British Columbia Corals: A Synopsis of Information on their Taxonomy, Occurrences, Distribution, Threats and General Status

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ABSTRACT

Boutillier, P.D.G., Boutillier, J.A. and Gillespie, G.E. 2019. British Columbia Corals: A Synopsis of Information on their Taxonomy, Occurrences, Distribution, Threats and General Status. Can. Tech. Rep. Fish. Aquat. Sci. 3322: vii + 260 p.

The information in this report is intended to be a first step in understanding the extant biodiversity of Coral in the federally and provincially regulated marine waters off British Columbia on the west coast of Canada. General status ranking (GSR) assessments are conducted by integrating the best available information on taxonomy. population size, distribution, trends and threats, to evaluate general status of each species. The information is intended to inform Federal and Provincial Agencies responsible for the management of anthropogenic activities within these waters, of the nature, extent and condition of the biodiversity and how these anthropogenic activities threaten the existence of these animals.

During this initial Regional GSR assessment process, 90 species of corals were identified within BC coastal waters. Fifty species were classified as being Sensitive; 39 Undetermined and one Accidental/Undetermined species (Table 4, Table 5). None of the Coral species have estimates of Population Size, and 51% have an Unknown Distribution (Table 5). Twenty-four percent of Number of Occurrences are Unknown with the remainder spread across the rating scale. All of the Population Trends and Distribution Trends are classified as Unknown. Threats to Population are considered to be Moderate for 56% and Limited for 34% of the species. Threats to Distribution are considered to be Extreme for 100% of Coral Species.

The subseqent Species at Risk Act assessment of Pacific Corals in 2015 only included only 57 species of anthozoan corals and did not address any hydrozoan corals. Of the 57 species assessed, 39 were assigned a Vulnerable rank and the remaining 18 were classified as Unrankable.

RÉSUMÉ

Boutillier, P.D.G., Boutillier, J.A. and Gillespie G.E. 2019. British Columbia Corals: A Synopsis of Information on their Taxonomy, Occurrences, Distribution, Threats and General Status. Can. Tech. Rep. Fish. Aquat. Sci. 3322: vii + 260 p.

Les informations contenues dans ce rapport constituent un premier pas dans la compréhension de la biodiversité du corail existants dans les eaux marines, sous réglementation fédérale et provinciale, de la Colombie-Britannique, sur la côte ouest du Canada. Les informations visent à informer les agences fédérales et provinciales, responsables de la gestion des activités anthropiques dans ces eaux, de la nature, de l'étendue et des conditions de la biodiversité et de la façon dont ces activités anthropiques menacent l'existence de ces animaux.

Les évaluations de la situation générale (ESG) sont menées en incluant les meilleures informations disponibles sur la taxonomie, la taille de la population, la répartition, les tendances et les menaces, afin d'évaluer la situation générale de chaque espèce.

Au cours de ce premier processus d'évaluation régionale de la RSE, 90 espèces de coraux ont été identifiées dans les eaux côtières de la Colombie-Britannique.Cinquante espèces ont été classées comme étant sensibles; 39 Espèce indéterminée et une espèce accidentelle/indéterminée (tableau 4, tableau 5). Aucune des espèces de coraux n'a d'estimation de la taille de la population, et 51 % ont une distribution inconnue (tableau 5). Vingt-quatre pour cent du nombre d'occurrences sont inconnus, le reste étant réparti sur l'échelle d'évaluation. Toutes les tendances démographiques et de répartition sont classées comme inconnues. Les menaces à la population sont considérées comme modérées pour 56 % et limitées pour 34 % de l'espèce. Les menaces à la distribution sont considérées comme extrêmes pour 100 % des espèces de coraux. Cinquante espèces ont été classées comme étant sensibles; 39 Espèce indéterminée et une espèce accidentelle/indéterminée (tableau 4, tableau 5). Aucune des espèces de coraux n'a d'estimation de la taille de la population, et 51 % ont une distribution inconnue (tableau 5). Vingt-quatre pour cent du nombre d'occurrences sont inconnus, le reste étant réparti sur l'échelle d'évaluation. Toutes les tendances démographiques et de répartition sont classées comme inconnues. Les menaces à la population sont considérées comme modérées pour 56 % et limitées pour 34 % de l'espèce. Les menaces à la distribution sont considérées comme extrêmes pour 100 % des espèces de coraux.

L'évaluation subséquente des coraux du Pacifique par la Loi sur les espèces en péril en 2015 n'a inclus que 57 espèces de coraux anthozoaires et n'a porté sur aucun corail hydrozoan. Sur les 57 espèces évaluées, 39 ont reçu un grade vulnérable et les 18 autres ont été classées comme inclassables.

INTRODUCTION

The General Status of Species in Canada is a process that came into effect through the Accord for the Protection of Species at Risk (1996, revised 1998). The accord documents the commitment from federal, provincial and territorial Ministers to protect species at risk of extinction. The General Status of Species in Canada addresses the Minister's commitment under the accord to "establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada, and that will: a) address all native wild species" and "j) monitor, assess and report regularly on the status of all wild species." The activities of the accord are coordinated through the Canadian Endangered Species Conservation Council (CESCC) which is composed of federal and provincial ministers responsible for wildlife conservation and provides direction to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The accord is one part of a three-part strategy for the protection of species at risk in conjunction with the Species at Risk Act (SARA) and the Habitat Stewardship Program for Species at Risk.

The General Status of Species in Canada is assessed every five years and reported on through the Wild Species report series (www.wildspecies.ca). The first report was Wild Species 2000 (CESCC 2001) which assessed Canada's freshwater fishes (Agnatha, Chondrichthyes and Osteichthyes), amphibians (Amphibia), reptiles (Reptilia), birds (Aves), mammals (Mammalia), butterflies (Lepidoptera), ferns (Filicales) and orchids (Orchidaceae). The second report, Wild Species 2005 (CESCC 2006) assessed Canada's vascular plants (Tracheophyta), freshwater mussels (Unionida), crayfishes (Astacidae and Cambaridae), dragonflies and damselflies (Odonata), tiger beetles (Cicindelidae) and marine fishes (Agnatha, Chondrichthyes and Osteichthyes) as well as updating information on the species groups from Wild Species 2000 (CESCC 2001). Wild Species 2010 (CESCC 2011) assessed lichens, mosses, spiders (Araneae), predaceous diving beetles (Dytiscidae), ground beetles (Carabidae, including the reassessment of tiger beetles), lady beetles (Coccinellidae), bumblebees (*Bombus* spp.), black flies (Simuliidae), horse flies (Tabanidae), mosquitoes (Culicidae), and some selected macromoths (Lepidoptera); the report also reassessed some groups from previous reports. Results of this ranking process were reported in Wild Species 2015 (CESCC 2016), along with ranks for selected macrofungi, macrolichens, bryophytes (Marchantiophyta, Bryophyta and Anthocerotophyta), vascular plants, sponges (Porifera), corals (select Anthozoa and Hydrozoa), freshwater bivalves, terrestrial and freshwater snails and slugs (Gastropoda), spiders, mayflies (Ephemeroptera), dragonflies and damselflies, stoneflies (Plecoptera), grasshoppers and relatives (Dermaptera, Orthoptera, Notoptera, Phasmida, Mantodea, Blattodea, and Isoptera), lacewings (Neuroptera), beetles (Coleoptera), ants (Formicidae), bees (Anthophila), yellowjacket wasps (Vespidae), caddisflies (Trichoptera), moths and butterflies (Lepidoptera), scorpionflies (Mecoptera), black flies, mosquitoes, horse flies, bee flies (Bombyliidae), flower flies (Syrphidae), decapods (Decapoda), sea cucumbers (Holothuroidea), sea urchins (Echinoidea), fishes, amphibians, reptiles, birds, and mammals.

The Species at Risk Act there assessement of Pacific Corals in 2015 only included only 57 species of anthozoan corals and did not address any hydrozoan corals.

General status assessments are completed by integrating the best possible information on population size, distribution, trends and threats, to evaluate general status of the species. All species are classified under one of the overall general status rankings: Extirpated, Extinct, At Risk, May Be At Risk, Sensitive, Secure, Undetermined, Not Assessed, Exotic, or Accidental. The assessments provide information on the level of perceived risk for individual species and overall species groups and areas where more information is needed. They also provide information on possible candidates for formal status assessment by COSEWIC and possible inclusion under SARA.

The Guidelines for Assessing the General Status of Wild Species in Canada, Version 2.0, prepared by the National General Status Working Group (NGSWG) in January 2003 (NGSWG 2003) states that:

> "(t)he process of assigning general status for Canada's wild species is, by necessity, a coarse-filter approach to evaluating species' status. The general status ranking system does not negate or replace the need for more detailed ranking systems (e.g. Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessment process), or those designed to assess specific taxonomic groups (e.g. Partners in Flight ranking system for birds). It is hoped however, that the general status ranks will be useful in examining overall trends in species' status across a broad range of taxonomic groups and through time."

In 2008, a new round of general status assessments was initiated for inclusion in the Wild Species 2010 report. Fisheries and Oceans Canada (DFO), Pacific Region received funding through the Species At Risk program to rank all species of **corals**, decapods, holothuroids, echinoids and reef-building glass sponges in Canada's Pacific waters. This request included developing regional species lists, assembling and outlining the available information on species and providing species ranks based on the general status ranking procedure. Throughout this document this process will be referred to as the General Status Ranking (GSR) process.

METHODS

The GSR guidelines and criteria are outlined in the Guidelines for Assessing the General Status of Wild Species in Canada (NGSWG 2003) and follow the procedure laid out in Harper *et al.* (1996). They are based on ranking systems set out by the International Union for Conservation of Nature, the Convention on International Trade in Endangered Species of Wild Fauna and Flora and the Conservation Data Centres and Natural Heritage Programs of NatureServe.

The ranking system uses seven criteria for evaluation: population size, distribution, number of occurrences, population trend, distribution trend, threats to

population, and threats to distribution (habitat) (Table 1). Each criterion is rated on a scale from worst too best, so an A score suggests the worst case for species conservation and a D score suggests the best case for species conservation. Therefore, species with a large number of A scores are the most at risk of extinction or extirpation and species with a large number of D scores are most secure and stable under present conditions. Occasionally there is a category where two scores are equally appropriate. In this case a range is given (e.g. A/B). A score of x is used when the criteria rank is Unknown. NGSWG (2003) states that "(t)he criteria presented here should be used as guidelines to focus and align common approaches to general status assessments. This approach is vital given the range of taxonomic diversity of wild species in Canada. For example, some criteria and their rating scales are not applicable to some taxonomic groups (e.g. invertebrates and marine fishes). Also, some taxonomic groups may have more extensive data than others (e.g. birds)."

Criteria and scores proposed in Harper *et al.* (1996) and NGSWG (2003) were adapted to fit within the restraints of the data and the life history of the marine invertebrate groups selected for the 2010 GSR process. Raw data for the Pacific Region marine invertebrate GSR process were collected from museums, DFO databases, researchers, literature and other data sources (see Acknowledgements for details) to address the scoring criteria.

Table 1. Proposed criteria and rating scale (score) for the general status of all wild species, adapted from Harper *et al.* (1996) and NGSWG (2003).

	Rating Scale (Score)			
Criteria	**A**	**B**	**C**	**D**
Population Size (Popln.)	Very Small (<1000)	Small (1001-3000)	Medium (3001-10,000)	Large (>10,000)
Population Trend (P. Trend)	Rapidly declining (>50%)	Declining (>20%)	Stable (fluctuations)	Increasing (any rate)
Distribution Trend (D. Trend)	Rapidly declining (>50%)	Declining (>20%)	Stable (fluctuations)	Increasing (any rate)
Geographic Distribution (Distn.)	Very Restricted (<3%)	Restricted (4-10%)	Regional (11-50%)	Widespread (>50%)
Number of Occurrences (# Occ.)	Very Restricted (<5)	Restricted (6-20)	Regional (21-100)	Widespread (>101)
Threats to Population (P. Threats)	Extreme (>50%)	Moderate (<50%)	Limited (mitigated)	None (no effect)
Threats to Distribution (D. Threats)	Extreme (>50%)	Moderate (<50%)	Limited (mitigated)	None (no effect)

Population Size (Popln.)

Population Size represents the current estimate of the total number of mature individuals capable of reproduction (Harper *et al*. 1996). The proposed scores are as follows: A= very small (<1000 mature individuals), B= small (1001-3000 mature individuals), C= medium (3001-10000 mature individuals), D= large (>10000 mature

individuals). These metrics are not very useful when dealing with marine invertebrate species.

For the marine invertebrate groups selected for the 2010 GSR process the criterion Population Size included any comments or data that revolved around an actual population size or comparative population size among similar species. This category was generally ranked as unknown, unless dealing with a commercially fished species.

Geographic Distribution (Distn.)

Geographic Distribution represents the current percentage of the provincial/territorial/ocean region area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of occurrence, excluding cases of vagrancy (Harper *et al*. 1996). The proposed scores are as follows: A=very restricted (<3% of area), B= restricted (4-10% of area), C= regional (10-50% of area), D= widespread (>50% of area).

For the marine invertebrate groups selected for the 2010 GSR process it was determined that the criterion Distribution cannot be defined in the manner suggested by Harper *et al.* (1996) and a more qualitative approach was used. A score of D or Widespread was given when a species was distributed coastwide and found in both inshore and offshore locations. A score of C or Regional was given when a species was distributed coastwide but restricted to either inshore (continental shelf) or offshore (continental slope an deeper) locations. A score of A or Very Restricted was given when a species was only distributed in one small area (usually representing either the northern or southern extent of the species distribution). A score of B or Restricted was given when a species was distributed somewhere in between categories A and C.

Number of Occurrences (# Occ.)

Number of Occurrences represents the estimated number of sites where the species currently persists and the basis for including this attribute as an indicator is that very few site occurrences would make a species very susceptible to any number of ecological disturbances, both predictable and unpredictable (Harper *et al*. 1996). The proposed scores are as follows: A=very restricted (<5 sites), B= restricted (6-20 sites), C= regional (21-100 sites), D= widespread (>101sites).

For the marine invertebrate groups selected for the 2010 GSR process the criterion Number of Occurrences was defined as the number of unique coordinate locations within BC waters. If the species is commercially harvested, then this category is not useful as there will be many species records and unique locations (Most likely D = widespread). For commercial species perhaps information on how many management areas contain the species in question is a more informative statistic. For large biogenic

structures like sponge reefs and bioherms, the number of distinct reefs was used as Number of Occurrences.

Population Trend (P. Trend)

Population Trend represents the estimated change in the number of mature individuals over time (over 10 years or 3 generations) (Harper *et al*. 1996). The proposed scores are as follows: A= rapid decline (>50%), B= decline (>20%), C= stable (including natural fluctuations), D= increasing (any rate). This was the working definition used for the select marine invertebrate groups chosen in the 2010 GSR process but there was very little available information on this metric.

Distribution Trend (D. Trend)

Distribution Trend represents the decrease in the Canadian range of the species over time (over 10 years or 3 generations) (Harper *et al*. 1996). The proposed scores are as follows: A= rapid decline (>50%), B= decline (>20%), C= stable (including natural fluctuations), D= increasing (any rate). This was the working definition used for the select marine invertebrate groups chosen for the 2010 GSR process but there was very little available information on this metric.

Threats to Population represents the observed, inferred, or projected mortality and includes effects of direct exploitation, harassment, exotic species, or ecological interactions with predators, competitors, pathogens or parasites which may result in population declines (Harper *et al*. 1996). The proposed scores are as follows: A= extreme: significant, affect more than half the population, and are unmitigated, B= moderate: also serious, but affect less than half the population or are mitigated by some level of human protection, C= limited: less significant to population viability, or are being mitigated through protective measures, D= none. This was the working definition used for the select marine invertebrate groups chosen for the 2010 GSR process.

Threats to Distribution (D. Threats)

Threats to Distribution represents the observed, inferred, or projected habitat alterations (loss, conversion, degradation, or fragmentation) which may result in population declines (Harper *et al*. 1996). The proposed scores are as follows: A= extreme: significant, affect more than half the population, and are unmitigated, B= moderate: also serious, but affect less than half the population or are mitigated by some level of human protection, C= limited: less significant to population viability, or are being mitigated through protective measures, D= none. This was the working definition used for the select marine invertebrate groups chosen for the 2010 GSR process.

Threats to Distribution are considered Extreme if a species is found in intertidal to shallow waters 0-200m, because these depths are likely to have more effects associated with climate change and anthropogenic influences. If a species is known from deep waters (>200m) the Threats to Distribution are considered Limited.

General Status Categories (Ranks)

General status categories (**Table 2**) are the overall ranks given to species after all the criteria have been assessed and are meant to reflect the species conservation status. NGSWG (2003) states that "(g)eneral status categories are necessarily somewhat broad. There are two main reasons for this. The large number of species covered precludes the detailed and intensive species assessments that would inform a finer-scaled system and there is variation in the amount of information available for different species." The information analysed and conclusions reached through the GSR process refer only to a species status. Each region does its own GSR assessments and they are combined nationally in the Wild Species report series. For the Pacific Region process we looked at species occurring in British Columbia (BC) marine waters.

After the Regional GSR process was completed, the CESCC adopted a different ranking system, developed by NatureServe (**Table 3**) (CESCC 2016). Regional General Status Ranks were translated into the NatureServe ranking system and National ranks were developed. We include a summary and NatureServe ranks at both Regional and National levels for completeness.

