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ABSTRACT

The Alaska Fisheries Science Center's Resource Assessment and Conservation Engineering (RACE) Division has been conducting annual multispecies bottom trawl surveys of the eastern Bering Sea continental shelf using the same standardized gear and trawling procedures since 1982. The data and results from these surveys are available to the general public. However, because the use of these data and results by researchers outside RACE is not monitored, users should be aware of the limitations of this information and design their analyses accordingly. In particular, there are multiple sources of variability in the sampling efficiency of the trawl gear used for the survey, both species- and size-specific, that may affect inferences about the nature of the overall catches and relative animal densities. Furthermore, the quality and specificity of catch quantification (weighing and counting) at sea of many taxa can vary depending on the overall size of the catch and the species composition of the sample, particularly for non-commercial taxa of small size. This document is an assessment of the relative reliability of survey catch weights, numbers, and catch per unit effort estimates derived from the eastern Bering Sea shelf bottom trawl survey and is intended to serve as a guideline for researchers interested in using the survey data and results. Included within is a confidence matrix of sampling efficiency and catch quantification for all fishes and invertebrates identified during the shelf survey.

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INTRODUCTION

The eastern Bering Sea (EBS) continental shelf supports an abundance of fish and invertebrate taxa. Many of these maintain the high biomass levels required to support large commercial fisheries. The Alaska Fisheries Science Center's (AFSC) Resource Assessment and Conservation Engineering (RACE) Division has been monitoring these resources with annual summer bottom trawl surveys employing a standardized 83-112 Eastern bottom trawl and standardized sampling procedures (Stauffer 2004, Lauth and Conner 2014). The stratified-random design of the EBS shelf survey consists of a grid with stations placed at the center of each 20 × 20 nmi square (Fig. 1). Each year, beginning in 1982, the same 356 stations have been sampled. An additional 20 stations were added to the northwest sector in 1987, making a survey-wide total of 376 stations. Information gathered from these surveys provides fisheries-independent population trends that are invaluable for stock assessments and the development of management strategies for commercially exploited fish and invertebrate species in the region. In addition to their utility as a management tool, data and results from these surveys have been used by a variety of constituents to examine spatial and temporal trends in the fish and invertebrate fauna of the EBS (e.g., Brodeur et al. 2008, Mueter and Litzow 2008, Pinsky et al. 2013).

Survey data are stored in a database, managed at the AFSC by the RACE Division, which consists primarily of catch weights and numbers by species or lowest identifiable taxon (Stevenson and Hoff 2009) and individual haul effort data for estimating catch per unit effort (CPUE). Survey data and results are available to the general public via the AFSC web site (http://www.afsc.noaa.gov/RACE/groundfish/survey_data/data.htm) or by request. However, since the AFSC does not monitor how the information is used by researchers outside the RACE Division, the potential exists for misinterpretation, which can lead to inappropriate or erroneous

conclusions. Because survey data and results are subject to a number of inherent biases, population indices may not be completely representative of the fish and invertebrate populations surveyed. Two potential sources of bias are variable trawl efficiency and variations in the precision of catch recording, both in terms of weight and numbers.

Although users of the survey data generally assume that trawl efficiency remains spatially and temporally constant, research on AFSC trawls (Table 1) has shown that trawl efficiency can be both species- and size-specific (Weinberg and Munro 1999, Munro and Somerton, 2001, Somerton and Munro, 2001, Weinberg et al. 2002, Kotwicki and Weinberg 2005, Somerton et al. 2007, Kotwicki et al. 2013, Weinberg et al. 2016), and variable in time and space (e.g., Kotwicki et al. 2011, 2015). Trawl efficiency may be affected by horizontal and vertical fish distribution, fish density, horizontal herding, vertical herding, and escapement, all of which may vary both by taxon and by specimen size. The trawl used for these surveys was not designed to effectively sample juvenile fishes, small epi- or sub-benthic biota, or pelagic species not commonly found in the bottom 2-3 m of the water column. Varying trawl efficiency confounds the precision of the estimated survey CPUE, and these effects can vary broadly by taxon and by life history stage.

Once the trawl sample reaches the deck, the precision and specificity of catch quantification, both weights and counts, is not equal for all taxa. Given the time and survey resources provided to process trawl samples, some taxa are weighed more precisely than others, depending on the size and complexity of the haul. Non-commercial invertebrate taxa of small body size are particularly problematic, as they can remain hidden among other components of the catch or attach themselves to other living organisms, thereby biasing estimated weights. As with catch weights, the precision of catch numbers may vary by taxon and depends upon the size and complexity of the haul. For most taxa in most hauls, specimen counts represent an

extrapolation from a subsample of the catch. However, for some commercial species, such as red king crab, Pacific halibut, and skates, individuals are sorted and counted from the entire catch. Thus, catch accounting may be biased by the relative precision of weight determination protocols or by extrapolation error, and these biases vary among taxa.

This document is intended to provide users of the survey data and results with a general taxon-by-taxon index of reliability for catch weights and catch numbers collected on bottom trawl surveys, as well as the calculated CPUEs within the survey database. This is a companion paper to an earlier document prepared by Stevenson and Hoff (2009) describing the confidence associated with the identification of species and taxa from 1982 to 2008, a period during which identification resources improved dramatically (e.g., Yang 1988, Orr and Matarese 2000, Orr et al. 2000, Stevenson et al. 2007). Two matrices are presented here: one for fishes and one for invertebrates. In these matrices, we have attempted to express our general confidence in the reliability and accuracy of survey-generated CPUE data for each taxon in view of two considerations: 1) the assumed or known sampling efficiency of the 83-112 Eastern survey bottom trawl for that taxon, and 2) our ability to accurately enumerate and weigh specimens of that taxon as the trawl sample is processed. Scores are based on various factors, such as relative mobility (ability of a taxon to escape capture in the trawl), typical position in the water column or substrate layer, size, and close associations with other taxa. For some taxa, they were also influenced by previous research on the sampling efficiency of AFSC bottom trawl gear (Table 1). Nonetheless, these scores are unavoidably subjective. Users of the RACE Division survey trawl database, and those obtaining survey data and results from the AFSC web site, are encouraged to contact RACE Division staff from the Groundfish Assessment Program for further clarification.

METHODS

The trawl gear and trawling protocols used in AFSC surveys are described in Stauffer (2004). Samples obtained from the survey's standard 30-min tow range in weight from 30 to 17,800 kg (median = 1,167 kg). The time available to process this volume of catch is approximately equal to the time required for the vessel to traverse the 20 nautical miles (nmi) to the next towing site (approx. 2 hours). Catches weighing 1,200 kg or less by visual estimate are lifted by crane from the trawl deck to a sorting table, where the catch is sorted and enumerated in its entirety. Catches from these tows are processed most precisely. However, roughly half of all EBS tows exceed the limits of the sorting table and must be subsampled. This is accomplished by lifting the whole catch off the deck, obtaining its weight (kg) with a load cell, and emptying it into a large bin containing a 1.5 m^2 brailing net. The catch is subsampled by lifting the contents of the brailing net (approx. 1,200 kg) to the sorting table. The remaining catch on deck is sifted or "whole-hauled" for commercial crabs (*Lithodes* spp., *Paralithodes* spp., *Chionoecetes* spp.) and Pacific halibut (*Hippoglossus stenolepis*), and, in more recent years, other large-bodied species including Greenland turbot (*Reinhardtius hippoglossoides*), Pacific cod (*Gadus macrocephalus*), skates (*Raja* spp., *Bathyraja* spp.) and some species of sculpins (*Hemitripterus bolini*, *Hemilepidotus* spp., *Myoxocephalus* spp.). The catch from the sorting table is then weighed and enumerated by species, and weights and numbers are extrapolated to the total catch based on weight. Catches larger than the lifting capacity of the crane (approx. 5 metric tons) are emptied on deck and measured volumetrically using a density coefficient applied to calculate total catch weight. Once the weight of these very large catches (approx. 1.5% of all catches) is estimated, a sample is brought to the table for sorting and enumeration, and then extrapolated to

the total catch. Whole-hauling occurs for the species mentioned above even on the largest catches.

Trawl efficiency and enumeration confidence matrices were established for both fishes (Table 1) and invertebrates (Table 2) collected during the annual surveys of the EBS continental shelf conducted by the AFSC from 1982 through 2014. The trawl efficiency index scores, provided for each taxon code appearing in the RACE database, are subjective, but were influenced by the results from several catch efficiency field experiments using AFSC trawl gear. Publications from these experiments are listed in the References section (e.g., Weinberg and Munro 1999, Munro and Somerton, 2001, Somerton and Munro, 2001, Weinberg et al. 2002, Kotwicki and Weinberg 2005, Somerton et al. 2007; Weinberg et al. 2016). Scores provided for the **efficiency** index are defined as follows:

- High: CPUE believed to be an accurate and consistent indicator of relative animal density.
- Mod: CPUE may or may not be an accurate and consistent indicator of relative animal density.
- Low: CPUE is not an accurate and consistent indicator of relative animal density.

Scores provided in these indices for confidence in the enumeration of **weight** and **count**s are defined as follows:

- High: easy to enumerate (weigh or count).
- Mod: often difficult to consistently enumerate (weigh or count).
- Low: very difficult to consistently enumerate (weigh or count).

For both fishes and invertebrates, efficiency and enumeration indices were influenced by many factors, including the following:

- Animals that have high **substrate** fidelity are always or almost always close to, or in direct contact with, the sea floor, and are thus generally available to the trawl. Species with low substrate fidelity are often higher in the water column than the passing headrope of the trawl, and are thus often unavailable to the trawl. Examples include salmon, pollock, herring, and squid. Scores: high-usually on or near the substrate; low-often not near the substrate.
- Some animals do not remain physically **intact** during the processes of capture, sorting, and enumeration. Animals may break apart, such as crustaceans losing legs or sea stars losing arms, they may lose water or shed internal organs, as sea anemones and sea cucumbers often do, or they may be crushed, as in the case of some sea urchins. This may be an issue for both fishes and invertebrates. Scores: yes-likely to remain intact; no-unlikely to remain intact.
- The likelihood of **detection** for an animal may be significantly reduced if it is small and inconspicuous or tends to remain hidden in and among other biota. Examples include hermit crabs that have departed from their shells and small brittlestars, as well as small and inconspicuous fishes, such as some sculpins, eelpouts, and snailfishes. This issue may affect both weights and counts of fishes and invertebrates. Scores: high-always detected; low-frequently undetected.
- Some animals have a tendency to **entangle** in the trawl gear and thus remain in the net after the catch sample is removed, and thus all organisms may not be weighed and

counted. Examples include basketstars, sea whips, and small eelpouts. Scores: yes-likely to entangle; no-unlikely to entangle.

- The smaller an animal is, the more likely it is to escape through the trawl **mesh**. Examples of animals commonly small enough to pass through the trawl mesh include snails, juveniles of all fish species, and small adult sculpins. Scores: yes-likely to pass through the mesh; no-unlikely to pass through the mesh.

In addition to these factors, the index for invertebrates was influenced by the following factors that are not relevant to fishes:

- Some animals **attach** to the substrate or other biota, adding weight which cannot be accurately subtracted. Examples include anemones adhering to rocks, and barnacles adhering to rocks or snails. Conversely, adherent biota attached to the subject animal adds weight that cannot be accurately subtracted, as in the case of barnacles attached to the carapaces of crabs. Scores: yes-likely to be adherent; no-unlikely to be adherent.
- Animals that form colonies or **clusters**, such as corals and mussels, cannot be individually enumerated on deck given reasonable time constraints. Scores: yes-likely to be clustered or colonial; no-not likely to be clustered or colonial.
- Animals with a low vertical **profile**, particularly those that are very closely associated with or partially buried in the substrate, may easily escape under the footrope. Examples include sea stars, bivalves, and shrimps. The higher the animal's profile the more likely it will pass over the footrope and be captured in the trawl. This factor is not applicable to pelagic invertebrates. Scores: low (< 1 cm); medium (2–4 cm); high (> 4 cm).

Supraspecific taxa were scored as a roughly weighted average of their constituent taxa. For example, the family Agonidae (poachers) was scored “mod” for efficiency, but the efficiency scores for the constituent species of agonids range from low to high. Because most of the taxa were scored as “mod”, the overall family received a score believed to be representative of most of the constituent taxa. The same taxon (Agonidae) was scored “high” for both weight and count confidence indices. However, two of the constituent species within Agonidae (*Odontopyxis trispinosa* and *Ulcina olrikii*) were scored as “mod” as they are relatively small fishes that may be more difficult to detect or may escape through the meshes of the net. Again, because most agonid taxa were scored “high” in these indices, the family received a code most broadly representative of the constituent taxa.

RESULTS AND DISCUSSION

Over 800 taxa encountered from 1982 to 2014 were considered for this analysis. Trawl efficiency and catch enumeration confidence are primarily a function of animal size, catch complexity, and total catch volume.

Trawl Efficiency

Confidence ratings for capture efficiency of the trawl varied from high to low for fish taxa (Table 1). High confidence scores, meaning CPUEs are likely to be a good measure of relative animal density, were assigned to rockfishes, flatfishes, and greenlings, as well as the larger gadids and a few other species. Moderate scores, meaning CPUEs may or may not be a good measure of relative animal densities, were assigned to skates and most of the other fish taxa. Low confidence scores, meaning CPUEs are probably a poor measure of relative animal densities, were assigned to taxa that are often not closely associated with the substrate, such as

osmerids, salmon, and small gadids (including Arctic and saffron cods), as well as a variety of small species, including some sculpins, poachers, and lumpsuckers.

