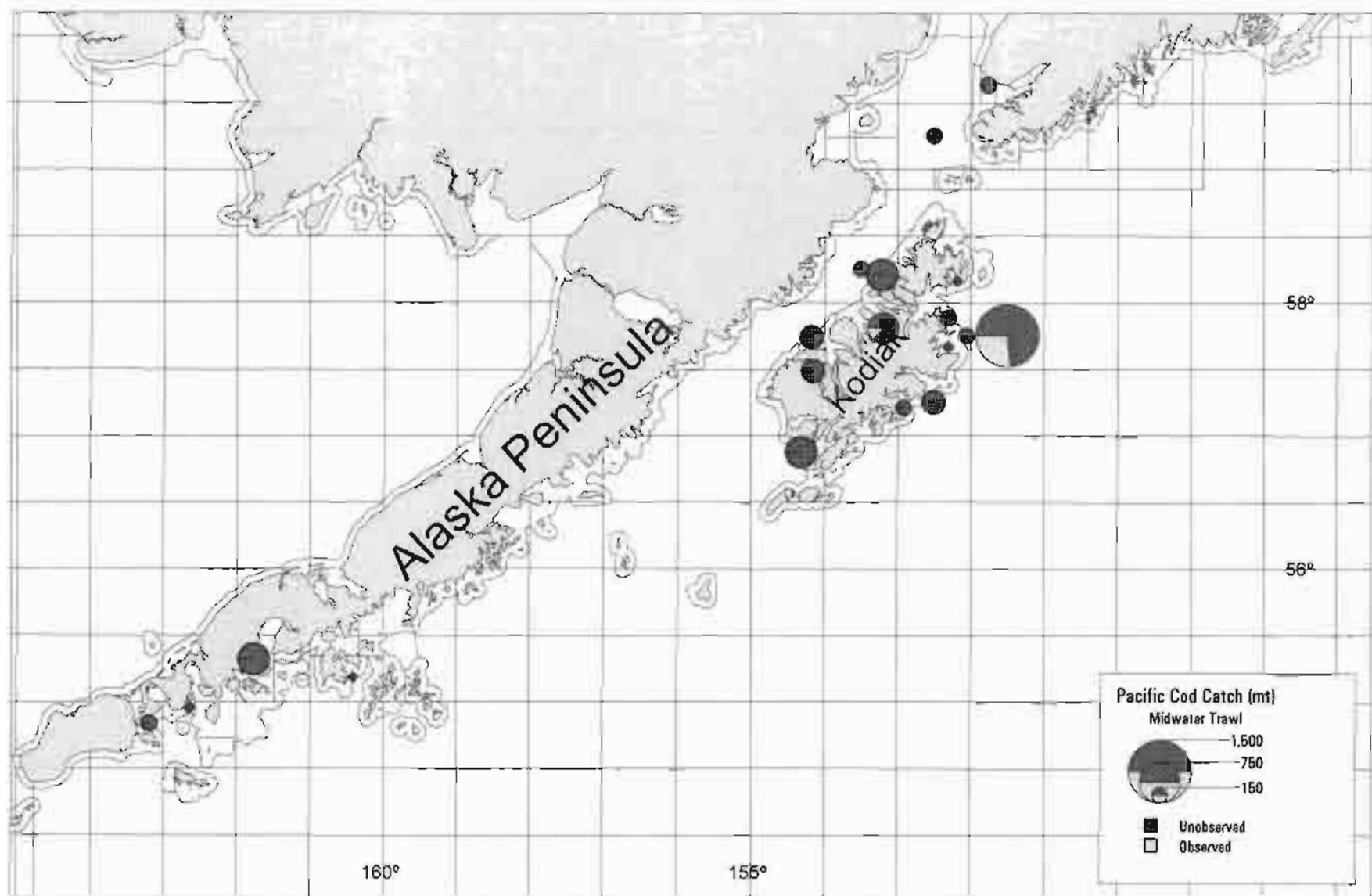


Figure 186. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1994.