Species Information

Higher taxonomic classification, valid scientific name, synonymy were collected accessed in March 2018 from the World Register of Marine Species (WoRMS) at http://www.marinespecies.org.

Identification codes included: (DFO Pacific Hart Codes from the Pacific Biological Station; AphiaID codes accessed March 2018 from the World Register of Marine Species (WoRMS) ; http://www.marinespecies.org; and Taxonomic Serial Numbers (TSN) are from the Integrated Taxonomic Information System (ITIS) (http://www.itis.gov).

English common names are from literature or WoRMS.

Species Distribution Maps provide only the information collected from Museums, the published literature and DFO Research Surveys. The identification of the species from the Museums were provided by the taxonomic experts at the time from samples collected through DFO Surveys, commercial fishers, or historical surveys. Species identifications on the DFO research surveys were provided after the fact by taxonomic experts from samples sent to the museums or at sea if the taxonomic expert if one on

board or by a suitably trained DFO or university biologists who were familiar with the taxonomic keys or literature of taxonomic group.

Comments

Canada committed to monitor, assess and report regularly on the status of all wild species initially in 1996 under the Accord for the Protection of Species at Risk. Canada has furthered this commitment to protection and management of aquatic biodiversity through the enactment of: The Species at Risk Act; the Oceans Act allowing for implementation of Marine Protected Areas; and in recent changes to the Federal Fisheries Act for enhanced protection of Sensitive benthic habitats.

The Species at Risk Act there assessement of Pacific Corals in 2015 only included only 57 species of anthozoans and did not address any hydrozoan corals. It is hoped that this report will help provide the background for a more thorough assessment of Pacific Corals in the future.

The initial work on this report concluded in 2010, with the provision of a GSR by the lead author. However, the value and extent of information which went into the 2010 GSR has much broader applications in meeting DFO's mandate. It was therefore decided to present this information in this series of reports that are intended to aid in our understanding of the extent of biodiversity of marine invertebrates in the federally and provincially regulated marine waters off British Columbia on the west coast of Canada. This information is intended to inform Federal and Provincial Agencies responsible for the management of anthropogenic activities within these waters, of the nature, extent and condition of some of the biodiversity and how these anthropogenic activities threaten the existence of this animals.

Subsequent modification to this initial work has been updating taxonomic changes or personal communications that could be strengthened by subsequent publications. As such, editorial comments, where required, are included in species summaries. Three types of modification to the species lists include:

1) Ten additional species that were included to in the initial list of species assessed. These ten species include: newly identified species e.g. a new sp of *Incrustatus*; records of recently identified species found in marine waters off the British Columbia; and potential species records where species have been reported occurring in USA EEZ waters naorth and south of British Columbia (Cairns and Hourigan, 2017). As such they will only be included in the species list and editorial notes along with reference materials.
2) Two species where the taxonomic name has changed. Their new name will appear in the species list along with their initial corresponding number and name.
3) Three groups of two species each, where the taxonomic name has changed because the two initial species in the group have been combined taxonomically into into a single species under either one of the existing names or they were combined under a completely new name.

Table 2. General Status Ranks (NGSWG 2003).

General Status Rank	Rank Title	Definition
0.1	Extirpated	Species that have disappeared from (or are no longer present in) a given geographic area (in this context Canadian Pacific marine waters) but occur in other areas.
0.2	Extinct	Species that are extirpated worldwide (i.e., they no longer exist anywhere).
1	At Risk	Species for which a formal detailed risk assessment (COSEWIC assessment or provincial or territorial equivalent) has been completed and that have been determined to be at risk of extirpation or extinction (i.e., Endangered) or is likely to become at risk of extirpation or extinction if limiting factors are not reversed (i.e., Threatened).
2	May Be At Risk	Species that may be at risk of extirpation or extinction and are therefore candidates for a detailed risk assessment by COSEWIC or provincial or territorial equivalents.
3	Sensitive	Species that are not believed to be at risk of extirpation or extinction but may require special attention or protection to prevent them from becoming at risk.
4	Secure	Species that are not believed to belong to the categories At risk, May be at risk, Extirpated, Extinct, Accidental and Exotic. This category includes some species that show a trend of decline in numbers in Canada but remain relatively widespread or abundant. In such instances, the decline will be highlighted by an asterisk and an associated comment.
5	Undetermined	Species for which insufficient data, information, or knowledge is available with which to reliably evaluate their general status.
6	Not Assessed	Species that are known or believed to be present in the geographic area in Canada to which the general status rank applies but have not yet been assessed.
7	Exotic	Species that have been moved beyond their natural range as a result of human activity. In this report, Exotic species have been purposefully excluded from all other categories.
8	Accidental	Species occurring infrequently and unpredictably outside their usual range.

Table 3. NatureServe Status Ranks (CESCC 2016).

Rank	Category	Description
Geographic Range		
N	National	Indicates a rank at the national level in Canada.
S	Subnational	Indicates a rank at the level of a province, territory, or ocean region in Canada.
Conservation Status		
X	Presumed Extirpated	Species is believed to be extirpated from the jurisdiction (nation, province, territory, or ocean region). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
H	Possibly Extirpated	Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include: (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
1	Critically Imperiled	At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
2	Imperiled	At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
3	Vulnerable	At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
4	Apparently Secure	At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
5	Secure	At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.
U	Unrankable	Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
NR	Unranked	National or subnational conservation status not yet assessed.
NA	Not Applicable	A conservation status rank is not applicable because the species is not a suitable target for conservation activities. It includes exotic species (that have been moved beyond their natural range as a result of human activity), hybrids, or long distance migrants (accidental species occurring infrequently and unpredictably outside their usual range).
Qualifier		
?	Inexact Numeric Rank	Denotes inexact numeric rank. This designation should not be used with any of the X, H, U, NR or NA conservation status ranks.
B	Breeding	Conservation status refers to the breeding population of the species in the nation, province, territory, or ocean region.
N	Non-breeding	Conservation status refers to the non-breeding population of the species in the nation, province, territory, or ocean region.
M	Migrant	Conservation status refers to the migrant population of the species in the nation, province, territory, or ocean region.

RESULTS

Deliverables for the 2010 GSR process were Microsoft Excel spreadsheets for each marine invertebrate group (corals, decapods, holothuroids, echinoids and reef-building sponges) with scores and comments for each ranking criteria for all species found in BC marine waters; species groups other than corals will be documented in separate reports. Additional relevant information beyond that required for the ranking criteria was collected and included in GSR products. GSR information for each of the coral species is found in the species summaries. Information for each species is presented in document format and associated maps that were created to judge distribution are included as well.

For the purposes of this GSR, Corals are defined as per Cairns (2007) as: 'Animals in cnidarian classes Anthozoa and Hydrozoa that produce either calcium carbonate (aragonitic or calcitic) secretions resulting in a continuous skeleton or as numerous microscopic, individualized sclerites, or that have a black, horn-like, proteinaceous axis". For the initial British Columbia review, this represented 90 species from 30 families and 59 genera. As a result of a more recent review of the taxonomy this now represents93 species with 6 new additional species, a reduction of 3 of the initial species through a combination of taxonomic nomiclature and 2 species getting distinct new names that from 30 families and 60 genera.

The initial 2010 Coral GSR overall Ranking determined there were 50 Sensitive, 39 Undetermined and one Accidental/Undetermined species (Table 4, Table 5). None of the Coral species have estimates of Population Size, and 51% have an Unknown Distribution (Table 5). Twenty-four percent of Number of Occurrences are Unknown with the remainder spread across the rating scale. All of the Population Trends and Distribution Trends are classified as Unknown. Threats to Population are considered to be Moderate for 56% and Limited for 34% of the species. Threats to Distribution are considered to be Extreme for 100% of Coral Species.

General Status Ranks for the initial 90 Coral species identified is found in Appendix 1 Table 1. A detailed summary of the GSR Criteria and Scores by individual initial species is found in Appendix 1 Table 2.

Table 4. Summary of Regional General Status Ranks for Select Invertebrate Groups as defined in Table 2 above.

	Rank	Corals
1	**At Risk**	0
2	**May Be At Risk**	0
3	**Sensitive**	50
4	**Secure**	0
5	**Undetermined**	39
6	**Not Assessed**	0
7	**Exotic**	0
8	**Accidental***	1

Total	90

*Within the coral GSR the species with rank 8 is considered "undetermined or accidental".

Table 5. Summary of ranking criteria (Table 1) and total scores for Corals.

Ranking Scores	Ranking Criteria						
	Popln.	**Distn.**	**# of Occ.**	**P. Trend**	**D. Trend**	**P. Threats**	**D. Threats**
A	0	6	43	0	0	0	90
A/B	0	0	0	0	0	0	0
B	0	12	16	0	0	56	0
B/C	0	0	1	0	0	0	0
C	0	19	7	0	0	34	0
C/D	0	2	0	0	0	0	0
D	0	5	1	0	0	0	0
X	90	46	22	90	90	0	0
Total	90	90	90	90	90	90	90

Threats

Some threats to population and/or distribution were common amongst species groups. Threats common amongst species are described here; a header indicator is included in species summaries and unique threats or details are discussed in each species summary. Common threats to population and/or distribution include:

Bottom Contact Fishing Operations:
There are no directed fisheries for corals per se but corals that occupy habitats impacted by directed and exploratory fisheries using bottom-tending fishing gear for other species are subject to various forms of impacts. Direct effects include removal as bycatch, damage caused by physical contact, detachment from seafloor and translocation to unsuitable habitat (Lumsden et. al. 2007).

Other anthropogenic Disturbances:
Other anthropogenic activities that potentially impact corals populations include activities such as: aquaculture, log storage, marine cable and pipeline, finfish aquaculture, oil and gas exploration, mineral mining and wind farms, which have the potential to impact habitat by causing alterations to the habitat through: deployment, maintenance and removal of gear which can impact corals by physically damaging them, burying or smothering them with resuspended sediments (Lumsden et. al. 2007); through waste discharges and spills during ongoing operations; and may include other potential impacts (e.g., electromagnetic radiation from wind farms). Deep water species could be susceptible to anthropogenic sources of pollution such as deep sea dumping and exploration for oil and gas or mineral mining. Nearshore habitats and the species they support are more susceptible to anthropogenic land based sources of pollution, increases in sedimentation and coastal development. Deep-sea megafauna dwell in a highly unique environment under extreme hydrological conditions, including high pressure, low

temperature, low salinity, low oxygen, minimum water currents, absence of light, and low sedimentation rates. Rodrigues *et al.* 2001 found that deep-sea megafauna are highly vulnerable to any slight change in sedimentation rateas or disturbance in their habitat and ultimately lead to mortality and decrease in numbers. They found that impacts due to changes in sedimentation rates were most serious in areas directly disturbed during activities such as mining.

Climate Change:

Climate change is affecting the oceans and poses many potential threats to marine species including changes to seawater temperature, salinity, density, sea levels, ambient light, pH (acidification), currents, circulation and oxygen concentration.

Effects of increases in **seawater temperatures** on sublittoral sea-bed species include increased abundance and extension of distribution of southern species alongside reduced abundance and retreat in the distribution of northern species (Hiscock *et al*. 2004). For northern species, the effects of rising sea temperatures are likely to decrease survival of adults, decrease successful gonad development, more broods will lead to reduced reproductive output, and there will be a decrease in larval development, larval settlement and larval survival. A potentially important effect of climate change might be to alter the abundance and type of meroplanktonic organisms that are the food of other marine life.

Chan et *al.* (2008) discuss an **anoxia** event which occurred off the coast of Oregon in 2006 where near complete mortality of macroscopic benthic invertebrates occurred and sulfide-oxidizing bacterial mats formed in shallow (50 m) waters (an event not seen in five previous decades of available records). DFO (2009) notes that oxygen concentrations in bottom waters of the BC continental shelf dropped markedly in 2008, compared to 2006.

The seriousness of the impacts of **Ocean Acidification** is recognized and there is an ongoing NOAA satellite monitoring program with modeled outputs to track ocean acidification and its impacts on coral (http://coralreefwatch.noaa.gov).

APPENDIX 1: CORAL GSR

Appendix 1 Table 1. Coral Species List with 2010 General Status Ranks

#	Class	Order	Family	Scientific Name	GSR
1	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia* sp.	3
23NC*	Anthozoa	Alcyonacea	Acanthogorgiidae	*Calcigorgia beringi was Swiftia*	5
2	Anthozoa	Alcyonacea	Acanthogorgiidae	*Calcigorgia spiculifera*	3
3	Anthozoa	Alcyonacea	Alcyoniidae	cf. *Alcyonium* sp. indet.	5
4	Anthozoa	Alcyonacea	Alcyoniidae	*Anthomastus cf. grandiflorus*	5
5	Anthozoa	Alcyonacea	Alcyoniidae	*Heteropolypus ritteri*	3
6	Anthozoa	Alcyonacea	Alcyoniidae	*Discophyton rudyi*	3
7	Anthozoa	Alcyonacea	Alcyoniidae	*Thrombophyton trachydermum*	3
8	Anthozoa	Alcyonacea	Anthothelidae	*Anthothela pacifica*	3
9	Anthozoa	Alcyonacea	Chrysogorgiidae	*Chrysogorgia* sp.	5
10	Anthozoa	Alcyonacea	Chrysogorgiidae	*Radicipes* sp.	5
11	Anthozoa	Alcyonacea	Clavulariidae	*Clavularia* sp. A	3
12	Anthozoa	Alcyonacea	Clavulariidae	*Clavularia moresbii*	5
NI*	Anthozoa	Alcyonacea	Clavulariidae	*Incrustatus N. sp.*	
13	Anthozoa	Alcyonacea	Coralliidae	*Corallium* sp.	5
15	Anthozoa	Alcyonacea	Isididae	*Acanella sp*	5
16	Anthozoa	Alcyonacea	Isididae	*Isidella* cf. *tentaculum*	3
17	Anthozoa	Alcyonacea	Isididae	*Keratoisis spp.*	3
18	Anthozoa	Alcyonacea	Isididae	*Lepidisis sp.*	5
NI*	Anthozoa	Alcyonacea	Nephtheidae	*Gersemia juliepackardae*	
NI*	Anthozoa	Alcyonacea	Nephtheidae	*Gersemia lambi*	
19	Anthozoa	Alcyonacea	Nephtheidae	*Gersemia rubiformis*	3
NI*	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia jamesi*	
20	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia pacifica*	3
21	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia stephencairnsi*	3
22	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia yutlinux*	3
14NC*	Anthozoa	Alcyonacea	**Plexauridae**	***Chromoplexaura marki*** *was Leptogorgia caryi*	5
NI*	Anthozoa	Alcyonacea	Plexauridae	*Psammagorgia simplex*	
24	Anthozoa	Alcyonacea	Plexauridae	*Swiftia pacifica*	3
25	Anthozoa	Alcyonacea	Plexauridae	*Swiftia simplex*	3
26	Anthozoa	Alcyonacea	Plexauridae	*Swiftia spauldingi*	3
27	Anthozoa	Alcyonacea	Plexauridae	*Swiftia torreyi*	3
29	Anthozoa	Alcyonacea	Primnoidae	cf. *Callogorgia kinoshitae*	3
30	Anthozoa	Alcyonacea	Primnoidae	*Calyptrophora laevispinosa*	5
31	Anthozoa	Alcyonacea	Primnoidae	*Narella alaskensis*	5
32	Anthozoa	Alcyonacea	Primnoidae	*Narella bowersi*	5
NI*	Anthozoa	Alcyonacea	Primnoidae	*Parastenella doederleini*	
33	Anthozoa	Alcyonacea	Primnoidae	*Parastenella gymnogaster*	5
34	Anthozoa	Alcyonacea	Primnoidae	*Parastenella pacifica*	3
35	Anthozoa	Alcyonacea	Primnoidae	*Parastenella ramosa*	3
36	Anthozoa	Alcyonacea	Primnoidae	*Plumarella longispina*	5
37	Anthozoa	Alcyonacea	Primnoidae	*Primnoa pacifica*	3
38	Anthozoa	Alcyonacea	Primnoidae	*Primnoa pacifica* var. *willeyi*	3
28/39NC*	Anthozoa	Alcyonacea	Primnoidae	*Thouarella spp includes Amphilaphis*	5