In contrast to the fishes, no high confidence scores were assigned to invertebrate taxa (Table 2), primarily because the trawl footrope lightly skims the bottom, allowing the relatively passive benthic invertebrate fauna to pass beneath it. Moderate confidence scores were assigned to most of the invertebrates with higher vertical profiles, including larger crab species, although previous studies (e.g., Weinberg et al. 2004, von Szalay and Somerton 2005, Somerton et al. 2013) have shown escapement underneath the footrope is common for crabs. Low confidence scores were generally assigned to benthic invertebrate taxa with very low vertical profiles, as well as some with a high vertical profile, such as seawhips, that may bend following contact and be passed over by the footrope.

Catch Weights

High confidence ratings for catch weights were assigned to most fish and commercial crab taxa under the assumption that our subsampling techniques for large catches are unbiased (Table 1). Moderate confidence ratings, meaning the taxon is difficult to consistently weigh, were assigned to skate egg cases, which may or not be full, as well as small species of sculpins, poachers, lumpsuckers, and snailfishes which can remain hidden among the other biota, and the smaller species of eelpouts, which have a tendency to entangle in the fine mesh liner contained within the codend, thus remaining in the net. No fish taxa were assigned a low confidence score for catch weight.

Confidence ratings for invertebrates were highly variable (Table 2). High confidence ratings were assigned to a variety of supraspecific taxa, but not necessarily to all members of those taxa. High ratings were assigned to many of the anemones, snails, bivalves, octopodids,

seastars, and all of the large crab taxa. Moderate confidence ratings were assigned to most of the remaining invertebrates, except for the smallest, such as amphipods, isopods, mysids, barnacles, and brittlestars, which were assigned low confidence scores. Basketstars were also rated low due to their tendency to become entangled in the net, as were sponges, which lose water weight over time while sitting on deck.

Catch Numbers

High confidence ratings for catch numbers were assigned to most fish taxa under the assumption that our subsampling techniques for large catches are unbiased (Table 1). Moderate confidence ratings were assigned to skate egg cases, which may or may not be sorted from the catch, as well as small species of sculpins, poachers, lumpsuckers, and snailfishes, which can remain hidden among the other biota, and the smaller eelpouts, which entangle in the fine mesh codend liner, thus remaining in the net. No fish taxa were assigned low confidence ratings.

Confidence ratings for catch numbers, as for weights, among invertebrates were highly variable (Table 2). High confidence ratings were assigned to all of the anemones, nudibranchs, crabs (excluding hermit crabs), mollusks (excluding mussels), seastars, and sea cucumbers. Moderate confidence ratings were assigned to most of the remaining invertebrate taxa, except for those that colonize or clump together, such as hydroids, corals, barnacles, sponges, bryozoans, brachiopods, and ascidians, as well as the very smallest invertebrates encountered, such as amphipods, isopods, mysids, barnacles, and brittlestars.

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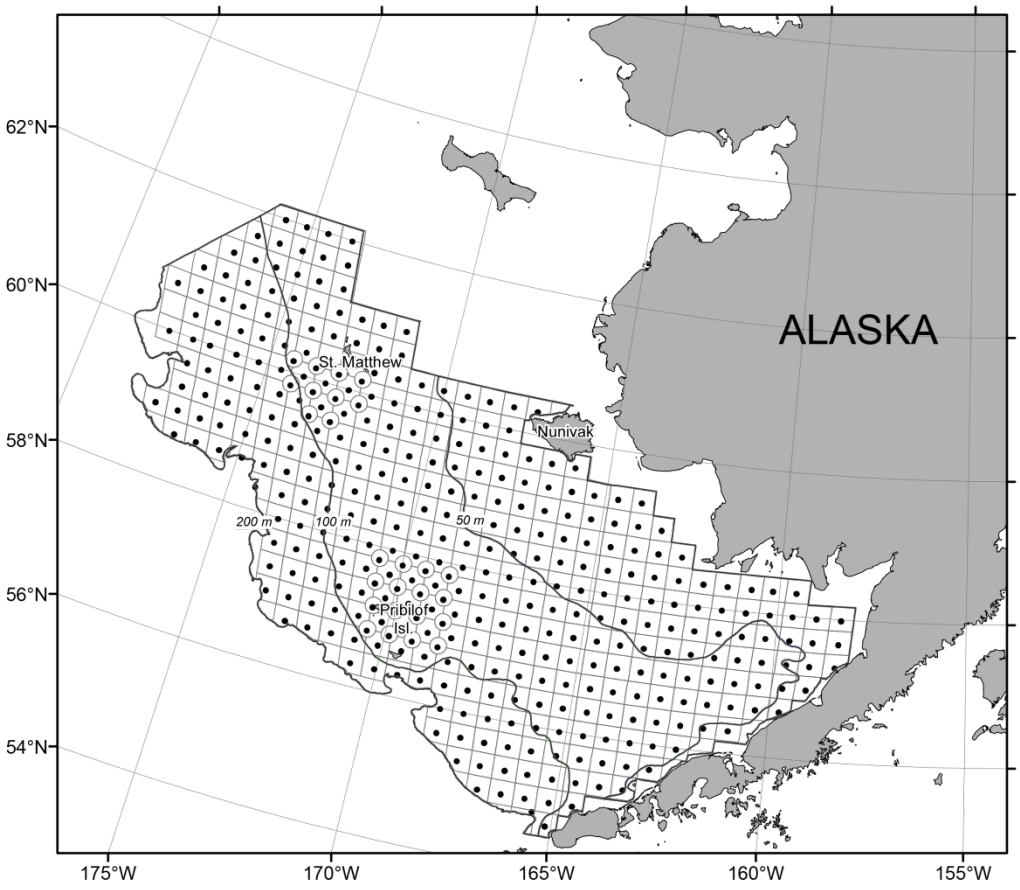

Figure 1. -- Station map of the eastern Bering Sea shelf bottom trawl survey conducted annually by the Alaska Fisheries Science Center.

Table 1. -- Summary of previously published research on the efficiency of AFSC bottom trawls.

Citation	Species	Effects
Somerton and Otto 1999	Crabs (*Chionoecetes*)	Size selectivity
Weinberg and Munro 1999	Flatfishes, gadids	Light intensity
Munro and Somerton 2001	Flatfishes	Size selectivity
Somerton and Munro 2001	Flatfishes	Horizontal herding
Somerton and Weinberg 2001	General	Trawl speed
Munro and Somerton 2002	Flatfishes, Pacific cod	Size selectivity
Somerton et al. 2002	Crabs (*Chionoecetes*, *Paralithodes*)	Trawl duration
Weinberg et al. 2002	Flatfishes, gadids, skates	Trawl speed
Somerton 2004	Pacific cod, walleye pollock	Horizontal herding
Weinberg et al. 2004	Red king crab	Size selectivity
Kotwicki and Weinberg 2005	Skates, flatfishes, others	Size selectivity
Von Szalay and Somerton 2005	Flatfishes, sea stars	Trawl width
Somerton et al. 2007	Flatfishes	Horizontal herding, size selectivity
Kotwicki et al. 2009	Walleye pollock	Light intensity
Kotwicki et al. 2011	General	Area swept
Kotwicki et al. 2013	Walleye pollock	Vertical herding, density dependence
Somerton et al. 2013	Snow crab	Size selectivity, substrate, depth
Kotwicki et al. 2014	Walleye pollock	Density dependence
Kotwicki et al. 2015	Walleye pollock	Environmental variables, size

Table 2. -- Catch enumeration (weight and count) and trawl efficiency confidence index for fishes recorded on the eastern Bering Sea shelf survey (1982–2014), as well as a listing of factors influencing these indices. See text for an explanation of scoring for confidence indices and influencing factors. Taxon codes are taken from the RACE Division Species Code Book (http://www.afsc.noaa.gov/RACE/groundfish/species_codebook.pdf). An asterisk in the efficiency confidence index indicates that research on the catchability of that taxon can be found in Table 1.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
10	Petromyzontidae	lamprey unident.	low	high	high	low	yes	high	no	yes
21	*Lampetra tridentata*	Pacific lamprey	low	high	high	low	yes	high	no	yes
232	*Lamna ditropis*	salmon shark	low	high	high	low	yes	high	no	no
310	*Squalus acanthias*	spiny dogfish	mod	high	high	low	yes	high	no	no
320	*Somniosus pacificus*	Pacific sleeper shark	high	mod	high	high	yes	high	no	no
400	Rajidae unident.	skate unident.	mod*	high	high	high	yes	high	no	no
401		skate egg case unident.	mod	mod	mod	high	no	high	no	no
402	*Bathyraja* sp. egg case		mod	mod	mod	high	no	high	no	no
404	*Raja* sp.		mod	high	high	high	yes	high	no	no
405	*Bathyraja* sp.		mod*	high	high	high	yes	high	no	no
410	*Bathyraja abyssicola*	deepsea skate	mod	high	high	high	yes	high	no	no
420	*Raja binoculata*	big skate	mod	high	high	high	yes	high	no	no
421	*Raja binoculata* egg case	big skate egg case	mod	mod	mod	high	no	high	no	no
435	*Bathyraja interrupta*	Bering skate	mod*	high	high	high	yes	high	no	no
436	*Bathyraja interrupta* egg case		mod	mod	mod	high	no	high	no	no
440	*Raja rhina*	longnose skate	mod	high	high	high	yes	high	no	no
455	*Bathyraja taranetzi*	mud skate	mod	high	high	high	yes	high	no	no
456	*Bathyraja taranetzi* egg case	mud skate egg case	mod	mod	mod	high	no	high	no	no
471	*Bathyraja parmifera*	Alaska skate	mod*	high	high	high	yes	high	no	no
472	*Bathyraja aleutica*	Aleutian skate	mod	high	high	high	yes	high	no	no
473	*Bathyraja aleutica* egg case	Aleutian skate egg case	mod	mod	mod	high	no	high	no	no
474	*Bathyraja parmifera* egg case	Alaska skate egg case	mod	mod	mod	high	no	high	no	no
480	*Bathyraja maculata*	whiteblotched skate	mod	high	high	high	yes	high	no	no

Table 2. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
490	*Bathyraja smirnovi*	golden skate	mod	high	high	high	yes	high	no	no
495	*Bathyraja violacea*	Okhotsk skate	mod	high	high	high	yes	high	no	no
10008	*Citharichthys* sp.	sanddab unident.	high	high	high	high	yes	high	no	no
10110	*Atheresthes stomias*	arrowtooth flounder	high*	high	high	high	yes	high	no	no
10112	*Atheresthes evermanni*	Kamchatka flounder	high	high	high	high	yes	high	no	no
10115	*Reinhardtius hippoglossoides*	Greenland turbot	high	high	high	high	yes	high	no	no
10120	*Hippoglossus stenolepis*	Pacific halibut	high	high	high	high	yes	high	no	no
10129	*Hippoglossoides* sp.		high	high	high	high	yes	high	no	no
10130	*Hippoglossoides elassodon*	flathead sole	high*	high	high	high	yes	high	no	no
10140	*Hippoglossoides robustus*	Bering flounder	high	high	high	high	yes	high	no	no
10150	*Lyopsetta exilis*	slender sole	high	high	high	high	yes	high	no	no
10180	*Microstomus pacificus*	Dover sole	high*	high	high	high	yes	high	no	no
10200	*Glyptocephalus zachirus*	rex sole	high*	high	high	high	yes	high	no	no
10210	*Limanda aspera*	yellowfin sole	high*	high	high	high	yes	high	no	no
10211	*Limanda proboscidea*	longhead dab	high	high	high	high	yes	high	no	no
10212	*Limanda sakhalinensis*	Sakhalin sole	high	high	high	high	yes	high	no	no
10220	*Platichthys stellatus*	starry flounder	high	high	high	high	yes	high	no	no
10221	*Platichthys stellatus* X *Pleuronectes quadrituberculatus*	hybrid starry flounder X Alaska plaice	high	high	high	high	yes	high	no	no
10250	*Psettichthys melanostictus*	sand sole	high	high	high	high	yes	high	no	no
10260	*Lepidopsetta* sp.	rock sole unident.	high	high	high	high	yes	high	no	no
10261	*Lepidopsetta polyxystra*	northern rock sole	high*	high	high	high	yes	high	no	no
10262	*Lepidopsetta bilineata*	southern rock sole	high	high	high	high	yes	high	no	no
10270	*Isopsetta isolepis*	butter sole	high	high	high	high	yes	high	no	no
10285	*Pleuronectes quadrituberculatus*	Alaska plaice	high*	high	high	high	yes	high	no	no
20000	Agonidae	poacher unident.	mod	high	high	high	yes	high	no	no
20001	*Pallasina barbata*	tubenose poacher	mod	high	high	high	yes	high	no	no
20002	*Percis japonicus*	dragon poacher	mod	high	high	high	yes	high	no	no
20004	*Leptagonus* sp.		mod	high	high	high	yes	high	no	no
20005	*Leptagonus leptorhynchus*	longnose poacher	mod	high	high	high	yes	high	no	no
20006	*Leptagonus frenatus*	sawback poacher	high*	high	high	high	yes	high	no	no