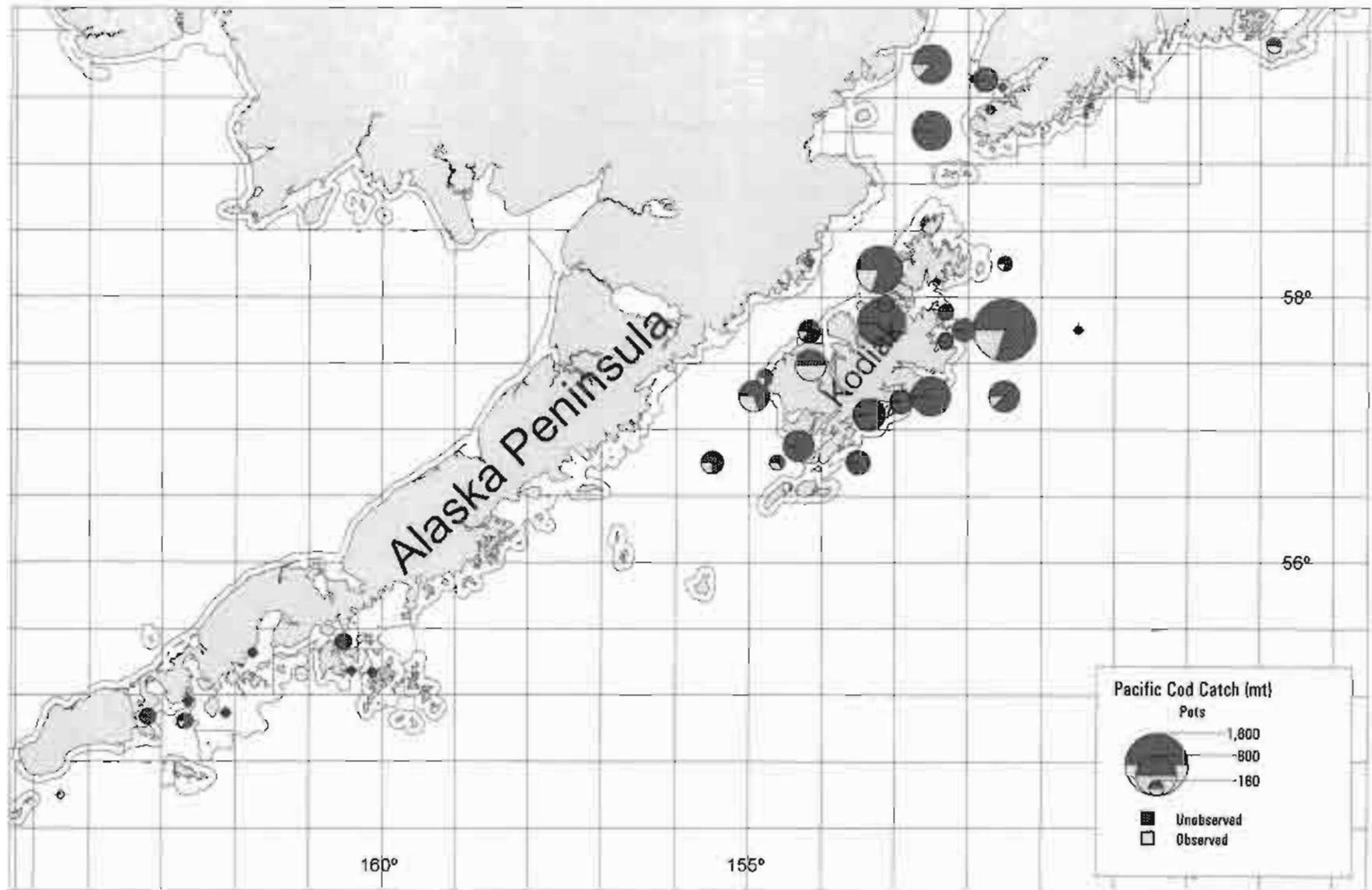


Figure 187. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1995.