#	Class	Order	Family	Scientific Name	GSR
40	Anthozoa	Antipatharia	Antipathidae	*Antipathes* sp.	5
41	Anthozoa	Antipatharia	Antipathidae	*Parantipathes sp.*	3
42	Anthozoa	Antipatharia	Cladopathidae	*Chrysopathes formosa*	5
43	Anthozoa	Antipatharia	Cladopathidae	*Chrysopathes speciosa*	3
NI*	Anthozoa	Antipatharia	Cladopathidae	*Heteropathes americana*	
44	Anthozoa	Antipatharia	Cladopathidae	*Trissopathes pseudotristicha*	5
NI*	Anthozoa	Antipatharia	Schizopathidae	*Alternatipathes alternata*	
45	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes patula*	3
46	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes* sp.	5
47	Anthozoa	Antipatharia	Schizopathidae	*Dendrobathypathes boutillieri*	3
48	Anthozoa	Antipatharia	Schizopathidae	*Dendrobathypathes sp. A*	5
49	Anthozoa	Antipatharia	Schizopathidae	*Lillipathes wingi*	3
50	Anthozoa	Antipatharia	Schizopathidae	*Lillipathes sp. A*	5
51	Anthozoa	Antipatharia	Schizopathidae	*Lillipathes sp. B*	5
52	Anthozoa	Antipatharia	Schizopathidae	*Umbellapathes sp. A*	3
53	Anthozoa	Pennatulacea	Anthoptilidae	*Anthoptilum grandiflorum*	3
54	Anthozoa	Pennatulacea	Anthoptilidae	*Anthoptilum murrayi*	5
55	Anthozoa	Pennatulacea	Funiculinidae	*Funiculina parkeri*	3
56	Anthozoa	Pennatulacea	Halipteridae	*Halipteris californica*	3
57	Anthozoa	Pennatulacea	Halipteridae	*Halipteris willemoesi*	3
58	Anthozoa	Pennatulacea	Kophobelemnidae	*Kophobelemnon affine*	5
59	Anthozoa	Pennatulacea	Kophobelemnidae	*Kophobelemnon hispidum*	5
60	Anthozoa	Pennatulacea	Kophobelemnidae	*Kophobelemnon macrospinosum*	5
61	Anthozoa	Pennatulacea	Pennatulidae	*Pennatula phosphorea californica*	3
62	Anthozoa	Pennatulacea	Pennatulidae	*Ptilosarcus gurneyi*	3
63	Anthozoa	Pennatulacea	Protoptilidae	*Distichoptilum gracile*	5
NI*	Anthozoa	Pennatulacea	Protoptilidae	*Distichoptilum rigidum*	
64	Anthozoa	Pennatulacea	Protoptilidae	*Protoptilum* sp.	5
65	Anthozoa	Pennatulacea	Stachyptilidae	*Stachyptilum superbum*	3
66	Anthozoa	Pennatulacea	Umbellulidae	*Umbellula lindahli*	3
67	Anthozoa	Pennatulacea	Umbellulidae	*Umbellula* cf. *magniflora*	5
68	Anthozoa	Pennatulacea	Umbellulidae	*Umbellula* cf. *thomsoni*	5
69	Anthozoa	Pennatulacea	Virgulariidae	*Acanthoptilum gracile*	3
70	Anthozoa	Pennatulacea	Virgulariidae	*Stylatula elongata*	3
71	Anthozoa	Pennatulacea	Virgulariidae	*Stylatula gracilis*	5
72	Anthozoa	Pennatulacea	Virgulariidae	*Virgularia bromleyi tuberculate?*	3
73	Anthozoa	Pennatulacea	Virgulariidae	*Virgularia aff. glacialis*	5
74	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia alaskensis*	3
75	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia arnoldi*	3
NI*	Anthozoa	Scleractinia	Caryophylliidae	*Crispatotrochus foxi*	
76	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum* cf. *dianthus*	5
77	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum pertusum*	3
78	Anthozoa	Scleractinia	Caryophylliidae	*Paracyathus stearnsii*	3
NI*	Anthozoa	Scleractinia	Caryophylliidae	*Solenosimilia variabilis*	
79	Anthozoa	Scleractinia	Dendrophylliidae	*Balanophyllia elegans*	3
80	Anthozoa	Scleractinia	Flabellidae	*Javania cailleti*	3
81	Anthozoa	Scleractinia	Fungiacyathidae	*Fungiacyathus marenzelleri*	5
82	Anthozoa	Scleractinia	Micrabaciidae	*Leptopenus discus*	5

#	Class	Order	Family	Scientific Name	GSR
83	Hydrozoa	Anthoathecatae	Stylasteridae	*Errinopora pourtalesii*	5
84/85*	Hydrozoa	Anthoathecatae	Stylasteridae	*Stylantheca papillosa combines S. petrograpta and S. porphyra*	3
86	Hydrozoa	Anthoathecatae	Stylasteridae	*Stylaster californicus*	5 or 8
87	Hydrozoa	Anthoathecatae	Stylasteridae	*Stylaster campylecus*	3
	Hydrozoa	Anthoathecatae	Stylasteridae	*Stylaster parageus columbiensis*	
89	Hydrozoa	Anthoathecatae	Stylasteridae	*Stylaster venustus*	3
88/90*	Hydrozoa	Anthoathecatae	Stylasteridae	*Stylaster verrillii includes S. norvegicus pacificus*	3

NI* there are ten species that were not included in the initial assessment, they include new species new records; potential records and a note on an unnamed new sp of *Incrustatus.* As such they will only be included in the editorial notes along with reference materials. NB. Potential records are reported species occurring in USA EEZ waters north and south of British Columbia (Cairns and Hourigan, 2017)
##NC there are two species where the name has changed. Their new name will appear in the list with their previous corresponding number.
##/##NC* there are three species where two species have been combined into one of the existing names or they wer combined under a completely new name.

Appendix 1 Table 2. 2010 Assessed Coral Species GSR Criteria and Scores

#	Scientific Name	Popln.	Distn.	# Occ.	P. Trend	D. Trend	P. Threats	D. Threats
1	*Acanthogorgia* sp.	X	C	B	x	x	B	A
2	*Calcigorgia spiculifera*	X	x	A	x	x	B	A
3	cf. *Alcyonium* sp.	X	A	x	x	x	B	A
4	*Anthomastus* cf. grandiflora	X	x	A	x	x	B	A
5	*Anthomastus ritteri*	X	C	B	x	x	B	A
6	*Discophyton rudyi*	X	A	B	x	x	C	A
7	*Thrombophyton trachydermum*	X	A	A	x	x	C	A
8	*Anthothela pacifica*	X	B	A	x	x	B	A
9	*Chrysogorgia* sp.	X	x	x	x	x	B	A
10	*Radicipes* sp.	X	x	x	x	x	B	A
11	*Clavularia* sp. A	X	C	B	x	x	C	A
12	*Clavularia* cf. *moresbii*	X	x	x	x	x	B	A
13	*Corallium* sp.	X	x	x	x	x	B	A
14	cf. *Leptogorgia caryi* **NC**	X	x	x	x	x	B	A
15	*Acanella sp*	X	x	x	x	x	B	A
16	*Isidella* cf. *tentaculum*	X	x	B	x	x	B	A
17	*Keratoisis spp.*	X	C	B	x	x	B	A
18	*Lepidisis sp.*	X	x	A	x	x	B	A
19	*Gersemia rubiformis*	X	C/D	C	x	x	C	A
20	*Paragorgia pacifica*	X	D	C	x	x	B	A
21	*Paragorgia stephencairnsi*	X	x	A	x	x	B	A
22	*Paragorgia yutlinux*	X	B	A	x	x	B	A
23	*Swiftia beringi* **NC**	X	x	x	x	x	B	A
24	*Swiftia pacifica*	X	C	A	x	x	B	A
25	*Swiftia simplex*	X	C	B	x	x	B	A
26	*Swiftia spauldingi*	X	A	A	x	x	B	A
27	*Swiftia torreyi*	X	B	A	x	x	B	A
28	*Amphilaphis sp.**NC***	X	x	x	x	x	B	A
29	cf. *Callogorgia kinoshitae*	X	B	B/C	x	x	B	A
30	*Calyptrophora laevispinosa*	X	x	x	x	x	B	A
31	*Narella alaskensis*	X	x	x	x	x	B	A
32	*Narella bowersi*	X	x	A	x	x	B	A
33	*Parastenella gymnogaster*	X	x	x	x	x	B	A
34	*Parastenella pacifica*	X	B	A	x	x	B	A
35	*Parastenella ramosa*	X	B	A	x	x	B	A
36	*Plumarella longispina*	X	x	x	x	x	B	A
37	*Primnoa pacifica*	X	D	A	x	x	B	A
38	*Primnoa pacifica* var. *willeyi*	X	D	B	x	x	B	A
39	*Thouarella spp.***NC**	X	x	x	x	x	B	A
40	*Antipathes* sp.	X	C	A	x	x	B	A
41	*Parantipathes sp.*	X	C	B	x	x	B	A
42	*Chrysopathes formosa*	X	x	x	x	x	B	A
43	*Chrysopathes speciosa*	X	C	A	x	x	B	A
44	*Trissopathes pseudotristicha*	X	x	A	x	x	B	A
45	*Bathypathes patula*	X	C	B	x	x	B	A
46	*Bathypathes* sp.	X	C	A	x	x	B	A
47	*Dendrobathypathes boutillieri*	X	B	A	x	x	B	A
48	*Dendrobathypathes sp. A*	X	x	A	x	x	B	A
49	*Lillipathes wingi*	X	x	B	x	x	B	A
50	*Lillipathes sp. A*	X	x	A	x	x	B	A

#	Scientific Name	Popln.	Distn.	# Occ.	P. Trend	D. Trend	P. Threats	D. Threats
51	*Lillipathes sp. B*	X	x	A	x	x	B	A
52	*Umbellapathes sp. A*	X	x	A	x	x	B	A
53	*Anthoptilum grandiflorum*	X	C	C	x	x	C	A
54	*Anthoptilum murrayi*	X	x	x	x	x	C	A
55	*Funiculina parkeri*	X	x	A	x	x	C	A
56	*Halipteris californica*	X	C	C	x	x	C	A
57	*Halipteris willemoesi*	X	C	C	x	x	C	A
58	*Kophobelemnon affine*	X	x	A	x	x	C	A
59	*Kophobelemnon hispidum*	X	x	x	x	x	C	A
60	*Kophobelemnon macrospinosum*	X	x	x	x	x	C	A
61	*Pennatula phosphorea californica*	X	B	A	x	x	C	A
62	*Ptilosarcus gurneyi*	X	C/D	D	x	x	C	A
63	*Distichoptilum gracile*	X	B	A	x	x	C	A
64	cf. *Protoptilum* sp.	X	x	x	x	x	C	A
65	*Stachyptilum superbum*	X	B	A	x	x	C	A
66	*Umbellula lindahli*	X	C	B	x	x	C	A
67	*Umbellula* cf. *magniflora*	X	C	B	x	x	C	A
68	*Umbellula* cf. *thomsoni*	X	x	A	x	x	C	A
69	*Acanthoptilum gracile*	X	x	A	x	x	C	A
70	*Stylatula elongata*	X	D	B	x	x	C	A
71	*Stylatula gracilis*	X	x	x	x	x	C	A
72	*Virgularia bromleyi tuberculata*	X	B	A	x	x	C	A
73	*Virgularia spp.*	X	x	A	x	x	C	A
74	*Caryophyllia alaskensis*	X	D	B	x	x	C	A
75	*Caryophyllia arnodi*	X	C	C	x	x	C	A
76	*Desmophyllum* cf. *dianthus*	X	x	A	x	x	C	A
77	*Lophelia pertusa*	X	x	A	x	x	C	A
78	*Paracyathus stearnsii*	X	C	B	x	x	C	A
79	*Balanophyllia elegans*	X	C	C	x	x	C	A
80	*Javania cailleti*	X	x	A	x	x	C	A
81	*Fungiacyathus marenzelleri*	X	x	x	x	x	C	A
82	*Leptopenus discus*	X	x	x	x	x	C	A
83	*Errinopora pourtalesii*	X	x	A	x	x	B	A
84	*Stylantheca petrograpta* **NC**	X	x	A	x	x	B	A
85	*Stylantheca porphyra* ***NC***	X	x	A	x	x	B	A
86	*Stylaster californicus*	X	x	A	x	x	B	A
87	*Stylaster campylecus*	X	x	A	x	x	B	A
88	cf. *Stylaster norvegicus pacificus* **NC**	X	B	A	x	x	B	A
89	*Stylaster venustus*	X	A	A	x	x	B	A
90	*Stylaster verrillii* **NC**	X	A	A	x	x	B	A

See Appendix 1 Table 1 for the correct species name when a species names are followed by NC. Non-assessed new species are not included in this Table 2 as they were not assessed in the original exercise

Species synopsisAcanthogorgia sp. Gray, 1857

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Acanthogorgiidae
Pacific Region Species Code (Hart): 3TD – genus.
TSN: 52117 – genus.
AphiaID: 125293 – genus.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Acanthogorgia* sp. are sessile organisms that are most likely long living and slow growing.
Many members of the order Alcyonacea are long living and slow growing. Sherwood and Edinger (2009) estimated the age for Atlantic members of the order Alcyonacea at 30-200 years old and with an axial growth rate of 0.30-2.61 cm/yr.
Many members of the order Alcyonacea are large. *Paragorgia arborea* for example is known to reach 2 m high by 2 m wide (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: C = Regional
Acanthogorgia sp. is found in BC waters on the continental shelf off the WCVI and WCQCI. *Acanthogorgia* sp. occurs south of BC in the Oregon biogeographic province and cf. *Acanthogorgia* sp. is found north of BC in the Aleutian Islands (Lumsden et. al. 2007).
Depth Profile: The *Acanthogorgia* sp. records for BC are from 819-2105 m. 79% of BC records for *Acanthogorgia* sp. are below 1000 m and 100% are below 850 m.

Number of Occurrences: B = Restricted
There are 14 unique records of *Acanthogorgia* sp. within BC.
Data Source: Two *Acanthogorgia* sp. records are from the USNM verified by F.M. Bayer and S.D. Cairns. The rest are from DFO surveys.
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch. The *Acanthogorgia* sp. records were collected from 2001 - 2004.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

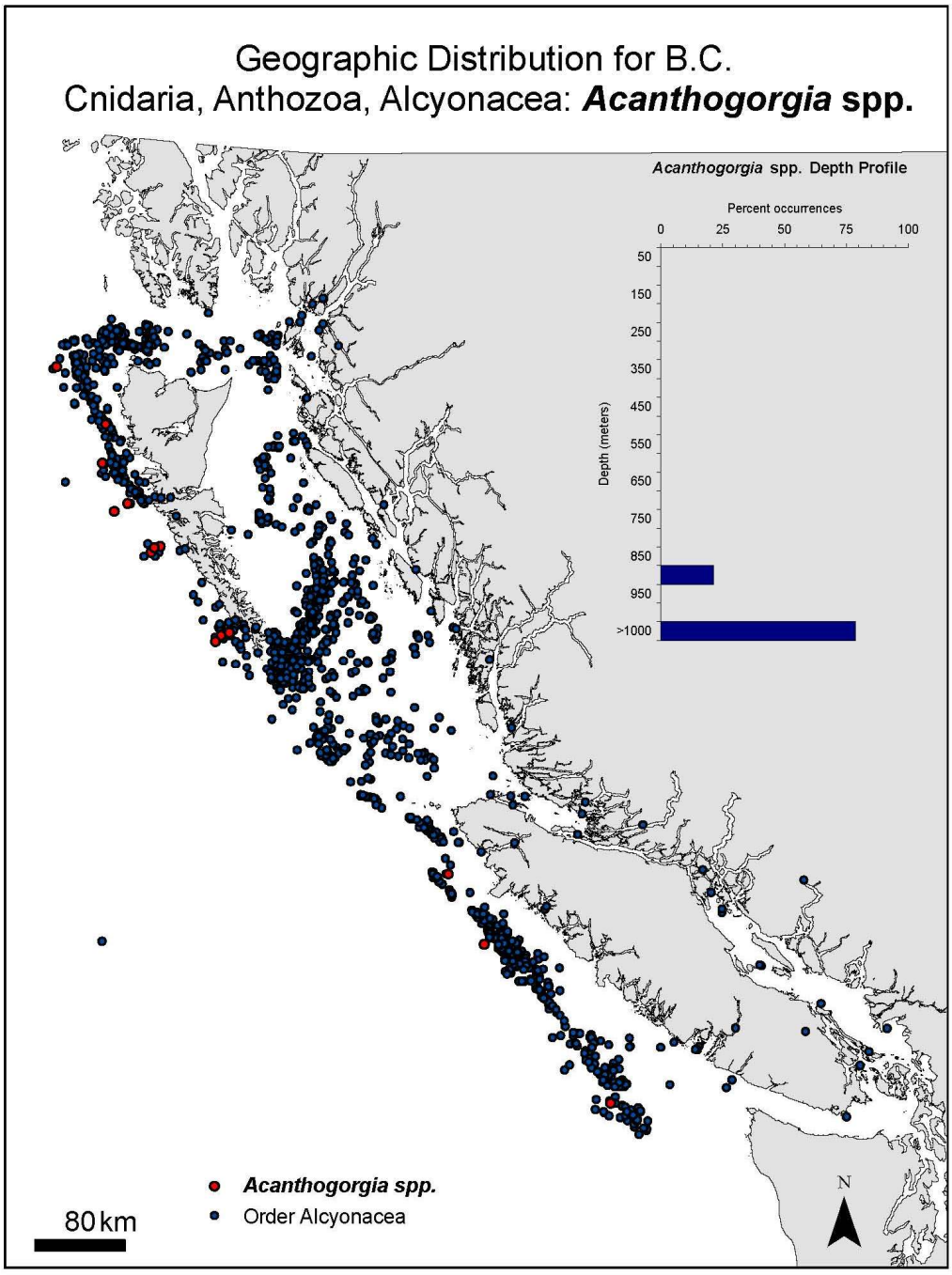
Threats to Population: B= Moderate due to Bottom Contact Fishing Operations.

• 46.5 % of 32,765 km^2 of predicted habitat suitable for Order Alcyonacea in BC potentially overlapped with groundfish trawl, sablefish trap and sablefish longline commercial fishing activities from 1996-2004 (Finney 2010).
• 52 metric tons of fisheries bycatch for Order Alcyonacea was reported in BC waters from 1997-2007.

Threats to Distribution: A= Extreme due to impacts of Climate change

Other Relevant Information: The family Acanthogorgiidae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007).