Table 2.-- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
20007	*Leptagonus decagonus*	Atlantic poacher	mod	high	high	high	yes	high	no	no
20015	*Agonopsis vulsa*	northern spearnose poacher	mod	high	high	high	yes	high	no	no
20018	*Odontopyxis trispinosa*	pygmy poacher	low	mod	mod	high	yes	med	no	yes
20034	*Bathyagonus* sp.	starsnout poacher unident.	mod	high	high	high	yes	high	no	no
20035	*Bathyagonus alascanus*	gray starsnout	mod	high	high	high	yes	high	no	no
20036	*Bathyagonus infraspinatus*	spinycheek starsnout	mod	high	high	high	yes	high	no	no
20037	*Bathyagonus pentacanthus*	bigeye poacher	mod	high	high	high	yes	high	no	no
20038	*Bathyagonus nigripinnis*	blackfin poacher	mod	high	high	high	yes	high	no	no
20040	*Podothecus accipenserinus*	sturgeon poacher	high*	high	high	high	yes	high	no	no
20041	*Podothecus veternus*	veteran poacher	mod	high	high	high	yes	high	no	no
20050	*Aspidophoroides bartoni*	Aleutian alligatorfish	mod	high	high	high	yes	high	no	no
20051	*Ulcina olrikii*	Arctic alligatorfish	low	mod	mod	high	yes	med	no	yes
20055	*Anoplagonus inermis*	smooth alligatorfish	mod	high	high	high	yes	high	no	no
20060	*Chesnonia verrucosa*	warty poacher	mod	high	high	high	yes	high	no	no
20061	*Occella dodecaedron*	Bering poacher	mod	high	high	high	yes	high	no	no
20071	*Hypsagonus quadricornis*	fourhorn poacher	low	high	high	high	yes	high	no	no
20202	*Ammodytes* sp.	sand lance unid.	mod	high	high	high	yes	high	no	no
20320	*Anarrhichthys ocellatus*	wolf-eel	high	high	high	high	yes	high	no	no
20322	*Anarhichas orientalis*	Bering wolffish	high	high	high	high	yes	high	no	no
20510	*Anoplopoma fimbria*	sablefish	high	high	high	high	yes	high	no	no
20542	*Aulorhynchus flavidus*	tube-snout	high	high	high	high	yes	high	no	no
20700	Bathymasteridae	ronquil unident.	high	high	high	high	yes	high	no	no
20702	*Ronquilus jordani*	northern ronquil	high	high	high	high	yes	high	no	no
20720	*Bathymaster signatus*	searcher	high*	high	high	high	yes	high	no	no
21110	*Clupea pallasi*	Pacific herring	mod	high	high	low	yes	high	no	yes
21300	Cottidae	sculpin unident.	mod*	high	high	high	yes	high	no	no
21311	*Icelinus borealis*	northern sculpin	low	mod	mod	high	yes	high	no	yes
21313	*Gymnocanthus* sp.		mod	high	high	high	yes	high	no	no
21314	*Gymnocanthus pistilliger*	threaded sculpin	mod	high	high	high	yes	high	no	no
21315	*Gymnocanthus tricuspis*	Arctic staghorn sculpin	mod	high	high	high	yes	high	no	no
21316	*Gymnocanthus galeatus*	armorhead sculpin	mod	high	high	high	yes	high	no	no

Table 2. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
21320	*Radulinus asprellus*	slim sculpin	low	mod	mod	high	yes	high	no	no
21329	*Gymnocanthus detrisus*	purplegray sculpin	mod	high	high	high	yes	high	no	no
21331	*Artediellus* sp.		low	mod	mod	high	yes	high	no	yes
21332	*Artediellus miacanthus*	bride sculpin	low	mod	mod	high	yes	high	no	yes
21333	*Artediellus pacificus*	hookhorn sculpin	low	mod	mod	high	yes	high	no	yes
21339	*Malacocottus* sp.		mod	high	high	high	yes	high	no	no
21340	*Malacocottus kincaidi*	blackfin sculpin	mod	high	high	high	yes	high	no	no
21341	*Malacocottus zonurus*	darkfin sculpin	mod	high	high	high	yes	high	no	no
21342	*Hemilepidotus* sp.	Irish lord	mod	high	high	high	yes	high	no	no
21345	*Hemilepidotus zapus*	longfin Irish lord	mod	high	high	high	yes	high	no	no
21346	*Hemilepidotus hemilepidotus*	red Irish lord	mod	high	high	high	yes	high	no	no
21347	*Hemilepidotus jordani*	yellow Irish lord	mod	high	high	high	yes	high	no	no
21348	*Hemilepidotus papilio*	butterfly sculpin	mod	high	high	high	yes	high	no	no
21350	*Triglops* sp.		mod	high	high	high	yes	high	no	no
21352	*Triglops forficata*	scissortail sculpin	mod	high	high	high	yes	high	no	no
21353	*Triglops metopias*	highbrow sculpin	mod	high	high	high	yes	high	no	no
21354	*Triglops scepticus*	spectacled sculpin	mod*	high	high	high	yes	high	no	no
21355	*Triglops pingeli*	ribbed sculpin	mod	high	high	high	yes	high	no	no
21356	*Triglops macellus*	roughspine sculpin	mod	high	high	high	yes	high	no	no
21360	*Microcottus sellaris*	brightbelly sculpin	low	mod	mod	high	yes	high	no	yes
21368	*Myoxocephalus verrucosus*	warty sculpin	mod	high	high	high	yes	high	no	no
21370	*Myoxocephalus polyacanthocephalus*	great sculpin	mod*	high	high	high	yes	high	no	no
21371	*Myoxocephalus jaok*	plain sculpin	mod	high	high	high	yes	high	no	no
21375	*Myoxocephalus* sp.		mod	high	high	high	yes	high	no	no
21377	*Myoxocephalus quadricornis*	fourhorn sculpin	mod	high	high	high	yes	high	no	no
21378	*Myoxocephalus scorpioides*	Arctic sculpin	mod	high	high	high	yes	high	no	no
21379	*Trichocottus brashnikovi*	hairhead sculpin	mod	high	high	high	yes	high	no	no
21380	*Leptocottus armatus*	Pacific staghorn sculpin	mod	high	high	high	yes	high	no	no
21384	*Enophrys* sp.		mod	high	high	high	yes	high	no	no
21387	*Enophrys lucasi*	leister sculpin	mod	high	high	high	yes	high	no	no
21388	*Enophrys diceraus*	antlered sculpin	mod	high	high	high	yes	high	no	no
21390	*Dasycottus setiger*	spinyhead sculpin	mod*	high	high	high	yes	high	no	no

Table 2. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
21394	*Psychrolutes paradoxus*	tadpole sculpin	low	mod	mod	high	yes	high	no	no
21395	*Psychrolutes phrictus*	blob sculpin	mod	high	high	high	yes	high	no	no
21397	*Blepsias bilobus*	crested sculpin	mod	high	high	high	yes	high	no	no
21405	*Nautichthys pribilovius*	eyeshade sculpin	mod	high	high	high	yes	high	no	no
21406	*Nautichthys oculofasciatus*	sailfin sculpin	mod	high	high	high	yes	high	no	no
21420	*Hemitripterus bolini*	bigmouth sculpin	mod	high	high	high	yes	high	no	no
21423	*Eurymen gyrinus*	smoothcheek sculpin	mod	high	high	high	yes	high	no	no
21438	*Icelus spiniger*	thorny sculpin	mod	high	high	high	yes	high	no	no
21439	*Icelus canaliculatus*	blacknose sculpin	low	mod	mod	high	yes	high	no	yes
21440	*Icelus euryops*	wide-eye sculpin	low	mod	mod	high	yes	high	no	yes
21441	*Icelus spatula*	spatulate sculpin	low	mod	mod	high	yes	high	no	yes
21446	*Icelus* sp.		low	mod	mod	high	yes	high	no	yes
21592	*Trichodon trichodon*	Pacific sandfish	high	high	high	high	yes	high	no	no
21710	*Microgadus proximus*	Pacific tomcod	mod	high	high	low	yes	high	no	yes
21720	*Gadus macrocephalus*	Pacific cod	high*	high	high	high	yes	high	no	no
21725	*Boreogadus saida*	Arctic cod	low	high	high	low	yes	high	no	yes
21735	*Eleginus gracilis*	saffron cod	low	high	high	low	yes	high	no	yes
21740	*Gadus chalcogrammus*	walleye pollock	mod*	high	high	low	yes	high	no	no
21900	Hexagrammidae	greenling unident.	high	high	high	high	yes	high	no	no
21921	*Pleurogrammus monopterygius*	Atka mackerel	mod	high	high	high	yes	high	no	no
21930	*Hexagrammos* sp.		high	high	high	high	yes	high	no	no
21932	*Hexagrammos stelleri*	whitespotted greenling	high	high	high	high	yes	high	no	no
21934	*Hexagrammos lagocephalus*	rock greenling	high	high	high	high	yes	high	no	no
21935	*Hexagrammos decagrammus*	kelp greenling	high	high	high	high	yes	high	no	no
22170	Cyclopterinae	lumpsucker unident.	low	high	high	high	yes	high	no	no
22175	*Aptocyclus ventricosus*	smooth lumpsucker	high	high	high	high	yes	high	no	no
22177	*Eumicrotremus birulai*	round lumpsucker	low	high	high	high	yes	high	no	no
22178	*Eumicrotremus orbis*	Pacific spiny lumpsucker	low	high	high	high	yes	high	no	no
22182	*Eumicrotremus andriashevi*	pimpled lumpsucker	low	high	high	high	yes	high	no	no
22183	*Eumicrotremus* sp.	spiny lumpsuckers	low	high	high	high	yes	high	no	no
22190	*Cyclopteropsis phrynoides*	toad lumpsucker	low	high	high	high	yes	high	no	no

Table 2. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
22200	Liparidinae	snailfish unident.	mod	high	high	high	yes	high	no	no
22201	*Liparis* sp.		mod	high	high	high	yes	high	no	no
22203	*Liparis bristolense*	Bristol snailfish	mod	high	high	high	yes	high	no	no
22204	*Liparis dennyi*	marbled snailfish	mod	high	high	high	yes	high	no	no
22205	*Liparis gibbus*	variegated snailfish	mod	high	high	high	yes	high	no	no
22206	*Crystallichthys cyclospilus*	blotched snailfish	mod	high	high	high	yes	high	no	no
22208	*Liparis pulchellus*	showy snailfish	mod	high	high	high	yes	high	no	no
22210	*Liparis ochotensis*	Okhotsk snailfish	mod	high	high	high	yes	high	no	no
22214	*Elassodiscus* sp.		mod	high	high	high	yes	high	no	no
22219	*Careproctus* sp.		low	high	high	high	yes	high	no	no
22226	*Careproctus phasma*	monster snailfish	mod	high	high	high	yes	high	no	no
22228	*Careproctus cypselurus*	blackfin snailfish	mod	high	high	high	yes	high	no	no
22232	*Careproctus scottae*	peachskin snailfish	mod	high	high	high	yes	high	no	no
22233	*Careproctus gilberti*	smalldisk snailfish	low	high	high	high	yes	high	no	no
22236	*Careproctus rastrinus*	salmon snailfish	mod	high	high	high	yes	high	no	no
22238	*Liparis tunicatus*	kelp snailfish	mod	high	high	high	yes	high	no	no
22255	*Nectoliparis pelagicus*	tadpole snailfish	low	mod	mod	high	yes	high	no	yes
22255	*Careproctus* sp. cf. *rastrinus* (Orr et al.)		mod	high	high	high	yes	high	no	no
22265	*Liparus marmoratus*	festive snailfish	mod	high	high	high	yes	high	no	no
22600	Myctophidae	lanternfish unident.	low	high	high	low	no	med	no	yes
22620	*Lampanyctus* sp.		low	high	high	low	yes	high	no	yes
22912	*Oneirodes* sp.		low	high	high	low	yes	high	no	yes
23000	Osmeridae	smelt unident.	low	high	high	low	yes	high	no	yes
23010	*Thaleichthys pacificus*	eulachon	low	high	high	low	yes	high	no	yes
23041	*Mallotus villosus*	capelin	low	high	high	low	yes	high	no	yes
23055	*Osmerus mordax*	rainbow smelt	low	high	high	low	yes	high	no	yes
23220	*Oncorhynchus tshawytscha*	Chinook salmon	low	high	high	low	yes	high	no	no
23225	*Oncorhynchus kisutch*	Coho salmon	low	high	high	low	yes	high	no	no
23230	*Oncorhynchus gorbuscha*	pink salmon	low	high	high	low	yes	high	no	no
23235	*Oncorhynchus keta*	chum salmon	low	high	high	low	yes	high	no	no
23240	*Oncorhynchus nerka*	sockeye salmon	low	high	high	low	yes	high	no	no
23260	*Onchorynchus mykiss*	steelhead	low	high	high	low	yes	high	no	no
23791	*Cryptacanthodes aleutensis*	dwarf wrymouth	mod	high	high	high	yes	high	no	no