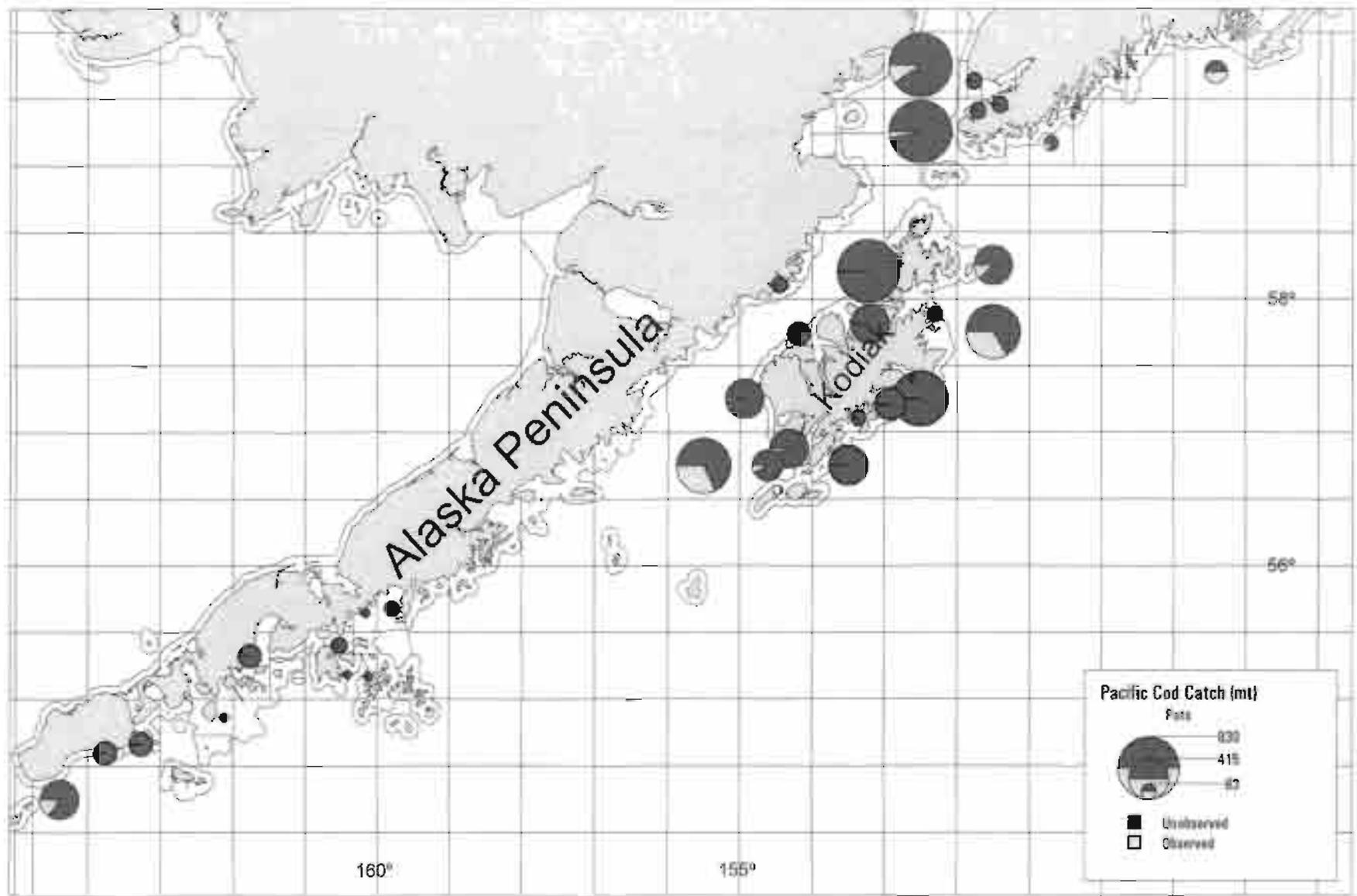


Figure 188. Pacific cod observed versus unobserved catch (mt) using pot gear from vessels less than 125 feet long, within the GOA by ADF&G statistical area, 1996.

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