Editorial Comments: There are 64 known species associated with the Genus Acanthogorgia. Two species *A. gracillima* and *A spissa* are noted as found in the NE Pacific (Cairns and Hourigan, 2017)


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Acanthogorgia spp.
Acanthogorgia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Acanthogorgia spp.
Order Alcyonacea
80 km
N

Calcigorgia beringi (Nutting, 1912)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Holaxonia, Acanthogorgiidae
Pacific Region Species Code (Hart): 3UI.
TSN: 719030 – genus code for ***Calcigorgia***.
APHIAID: 520678 is the code for ***Calcigorgia beringi***.
Synonyms: Swiftia beringi
Common Name: Bering sea fan coral

Proposed General Status Ocean Rank: 5 = Undetermined
There is one record of *C. beringi* in BC waters and it also occurs directly south of BC in the OCNMS and to the north in the Aleutian Islands.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown should be considered B = Regional
There is one record of *C. beringi* in BC waters initially identified as *S. beringi* it was collected in Queen Charolette Sound north of BC waters, in the Aleutian Islands region of Alaska. *C. beringi* is also present south of BC in the Oregon biogeographic province. It has been found in the Olympic Coast National Marine Sanctuary (OCNMS) which borders directly on BC waters (Lumsden et. al. 2007).
Depth Profile: N/A

Number of Occurrences**: x = Unknown**
There is one record of *C. beringi* in BC waters (USNM 1136483).

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change,

Other Relevant Information: Some families within Holaxonia are not considered major structure forming animals but they do provide some degree of structure (Lumsden et. al. 2007). Sensitive by nature: *S*pecies of Holaxonia. are sessile, potentially long lived, and slow growing organisms.Sherwood and Edinger (2009) estimated the age for Atlantic members of the family Plexauridae (*Paramuricea* spp.) at 71 and 103 years old and with an axial growth rate of 0.56 – 0.58 cm/yr.

Editorial Comments: Gary Williams (pers. comm., 2010) states that the genera *Swiftia* is restricted to the Atlantic Ocean. "The species we assign to the genus *Swiftia* on the Pacific coast most likely belong to a different presently unnamed genus." The accepted name for this species is of this Pacific coast species is ***Calcigorgia beringi*** **(Nutting, 1912)** in Cordeiro, R. et al (2017).

Calcigorgia spiculifera Broch, 1935

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Holaxonia, Acanthogorgiidae
Pacific Region Species Code (Hart): 3TF.
TSN: 719247.
AphiaID: 378316.
Synonyms:
Common Name: pink gorgonian, pink sea fan

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *C. spiculifera* are sessile organisms that are most likely long living and slow growing.
Many members of the order Alcyonacea are long living and slow growing. Sherwood and Edinger (2009) estimated the age for Atlantic members of the order Alcyonacea at 30-200 years old and with an axial growth rate of 0.30-2.61 cm/yr.
Many members of the order Alcyonacea are large. *Paragorgia arborea* for example is known to reach 2 m high by 2 m wide (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
C. spiculifera is found in BC waters in the inside waters of QC Strait. *C. spiculifera* occurs south of BC in the Oregon biogeographic province and north of BC in the Eastern Gulf, Western Gulf and Aleutian Islands regions of Alaska (Lumsden et. al. 2007).
Depth Profile: The *C. spiculifera* record for BC is from 30-50 m. In the US Pacific coastal waters *C. spiculifera* is known from 1127-1159 m.

Number of Occurrences: A = Very Restricted
There is 1 unique record of *C. spiculifera* within BC.
Data Source: The *C. spiculifera* record is from the USNM verified by F.M. Bayer.
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch. The *C. spiculifera* record was collected in 1983.

Population Trend: x = Unknown
Not enough information to determine a trend.

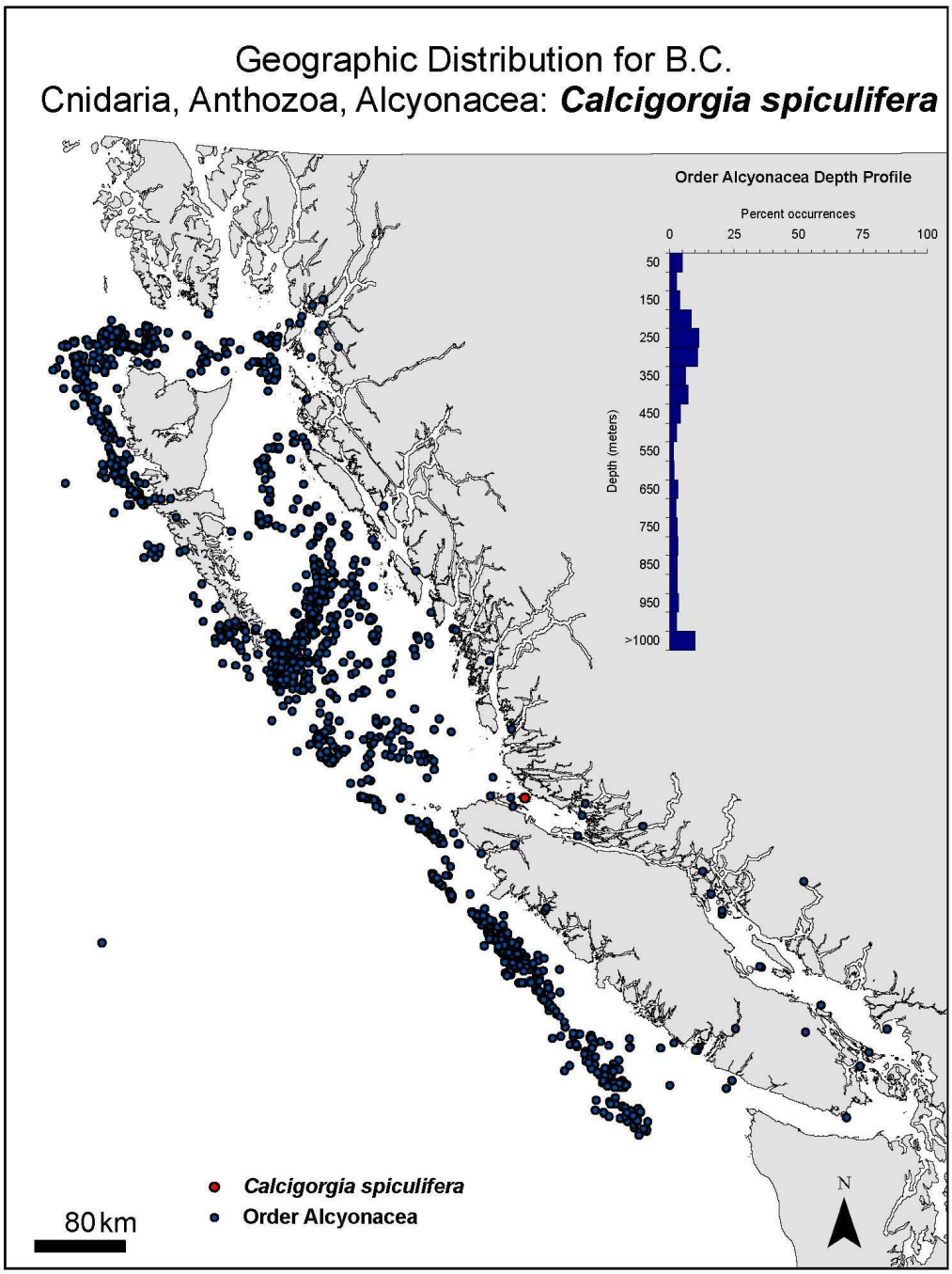
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to Climate Change

Other Relevant Information: The family Acanthogorgiidae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007).

Editorial Comments: A specimen of *Calcigorgia beringi* has recently been collected from Queen Charlotte Sound and identified by Cairns. Sample is Cataloged at the Smithsonian National Museum of Natural History USNM 1136483. This species is missing from the 2010 review.
The photo in WoRMS of *Calcigorgia spiculifera* was taken by Neil McDaniel (2018).


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Calcigorgia spiculifera
Order Alcyonacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Calcigorgia spiculifera
Order Alcyonacea
80 km
N

Alcyonium sp. indet. Linnaeus, 1758

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Alcyoniina, Alcyoniidae
Pacific Region Species Code (Hart): 5B3 – genus.
TSN: 52020 – genus.
AphiaID: 125284 – genus.
Synonyms: *Capnella rubiformis*, *Eunephthya rubiformis, Gersemia rubiformis*
Common Name: orange soft coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are verified records of *Alcyonium* sp. indet. in BC. The taxonomy and geography of the true soft corals from families Alcyoniidae, Clavulariidae and Nephtheidae are in need of revision for the NE Pacific. Austin (1985) states that *Alcyonium* sp. indet. is the correct taxonomy for all *Gersemia rubiformis* records for the NE Pacific but this has only recently been published in a peer reviewed journal by Williams (2013), so they remain separate for now. *Alcyonium* sp. indet. documented in Lamb and Hanby (2005) and Williams (2013) is still a work in progress..

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: A = Very Restricted
The only records of *Alcyonium* sp. were from Lamb and Hanby (2005), subsequently specimens have been sent to CAS for subsequent analysis and publication by Williams (2013). Samples were collected from a few select spots in the southern Gulf Islands and provide a photo from Grainger Pt., Samuel Island. *Alcyonium* sp. indet. occurs north of BC in the Aleutian Islands region of Alaska. (Lumsden et. al. 2007).
Depth Profile: Lamb and Hanby (2005) list the species as subtidal. Austin (1985) lists *Alcyonium* sp. as littoral or existing in the area between tidal extremes.

Number of Occurrences: x = Unknown
There are now museum sample at CAS. There are no DFO records of *Alcyonium* sp. in BC

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to Bottom Contact Fishing Operations.
• *G. rubiformis*, a true soft coral from the suborder Alcyoniina, has the ability to retract and rapidly recover from mechanical disturbance, such as crushing. This may mean it is less vulnerable to the effects of bottom fishing than other corals with rigid skeletons and unretractable colonies. Disturbance also initiates larval release (Henry et. al. 2003)

Threats to Distribution: A= Extreme due to Climate Change.

Other Relevant Information: The soft corals (suborder Alcyoniina) are not considered to be structure forming due to their small stature (Lumsden et. al. 2007).
Lamb and Hanby (2005) mention *Alcyonium* sp. and state that it is "apparently never red or white, this poorly known species does not seem to coexist with the red soft coral (*G. rubiformis*). Whereas the red soft coral grows in massive profusion in many locales along the NE Coast of VI, BC, this smaller less profuse species appears to be restricted to a few select spots in the southern Gulf Islands."

Editorial Comments: Gary Williams (pers. comm., 2010): "I am currently working on the status of the soft coral genera *Alycyonium* and *Gersemia* in the Pacific Northwest. At present, there seems be confusion in the literature between these two genera that represent two different families. My paper when published is intended to clear up this matter, but since new names will be proposed, the present state of knowledge should be retained for now."

Williams (2013) described an undetermined species of *Alcyonium*; material included collections from two sites in BC (Plumper and Swordfish Islands) and one in Alaska. McFadden and van Ofwegen (2013) are using phylogenetic evidence to begin to resolve the polyphyletic issues associated with the Family Alcyoniidae. Cairns and Hourigan (2017) do not list any species of Alcyonium in the N. E. Pacific .

Anthomastus cf, grandiflorus Verill, 1878

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Alcyoniidae
Pacific Region Species Code (Hart): 5B4 – genus.
TSN: 52030 – genus**.**
AphiaID:125335 - species and 125285 – genus.
Synonyms: *Anthomastus cf. grandiflora*
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
"Anthomastus cf. *grandiflora"* was recorded as occurring in BC waters in the 1980s but there is still no description of this species which makes it hard to keep track of. The taxonomy and geography of the true soft corals and stoloniferans from families Alcyoniidae, Anthothelidae, Clavulariidae, and Nephtheidae are in need of revision for the NE Pacific.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
The records of "*A.* cf. *grandiflora"* are from Bill Austin's 1985 field notes from a Haida Gwaii biota assessment (Sloan et. al. 2001) and Austin (1985) where it lists *Anthomastus* sp. aff. *grandiflorus* with a locality of BC with a record from Explorer seamount which is off WCVI.
Worms lists the distribution as Western Atlantic near the Polar Circle.
Depth Profile: Austin (1985) lists the species as deep or below 200 m. There is a record of *Anthomastus* sp. in BC from 311 m.

Number of Occurrences: A = Very Restricted
There are the two records collected by W.C. Austin and one RBCM specimen identified as *Anthomastus* sp. which could be the same species.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors associated with Bottom Contact Fishing Operations.
Anthomastus is also a true soft coral and may react similarly to G. rubiformis when disturbed.

Threats to Distribution: A= Extreme due to factors associated with Climate change

Other Relevant Information: The true soft corals are not considered to be structure forming due to their small stature (Lumsden et. al. 2007).

Editorial Comments: WoRMS and ITIS do not have a *Anthomastus grandiflora,* they both have a *Anthomastus grandiforus.* The reference to Bill Austin's field notes above with "*Anthomastus grandiflora"* is a spelling error. There is still doubt as to the identity of the specimen of *Anthomastus* sp. at the RBCM.

Heteropolypus ritteri Nutting, 1909

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Alcyoniidae
Pacific Region Species Code (Hart): 5B4 – genus.
TSN: 52030 – genus.
AphiaID: 724715 – genus.
Synonyms: *Anthomastus ritteri*
Common Name: mushroom coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *H. ritteri (name change in WoRMS)* is a sessile organism and thus very susceptible to changing ocean conditions and any disturbances in the area where it has settled.
The taxonomy and geography of the true soft corals and stoloniferans from families Alcyoniidae, Anthothelidae, Clavulariidae, and Nephtheidae are in need of revision for the NE Pacific.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: C = Regional
H. ritteri has been identified in BC waters along the continental shelf from the WCQCI to the WCVI. *H. ritteri* is known to occur north of BC waters in the Eastern Gulf, Western Gulf and Aleutian Islands regions of Alaska. *H. ritteri* also occurs south of BC waters along the US Pacific coast (Lumsden et. al. 2007).
Depth Profile: BC records of *H. ritteri* are known from 273 – 1052 m. *A. ritteri* from the US Pacific coast are known from depths 293 – 972 m.

Number of Occurrences: B = Restricted
There are six unique records of *H. ritteri* in BC waters.
Data Source: There are two museum records, one from the USNM verified by E. Deichmann and one from the RBCM verified by P. Lambert. The other four records are from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records. The *A. ritteri* USNM record was collected in 1888 and the rest were collected between 2002 and 2006.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

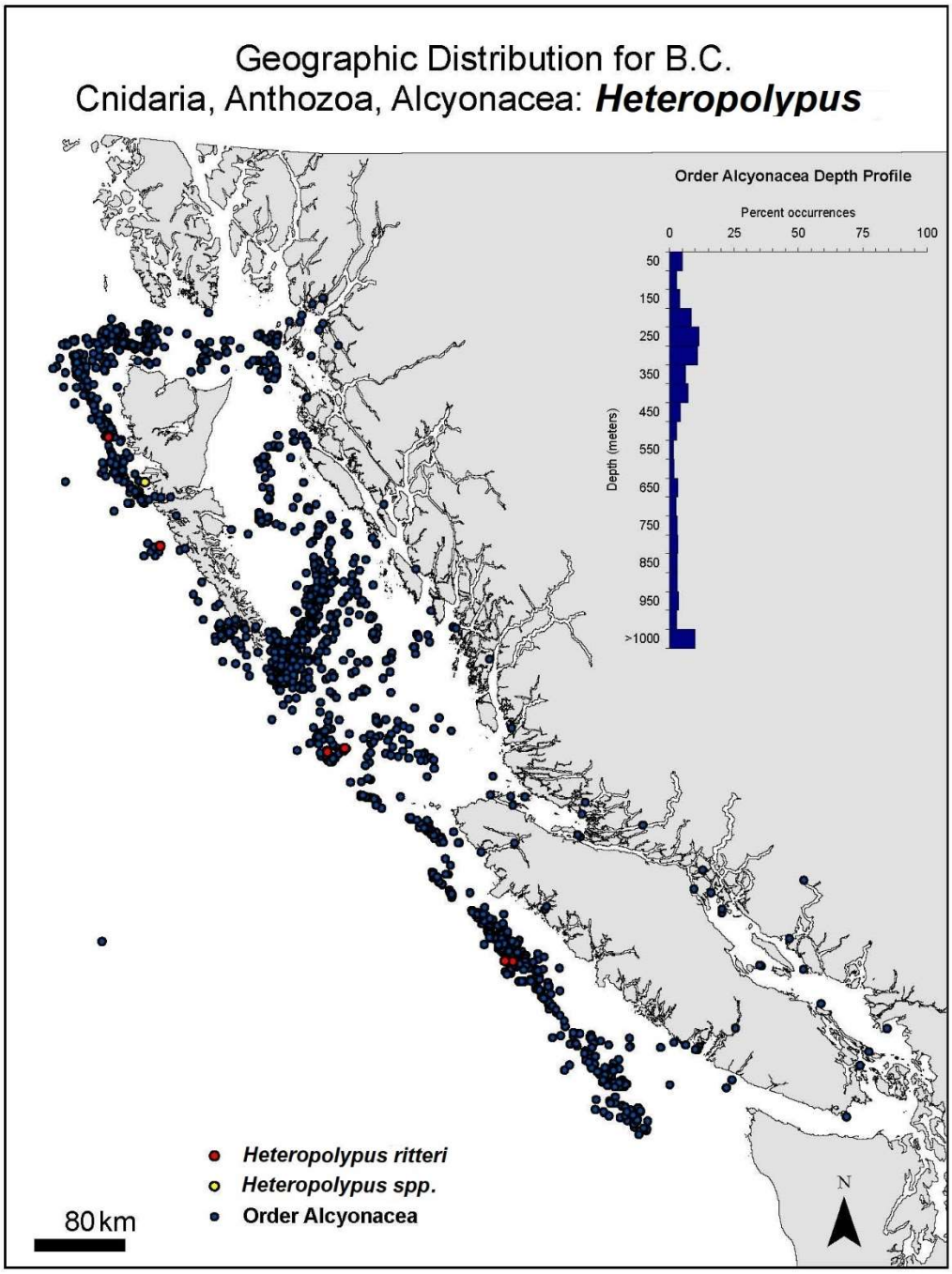
Threats to Population: B= Moderate factors associated with Bottom Contact Fishing Operations.