Table 2. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
23792	*Cryptacanthodes giganteus*	giant wrymouth	mod	high	high	high	yes	high	no	no
23800	Stichaeidae	prickleback unident.	mod	high	high	high	yes	high	no	yes
23801	*Lumpenus* sp.		mod	high	high	high	yes	high	no	yes
23803	*Eumesogrammus praecisus*	fourline snakeblenny	mod	high	high	high	yes	high	no	yes
23804	*Stichaeus punctatus*	Arctic shanny	mod	high	high	high	yes	high	no	yes
23805	*Lumpenus maculatus*	daubed shanny	mod	high	high	high	yes	high	no	yes
23806	*Lumpenus medius*	stout eelblenny	mod	high	high	high	yes	high	no	yes
23807	*Lumpenus fabricii*	slender eelblenny	mod	high	high	high	yes	high	no	yes
23808	*Lumpenus sagitta*	snake prickleback	mod	high	high	high	yes	high	no	yes
23809	*Acantholumpenus mackayi*	pighead prickleback	mod	high	high	high	yes	high	no	yes
23836	*Lumpenella longirostris*	longsnout prickleback	mod	high	high	high	yes	high	no	yes
23840	*Chirolophis* sp.		mod	high	high	high	yes	high	no	yes
23841	*Chirolophis decoratus*	decorated warbonnet	mod	high	high	high	yes	high	no	yes
23843	*Chirolophis snyderi*	bearded warbonnet	mod	high	high	high	yes	high	no	yes
23850	*Poroclinus rothrocki*	whitebarred prickleback	mod	high	high	high	yes	high	no	yes
24001	*Zaprora silenus*	prowfish	high	high	high	high	yes	high	no	no
24100	Zoarcidae	eelpout unident.	mod	high	high	high	yes	high	yes	yes
24180	*Lycodes* sp.		mod	high	high	high	yes	high	yes	yes
24184	*Lycodes raridens*	marbled eelpout	high	high	high	high	yes	high	no	no
24185	*Lycodes palearis*	wattled eelpout	mod*	mod	mod	high	yes	high	yes	yes
24186	*Lycodes mucosus*	saddled eelpout	mod	high	high	high	yes	high	no	no
24188	*Lycodes polaris*	Canadian eelpout	mod	high	high	high	yes	high	no	no
24189	*Lycodes turneri*	polar eelpout	mod	high	high	high	yes	high	no	no
24191	*Lycodes brevipes*	shortfin eelpout	mod	mod	mod	high	yes	high	yes	yes
24192	*Gymnelus viridis*	fish doctor	mod	high	high	high	yes	high	no	no
24193	*Gymnelus* sp.		mod	mod	mod	high	yes	high	yes	yes
24194	*Gymnelus hemifasciatus*	halfbarred eelpout	mod	mod	mod	high	yes	high	yes	yes
29999		roundfish unident.	high	high	high	high	yes	high	no	no
30040	*Sebastes* sp.	rockfish unident.	high	high	high	high	yes	high	no	no
30050		rougheye and blackspotted rockfish unid.	high	high	high	high	yes	high	no	no
30051	*Sebastes aleutianus*	rougheye rockfish	high	high	high	high	yes	high	no	no

Table 2. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices				
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh
30052	*Sebastes melanostictus*	blackspotted rockfish	high	high	high	high	yes	high	no	no
30060	*Sebastes alutus*	Pacific ocean perch	high	high	high	high	yes	high	no	no
30150		dusky and dark rockfishes unid	high	high	high	high	yes	high	no	no
30152	*Sebastes variabilis*	dusky rockfish	high	high	high	high	yes	high	no	no
30170	*Sebastes crameri*	darkblotched rockfish	high	high	high	high	yes	high	no	no
30420	*Sebastes polyspinis*	northern rockfish	high	high	high	high	yes	high	no	no
30535	*Sebastes variegatus*	harlequin rockfish	high	high	high	high	yes	high	no	no

Table 3. -- Catch enumeration (weight and count) and trawl efficiency confidence index for invertebrates recorded on the eastern Bering Sea shelf survey (1982–2014), as well as a listing of factors influencing these indices. See text for an explanation of scoring for confidence indices and influencing factors. Taxon codes are taken from the RACE Division Species Code Book (http://www.afsc.noaa.gov/RACE/groundfish/species_codebook.pdf). An asterisk in the efficiency confidence index indicates that research on the catchability of that taxon can be found in Table 1.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
40010	Hydrozoa		mod	mod	low	high	no	low	no	no	yes	yes	high
40011	Hydroidolina	hydroid unident.	mod	high	low	high	yes	high	no	no	yes	yes	med
40012	*Bonneviella* sp. A (Clark, 2006)	champagne flute hydroid	mod	mod	low	high	no	low	no	no	yes	yes	high
40020	*Hydractinia* sp.		mod	mod	low	high	no	low	no	no	yes	yes	high
40028	*Aglaophenia* sp.		mod	mod	low	high	no	low	no	no	yes	yes	high
40034	*Abietinaria* sp.		mod	mod	low	high	no	low	no	no	yes	yes	high
40500	Scyphozoa	jellyfish unident.	low	mod	mod	low	no	high	no	yes	no	no	n/a
40501	*Chrysaora* sp.	chrysaora jellyfish	low	mod	mod	low	no	high	no	yes	no	no	n/a
40504	*Chrysaora melanaster*		low	mod	mod	low	no	high	no	yes	no	no	n/a
40505	*Phacellophora camtschatica*	egg yolk jelly	low	mod	mod	low	no	high	no	yes	no	no	n/a
40506	*Aequorea* sp.		low	mod	mod	low	no	high	no	yes	no	no	n/a
40509	*Phacellophora* sp.		low	mod	mod	low	no	high	no	yes	no	no	n/a
40511	*Aurelia* sp.		low	mod	mod	low	no	high	no	yes	no	no	n/a
40512	*Aurelia labiata*		low	mod	mod	low	no	high	no	yes	no	no	n/a
40515	*Chrysaora fuscescens*		low	mod	mod	low	no	high	no	yes	no	no	n/a
40560	*Cyanea* sp.		low	mod	mod	low	no	high	no	yes	no	no	n/a
40561	*Cyanea capillata*	lion's mane	low	mod	mod	low	no	high	no	yes	no	no	n/a
41000	Anthozoa		low	mod	low	high	no	low	no	yes	yes	yes	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
41100	Alcyonacea	soft coral unident.	low	mod	low	high	yes	low	no	yes	yes	yes	med
41201	*Gersemia* sp.	sea raspberry	low	mod	low	high	no	low	no	yes	yes	yes	med
41221	*Gersemia rubiformis*		low	mod	low	high	no	low	no	yes	yes	yes	med
41580	*Paragorgia* sp.		low	mod	low	high	no	high	yes	no	yes	yes	high
41582	*Paragorgia arborea*	Kamchatka coral	low	mod	mod	high	yes	high	yes	no	yes	yes	high
42000	Pennatulacea	sea pen/sea whip	low	low	low	high	yes	high	yes	no	no	no	high
42001	*Virgularia* sp.	smoothstem seawhip	low	low	low	high	yes	high	yes	no	no	no	high
42003	Virgularidae	sea whip unident.	low	low	low	high	yes	high	yes	no	no	no	high
42004	*Stylatula* sp.	slender seawhips	low	low	low	high	yes	high	yes	no	no	no	high
42008	*Halipteris* sp.		low	low	low	high	yes	high	yes	no	no	no	high
42012	*Halipteris willemoesi*		low	low	low	high	yes	high	yes	no	no	no	high
43000	Actiniaria	sea anemone unident.	mod	mod	high	high	yes	high	no	yes	yes	no	med
43001	*Actinauge verrillii*	reticulate anemone	mod	mod	high	high	yes	low	no	yes	yes	no	med
43007		red striated sea anemone	mod	mod	high	high	yes	high	no	no	yes	no	med
43010	*Metridium* sp.		mod	mod	high	high	yes	high	no	no	yes	no	high
43020	*Metridium senile*	clonal plumose anemone	mod	mod	high	high	yes	high	no	no	yes	no	high
43021	*Metridium farcimen*	gigantic anemone	mod	mod	high	high	yes	high	no	no	yes	no	high
43029	*Stomphia didemon*	cowardly anemone	mod	mod	high	high	yes	low	no	yes	yes	no	med
43030	*Stomphia* sp.		mod	mod	high	high	yes	low	no	yes	yes	no	med
43032	*Stomphia coccinea*	swimming anemone	mod	mod	high	high	yes	low	no	yes	no	no	med
43040	*Urticina* sp.		mod	mod	high	high	yes	low	no	yes	yes	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
43042	*Urticina crassicornis*	mottled anemone	mod	mod	high	high	yes	low	no	yes	yes	no	med
43043	*Urticina lofotensis*		mod	mod	high	high	yes	low	no	yes	yes	no	med
43044	*Urticina columbiana*		mod	mod	high	high	yes	low	no	yes	yes	no	med
43045	Zoanthidae sp. A	hot dog sea anemone	mod	mod	high	high	yes	low	no	yes	yes	no	med
43082	*Cribrinopsis fernaldi*	chevron-tentacled anemone	mod	mod	high	high	yes	low	no	yes	yes	no	med
43090	*Liponema brevicorne*	tentacle-shedding anemone	mod	mod	high	high	yes	low	no	yes	yes	no	med
43100	Actinostolidae		mod	mod	high	high	yes	low	no	yes	yes	no	med
43111	*Actinostola* sp. A (Clark 2006)		mod	mod	high	high	yes	low	no	yes	yes	no	med
44000	Scleractinia	stony coral unident.	mod	mod	low	high	no	low	no	yes	yes	yes	low
44094	*Amphilaphis* sp.		mod	mod	low	high	no	low	no	yes	yes	yes	low
45000	Ctenophora	comb jelly	low	mod	mod	low	no	low	no	yes	no	no	n/a
45005	*Beroe* sp.		low	mod	mod	low	no	low	no	yes	no	no	n/a
50000	Polychaeta	polychaete worm	low	mod	mod	high	yes	low	no	yes	no	no	low
50001		worm unident.	low	mod	mod	high	yes	low	no	yes	no	no	low
50005	*Eunice valens*		low	mod	mod	high	yes	low	no	yes	no	no	low
50010		tube worm	low	mod	mod	high	yes	low	no	yes	no	no	low
50160	Aphroditidae	sea mouse	mod	high	high	high	yes	low	no	yes	no	no	med
50161	*Aphrodita* sp.		mod	high	high	high	yes	low	no	yes	no	no	med
50192	*Aphrodita negligens*		mod	high	high	high	yes	low	no	yes	no	no	med
53700	Nephtyidae	cat worm	low	mod	mod	high	no	low	no	yes	no	no	low
54000	Nereidae		low	mod	mod	high	no	low	no	yes	no	no	low
54010	*Nereis* sp.		low	mod	mod	high	no	low	no	yes	no	no	low
54030	*Cheilonereis cyclurus*		low	mod	mod	high	no	low	no	yes	no	no	low

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
56300	Polynoidae	scale worm	low	mod	mod	high	no	low	no	yes	no	no	low
56310	*Eunoe* sp.		low	mod	mod	high	no	low	no	yes	no	no	low
56311	*Eunoe nodosa*	giant scale worm	low	mod	mod	high	no	low	no	yes	no	no	low
56312	*Eunoe depressa*	depressed scale worm	low	mod	mod	high	no	low	no	yes	no	no	low
56313	*Eunoe senta*		low	mod	mod	high	no	low	no	yes	no	no	low
57000	Sabellidae	sabellid worm	low	mod	mod	high	yes	low	no	yes	no	yes	low
57409	Serpulidae	serpulid worm	low	mod	mod	high	yes	low	no	yes	no	no	low
57410	*Serpula vermicularis*		low	mod	mod	high	yes	low	no	yes	no	yes	low
57411	*Serpula columbiana*		low	mod	mod	high	yes	low	no	yes	no	yes	low
57412	*Serpula* sp.		low	mod	mod	high	yes	low	no	yes	no	yes	low
59100	Hirudinea	leech unident.	low	mod	mod	high	yes	low	no	yes	no	no	low
59110	*Notostomum* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
59111	*Notostomum cyclostomum*	striped sea leech	low	mod	mod	high	yes	low	no	yes	no	no	low
60100	Amphipoda	amphipod	low	low	low	high	yes	low	no	yes	no	no	low
60110	Gammaridae	gammarid amphipod	low	low	low	high	yes	low	no	yes	no	no	low
60145	*Caprella* sp.	caprellid amphipod	low	low	low	high	yes	low	no	yes	no	no	low
62000	Isopoda	isopod unident.	low	low	low	high	yes	low	no	yes	no	no	low
62025	*Rocinella angusta*		low	low	low	high	yes	low	no	yes	no	no	low
64000	Mysida	opossum shrimps	low	low	low	high	yes	low	no	yes	no	no	low
64100	Mysidae		low	low	low	high	yes	low	no	yes	no	no	low
65000	Cirripedia		low	low	low	high	yes	low	no	yes	yes	yes	low
65100	Thoracica	barnacle unident.	low	low	low	high	yes	low	no	yes	yes	yes	low
65201	*Balanus* sp.		low	low	low	high	yes	low	no	yes	yes	yes	low
65202	*Balanus balanus*		low	low	low	high	yes	low	no	yes	yes	yes	low