Heteropolypus is also a true soft coral and may react similarly to G. rubiformis when disturbed.

Threats to Distribution: A= Extreme due to factors associated with Climate Change

Other Relevant Information: The true soft corals are not considered to be structure forming due to their small stature (Lumsden et. al. 2007).

Editorial Comments: The genus of this species has been changed from *Anthomastus* to *Heteropolypus* Tixler-Durivault, 1964 in WoRMS. ITIS does not show this as a valid genus.



Discophyton rudyi (Verseveldt and Ofwegen, 1992)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Alcyoniina, Alcyoniidae
Pacific Region Species Code (Hart): 5B8

TSN:
AphiaID: 289828.
Synonyms: *Alcyonium rudyi, Sarcodictyon sp.*
Common Name: white disc soft coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *D. rudyi* is a sessile organism and thus very susceptible to changing ocean conditions and any disturbances in the area where it has settled.
The taxonomy and geography of the true soft corals and stoloniferans from families Alcyoniidae, Anthothelidae, Clavulariidae, and Nephtheidae are in need of revision for the NE Pacific.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: A = Very Restricted
D. rudyi has been identified in BC waters on the south WCVI near Barkley Sound and Port Renfrew. *Alcyonium rudyi* a synonym of *D. rudyi* is known to occur south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007). McFadden and Hochberg (2003) describe the distribution of *D. rudyi* from Pachena Bay, Vancouver Island, BC to Laguna Pt, California, USA (Pt. Lobos, CA has an isolated population). The BC records represent the northern distributional extent of the species.
Depth Profile: BC records of *D. rudyi* are known from 0 – 17 m. McFadden and Hochberg (2003) state that "at the majority of sites, colonies occur in the lower intertidal (0 m tide level and below) attached to the undersides of over-hanging boulders and ledges or to the vertical sides of surge channels. At Cape Arago, Oregon, they have also been reported subtidally to a depth of 10m."

Number of Occurrences: B = Restricted
There are seven unique records of *D. rudyi* in BC waters.
Data Source: There are four museum records, one from the USNM verified by F.M. Bayer (as *Sarcodictyon* sp.) and three from the RBCM verified by W.C. Austin (as *Sarcodictyon* sp.). The other three records are from McFadden and Hochberg (2003).

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited factors associated with Bottom Contact Fishing Operations.
• D. rudyi occurs in very shallow water on the offshore coast where trawling and anthoprogenic activities like aquaculture and log dumps are unlikely to occur.

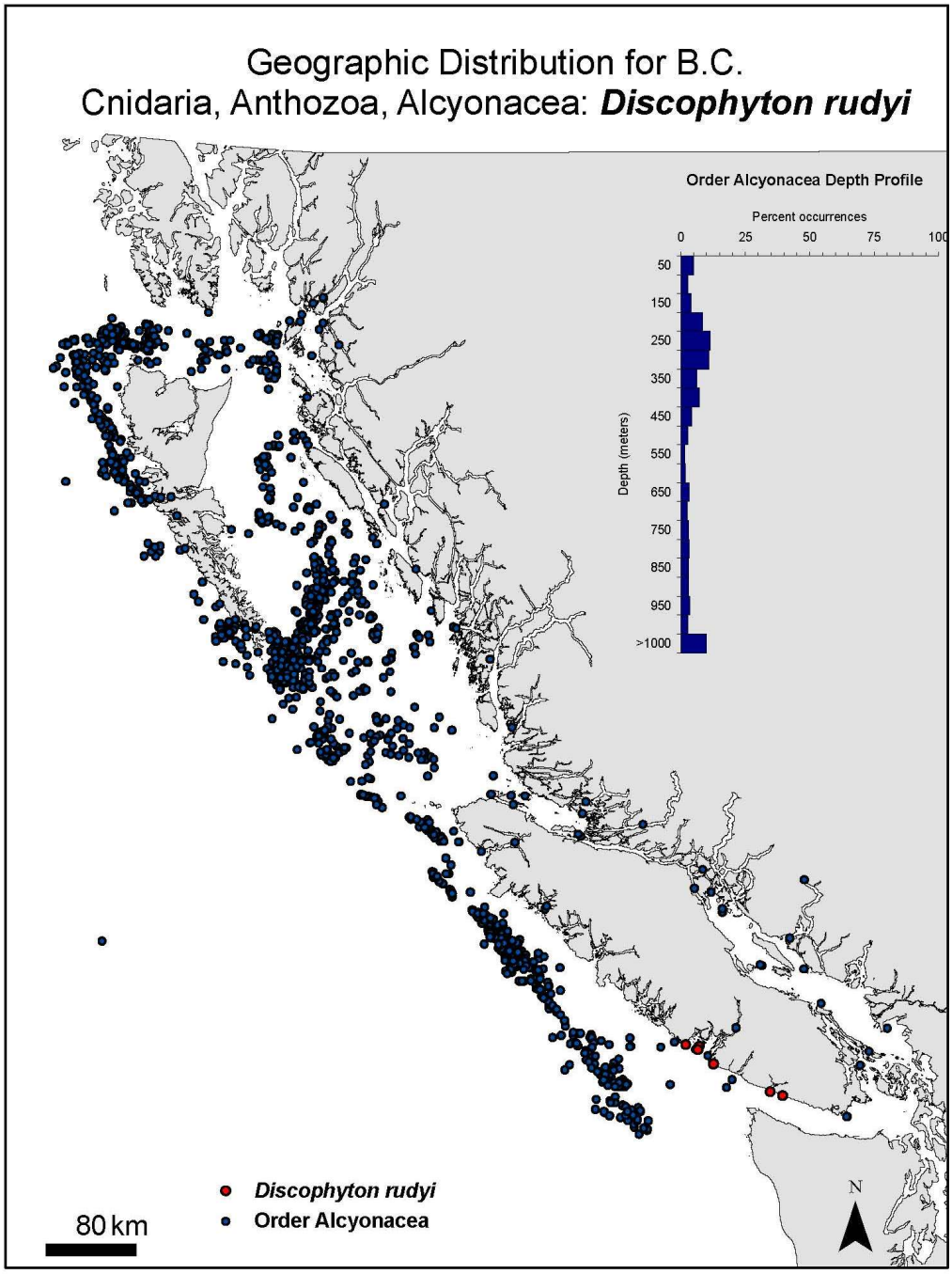
• Gersemia rubiformis, a true soft coral from suborder Alcyoniina, has the ability to retract and rapidly recover from mechanical disturbance, such as crushing. This may mean it is less vulnerable to the effects of bottom fishing than other corals with rigid skeletons and unretractable colonies. Disturbance also initiates larval release (Henry et. al. 2003). D. rudyi is also a member of suborder Alcyoniina.

Threats to Distribution: A= Extreme due to factors related to Climate Change and B moderate due to factors related to anthropogenic activities in coastal habitats.

Since D. rudyi inhabits near shore habitats it is susceptible to anthropogenic sources of pollution, sedimentation and coastal development.

Other Relevant Information: The true soft corals (suborder Alcyoniina) are not considered to be structure forming due to their small stature (Lumsden et. al. 2007). *D. rudyi* rarely exceeds 15cm in diameter (McFadden and Hochberg, 2003)

Editorial Comments: Photo in WoRMS taken by Neil McDaniel (2018).


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Discophyton rudyi
Order Alcyonacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Discophyton rudyi
Order Alcyonacea
80 km
N

Thrombophyton trachydermum (McFadden and Hochberg, 2003)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Alcyoniina, Alcyoniidae
Pacific Region Species Code (Hart): 5BH.
TSN:
AphiaID: 267909.
Synonyms: *Clavularia sp. B*
Common Name: rough-skinned soft coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *T. trachydermum* is a sessile organism and thus very susceptible to changing ocean conditions and any disturbances in the area where it has settled.
The taxonomy and geography of the true soft corals and stoloniferans from families Alcyoniidae, Anthothelidae, Clavulariidae, and Nephtheidae are in need of revision for the NE Pacific.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: A = Very Restricted
T. trachydermum has been identified in BC waters in Barkley Sound. McFadden and Hochberg (2003) describe *T. trachydermum* as having been collected from Barkley Sound, Vancouver Island, BC; the San Juan Archipelago, Washington, USA; and AnoNuevo Pt., California, USA. The BC records represent the northern distributional extent of the species.
Depth Profile: The BC record of *T. trachydermum* are known from 12 m. McFadden and Hochberg (2003) state that "In the lower intertidal, this species typically grows attached to rock substrates, often on the underside of boulders or in protected crevices. Subtidally it occurs to depths of 20m, and most often is found on vertical rock surfaces in areas of relatively high water movement."

Number of Occurrences: A = Very Restricted
There are two unique records of *T. trachydermum* in BC waters.
Data Source: The records are from the literature (McFadden and Hochberg, 2003; Austin, 1985).

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records.

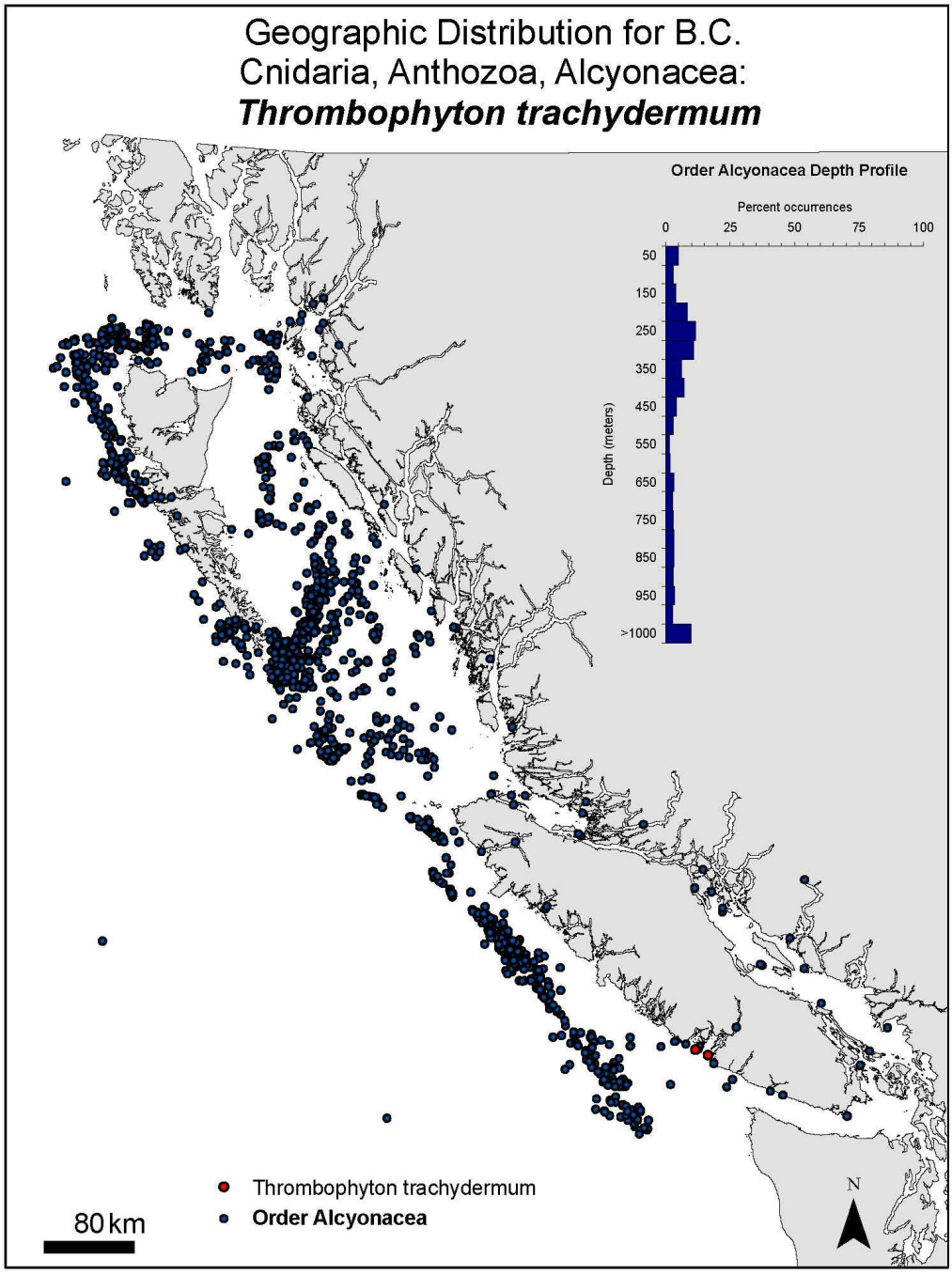
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited as *T. trachydermum* occurs in very shallow water on the open offshore coastline where most bottom fishing and anthropogenic activities like log-dumps and aquaculture is unlikely to occur.

Threats to Distribution: A= Extreme due to factors associated with Climate Change.

Other Relevant Information: The true soft corals (suborder Alcyoniina) are not considered to be structure forming due to their small stature (Lumsden et. al. 2007). *T. trachydermum* is an encrusting soft coral (McFadden and Hochberg, 2003). *T. trachydermum* occasionally grows on subtidal organisms such as the sessile holothurian *Psolus chitonoides* and the brachiopod *Terebratalia transversa* (McFadden and Hochberg, 2003).

Editorial Comments: Photo in WoRMS taken by Neil McDaniel (2018).


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea:
Thrombophyton trachydermum
Order Alcyonacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Thrombophyton trachydermum
Order Alcyonacea
80 km
N

Anthothela pacifica (Kükenthal, 1913)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Scleraxonia, Anthothelidae
Pacific Region Species Code (Hart): 3SX.
TSN: 52094 – genus.
AphiaID: 286579.
Synonyms: *Sympodium armatum* and *Clavularia pacifica*
Common Name: dwarf white gorgonian

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *A. pacifica* is a sessile organism and thus very susceptible to changing ocean conditions and any disturbances in the area where it has settled.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: B = Restricted
A. pacifica has been identified in BC waters in from the Strait of Georgia and WCQCI. *A. pacifica* is present south of BC along the US Pacific Coast (Lumsden et. al 2007). Austin (1985) describes *A. pacifica* from BC and Central to Southern California. He references a specimen from Jervis Inlet, BC.
Depth Profile: The BC records of *A. pacifica* are known from 300 - 1178 m. Austin (1985) states that *A. pacifica* is a shallow species known from the littoral zone to 200 m. Lamb and Hanby (2005) list it as a subtidal species known from below 40 m.

Number of Occurrences: A = Very Restricted
There are three unique records of *A. pacifica* in BC waters.
Data Source: There is one record from the USNM verified by F.M. Bayer and one from the RBCM which was identified as *Clavularia pacifica* and has the same collection information as the USNM specimen. There is also one record from a DFO survey and two records from the literature (Austin, 1985 and Lamb and Hanby, 2005).

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records. The *A. pacifica* museum specimens are from 1973 and the DFO record is from 2004. Additional records have recently been confirmed from DFO ROV video records from Knight Inlet Sill.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

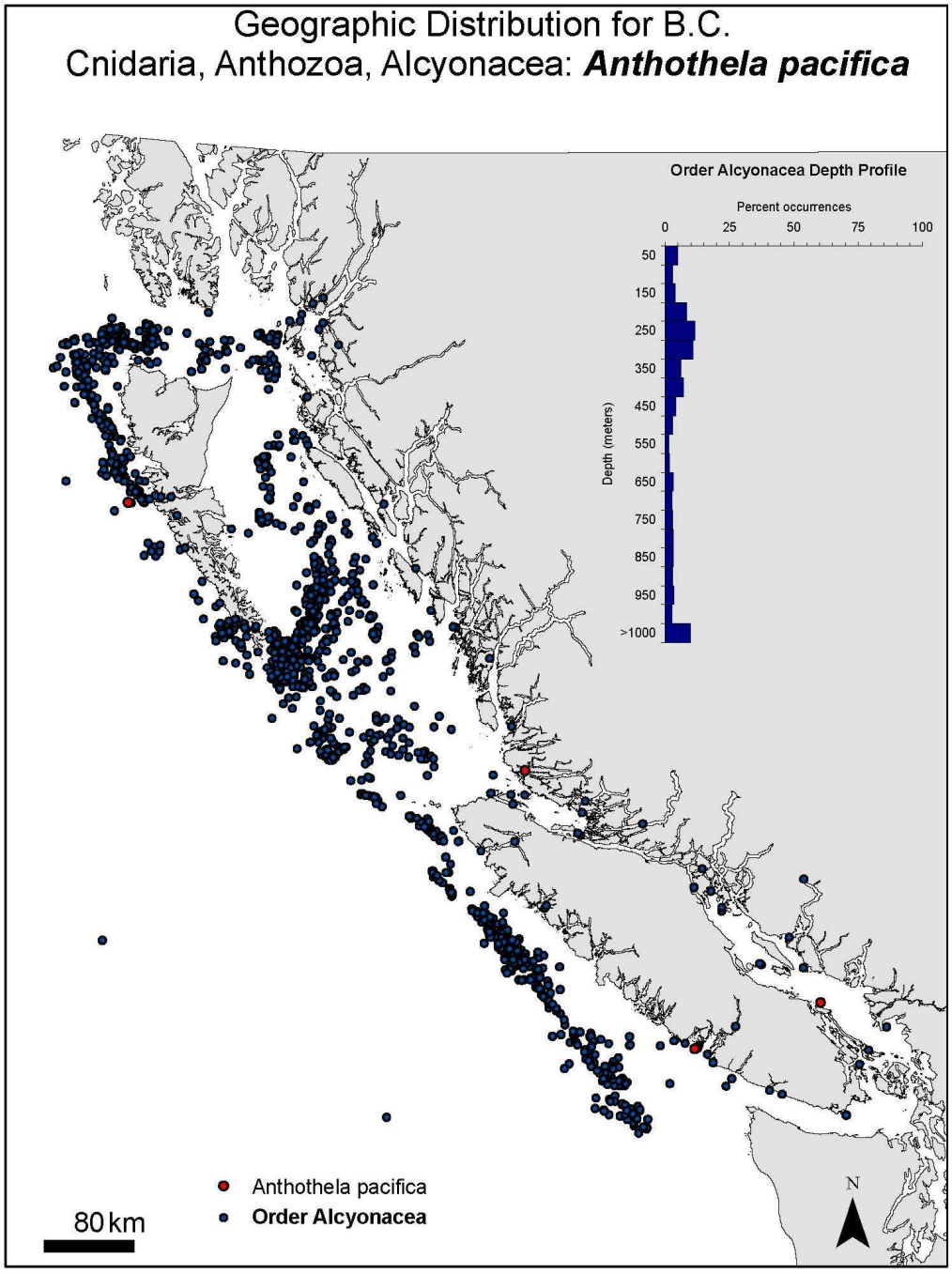
Threats to Population: B= Moderate factors associated with Bottom Contact Fishing Operations.

• Video evidence of fishing impacts from longline prawn trap and groundfish hook and line fisheries as well as sport fishing gear has been documented for Knight Inlet Sill.

Threats to Distribution: A= Extreme due to factors associated with Climate Change.

Other Relevant Information: *A. pacifica* is a small gorgonian which grows to 7.5cm tall (Lamb and Hanby, 2005).

Editorial Comments: This species has a very unique and rare habitat requirement that is associated with high-tidal flow areas like Agamemnon Channel and Knight Inlet Sill. There are 6 accepted species of this genus noted in WoRMS. Photo in WoRMS by Neil McDaniel (2018) from Skookumchuck Narrows, BC.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Anthothela pacifica
Order Alcyonacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Anthothela pacifica
Order Alcyonacea
80 km
N

Chrysogorgia sp. Duchassaing and Michelotti, 1864

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Chrysogorgiidae
Pacific Region Species Code (Hart): 3TU – genus.
TSN: 52299 – genus.
AphiaID: 125294 – genus.
Synonyms: *Dasygorgia*
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of Chrysogorgia sp. within BC. Austin (1985) does mention the species presence on Explorer Seamount in BC. Members of the genus, although not necessarily the same species, are known to occur in areas north and south of BC. Due to Chrysogorgia's broad distribution and speciose nature, 59 recognized species (Cairns 2001), it is likely that a member of the genus Chrysogorgia exists in BC waters at depth.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
There are no records of *Chrysogorgia* sp. in BC waters. *Chrysogorgia* sp. occurs south of BC in the Oregon biogeographic province. Two species of *Chrysogorgia* are found north of BC in Alaska. cf. *Chrysogorgia* sp. is found in the Aleutian Islands and seamounts of Alaska and *Chrysogorgia* sp. A is also found on the seamounts of Alaska (Lumsden et. al. 2007). Austin (1985) lists *Chrysogorgia* sp. from Washington but then gives a record from Explorer Seamount, BC. Cairns (2001) states that *Chrysogorgia* spp. are found worldwide except off Antarctica.
Depth Profile: Austin (1985) lists *Chrysogorgia* sp. as a deep species from depths below 200 m. Cairns (2001) states that *Chrysogorgia* spp. occur exclusively in deep water (100-3375 m.)

Number of Occurrences: x = Unknown
There are no known occurrences of *Chrysogorgia* sp. in BC waters.
Austin (1985) mentions *Chrysogorgia* sp. from Explorer Seamount but doesn't list BC in the distribution?

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate factors associated with Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors associated with Climate Change

Other Relevant Information: The family Chrysogorgiidae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007).

Editorial Comments: There are 75 direct children for this genus.

Radicipes sp. (Wright, 1885)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Chrysogorgiidae
Pacific Region Species Code (Hart): 3TV – genus.
TSN: 719055 – genus.
AphiaID: 125297 - genus
Synonyms: *Lepidogorgia, Strophogorgia*
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of *Radicipes* sp. within BC. There is a regional species code for *Radicipes verrilli* which is now accepted as *Radidipes pleurocristatus* but there is no other evidence to suggest that this species in particular is present in BC. Members of the genus, although not necessarily the same species, are known to occur in areas north and south of BC. A member of the genus *Radicipes* could exists in BC waters on seamounts or at depth.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
There are no records of *Radicipes* sp. in BC waters. *Radicipes* sp. occurs south of BC in the waters off Oregon state (Austin 1985). *Radicipes pleurocistatus* is found north of BC in the Aleutian Islands and seamounts of Alaska (Lumsden et. al. 2007).
Depth Profile: Austin (1985) lists *Radicipes* sp. as a deep species from depths below 200 m.

Number of Occurrences: x = Unknown
There are no known occurrences of *Radicipes* sp. in BC waters.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors associated with Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to associated with Climate Change.

Other Relevant Information: The family Chrysogorgiidae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007).

Editorial Comments: There are 7 accepted species of this genus noted in WoRMS.

Clavularia sp. A de Blainville, 1830

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Stolonifera, Clavulariidae
Pacific Region Species Code (Hart): 3Q5 – genus.
TSN: 52058 – genus.
AphiaID: 125286 – genus.
Synonyms: *Rhizoxenia*
Common Name: pale soft coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Clavularia* sp. is a sessile organism and thus very susceptible to changing ocean conditions and any disturbances in the area where it has settled.
The taxonomy and geography of the true soft corals and stoloniferans from families Alcyoniidae, Anthothelidae, Clavulariidae, and Nephtheidae are in need of revision for the NE Pacific.
It is possible that the *Clavularia* sp. records from BC waters are of *Clavularia* sp. *A* but this species needs to be formally described in order to properly identify if this is the case or if several species are present.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: C = Regional
Clavularia sp. has been identified in BC in inshore waters from QC Strait, WCQCI and Pearse Canal in the North coast. *Clavularia* sp. A is known from north of BC waters in the Aleutian Islands region of Alaska and south from the Oregon biogeographic province. *Clavularia* sp. A is identified in Austin (1985) from BC to central California with a record from Barkley Sound. *Clavularia* sp. A is also identified in Lamb and Hanby (2005) from BC to Southern California with a record from Nigei Island in Browning Passage, BC. Since *Clavularia* sp. A is not formally described it is hard to know if these sources are all talking about the same species or not.
Depth Profile: The BC records of *Clavularia* spp. are known from 0 - 20 m. Austin (1985) identifies *Clavularia* sp. *A* as occurring in shallow water depths from littoral to 200 m while Lamb and Hanby (2005) identify *Clavularia* sp. A in depths from intertidal to 20 m.

Number of Occurrences: B = Restricted
There are four unique records of *Clavularia* spp. in BC waters and two additional records from the literature (Austin, 1985; Lamb and Hanby, 2007)
Data Source: Two records are from the RBCM, one of which is verified by W.C. Austin. The third record is from the USNM verified by F.M. Bayer and fourth from W.C. Austin's field notes.

Population Trend: x = Unknown

More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records. The BC *Clavularia* sp. records were collected in the 1970's.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations and other Anthropogenic activities.
• *Clavularia* sp. occur in very shallow water where groundfish trawling is unlikely to occur, however other bottom tending fishing occurs in these shallow waters including longline shrimp by trap, crab trap, longline hook and line, shrimp trawl and sports fishing as well as other Anthropogenic activities

Threats to Distribution: A= Extreme due to factors related to Climate Change and moderate due to other Anthropogenic activities.
Clavularia spp. inhabits near shore habitats it is susceptible to anthropogenic sources of pollution, sedimentation and coastal development.

Other Relevant Information: McFadden and Hochberg (2003) state that "A number of additional small, encrusting soft corals have been reported from intertidal and shallow subtidal regions of the west coast. Although these undescribed species have generally been referred to collectively as "*Clavularia* spp.," several of these unknown species do not belong to the Stolonifera family of Clavularidae, but rather to the Alcyonina family of Alcyoniidae."

Editorial Comments: There are 78 direct children in this genus.

Clavularia moresbii Hickson, 1915

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Clavulariidae
Pacific Region Species Code (Hart): 3Q3.
TSN: 52060.
AphiaID: 286026.
Synonyms: *Anthothela moresbii*
Common Name: *S. norvegicus pacificus*

Proposed General Status Ocean Rank: 5 = Undetermined
Prof. Willey in 1914, collected the holotype for this species growing on the stem of Primnoa willeyi specimen W.S.W. off Moresby Island in 100 Fathoms (Zoological Society of London 1915 p 546:548). Austin (1985) states that *C. cf. moresbii i*s present in BC waters but also states that the specimen to which he refers may be closer to *Anthothela* sp.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
The holotype of *C. moresbii* was collected in BC waters. *Clavularia* spp. has been identified in BC in inshore waters from QC Strait, WCQCI and Pearse Canal in the North coast. *C. moresbii* is known from north of BC waters in the Eastern Gulf, Western Gulf and Aleutian Islands regions of Alaska (Lumsden et. al. 2007). *C. moresbii* is identified in Austin (1985) from BC.
Depth Profile: Austin (1985) identifies C. moresbii from deep water: below 200 m.

Number of Occurrences: x = Unknown
There are four unique records of *Clavularia* spp. in BC waters.
Data Source: Two records are from the RBCM, one of which is verified by W.C. Austin. One record is from the USNM verified by F.M. Bayer and one from W.C. Austin's field notes.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records. The BC *Clavularia* spp. records were collected in the 1970`s.

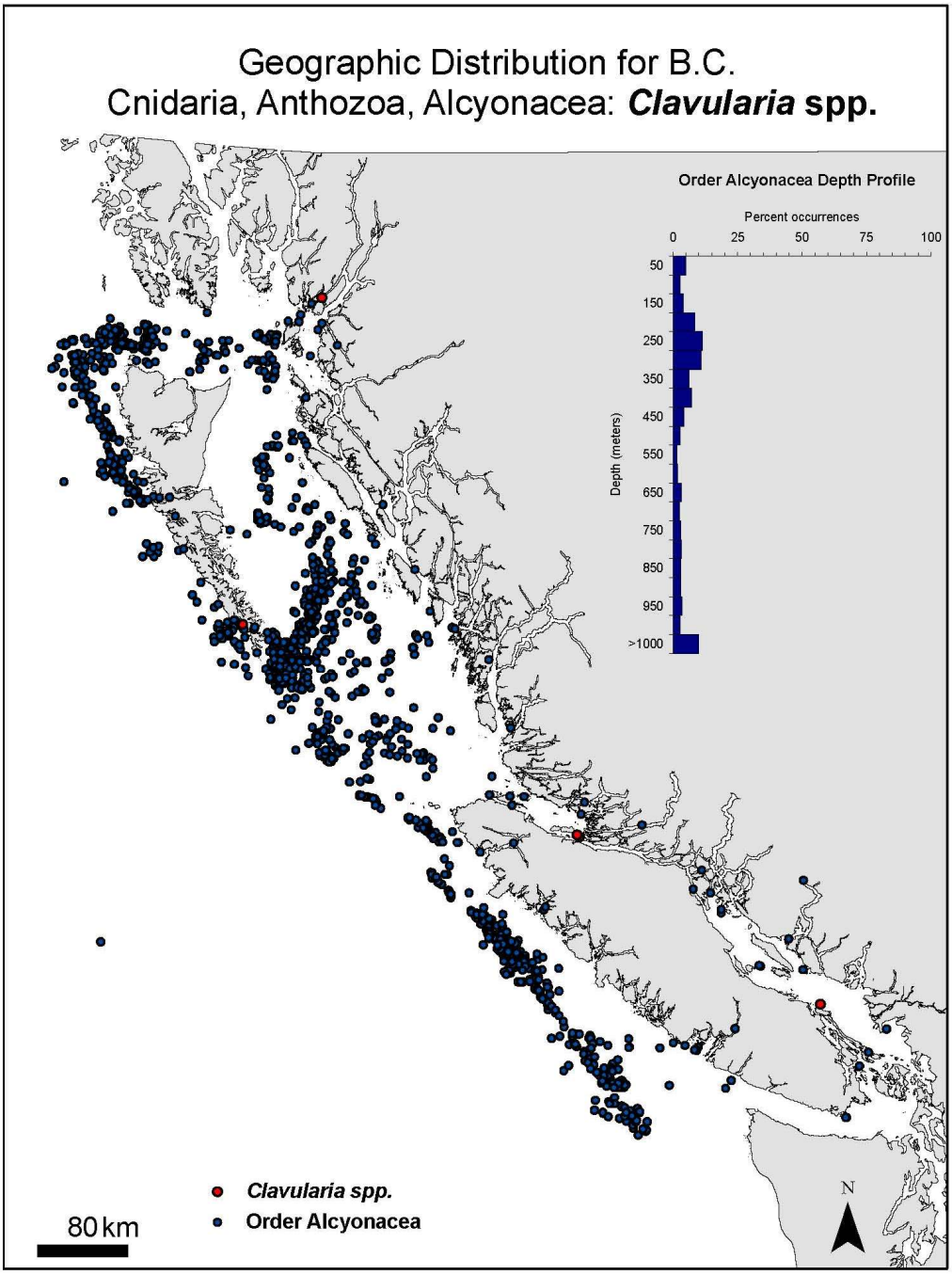
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change and moderate due to other Anthropogenic activities.
Some *Clavularia* spp. inhabit near shore habitats it is susceptible to anthropogenic sources of pollution, sedimentation and coastal development.

Other Relevant Information: McFadden and Hochberg (2003) state that "A number of additional small, encrusting soft corals have been reported from intertidal and shallow subtidal regions of the west coast. Although these undescribed species have generally been referred to collectively as "*Clavularia* spp.," several belong not to that stoloniferous family Clavularidae, but rather to the family Alcyoniidae."
The taxonomy and geography of the true soft corals and stoloniferans from families Alcyoniidae, Anthothelidae, Clavulariidae, and Nephtheidae are in need of revision for the NE Pacific.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Clavularia spp.
Order Alcyonacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Clavularia spp.
Order Alcyonacea
80 km
N

Corallium sp. Cuvier, 1798

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Scleraxonia, Coralliidae
Pacific Region Species Code (Hart): 3SZ – genus.
TSN: 202509 – genus.
AphiaID: 125325 – genus.
Synonyms: *Pleurocorallium*
Common Name: red or pink coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *Corallium* sp. in BC waters. However, since *Corallium* sp. is found both north and south of BC waters on seamounts in the US, it seems likely that a species of *Corallium* could occur here. Further studies on seamounts and at depths over 1000 m will likely reveal more species of *Corallium* in the NE Pacific.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
There are no records of *Corallium* sp. in BC waters. *Corallium* sp. has been found north of BC in the seamounts of Alaska. It is also found south of BC in the Oregon biogeographic province on Davidson seamount. Historically the Family Coralliidae was thought to have a northern range limit off Baja California (Fieberling Seamount), in 2002 it was found off Monterey California (Davidson Seamount) and in 2004 south of the Aleutian Islands (Patton Seamount). The Alaskan record extended the range of the Family Coralliidae 2500 km north (Andrews et. al. 2005; Etnoyer and Morgan 2005; Lumsden et. al. 2007).
Depth profile: Lumsden et. al. (2007) lists the bathymetric distribution of *Corallium* sp. for the U.S. Pacific coast as 1357 - 2447m.

Number of Occurrences: x = Unknown
There are no records for *Corallium* sp. within BC

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records but not many records are identified to the species level.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Although there is no direct harvest of Family Coralliidae there is potential commercial value as jewelry, souvenirs and for medicinal purposes (Etnoyer and Morgan 2003; Lumsden et. al. 2007).

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Family Coralliidae was given a medium rating of structural importance in the U.S. Pacific Islands region. It is considered to have medium colony size and high abundance (Lumsden et. al., 2007).
Specimens of *Corallium* sp. from Davidson Seamount were aged at over 115 years, making it an extremely long lived species (Andrews et. al., 2005)

Editorial Comments: There are 38 direct children in the Genus.