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
65203	*Balanus evermanni*	giant barnacle	low	low	low	high	yes	low	no	yes	yes	yes	low
65204	*Balanus hesperius*	crab barnacle	low	low	low	high	yes	low	no	yes	yes	yes	low
65205	*Balanus rostratus*	beaked barnacle	low	low	low	high	yes	low	no	yes	yes	yes	low
65206	*Balanus nubilus*		low	low	low	high	yes	low	no	yes	yes	yes	low
66000		shrimp unident.	low	mod	mod	high	yes	low	no	yes	no	no	low
66003	Sergestidae	sergestid shrimp unid.	low	mod	mod	high	yes	low	no	yes	no	no	low
66019	Pandalidae	pandalid shrimp unident.	low	mod	mod	high	no	high	no	yes	no	no	low
66020	*Pandalus* sp.		low	mod	mod	high	no	high	no	yes	no	no	low
66030	*Pandalus jordani*	ocean shrimp	low	mod	mod	high	no	high	no	yes	no	no	low
66031	*Pandalus eous*	Alaskan pink shrimp	low	mod	mod	high	no	high	no	yes	no	no	low
66032	*Heptacarpus maxillipes*		low	mod	mod	high	no	high	no	yes	no	no	low
66033	*Pandalus tridens*	yellowleg pandalid	low	mod	mod	high	yes	high	no	yes	no	no	low
66034	*Pandalus* sp. cf. *tridens*		low	mod	mod	high	yes	high	no	yes	no	no	low
66045	*Pandalus goniurus*	humpy shrimp	low	mod	mod	high	yes	high	no	yes	no	no	low
66050	*Pandalus hypsinotus*	coonstripe shrimp	low	mod	mod	high	yes	high	no	yes	no	no	low
66120	*Pandalopsis dispar*	sidestripe shrimp	low	mod	mod	high	yes	high	no	yes	no	no	low
66150	Hippolytidae	hippolytid shrimp unident.	low	mod	mod	high	yes	low	no	yes	no	no	low
66160	*Spirontocaris* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
66161	*Spirontocaris arcuata*	Rathbun blade shrimp	low	mod	mod	high	yes	high	no	yes	no	no	low
66163	*Spirontocaris lamellicornis*		low	mod	mod	high	yes	low	no	yes	no	no	low
66170	*Eualus* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
66171	*Eualus barbatus*	barbed eualid	low	mod	mod	high	yes	low	no	yes	no	no	low
66174	*Eualus fabricii*	Arctic eualid	low	mod	mod	high	yes	low	no	yes	no	no	low

Table 3.-- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
66175	*Eualus gaimardii*		low	mod	mod	high	yes	low	no	yes	no	no	low
66179	*Eualus macilentus*	Greenland shrimp	low	mod	mod	high	yes	low	no	yes	no	no	low
66193	*Eualus suckleyi*	shortscale eualid	low	mod	mod	high	yes	low	no	yes	no	no	low
66200	*Lebbeus* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
66203	*Lebbeus groenlandicus*	spiny lebbeid	low	mod	mod	high	yes	low	no	yes	no	no	low
66204	*Lebbeus polaris*		low	mod	mod	high	yes	low	no	yes	no	no	low
66301	*Heptacarpus* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
66302	*Heptacarpus flexus*	slenderbeak coastal shrimp	low	mod	mod	high	yes	low	no	yes	no	no	low
66500	Crangonidae	crangonid shrimp	low	mod	mod	high	yes	low	no	yes	no	no	low
66502	*Crangon* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
66510	*Crangon abyssorum*	abyssal crangon	low	mod	mod	high	yes	low	no	yes	no	no	low
66515	*Crangon communis*	twospine crangon	low	mod	mod	high	yes	low	no	yes	no	no	low
66530	*Crangon dalli*	ridged crangon	low	mod	mod	high	yes	low	no	yes	no	no	low
66546	*Lissocrangon stylirostris*	smooth crangon	low	mod	mod	high	yes	low	no	yes	no	no	low
66548	*Crangon septemspinosa*	sevenspine bay shrimp	low	mod	mod	high	yes	low	no	yes	no	no	low
66570	*Argis* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
66575	*Argis alaskensis*	common argid	low	mod	mod	high	yes	low	no	yes	no	no	low
66580	*Argis dentata*	Arctic argid	low	mod	mod	high	yes	low	no	yes	no	no	low
66600	*Sclerocrangon* sp.		low	mod	mod	high	yes	low	no	yes	no	no	low
66601	*Sclerocrangon boreas*	sculptured shrimp	low	mod	mod	high	yes	low	no	yes	no	no	low
66611	*Argis lar*	kuro argid	low	mod	mod	high	yes	low	no	yes	no	no	low
66613	*Argis levior*	Nelson's argid	low	mod	mod	high	yes	low	no	yes	no	no	low
66614	*Argis ovifer*	split-eye argid	low	mod	mod	high	yes	low	no	yes	no	no	low
66770	*Pasiphaea pacifica*	Pacific glass shrimp	low	mod	mod	high	yes	low	no	yes	no	no	low
68000		crab unident.	mod	high	high	high	yes	high	no	no	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
68010	*Cancer* sp.	cancer crab unident.	mod	high	high	high	yes	high	no	no	no	no	med
68020	*Cancer magister*	Dungeness crab	mod	high	high	high	yes	high	no	no	no	no	med
68040	*Cancer oregonensis*	Oregon rock crab	mod	high	high	high	yes	high	no	no	no	no	med
68050	*Cancer productus*	red rock crab	mod	high	high	high	yes	high	no	no	no	no	med
68510	*Oregonia gracilis*	graceful decorator crab	mod	high	high	high	yes	low	no	yes	no	no	med
68520	*Chorilia longipes*	longhorned decorator crab	mod	high	high	high	yes	low	no	yes	no	no	med
68560	*Chionoecetes bairdi*	Tanner crab	mod	high	high	high	yes	low	no	yes	no	no	med
68570	*Chionoecetes angulatus*	triangle Tanner crab	mod	high	high	high	yes	low	no	yes	no	no	med
68577	*Hyas coarctatus*	circumboreal toad crab	mod	high	high	high	yes	low	no	yes	no	no	med
68578	*Hyas lyratus*	Pacific lyre crab	mod	high	high	high	yes	low	no	yes	no	no	med
68580	*Chionoecetes opilio*	snow crab	mod*	high	high	high	yes	low	no	yes	no	no	med
68590	*Chionoecetes* hybrid	hybrid tanner crab	mod	high	mod	high	yes	low	no	yes	no	no	med
68781	*Telmessus cheiragonus*	helmet crab	mod	high	high	high	yes	low	no	yes	no	no	med
69010	Paguridae	hermit crab unident.	low	mod	mod	high	no	low	no	yes	no	no	med
69035	*Pagurus* sp.		low	mod	mod	high	no	low	no	yes	no	no	med
69042	*Pagurus brandti*	sponge hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69060	*Pagurus aleuticus*	Aleutian hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69061	*Labidochirus splendescens*	splendid hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69070	*Pagurus confragosus*	knobbyhand hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69080	*Pagurus cornutus*		low	mod	mod	high	no	low	no	yes	no	no	med
69082	*Pagurus dalli*	whiteknee hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69085	*Pagurus kennerlyi*	bluespine hermit	low	mod	mod	high	no	low	no	yes	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
69086	*Pagurus trigonocheirus*	fuzzy hermit crab	low	mod	mod	high	no	low	no	yes	no	no	med
69087	*Pagurus beringanus*	Bering hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69090	*Pagurus ochotensis*	Alaskan hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69095	*Pagurus rathbuni*	longfinger hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69100	*Pagurus tanneri*	longhand hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69110	*Elassochirus tenuimanus*	widehand hermit crab	low	mod	mod	high	no	low	no	yes	no	no	med
69120	*Pagurus capillatus*	hairy hermit crab	low	mod	mod	high	no	low	no	yes	no	no	med
69121	*Elassochirus cavimanus*	purple hermit	low	mod	mod	high	no	low	no	yes	no	no	med
69285	*Acantholithodes hispidus*	fuzzy crab	mod	high	high	high	yes	low	no	yes	no	no	med
69310	*Lithodes aequispinus*	golden king crab	mod	high	high	high	yes	low	no	yes	no	no	med
69312	*Dermaturus mandtii*	wrinkled crab	mod	high	high	high	yes	low	no	yes	no	no	med
69315	*Hapalogaster* sp.		mod	high	high	high	yes	low	no	yes	no	no	med
69316	*Hapalogaster grebnitzkii*		mod	high	high	high	yes	low	no	yes	no	no	med
69322	*Paralithodes camtschaticus*	red king crab	mod*	high	high	high	yes	high	no	no	no	no	high
69323	*Paralithodes platypus*	blue king crab	mod	high	high	high	yes	high	no	no	no	no	high
69328	*Cryptlithodes typicus*	butterfly crab	mod	high	high	high	yes	high	no	no	no	no	med
69336	*Placetron wosnessenskii*	scaled crab	mod	high	high	high	yes	high	no	no	no	no	high
69400	*Erimacrus isenbeckii*	horsehair crab	mod	high	high	high	yes	high	no	no	no	no	high
69520	*Hyas* sp.		mod	high	high	high	yes	low	no	yes	no	no	med
70000	Mollusca	mollusk unident.	mod	high	high	high	yes	high	no	yes	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
70100	Polyplacophora unident.	chiton unident.	low	mod	low	high	yes	low	no	yes	yes	no	low
70115	*Amicula vestita*		low	mod	low	high	yes	low	no	yes	yes	no	low
70871	*Neptunea gyroscopoides*		low	low	mod	high	yes	low	no	no	no	no	low
71001	gastropod eggs	snail eggs	low	mod	low	high	no	low	no	no	yes	yes	low
71002	*Buccinum* sp. Eggs		low	mod	low	high	no	low	no	no	yes	yes	low
71004	*Neptunea* sp. eggs		low	mod	low	high	no	low	no	no	yes	yes	low
71008		nudibranch eggs	low	low	low	high	no	low	no	no	yes	yes	low
71010	Nudibranchia unident.	nudibranch unident.	low	high	high	high	yes	high	no	yes	no	no	low
71011	*Onchidoris bilamellata*	barnacle-eating onchidoris	low	high	high	high	yes	high	no	yes	no	no	low
71012	*Tochuina tetraquetra*	giant orange tochui	low	high	high	high	yes	high	no	yes	no	no	low
71018	*Dendronotus* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71020	*Dendronotus dalli*	Dall's dendronotid	low	high	high	high	yes	high	no	yes	no	no	low
71021	*Dendronotus frondosus*	frond-aeolis	low	high	high	high	yes	high	no	yes	no	no	low
71022	*Dendronotus subramosus*	stubby frond-aeolis	low	high	high	high	yes	high	no	yes	no	no	low
71025	*Tritonia* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71026	*Tritonia festiva*	festive tritonia	low	high	high	high	yes	high	no	yes	no	no	low
71030	*Tritonia diomedea*	rosy tritonia	low	high	high	high	yes	high	no	yes	no	no	low
71202	*Chlamylla* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71230	*Anisodoris nobilis*	Pacific sea lemon	low	high	high	high	yes	high	no	yes	no	no	low
71250	Dorididae	dorid nudibranch	low	high	high	high	yes	high	no	yes	no	no	low
71259	*Archidoris* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71260	*Archidoris odhneri*	white night doris	low	high	high	high	yes	high	no	yes	no	no	low
71350	*Cranopsis major*	great puncturella	low	high	high	high	yes	high	no	yes	no	no	low
71405		limpet unident.	low	high	high	high	yes	high	no	yes	no	no	low
71500	Gastropoda	snail unident.	low	high	high	high	yes	high	no	yes	no	no	low

Table 3.-- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
71510	Naticidae		low	high	high	high	yes	high	no	yes	no	no	low
71511	Naticidae eggs	moonsnail eggs unid.	low	mod	low	high	no	low	no	no	no	yes	low
71515	*Bulbus fragilis*	fragile moonsnail	low	high	high	high	yes	high	no	yes	no	no	low
71520	*Amauropsis purpurea*	purple moonsnail	low	high	high	high	yes	high	no	yes	no	no	low
71524	*Cryptonatica* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71525	*Natica* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71526	*Cryptonatica affinis*	Arctic moonsnail	low	high	high	high	yes	high	no	yes	no	no	low
71530	*Natica clausa*		low	high	high	high	yes	high	no	yes	no	no	low
71535	*Cryptonatica aleutica*	Aleutian moonsnail	low	high	high	high	yes	high	no	yes	no	no	low
71537	*Cryptonatica russa*	rusty moonsnail	low	high	high	high	yes	high	no	yes	no	no	low
71570	*Euspira lewisi*		low	high	high	high	yes	high	no	yes	no	no	low
71575	*Euspira* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71580	*Euspira pallida*	pale moonsnail	low	high	high	high	yes	high	no	yes	no	no	low
71583	Lamellariidae	lamellarid unid.	low	high	high	high	yes	high	no	yes	no	no	low
71584	*Lamellaria* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71587	*Onchidiopsis* sp. A (Clark & McLean)		low	high	high	high	yes	high	no	yes	no	no	low
71589	*Onchidiopsis* sp. B (Clark & McLean)		low	high	high	high	yes	high	no	yes	no	no	low
71590	*Onchidiopsis* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71594	*Lamellaria* sp. D (Clark and McLean)		low	high	high	high	yes	high	no	yes	no	no	low
71631	*Tachyrhynchus* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71634	*Tachyrhynchus erosus*	eroded turretsnail	low	high	high	high	yes	high	no	yes	no	no	low
71640	*Crepidula* sp.	slipper shell	low	high	high	high	yes	high	no	yes	no	no	low
71681	*Crepidula grandis*	great slippersnail	low	high	high	high	yes	high	no	yes	no	no	low
71710	*Colus* sp.		low	high	high	high	yes	high	no	yes	no	no	low
71716	*Colus martensi*		low	high	high	high	yes	high	no	yes	no	no	low
71719	*Colus jordani*		low	high	high	high	yes	high	no	yes	no	no	low