Chromoplexaura marki (Kukenthal, 1913)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Plexauridae
Pacific Region Species Code (Hart): ?
TSN: 52246.
AphiaID: (286220 for Leptogorgia caryi) 724231 for *Chromoplexaura marki.*
Synonyms: *Leptogorgia caryi, Euplexaura marki, Eugorgia caryi*
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of *Chromoplexaura marki* within BC. There is confusion surrounding this species and its synonyms. WoRMS lists *Euplexaura marki* as a junior synonym of *C. marki.* This would give *C. marki* a distribution surrounding BC waters to the north and south and a high probability that it would also occur in BC. However, Austin (1985) and Lamb and Hanby (2005) list *E. marki* as a synonym of *Swiftia spaulding* however, this is not substantiated in WoRMS which only lists *Psammororgia spauldingi* as a synonym for *Swiftia spauldingi.* Jamieson (2006) gives *E. marki* a distribution throughout Alaska but Lumsden et. al. (2007) a major publication compiling US coral locations do not mention *E. marki* or *L. caryi* in Alaska. "cf. *Swiftia" marki* however is listed in Lumsden et. al. (2007) covering the same area mentioned for *E. marki* in Jamieson (2006). Perhaps BC waters only contain *Swiftia spauldingi* which has verified records from BC.

This species has since been redescribed and put into a new genus by Willams (2013) as *Chromoplexaura marki* (Kukenthal, 1913).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
There are no records of *Chromoplexaura marki* in BC waters. The nomen dubium *L. caryi* was noted as occurring south of BC across the US Pacific coastal region by Lumsden et. al. (2007). *E. marki* (a synonym) was documented north of BC in the Eastern Gulf, Western Gulf, and Aleutian Islands regions of Alaska according to Jamieson et. al. (2006).
Depth Profile: *L. caryi* in the US Pacific coast is known from 129 – 1200 m. Austin (1985) lists synonym Eugorgia caryi (although neither WoRMS nor Encyclopedia of Life have any record of Eugorgia caryi) as a shallow species from depths between littoral and 200 m. This is probably a mistake at the time and should be considered Leptogorgia caryi at that time

Number of Occurrences: x = Unknown
There are no known occurrences of *C. caryi* in BC waters.

Population Trend: x = Unknown

More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Williams and Lindo (1997) state that the eastern Pacific species of *Leptogorgia* (southern California to Chile and Galapagos Islands) are in major need of revision. This seems to imply that the Eastern Pacific distribution of *Leptogorgia* does not include waters north of California.

Editorial Comments: See notes on name change by Williams (2013).

Acanella sp Gray, 1870

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Isididae
Pacific Region Species Code (Hart): 5C3 – genus.
TSN: 52337 – genus.
AphiaID: 125303 -genus.
Synonyms:
Common Name: bamboo coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *Acanella* sp. in BC waters. However, *Acanella* sp. is found in the Oregon region of the US Pacific coast and also in the seamounts of Alaska. Therefore, the genera *Acanella* could occur in BC waters. Further studies on seamounts would likely determine if this is the case.

Population Size: x = Unknown
Not enough information to determine the current population size.
Family Isididae is considered to have medium relative abundance in the Alaska region.

Distribution: x = Unknown
There are no records of *Acanella* sp. in BC waters.
There are records of *Acanella* sp. south of BC in the Oregon biogeographic province and north of BC on Alaskan seamounts (Lumsden et. al. 2007).
Depth Profile: 51% of BC records of family Isididae are from below 1000 m and 75% are from below 750 m.

Number of Occurrences: x = Unknown
There are no records of *Acanella* sp. in BC waters.
There are 10 additional records for family Isididae some of which could be *Acanella* sp. but they are not identified to genera.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Family Isididae is considered to have a high rating structural importance in the US Alaska region (Lumsden et. al. 2007).
The northern distribution of bamboo corals suggests a temperature tolerance of less than 3°C and their distribution also suggests a low tolerance for high sedimentation (Cimberg et. al. 1981 quoted in Lumsden et. al. 2007)
Sensitive by nature: *Acanella* sp. is a member of the family Isididae which are sessile, long living, slow growing and large organisms.
Sherwood and Edinger (2005) estimate the age for individual colonies from the family Isididae in the Atlantic region at 30-200 years old, with an axial growth rate of 0.3 – 1.0 cm/yr.
Etnoyer (2008) describes a member of family Isididae (*I. tentaculum*) as tall (>1 m).

Editorial Comments: N/A

Isidella tentaculum Etnoyer, 2008

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Isididae
Pacific Region Species Code (Hart): 5C4 – genus.
TSN: 719033 – genus.
AphiaID: 582522.
Synonyms: *Isidella paucispinosa?*
Common Name: bamboo coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Isidella tentaculum* is sessile, long living, slow growing and large organism. In BC the observations of *Isidella* sp. are likely to be *I. tentaculum* but this needs verification.
Sherwood and Edinger (2005) estimate the age for individual colonies from the family Isididae in the Atlantic region at 30-200 years old, with an axial growth rate of 0.3 – 1.0 cm/yr.
Etnoyer (2008) describes the living adult colony of *I. tentaculum* as tall (>1 m).

Population Size: x = Unknown
Not enough information to determine the current population size.
According to Etnoyer (2008) "*I. tentaculum* was relatively common among sessile benthic Megafauna in ROV transects from Pioneer and Rodriguez seamounts, with 1300 and 1900 individual colonies occurring over transit distances of 22 and 42 km, respectively." Pioneer and Rodriguez seamounts occur off California.

Distribution: x = Unknown
Not enough information to determine the current distribution of *I. tentaculum* within BC waters.
Isidella sp. records for BC are distributed from northwest QCI to the west coast of VI along the shelf. According to Etnoyer (2008) "*I. tentaculum* is broadly distributed on northeast Pacific Ocean seamount peaks and continental slopes from the Aleutian Islands in the north to Rodriguez seamount in the south, near the Channel Islands, off Southern California." None of the specimens examined in this paper are from BC waters but one is from nearby Dickens seamount in the Eastern Gulf of Alaska. Living colonies of *I. tentaculum* were observed on 10 different seamounts along the Kodiak – Bowie Seamount Chain. *Isidella* spp. are found coast wide for the US Pacific coast mostly on the continental slope according to Lumsden et. al. (2007)
Depth Profile: The *Isidella* sp. records for BC are from depths of 492 – 2300 m. *I. tentaculum* was observed between 720 - 1050 m (Etnoyer 2008). 51% of BC records of family Isididae are from below 1000 m and 75% are from below 750 m.

Number of Occurrences: B = Restricted
There are 11 unique records of *Isidella* sp. within BC. There are 10 additional records for family Isididae some of which could be *Isidella* sp. but they are not identified to that level.

Data Source: 10 of the *Isidella* sp. records are unverified records from DFO surveys and 1 is from the RBCM collection. All the additional Isididae records are from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. The records of *Isidella* sp. for BC were collected between 2004 and 2008.

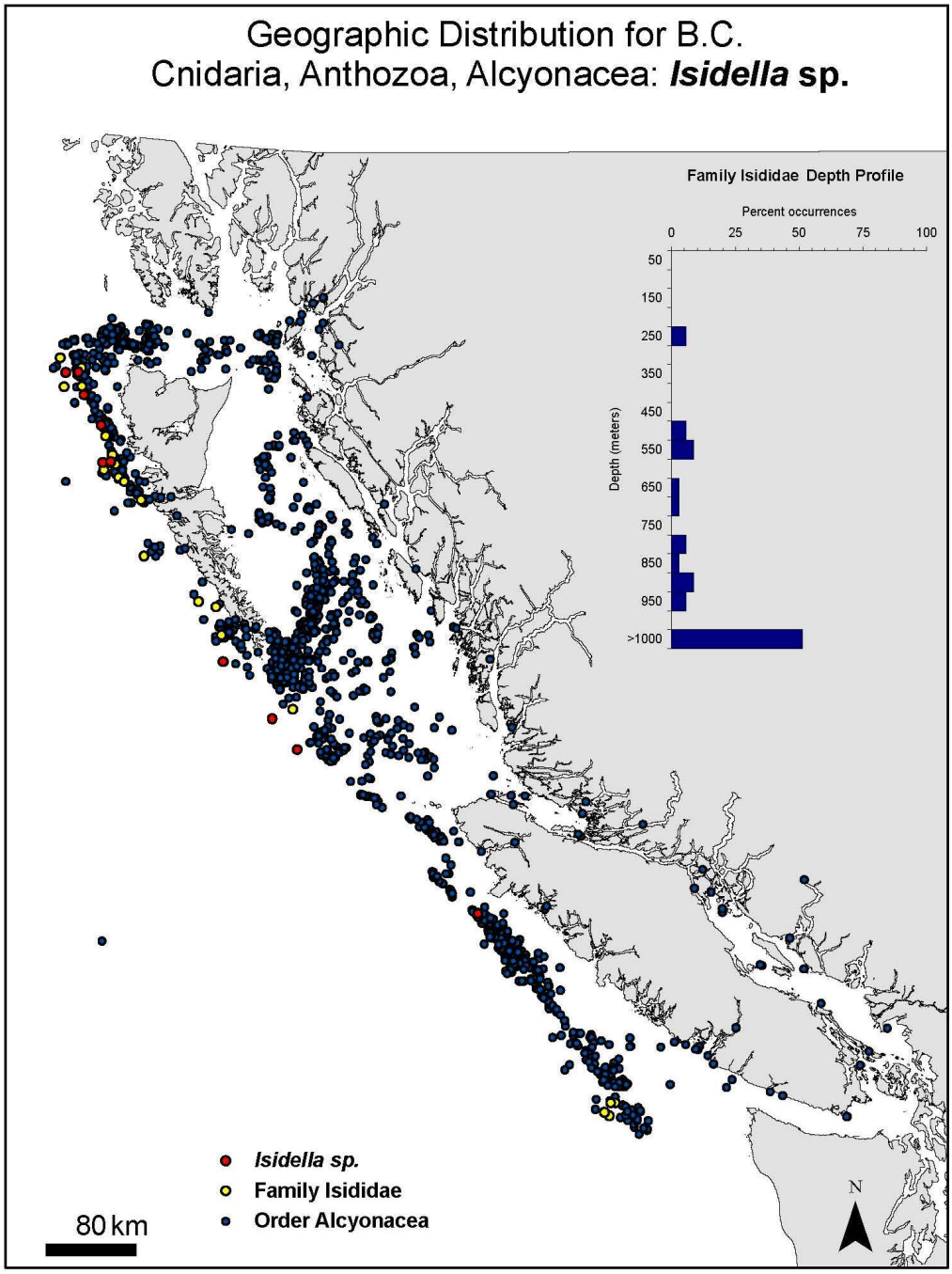
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Etnoyer (2008) considers *I. tentaculum* a conspicuous habitat former. *Isidella* spp. are considered to be major structure forming corals in the Alaskan, West Coast, and Pacific Islands regions of the USA (Lumsden et. al. 2007).
The northern distribution of bamboo corals suggests a temperature tolerance of less than 3°C and their distribution also suggests a low tolerance for high sedimentation (Cimberg et. al. 1981 quoted in Lumsden et. al. 2007)
It is possible that there is another species of *Isidella* in addition to *I. tentaculum* is found in BC.
The species referred to in Lumsden et. al. (2007) as *Isidella paucispinosa* is found in the Eastern Gulf, Western Gulf and Aleutian Island regions of Alaska, however; there is no such species as *Isidella paucispinosa* in either WoRMS or in recent literature regarding the genus (Etnoyer, 2008). It appears that this is a mis-identified species of *Keratoisis.* *Keratoisis paucispinosa* is present on the Catalogue of Life (2009) and WoRMS.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Isidella sp.
Family Isididae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Isidella sp.
Family Isididae
Order Alcyonacea
80 km
N

Keratoisis spp. Wright, 1869

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Isididae
Pacific Region Species Code (Hart): 5C5 – genus.
TSN: 52330 – genus.
AphiaID: 125306 -genus.
Synonyms:
Common Name: bamboo coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Keratoisis* spp. are sessile, long living, slow growing and large organism.
Sherwood and Edinger (2005) estimate the age for individual colonies from the genera *Keratoisis* in the Atlantic region at 94 - 200 years old, with an axial growth rate of 0.93 cm/yr.
Etnoyer (2008) describes a member of family Isididae (*I. tentaculum*) as tall (>1 m).

Population Size: x = Unknown
Not enough information to determine the current population size.
Keratoisis sp. is considered to have high relative abundance off the US Pacific coast and family Isididae is considered to have medium relative abundance in the Alaska region (Lumsden et. al. 2007)

Distribution: C = Regional
Keratoisis spp. records for BC are distributed coast wide along the shelf from the WCQCI to the WCVI. *Bathygorgia profunda* (syn. *K. profunda*) is known from the Eastern Gulf, Western Gulf and Aleutian Island regions of Alaska. *K.* sp. A and *K*. sp. B are known from the Alaskan seamounts. *K. flabellum* and *K. philippinensis* are known from the Oregon biogeographic province of the US Pacific coast and *K.* sp. is found across the US Pacific coast mostly on the continental slope (Lumsden et. al. 2007)
Depth Profile: The *Keratoisis* spp. records for BC are from depths of 492 – 2149 m. *Keratoisis* sp. is known from 516 – 1707 m for the US Pacific coast. 51% of BC records of family Isididae are from below 1000 m and 75% are from below 750 m.

Number of Occurrences: B = Restricted
There are 12 unique records of *Keratoisis* spp. within BC. There are 10 additional records for family Isididae some of which could be *Keratoisis* spp. but they are not identified to genera.
Data Source: 11 of the *Keratoisis* spp. records are unverified records from DFO surveys and 1 is from the USNM collection, verified by F.M. Bayer. All the additional Isididae records are from DFO surveys.

Population Trend: x = Unknown

The records of *Keratoisis* spp. for BC were collected between 2000 and 2006. More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level.

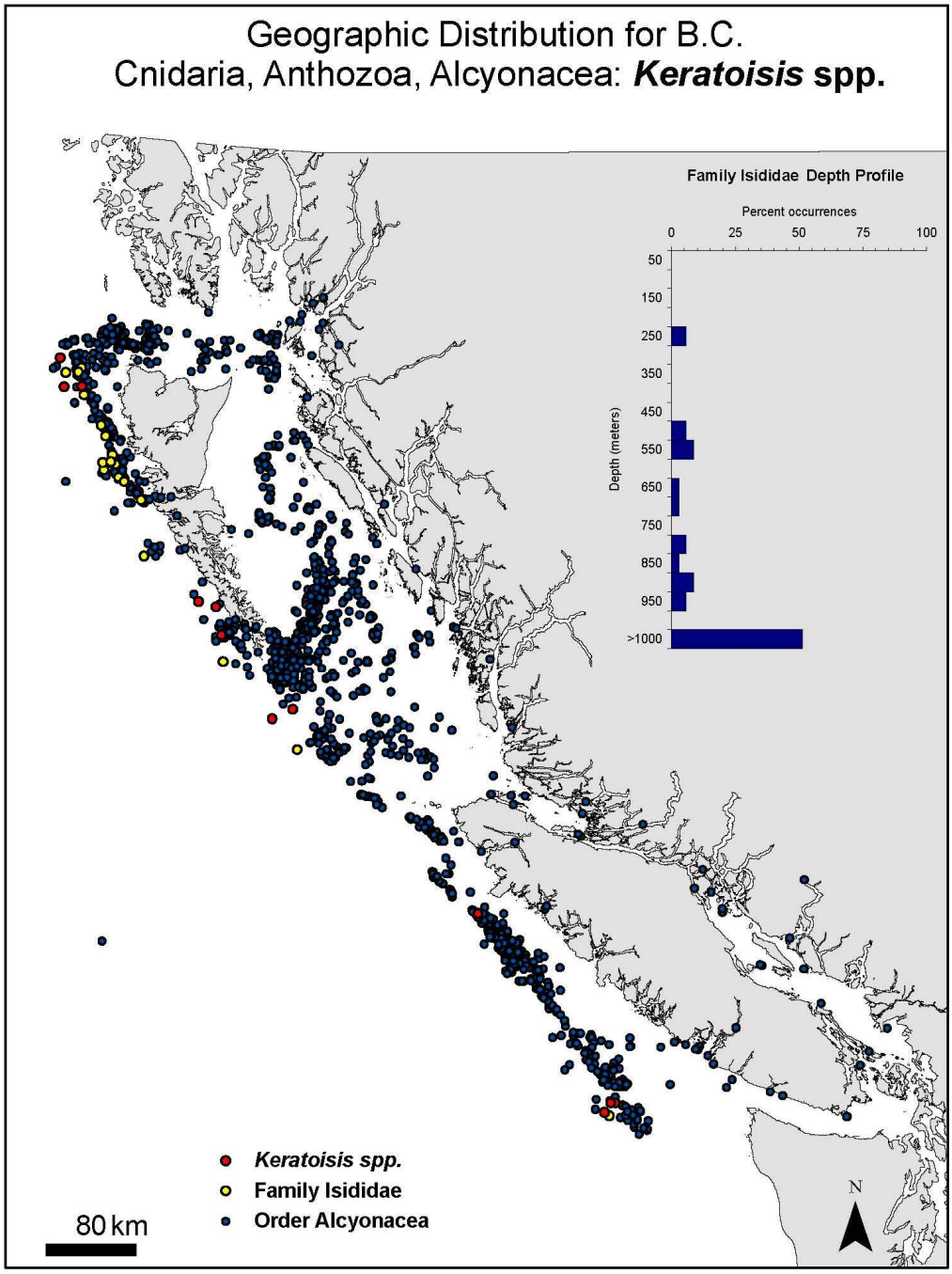
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations. *Keratoisis* spp. are sessile, long living and large organisms which makes them highly susceptible to trawling and other fishing impacts.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Bathygorgia profunda* is considered to be major structure forming coral in Alaska. *Keratoisis* spp. are considered to be major structure forming corals in the West Coast region of the USA (Lumsden et. al. 2007).
The northern distribution of bamboo corals suggests a temperature tolerance of less than 3°C and their distribution also suggests a low tolerance for high sedimentation (Cimberg et. al. 1981 quoted in Lumsden et. al. 2007)

Editorial Comments: There are 26 direct children associated with this Genus.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Keratoisis spp.
Family Isididae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Keratoisis spp.
Family Isididae
Order Alcyonacea
80 km
N

Lepidisis sp. Verrill, 1883

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Isididae
Pacific Region Species Code (Hart): 5C7 – genus.
TSN: 52346 – genus.
AphiaID: 125307 -genus**.**
Synonyms:
Common Name: bamboo coral

Proposed General Status Ocean Rank: 5 = Undetermined
Sensitive by nature: *Lepidisis* sp. is a member of the family Isididae which are sessile, long living, slow growing and large organisms.
Sherwood and Edinger (2005) estimate the age for individual colonies from the family Isididae in the Atlantic region at 30-200 years old, with an axial growth rate of 0.3 – 1.0 cm/yr.
Etnoyer (2008) describes a member of family Isididae (*I. tentaculum*) as tall (>1 m).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
There is only one record for *Lepidisis* sp. in BC waters and it occurs off the WCQCI. There are two species of *Lepidisis* present north of BC in Alaska. *L.* sp. A is present in the Eastern Gulf and Western Gulf and *L.* sp. B is found on seamounts. There is one species found south of BC in the San Diego biogeographic province (Lumsden et. al. 2007).
Depth Profile: The *Lepidisis* sp. record for BC occurs at a depth of 2904 m. 51% of BC records of family Isididae are from below 1000 m and 75% are from below 750 m.