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
71721	*Colus herendeenii*	thin-ribbed whelk	low	high	high	high	yes	high	no	yes	no	no	low
71722	*Colus hypolispus*		low	high	high	high	yes	high	no	yes	no	no	low
71723	*Colus ombronius*	shady whelk	low	high	high	high	yes	high	no	yes	no	no	low
71724	*Colus roseus*	rosy whelk	low	high	high	high	yes	high	no	yes	no	no	low
71725	*Colus esychus*		low	high	high	high	yes	high	no	yes	no	no	low
71726	*Colus spitzbergensis*	thick-ribbed whelk	low	high	high	high	yes	high	no	yes	no	no	low
71730	*Colus aphelus*	oblique whelk	low	high	high	high	yes	high	no	yes	no	no	low
71731	*Colus halli*	shrew whelk	low	high	high	high	yes	high	no	yes	no	no	low
71732	*Colus datuzenbergii*		low	high	high	high	yes	high	no	yes	no	no	low
71746	*Volutopsius* sp. C (Clark and McLean)		mod	mod	high	high	yes	high	no	yes	no	no	med
71747	*Pyrulofusus* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
71750	*Volutopsius* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
71751	*Volutopsius* sp. eggs		low	mod	low	high	no	low	no	no	yes	yes	low
71753	*Pyrulofusus deformis*	warped whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71755	*Pyrulofusus harpa*	left-hand whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71756	*Volutopsius fragilis*	fragile whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71759	*Volutopsius filosus*	threaded whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71760	*Volutopsius castaneus*	volute whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71761	*Pyrulofusus melonis*		mod	mod	high	high	yes	high	no	yes	no	no	med
71762	*Volutopsius simplex*	simple whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71763	*Volutopsius stefanssoni*	shouldered whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71764	*Volutopsius middendorffii*	tulip whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71765	*Volutopsius trophonius*	frilled whelk	mod	mod	high	high	yes	high	no	yes	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
71769	*Beringius* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
71770	*Beringius kennicottii*		mod	mod	high	high	yes	high	no	yes	no	no	med
71771	*Beringius frielei*		mod	mod	high	high	yes	high	no	yes	no	no	med
71772	*Beringius beringii*		mod	mod	high	high	yes	high	no	yes	no	no	med
71774	*Beringius stimpsoni*		mod	mod	high	high	yes	high	no	yes	no	no	med
71775	*Beringius crebricostatus*	thick-cord whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71776	*Beringius undatus*		mod	mod	high	high	yes	high	no	yes	no	no	med
71785	*Beringius* sp. F (McLean and Clark)		mod	mod	high	high	yes	high	no	yes	no	no	med
71787	*Beringius rotundus*	rotund whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71792	*Beringius* sp. J (McLean and Clark)		mod	mod	high	high	yes	high	no	yes	no	no	med
71800	*Neptunea* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
71810	*Neptunea amianta*	white neptune	mod	mod	high	high	yes	high	no	yes	no	no	med
71811	*Neptunea smirnia*		mod	mod	high	high	yes	high	no	yes	no	no	med
71820	*Neptunea pribiloffensis*	Pribilof whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71822	*Neptunea tabulata*	tabled whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71835	*Neptunea borealis*		mod	mod	high	high	yes	high	no	yes	no	no	med
71870	*Neptunea lyrata*	lyre whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71882	*Neptunea ventricosa*	fat whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71883	*Neptunea insularis*		mod	mod	high	high	yes	high	no	yes	no	no	med
71884	*Neptunea heros*		mod	mod	high	high	yes	high	no	yes	no	no	med
71886	*Clinopegma magnum*	helmet whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71890	*Plicifusus* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
71891	*Plicifusus kroyeri*		mod	mod	high	high	yes	high	no	yes	no	no	med
71892	*Plicifusus incisus*		mod	mod	high	high	yes	high	no	yes	no	no	med
71896	*Plicifus oceanodromae*	seahorse whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71900	*Plicifusus griseus*	gray whelk	low	high	high	high	yes	high	no	yes	no	no	low
71910	*Liomesus* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
71911	*Liomesus ooides*	egg whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
71915	*Neptunea* sp. D (Clark & McLean)		mod	mod	high	high	yes	high	no	yes	no	no	med
71916	*Neptunea* sp. F (Clark & McLean)		mod	mod	high	high	yes	high	no	yes	no	no	med
71917	*Neptunea* sp. G (Clark & McLean)		mod	mod	high	high	yes	high	no	yes	no	no	med
71960	*Ancistrolepis* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
72019	*Antiplanes* sp.		low	high	high	high	yes	high	no	yes	no	no	low
72059	*Aforia* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
72060	*Aforia goodei*		mod	mod	high	high	yes	high	no	yes	no	no	med
72063	*Aforia circinata*	keeled aforia	mod	mod	high	high	yes	high	no	yes	no	no	med
72100	*Oenopota* sp.		low	high	high	high	yes	high	no	yes	no	no	low
72103	*Oenopota harpa*		low	high	high	high	yes	high	no	yes	no	no	low
72300	Trichotropidae		low	high	high	high	yes	high	no	yes	no	no	low
72304	*Neoiphinoe coronata*	crowned hairysnail	low	high	high	high	yes	high	no	yes	no	no	low
72305	*Trichotropis bicarinata*	two-keel hairysnail	low	high	high	high	yes	high	no	yes	no	no	low
72401	*Boreotrophon beringi*	Bering trophon	low	high	high	high	yes	high	no	yes	no	no	low
72402	*Boreotrophon alaskanus*	Alaskan trophon	low	high	high	high	yes	high	no	yes	no	no	low
72403	*Boreotrophon coronatus*		low	high	high	high	yes	high	no	yes	no	no	low
72406	*Boreotrophon clathratus*	clathrate trophon	low	high	high	high	yes	high	no	yes	no	no	low
72420	*Boreotrophon* sp.		low	high	high	high	yes	high	no	yes	no	no	low
72421	*Boreotrophon pacificus*		low	high	high	high	yes	high	no	yes	no	no	low
72500	*Fusitriton oregonensis*	Oregon triton	mod	high	high	high	yes	high	no	yes	no	no	med
72501	*Fusitriton* sp.		mod	high	high	high	yes	high	no	yes	no	no	med
72510	Trochidae	trochid unident.	low	high	high	high	yes	high	no	yes	no	no	low
72511	*Calliostoma* sp.		low	high	high	high	yes	high	no	yes	no	no	low
72531	*Margarites* sp.		low	high	high	high	yes	high	no	yes	no	no	low
72532	*Margarites pupillus*	little margarite	low	high	high	high	yes	high	no	yes	no	no	low

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
72534	*Margarites argentatus*		low	high	high	high	yes	high	no	yes	no	no	low
72535	*Margarites costalis*	boreal rosy margarite	low	high	high	high	yes	high	no	yes	no	no	low
72540	*Solariella* sp.		low	high	high	high	yes	high	no	yes	no	no	low
72541	*Solariella obscura*	obscure solarelle	low	high	high	high	yes	high	no	yes	no	no	low
72551	*Otukaia kiheiziebisu*		low	high	high	high	yes	high	no	yes	no	no	low
72740	*Buccinum* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
72743	*Buccinum angulosum*	angular whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
72747	*Buccinum oedematum*	swollen whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
72751	*Buccinum plectrum*	sinuous whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
72752	*Buccinum scalariforme*	ladder whelk	mod	mod	high	high	yes	high	no	yes	no	no	med
72755	*Buccinum polare*	polar whelk	mod	high	high	high	yes	high	no	yes	no	no	med
72756	*Buccinum solenum*		mod	high	high	high	yes	high	no	yes	no	no	med
72757	*Buccinum ciliatum*		mod	high	high	high	yes	high	no	yes	no	no	med
72758	*Buccinum glaciale*	glacial whelk	mod	high	high	high	yes	high	no	yes	no	no	med
72759	*Buccinum tenellum*		mod	high	high	high	yes	high	no	yes	no	no	med
72785	*Buccinum transliratum*	transect whelk	mod	high	high	high	yes	high	no	yes	no	no	med
72786	*Buccinum rondinum*	eroded whelk	mod	high	high	high	yes	high	no	yes	no	no	med
72787	*Volutomitra* sp.		mod	high	high	high	yes	high	no	yes	no	no	med
72789	*Arctomelon* sp.		mod	mod	high	high	yes	high	no	yes	no	no	med
72790	*Arctomelon stearnsii*	Alaska volute	mod	mod	high	high	yes	high	no	yes	no	no	med
72791	*Arctomelon borealis*		mod	mod	high	high	yes	high	no	yes	no	no	med
72792	*Arctomelon tamikoae*		mod	mod	high	high	yes	high	no	yes	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
72795	*Volutomitra alaskana*		mod	high	high	high	yes	high	no	yes	no	no	med
72800	*Velutina undata*	wavy lamellaria	low	high	high	high	yes	high	no	yes	no	no	low
72802	*Velutina plicatilis*	oblique lamellaria	low	high	high	high	yes	high	no	yes	no	no	low
72803	*Velutina conica*	conical lamellaria	low	high	high	high	yes	high	no	yes	no	no	low
72804	*Velutina prolongata*	elongate lamellaria	low	high	high	high	yes	high	no	yes	no	no	low
72805	*Velutina velutina*	smooth lamellaria	low	high	high	high	yes	high	no	yes	no	no	low
72806	*Velutina* sp.		low	high	high	high	yes	high	no	yes	no	no	low
73185	*Admete laevior*		low	high	high	high	yes	high	no	yes	no	no	low
73186	*Admete regina*	noble admete	low	high	high	high	yes	high	no	yes	no	no	low
73351	*Cylichna alba*	white chalice-bubble	low	high	high	high	yes	high	no	yes	no	no	low
74000	Bivalvia	bivalve unident.	low	high	high	high	yes	high	no	yes	no	no	low
74050	Mytilidae	mussel unident.	low	mod	mod	high	yes	high	no	yes	yes	yes	low
74060	*Modiolus modiolus*	northern horsemussel	low	mod	mod	high	yes	high	no	yes	yes	yes	low
74065	*Mytilus* sp.		low	mod	mod	high	yes	high	no	yes	yes	yes	low
74080	*Mytilus edulis*	blue mussel	low	mod	mod	high	yes	high	no	yes	yes	yes	low
74100	Pectinidae	scallop unident.	mod	high	high	high	yes	high	no	yes	no	no	low
74104	*Chlamys* sp.		mod	high	high	high	yes	high	no	yes	no	no	low
74105	*Chlamys behringiana*	Iceland scallop	mod	high	high	high	yes	high	no	yes	no	no	low
74106	*Chlamys rubida*	reddish scallop	mod	high	high	high	yes	high	no	yes	no	no	low
74112	*Chlamys pseudoislandica*	false iceland scallop	mod	high	high	high	yes	high	no	yes	no	no	low
74120	*Patinopecten caurinus*	weathervane scallop	mod	high	high	high	yes	high	no	yes	no	no	low
74175	*Parvamussium alaskense*	Alaska glass-scallop	mod	high	high	high	yes	high	no	yes	no	no	low
74176	*Cyclopecten* sp.		mod	high	high	high	yes	high	no	yes	no	no	low
74301	*Panopea abrupta*	Pacific geoduck	mod	high	high	high	yes	high	no	yes	no	no	low

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
74310	*Hiatella* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74311	*Hiatella arctica*	Arctic hiatella	low	high	high	high	yes	high	no	yes	no	no	low
74320	*Panomya arctica*		low	high	high	high	yes	high	no	yes	no	no	low
74321	*Panomya* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74322	*Panomya norvegica*	Arctic roughmya	low	high	high	high	yes	high	no	yes	no	no	low
74332	*Nucula* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74333	*Nucula tenuis*	smooth nutclam	low	high	high	high	yes	high	no	yes	no	no	low
74414	*Yoldia* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74416	*Yoldia seminuda*	crisscrossed yoldia	low	high	high	high	yes	high	no	yes	no	no	low
74417	*Yoldia myalis*	oval yoldia	low	high	high	high	yes	high	no	yes	no	no	low
74419	*Yoldia thraciaeformis*	broad yoldia	low	high	high	high	yes	high	no	yes	no	no	low
74420	*Yoldia hyperborea*	northern yoldia	low	high	high	high	yes	high	no	yes	no	no	low
74421	*Portlandia* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74435	*Nuculana* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74436	*Nuculana pernula*	northern nutclam	low	high	high	high	yes	high	no	yes	no	no	low
74438	*Nuculana conceptionis*		low	high	high	high	yes	high	no	yes	no	no	low
74439	*Nuculana fossa*	trenched nutclam	low	high	high	high	yes	high	no	yes	no	no	low
74440	*Nuculana buccata*	stout nutclam	low	high	high	high	yes	high	no	yes	no	no	low
74560	*Musculus* sp.		low	mod	mod	high	yes	high	no	yes	yes	yes	low
74561	*Musculus niger*	black mussel	low	mod	mod	high	yes	high	no	yes	yes	yes	low
74562	*Musculus discors*	discordant mussel	low	mod	mod	high	yes	high	no	yes	yes	yes	low
74563	*Musculus olivaceus*		low	mod	mod	high	yes	high	no	yes	yes	yes	low
74564	*Crenella seminuda*	partly-sculptured crenella	low	high	high	high	yes	high	no	yes	no	no	low
74640	*Astarte* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74641	*Astarte borealis*	boreal astarte	low	high	high	high	yes	high	no	yes	no	no	low

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
74642	*Astarte polaris*	polar astarte	low	high	high	high	yes	high	no	yes	no	no	low
74644	*Tridonta rollandi*	Rolland tridonta	low	high	high	high	yes	high	no	yes	no	no	low
74650	*Cardita* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74651	Carditidae		low	high	high	high	yes	high	no	yes	no	no	low
74652	*Cyclocardia ovata*		low	high	high	high	yes	high	no	yes	no	no	low
74654	*Cyclocardia crassidens*	thick carditid	low	high	high	high	yes	high	no	yes	no	no	low
74655	*Cyclocardia crebricostata*	many-rib cyclocardia	low	high	high	high	yes	high	no	yes	no	no	low
74656	*Cyclocardia* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74742	*Vesicoma pacifica*		low	high	high	high	yes	high	no	yes	no	no	low
74803	*Kellia laperousii*	La Perouse kellyclam	low	high	high	high	yes	high	no	yes	no	no	low
74980	*Clinocardium* sp.		low	high	high	high	yes	high	no	yes	no	no	low
74981		cockle unident.	low	high	high	high	yes	high	no	yes	no	no	low
74982	*Clinocardium nuttallii*	Nuttall cockle	low	high	high	high	yes	high	no	yes	no	no	low
74983	*Clinocardium ciliatum*	hairy cockle	low	high	high	high	yes	high	no	yes	no	no	low
74985	*Clinocardium californiense*	California cockle	low	high	high	high	yes	high	no	yes	no	no	low
74986	*Clinocardium blandum*	strait cockle	low	high	high	high	yes	high	no	yes	no	no	low
75020	*Saxidomus nuttalli*	Washington clam	low	high	high	high	yes	high	no	yes	no	no	low
75021	*Saxidomus gigantea*	butter clam	low	high	high	high	yes	high	no	yes	no	no	low
75030	*Protothaca staminea*	Pacific littleneck	low	high	high	high	yes	high	no	yes	no	no	low
75092	*Liocyma fluctosa*	wavy liocyma	low	high	high	high	yes	high	no	yes	no	no	low
75110	*Mactromeris* sp.		low	high	high	high	yes	high	no	yes	no	no	low
75111	*Mactromeris polynyma*	Arctic surfclam	low	high	high	high	yes	high	no	yes	no	no	low
75201	*Tellina* sp.		low	high	high	high	yes	high	no	yes	no	no	low
75203	*Tellina nuculoides*	salmon tellin	low	high	high	high	yes	high	no	yes	no	no	low

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
75205	*Tellina lutea*	Alaska great-tellin	low	high	high	high	yes	high	no	yes	no	no	low
75240	*Macoma* sp.		low	high	high	high	yes	high	no	yes	no	no	low
75241	*Macoma nasuta*	bent-nose macoma	low	high	high	high	yes	high	no	yes	no	no	low
75242	*Macoma calcarea*	chalky macoma	low	high	high	high	yes	high	no	yes	no	no	low
75243	*Macoma yoldiaformis*		low	high	high	high	yes	high	no	yes	no	no	low
75247	*Macoma brota*	heavy macoma	low	high	high	high	yes	high	no	yes	no	no	low
75264	*Siliqua* sp.		low	high	high	high	yes	high	no	yes	no	no	low
75266	*Siliqua patula*	Pacific razor	low	high	high	high	yes	high	no	yes	no	no	low
75267	*Siliqua alta*	Alaska razor	low	high	high	high	yes	high	no	yes	no	no	low
75284	*Serripes* sp.		low	high	high	high	yes	high	no	yes	no	no	low
75285	*Serripes groenlandicus*	Greenland cockle	low	high	high	high	yes	high	no	yes	no	no	low
75286	*Serripes laperousii*	broad cockle	low	high	high	high	yes	high	no	yes	no	no	low
75287	*Serripes notabilis*	oblique smoothcockle	low	high	high	high	yes	high	no	yes	no	no	low
75330	*Mya* sp.		low	high	high	high	yes	high	no	yes	no	no	low
75332	*Mya arenaria*	softshell	low	high	high	high	yes	high	no	yes	no	no	low
75333	*Mya truncata*	truncate softshell	low	high	high	high	yes	high	no	yes	no	no	low
75335	*Mya pseudoarenaria*	false softshell	low	high	high	high	yes	high	no	yes	no	no	low
75336	*Mya elegans*	elegant soft shell	low	high	high	high	yes	high	no	yes	no	no	low
75381	Teredinidae	shipworm unid.	low	high	high	high	no	high	no	yes	no	yes	low
75600	*Pododesmus macrochisma*	Alaska falsejingle	low	high	high	high	no	high	no	yes	no	no	low
75605	*Pododesmus* sp.		low	high	high	high	no	high	no	yes	no	no	low
75610	Anomiidae	falsejingles unident.	low	high	high	high	no	high	no	yes	no	no	low
77011	*Dentalium* sp.		low	high	high	high	yes	high	no	yes	no	no	low
77012	*Rhabdus dalli*	Dall tuskshell	low	high	high	high	yes	high	no	yes	no	no	low
78000	Cephalopoda	cephalopod unident.	low	high	high	low	yes	high	no	yes	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
78010	Octopodidae	octopus unident.	mod	high	high	high	yes	high	no	yes	no	no	high
78012	*Benthoctopus leioderma*	smoothskin octopus	mod	high	high	high	yes	high	no	yes	no	no	med
78013	*Benthoctopus sibiricus*		mod	high	high	high	yes	high	no	yes	no	no	med
78020	*Octopus* sp.		mod	high	high	high	yes	high	no	yes	no	no	low
78030	*Opisthoteuthis californiana*	flapjack devilfish	mod	high	high	high	yes	high	no	yes	no	no	high
78403	*Enteroctopus dofleini*	giant octopus	mod	high	high	high	yes	high	no	yes	no	no	high
78452	*Benthoctopus* sp.		low	high	high	high	yes	high	no	yes	no	no	low
78454	*Sasakiopus salebrosus*	pygmy benthoctopus	low	high	high	high	yes	high	no	yes	no	no	low
79000	Decapodiformes	squid unident.	low	high	high	low	yes	high	no	no	no	no	n/a
79020	*Rossia pacifica*	eastern Pacific bobtail	low	high	high	low	yes	high	no	no	no	no	n/a
79120	*Doryteuthis opalescens*	California market squid	low	high	high	low	yes	high	no	no	no	no	n/a
79200	*Gonatus* sp.		low	high	high	low	yes	high	no	no	no	no	n/a
79210	*Berryteuthis magister*	magistrate armhook squid	low	high	high	low	yes	high	no	no	no	no	n/a
80000	Asteroidea	starfish unident.	low	high	high	high	yes	high	no	no	no	no	med
80005	*Ceramaster leptoceramus*		low	high	high	high	yes	high	no	no	no	no	med
80010	*Evasterias* sp.		low	high	high	high	yes	high	no	no	no	no	med
80015	*Evasterias troschelii*	mottled sea star	low	high	high	high	yes	high	no	no	no	no	med
80020	*Evasterias echinosoma*	giant sea star	low	high	high	high	yes	high	no	no	no	no	med
80106	*Orthasterias koehleri*	redbanded sea star	low	high	high	high	yes	high	no	no	no	no	med
80110	*Leptasterias groenlandica*		low	high	high	high	yes	high	no	no	no	no	med
80111	*Leptasterias hexactis*		low	high	high	high	yes	high	no	no	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
80112	*Leptasterias hylodes*	Aleutian sea star	low	high	high	high	yes	high	no	no	no	no	med
80115	*Leptasterias coei*		low	high	high	high	yes	high	no	no	no	no	med
80160	*Pycnopodia helianthoides*	sunflower sea star	low	high	high	high	yes	high	no	no	no	no	med
80200	*Lethasterias nanimensis*	blackspined sea star	low	high	high	high	no	high	no	no	no	no	med
80230	*Pedicellaster magister*	majestic sea star	low	high	high	high	yes	high	no	no	no	no	med
80537	*Henricia* sp. C (Clark 2006)	mottled Henricia	low	high	high	high	yes	high	no	no	no	no	med
80540	*Henricia* sp.		low	high	high	high	yes	high	no	no	no	no	med
80542	*Henricia sanguinolenta*	sanguine sea star	low	high	high	high	yes	high	no	no	no	no	med
80544	*Henricia leviuscula*	blood sea star	low	high	high	high	yes	high	no	no	no	no	med
80546	*Henricia tumida*	tumid sea star	low	high	high	high	yes	high	no	no	no	no	med
80547	*Henricia asthenactis*		low	high	high	high	yes	high	no	no	no	no	med
80549	*Henricia spiculifera*	spiny Henricia	low	high	high	high	yes	high	no	no	no	no	med
80551	*Odontohenricia* sp.		low	high	high	high	yes	high	no	no	no	no	med
80590	*Leptasterias polaris*		low	high	high	high	yes	high	no	no	no	no	med
80591	*Leptasterias katharinae*		low	high	high	high	yes	high	no	no	no	no	med
80594	*Leptasterias arctica*		low	high	high	high	yes	high	no	no	no	no	med
80595	*Leptasterias* sp.		low	high	high	high	yes	high	no	no	no	no	med
80597	*Henricia beringiania*	Bering Henricia	low	high	high	high	yes	high	no	no	no	no	med
80602	*Gephyreaster swifti*	Swift's sea star	low	high	high	high	yes	high	no	no	no	no	med
80610	*Pseudarchaster* sp.		low	high	high	high	yes	high	no	no	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
80620	*Pseudarchaster alascensis*		low	high	high	high	yes	high	no	no	no	no	med
80650	*Hippasteria spinosa*	spiny red sea star	low	high	high	high	yes	high	no	no	no	no	med
80660	*Pseudarchaster parelii*	scarlet sea star	low	high	high	high	yes	high	no	no	no	no	med
80710	*Mediaster aequalis*	vermilion sea star	low	high	high	high	yes	high	no	no	no	no	med
80728	*Ceramaster* sp.		low	high	high	high	yes	high	no	no	no	no	med
80729	*Ceramaster japonicus*	red bat star	low	high	high	high	yes	high	no	no	no	no	med
80730	*Ceramaster patagonicus*	orange bat sea star	low	high	high	high	yes	high	no	no	no	no	med
80733	*Ceremaster stellatus*		low	high	high	high	yes	high	no	no	no	no	med
80910	*Dermasterias imbricata*	leather sea star	low	high	high	high	yes	high	no	no	no	no	med
81060	*Solaster* sp.		low	high	high	high	yes	high	no	no	no	no	med
81061	*Solaster endeca*	northern sun sea star	low	high	high	high	yes	high	no	no	no	no	med
81064	*Solaster dawsoni*	morning sun sea star	low	high	high	high	yes	high	no	no	no	no	med
81068	*Solaster* sp. C (Clark)	beautiful sun star	low	high	high	high	yes	high	no	no	no	no	med
81090	*Crossaster* sp.		low	high	high	high	yes	high	no	no	no	no	med
81092	*Crossaster borealis*	grooved sea star	low	high	high	high	yes	high	no	no	no	no	med
81095	*Crossaster papposus*	rose sea star	low	high	high	high	yes	high	no	no	no	no	med
81310	*Pteraster* sp.		low	high	high	high	yes	high	no	no	no	no	med
81312	*Pteraster temnochiton*	cushion sea star	low	high	high	high	yes	high	no	no	no	no	med
81315	*Pteraster tesselatus*		low	high	high	high	yes	high	no	no	no	no	med
81318	*Pteraster* sp. D (Clark)		low	high	high	high	yes	high	no	no	no	no	med

Table 3. -- Continued.

Taxon Code	Taxon	Common Name	Confidence Indices			Factors Influencing Confidence Matrices							
			Efficiency	Weight	Count	Substrate	Intact	Detection	Entangle	Mesh	Attached	Cluster	Profile
81320	*Pteraster militaris*	wrinkled star	low	high	high	high	yes	high	no	no	no	no	med
81355	*Pteraster obscurus*	obscure sea star	low	high	high	high	yes	high	no	no	no	no	med
81360	*Diplopteraster multipes*	pincushion sea star	low	high	high	high	yes	high	no	no	no	no	med
81361	*Diplopteraster* sp.		low	high	high	high	yes	high	no	no	no	no	med
81741	*Asterias* sp.		low	high	high	high	yes	high	no	no	no	no	med
81742	*Asterias amurensis*	purple-orange sea star	low*	high	high	high	yes	high	no	no	no	no	med
81779	*Ctenodiscus* sp.		low	high	high	high	yes	high	no	yes	no	no	med
81780	*Ctenodiscus crispatus*	common mud star	low	high	high	high	yes	high	no	yes	no	no	med
81820	*Leptychaster* sp.		low	high	high	high	yes	high	no	no	no	no	med
81829	*Leptychaster anomalus*		low	high	high	high	yes	high	no	no	no	no	med
81830	*Leptychaster pacificus*		low	high	high	high	yes	high	no	no	no	no	med
81835	*Leptychaster arcticus*	North Pacific sea star	low	high	high	high	yes	high	no	no	no	no	med
81850	*Dipsacaster* sp.		low	high	high	high	yes	high	no	no	no	no	med
81870	*Dipsacaster borealis*	northern sea star	low	high	high	high	yes	high	no	no	no	no	med
81910	*Cheiraster dawsoni*	fragile sea star	low	mod	mod	high	no	high	no	yes	no	no	med
82500	Echinacea	sea urchin	low	mod	mod	high	no	high	no	yes	no	no	med
82510	*Strongylocentrotus droebachiensis*	green sea urchin	low	mod	mod	high	no	high	no	yes	no	no	med
82511	*Strongylocentrotus* sp.		low	mod	mod	high	no	high	no	yes	no	no	med
82520	*Strongylocentrotus franciscanus*	red sea urchin	low	mod	mod	high	no	high	no	yes	no	no	med
82522	*Strongylocentrotus polyacanthus*		mod	mod	mod	high	no	high	no	yes	no	no	med
82526	*Strongylocentrotus pallidus*	white sea urchin	low	mod	mod	high	no	high	no	yes	no	no	med
82530	*Allocentrotus fragilis*	orange-pink sea urchin	low	mod	mod	high	no	high	no	yes	no	no	med
82535	*Allocentrotus* sp.		low	mod	mod	high	no	high	no	yes	no	no	med

Table 3. -- Continued.

Taxon			Confidence Indices			Factors Influencing Confidence Matrices							
Code	**Taxon**	**Common Name**	**Efficiency**	**Weight**	**Count**	**Substrate**	**Intact**	**Detection**	**Entangle**	**Mesh**	**Attached**	**Cluster**	**Profile**
82730		sand dollar	low	mod	mod	high	no	high	no	yes	no	no	low
82740	*Echinarachnius parma*	parma sand dollar	low	mod	mod	high	no	high	no	yes	no	no	low
83000	Ophiuroidea	brittlestar	low	low	low	high	no	high	no	yes	no	no	low
83010	Ophiuridae		low	low	low	high	no	high	no	yes	no	no	low
83020	*Gorgonocephalus eucnemis*	basketstar	mod	mod	low	high	no	high	yes	no	no	no	high
83060	*Asteronyx* sp.		low	low	low	high	no	low	yes	yes	yes	no	low
83070	*Asteronyx loveni*	serpent sea star	low	low	low	high	no	low	yes	yes	yes	no	low
83310	*Ophiura* sp.		low	low	low	high	no	low	yes	yes	no	no	low
83311	*Ophiura cryptolepis*		low	low	low	high	no	low	yes	yes	no	no	low
83320	*Ophiura sarsi*	notched brittlestar	low	low	low	high	no	low	yes	yes	no	no	low
83336	*Stegophiura nodosa*		low	low	low	high	no	low	yes	yes	no	no	low
83342	*Ophiacantha* sp.		low	low	low	high	no	low	yes	yes	no	no	low
83345	*Ophiacantha cataleimmoida*		low	low	low	high	no	low	yes	yes	no	no	low
83360	*Ophiopholis* sp.		low	low	low	high	no	low	yes	yes	no	no	low
83390	*Ophiopholis longispina*		low	low	low	high	no	low	yes	yes	no	no	low
83400	*Ophiopholis aculeata*	ubiquitous brittle star	low	low	low	high	no	low	yes	yes	no	no	low
83411	*Ophiolebes* sp.		low	low	low	high	no	low	yes	yes	no	no	low
85000	Holothuroidea	sea cucumber	low	mod	high	high	yes	high	yes	yes	no	no	low
85070	*Pseudostichopus mollis*		low	mod	high	high	yes	high	yes	yes	no	no	low
85115	*Molpadia* sp.		low	mod	high	high	yes	high	yes	yes	no	no	low
85120	*Molpadia intermedia*	sweet sea potato	low	mod	high	high	yes	high	yes	yes	no	no	low
85169	*Pentamera lissoplaca*	crescent sea cucumber	low	mod	high	high	yes	high	yes	yes	no	no	low
85170	*Pentamera* sp.		low	mod	high	high	yes	high	yes	yes	no	no	low

Table 3. -- Continued.

Taxon			Confidence Indices			Factors Influencing Confidence Matrices							
Code	**Taxon**	**Common Name**	**Efficiency**	**Weight**	**Count**	**Substrate**	**Intact**	**Detection**	**Entangle**	**Mesh**	**Attached**	**Cluster**	**Profile**
85171	*Pentamera* sp. A (Clark 2006)		low	mod	high	high	yes	high	yes	yes	no	no	low
85180	*Bathyplotes* sp.		low	mod	high	high	yes	high	yes	yes	no	no	low
85200	*Cucumaria* sp.		low	mod	high	high	yes	high	yes	yes	no	no	low
85201	*Cucumaria fallax*	sea football	low	mod	high	high	yes	high	yes	yes	no	no	low
85202	*Cucumaria frondosa*		low	mod	high	high	yes	high	yes	yes	no	no	low
85210	*Psolus* sp.		low	mod	high	high	yes	high	no	yes	no	no	low
85219	*Psolus fabricii*	brownscaled sea cucumber	low	mod	high	high	yes	high	no	yes	no	no	low
85220	*Psolus squamatus*	whitescaled sea cucumber	low	mod	high	high	yes	high	no	yes	no	no	low
85222	*Psolus japonicus*		low	mod	high	high	yes	high	no	yes	no	no	low
85290	*Synallactes challengeri*		low	mod	high	high	yes	high	no	yes	no	no	low
90000	Foraminifera	foraminiferan unident.	low	low	low	high	yes	low	no	yes	no	no	low
91000	Porifera	sponge unident.	mod	mod	low	high	no	high	no	no	yes	yes	high
91005		vase sponge unident.	mod	mod	low	high	no	high	no	no	yes	yes	high
91015	*Suberites* sp.		mod	mod	low	high	yes	high	no	no	yes	yes	high
91016	*Suberites ficus*		mod	mod	low	high	yes	high	no	no	yes	yes	high
91030	*Aphrocallistes vastus*	clay pipe sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91039	*Mycale* sp.		mod	mod	low	high	no	high	no	no	yes	yes	high
91040	*Mycale loveni*	tree sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91049	*Halichondria* sp.		mod	mod	low	high	no	high	no	no	yes	yes	high
91050	*Halichondria panicea*	barrel sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91053	*Rhabdocalyptus* sp.	cloud sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91056		funnel sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91057	*Stelodoryx oxeata*	scapula sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91060	*Myxilla incrustans*	scallop sponge	mod	mod	low	high	no	high	no	no	yes	yes	high

Table 3. -- Continued.

Taxon			Confidence Indices			Factors Influencing Confidence Matrices							
Code	**Taxon**	**Common Name**	**Efficiency**	**Weight**	**Count**	**Substrate**	**Intact**	**Detection**	**Entangle**	**Mesh**	**Attached**	**Cluster**	**Profile**
91063	*Echinoclathria geringensis*	hat sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91064	*Axinella blanca*	firm finger sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91067	*Tedania kagalaskai*	club sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91068	*Monanchora pulchra*	yellow leafy sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91069	*Tethya* sp.	ball sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91074	*Polymastia* sp.		mod	mod	low	high	no	high	no	no	yes	yes	high
91093	*Neoesperiopsis digitata*		mod	mod	low	high	no	high	no	no	yes	yes	high
91105	*Stelletta* sp.	stone sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91110	*Polymastia fluegeli*	Flugel's nippled sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91226	*Latrunculia oparinae*	green papillate sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
91700	Hexactinellida	glass sponge	mod	mod	low	high	no	high	no	no	yes	yes	high
92000	Platyhelminthes	flatworm	mod	mod	mod	high	yes	low	no	no	no	no	low
92021	Polycladida	polyclad flatworm	mod	mod	mod	high	yes	low	no	no	no	no	low
92500	Nemertea	nemertean worm	mod	mod	mod	high	yes	low	no	no	no	no	low
92502	*Emplectonema* sp.		mod	mod	mod	high	yes	low	no	no	no	no	low
93100	Priapula	priapulid worm	mod	mod	mod	high	yes	low	no	no	no	no	low
93500	Nematoda	nematode worm	mod	mod	mod	high	yes	low	no	no	no	no	low
94000	Sipuncula	peanut worm	mod	mod	mod	high	yes	low	no	no	no	no	low
94011	Phascolosomatidae		low	mod	mod	high	yes	low	no	no	no	no	low
94500	Echiura	echiuroid worm	low	mod	mod	high	yes	low	no	no	no	no	low
94900	Phoronida	phoronid tube worm	low	mod	mod	high	yes	low	no	no	no	no	low
95000	Bryozoa	bryozoan	mod	mod	low	high	no	low	yes	no	yes	yes	med
95006	*Myriapora orientalis*		mod	mod	low	high	no	low	yes	no	yes	yes	med
95010		bryozoan sp. A	mod	mod	low	high	no	low	yes	no	yes	yes	med
95017	*Bugula pacifica*		mod	mod	low	high	no	low	yes	no	yes	yes	med

Table 3. -- Continued.

Taxon			Confidence Indices			Factors Influencing Confidence Matrices							
Code	**Taxon**	**Common Name**	**Efficiency**	**Weight**	**Count**	**Substrate**	**Intact**	**Detection**	**Entangle**	**Mesh**	**Attached**	**Cluster**	**Profile**
95020	*Eucratea loricata*	feathery bryozoan	mod	mod	low	high	no	low	yes	no	yes	yes	med
95030	*Flustra serrulata*	leafy bryozoan	mod	mod	low	high	no	low	yes	no	yes	yes	med
95035	*Flustrellidra corniculata*		mod	mod	low	high	no	low	yes	no	yes	yes	med
95036	*Alcyonidium pedunculatum*		mod	mod	low	high	no	low	yes	no	yes	yes	med
95038	*Alcyonidium* sp.		mod	mod	low	high	no	low	yes	no	yes	yes	med
95050	*Porella compressa*	flattened bryozoan	mod	mod	low	high	no	low	yes	no	yes	yes	med
95060	*Escharopsis sarsi*		mod	mod	low	high	no	low	yes	no	yes	yes	med
95070	*Rhamphostomella costata*	ribbed bryozoan	mod	mod	low	high	no	low	yes	no	yes	yes	med
95080	*Celleporina ventricosa*	coral bryozoan	mod	mod	low	high	no	low	yes	no	yes	yes	med
95105	*Dendrobeania* sp.		mod	mod	low	high	no	low	yes	no	yes	yes	med
97000	Brachiopoda	lampshell unident.	low	mod	low	high	yes	high	no	yes	yes	yes	high
97010	Hemithyrididae	hemithyrid brachiopods	low	mod	low	high	yes	low	no	yes	yes	yes	high
97116	*Laqueus californianus*	California lamp shell	low	mod	low	high	yes	low	no	yes	yes	yes	high
97120	*Hemithiris psittacea*	black brachiopod	low	mod	low	high	yes	low	no	yes	yes	yes	high
98000	Ascidiacea	tunicate unident.	low	mod	low	high	yes	low	no	yes	yes	yes	high
98001	Ascidian n. sp. A	cow-eye tunicate	low	mod	low	high	yes	low	no	yes	yes	yes	high
98070	Thaliacea	salp unident.	low	mod	low	low	yes	low	no	yes	no	no	n/a
98080	*Styela* sp.		low	mod	low	high	yes	low	no	yes	yes	yes	high
98082	*Styela rustica*	sea potato	low	mod	low	high	yes	low	no	yes	yes	yes	high
98100	*Boltenia* sp.		low	mod	low	high	yes	low	no	yes	yes	yes	high
98105	*Boltenia ovifera*		low	mod	low	high	yes	low	no	yes	yes	yes	high
98200	*Halocynthia* sp.	sea peach unident.	mod	mod	high	high	yes	low	no	yes	yes	yes	high
98205	*Halocynthia aurantium*	sea peach	mod	mod	high	high	yes	low	no	yes	yes	yes	high

Table 3. -- Continued.

Taxon			Confidence Indices			Factors Influencing Confidence Matrices							
Code	**Taxon**	**Common Name**	**Efficiency**	**Weight**	**Count**	**Substrate**	**Intact**	**Detection**	**Entangle**	**Mesh**	**Attached**	**Cluster**	**Profile**
98213	*Distaplia smithi*		mod	mod	high	high	yes	low	no	yes	yes	yes	high
98219	*Aplidium californicum*		low	mod	low	high	yes	low	no	yes	yes	yes	high
98300		compound ascidian	low	mod	low	high	yes	low	no	yes	yes	yes	high
98302	*Amaroucium* sp.		low	mod	low	high	yes	low	no	yes	yes	yes	high
98303	*Amaroucium soldatovi*		low	mod	low	high	yes	low	no	yes	yes	yes	high
98310	*Aplidium* sp. A (Clark 2006)	sea glob	low	mod	low	high	yes	low	no	yes	yes	yes	high
98311	*Aplidium* n sp. A	orange aplidium	low	mod	low	high	yes	low	no	yes	yes	yes	high
98320	*Synoicum* sp.	sea blob	low	mod	low	high	yes	low	no	yes	yes	yes	med
99900	*Molgula* sp.		low	mod	low	high	yes	low	no	yes	yes	yes	med
99902	*Molgula grifithsii*	sea grape	low	mod	low	high	yes	low	no	yes	yes	yes	med
99904	*Molgula retortiformis*	sea clod	low	mod	low	high	yes	low	no	yes	yes	yes	med
99998	Polychaete tubes		low	mod	low	high	yes	low	no	no	yes	yes	low

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