Number of Occurrences: A = Very Restricted
There is only 1 unique record of *Lepidisis* sp. within BC. There are 10 additional records for family Isididae some of which could be *Lepidisis* sp. but they are not identified to genera.
Data Source: The *Lepidisis* sp. record is from the USNM collection, verified by F.M. Bayer. All the additional Isididae records are from DFO surveys.

Population Trend: x = Unknown
The record of *Lepidisis* sp. for BC was collected in 1890 and identified in 2008. More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level.

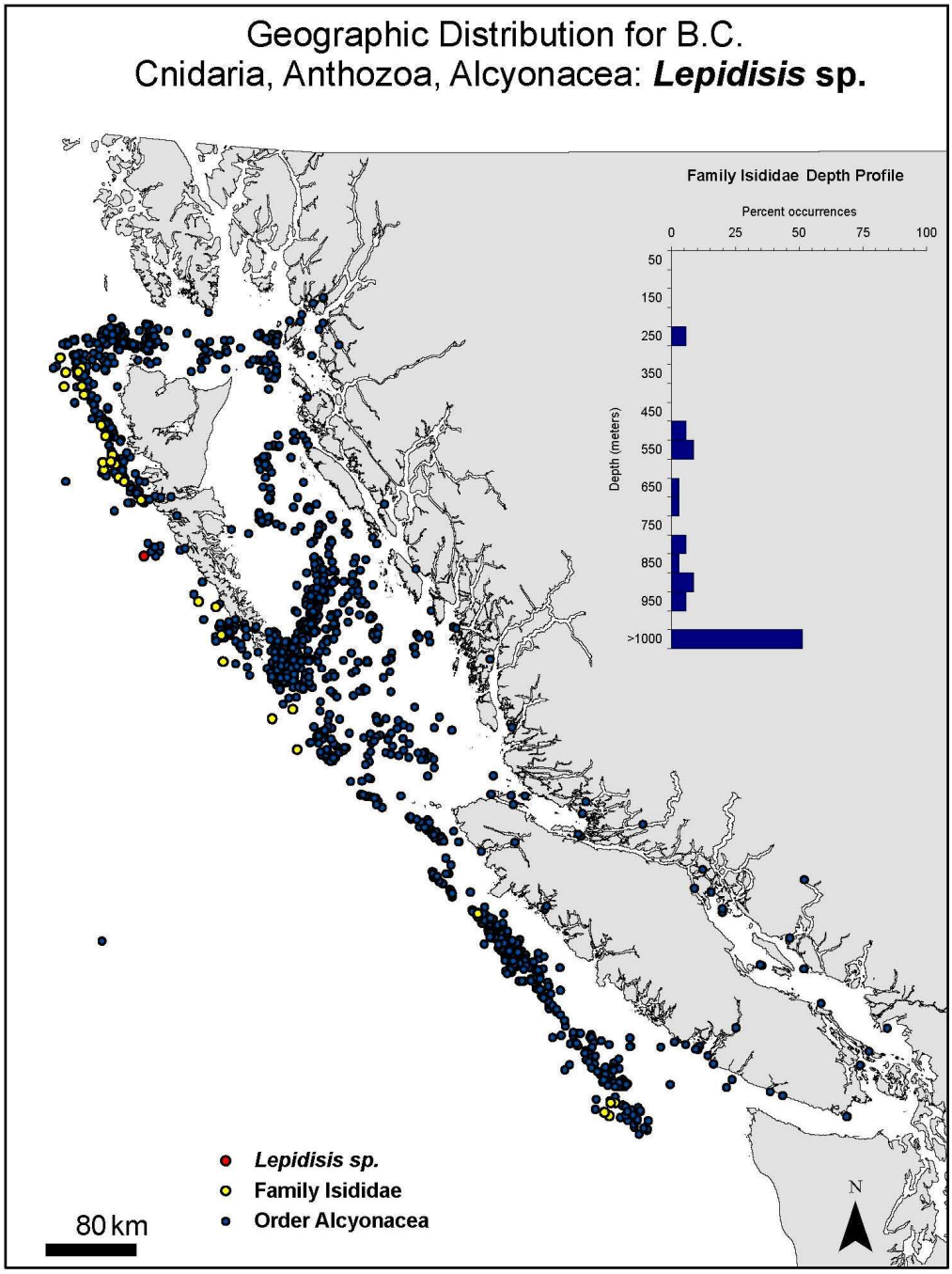
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.
• *Lepidisis* spp. are sessile, long living and large organisms which makes them highly susceptible to trawling and other fishing impacts.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Lepidisis* sp. is considered to be major structure forming coral in the US Alaska region (Lumsden et. al. 2007).
The northern distribution of bamboo corals suggests a temperature tolerance of less than 3°C and their distribution also suggests a low tolerance for high sedimentation (Cimberg et. al. 1981 quoted in Lumsden et. al. 2007).

Editorial Comments: There are 11 known species in this genus.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Lepidisis sp.
Family Isididae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Lepidisis sp.
Family Isididae
Order Alcyonacea
80 km
N

Gersemia rubiformis (Ehrenberg, 1834)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Nephtheidae
Pacific Region Species Code (Hart): 5BF.
TSN: 52037.
AphiaID: 156103.
Synonyms: *Eunephthya rubiformis, Alcyonium rubiforme, Lobularia rubiformis, Capnella rubiformis*
Common Name: sea strawberry, sea raspberry

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *G. rubiformis* is a sessile organism and thus very susceptible to changing ocean conditions and any disturbances in the area where it has settled.
The taxonomy and geography of the true soft corals and stoloniferans from families Alcyoniidae, Anthothelidae, Clavulariidae, and Nephtheidae are in need of revision for the NE Pacific.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: C/D = Regional to Widespread
G. rubiformis has been identified in BC waters along the entire coast from inshore waters warranting a rank of C but all the records of *Gersemia* sp. are offshore which would expand the distribution to a D ranking. *G. rubiformis* is known to occur north of BC waters in the Eastern Gulf, Western Gulf, Aleutian Islands and Bering Sea regions of Alaska. *G. rubiformis* also occurs south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007).
Depth Profile: BC records of *G. rubiformis* are known from 0-75 m. BC records of *Gersemia* sp. are known from 0-2904 m.

Number of Occurrences: C = Regional
There are 30 unique records of *G. rubiformis* in BC waters and 16 additional records for *Gersemia* sp.
Data Source: There are 19 museum records all of which are verified and 11 records from field notes. Of the *Gersemia* sp. records, five are from museums and 11 are from DFO surveys.
Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 112 records of order Alcyonacea in BC waters, since 1997 there have been 2288 records. The DFO survey records of *Gersemia* sp. were collected from 2000 – 2006. The museum and field records were collected from 1890 – 1991.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

G. rubiformis has the ability to retract and rapidly recover from mechanical disturbance, such as crushing. This may mean it is less vulnerable to the effects of bottom fishing than other corals with rigid skeletons and unretractable colonies. Disturbance also initiates larval release (Henry et. al. 2003).

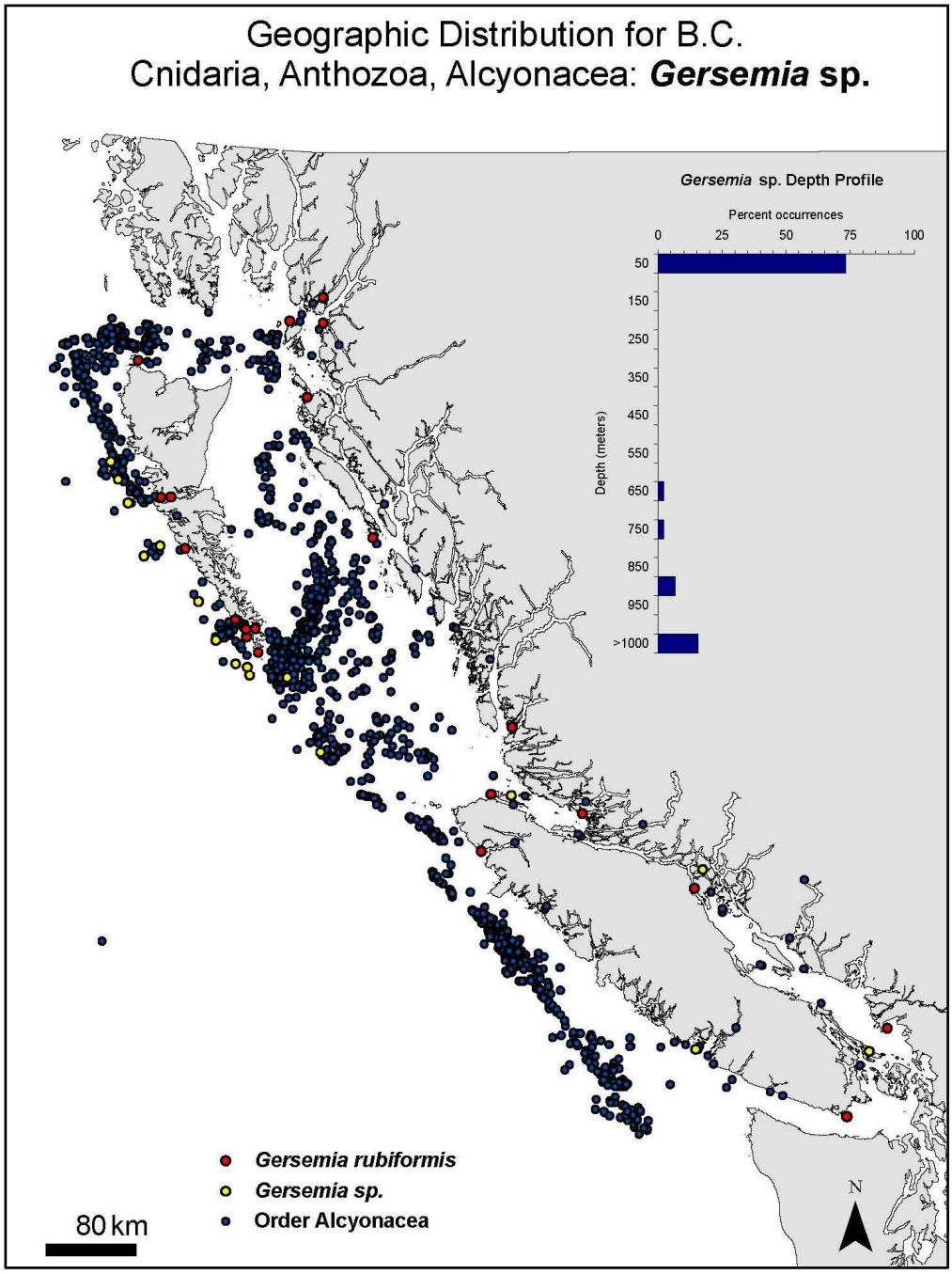
Threats to Distribution: A= Extreme due to factors related to Climate Change and B= Moderate since *G. rubiformis* inhabits near shore habitats it is susceptible to anthropogenic sources of pollution, sedimentation and coastal development.

Other Relevant Information: It seems unlikely that the records from DFO surveys identified as *Gersemia* sp. would be *G. rubiformis* because of the depths and area in which they occurred. All the verified records of *G. rubiformis* are from inshore waters and shallow depths. The DFO *Gersemia* sp. records are from offshore and deep. It is likely that these were mis-identified as *Gersemia* sp. because it is the most widely known soft coral. *Heteropolpus* spp. are known to occur at offshore depths.
Many publications list *Eunephthya rubiformis* as the valid name for this species including Lumsden et. al. (2007). Austin lists *Alcyonium* sp. as the valid name for NE Pacific *G. rubiformis* records. The Octocoral Research website hosted by Dr. Gary Williams, a leading Octocoral taxonomist, lists *Gersemia* as a valid genera and not *Eunephthya.* WoRMS states that the accepted name is *Gersemia rubiformis* and that *Eunephthya rubiformis* and *Alcyonium rubiforme* are synononymised names.

Reviewer Comments: Gary Williams (pers. comm., 2010): "I am currently working on the status of the soft coral genera *Alycyonium* and *Gersemia* in the Pacific Northwest. At present, there seems be confusion in the literature between these two genera that represent two different families. My paper when published is intended to clear up this matter, but since new names will be proposed, the present state of knowledge should be retained for now."

Editorial comments: Williams (2013) described a new species, *Gersemia lambi*; type material was collected at Langara Island, BC and additional material was collected from Kerouard and Kunghit Islands in Haida Gwaii. The species range is from Cape Ommany, southeast Alaska to central BC, 9-20m depth.

Williams and Lundsten (2009) described a new species, *Gersemia juliepackardae*; type material was from southern California, Oregon and northern Washington (47° 51.412’ N 125° 28.363’ W). The northern record is from Washington State from depths of 888-1600 m and this species may be some of the unidentified DFO samples that occur in BC deeper offshore waters.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Gersemia sp.
Gersemia sp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Gersemia rubiformis
Gersemia sp.
Order Alcyonacea
80 km
N

Paragorgia pacifica (Verrill, 1922)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Scleraxonia, Paragorgiidae
Pacific Region Species Code (Hart): 3S6.
TSN: 719260.
APHIAID: 517887.
Synonyms: *P. nodosa, P. arborea, Alcyonium arboretum*
Common Name: bubble gum coral

Proposed General Status Ocean Rank: 3 = Sensitive
This species was noted initially as a Junior synonym of *Paragorgia arborea* (Sanchez, 2005) however, it was resurrected as a unique species based on restriction site associated DNA sequencing (RAD-seq) (Herrera and Shank, 2016). Sensitive by nature: *Paragorgia* spp. are sessile, long living, slow growing and large organisms which in conjunction with their relatively shallow distribution make them highly susceptible to fisheries impacts. Sherwood and Edinger (2009) estimated the age for an Atlantic *P. arborea* colony at 80 years old and with an axial growth rate of 1.62 cm/yr.
Paragorgia pacifica can be 2 m high and wide (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.
P. pacifica is considered to have high abundance off the US Pacific Coast and medium abundance (*Paragorgia* spp.) in Alaska (Lumsden et. al. 2007).

Distribution: D = Widespread
P. arborea is found coastwide, around VI, QCI, in inlets and out on the shelf. *P. arborea* is found north of BC in the Eastern Gulf of Alaska and in the Western Gulf, Aleutians and Bering Sea. *P. pacifica* is found south of BC in the Oregon biogeographic province. *P. pacifica* has a solitary spatial dispersion in the US Pacific region and a clumped distribution in the Alaska region (Lumsden et. al. 2007).
"*P. arborea* was initially thought to have one of the most intriguing distributions among octocorals, it has been abundantly collected and observed towards the two poles in the North Atlantic and in sub-Antarctic waters (Broch 1912) but no intermediate populations have been found so far" (Sánchez, 2005); however, as with the case of *P. pacifica* further DNA work might provide some new insights.
Depth Profile: The *P. arborea* records for BC have a depth profile of 18 - 1435 m. Sánchez (2005) gives *P. pacifica* a depth range of 200 - 1330 m for the N. Atlantic and mentions that there are New Zealand records from 1525 m. 66% of BC records for *Paragorgia* spp. are above 400 m and 17% are associated with depths >1000 m.

Number of Occurrences: C = Regional
There are 48 unique records of *P. pacifica* within BC and 16 additional records for *Paragorgia* sp. some of which could be *P. pacifica* but they are not identified to the species level.

Data Source: 12 *P. pacifica* records are from museum specimens, most of which were initially identified as *P. pacifica.* 4 records are from groundfish observer data and the rest are from DFO surveys. 5 *Paragorgia* sp. records are from museum specimens and the rest are from DFO survey data.

Population Trend: x = Unknown
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The records identified initially as *P. arborea* were collected between 1875 and 2008. 66 of 84 records of *Paragorgia* spp. are from 2001 to 2008.

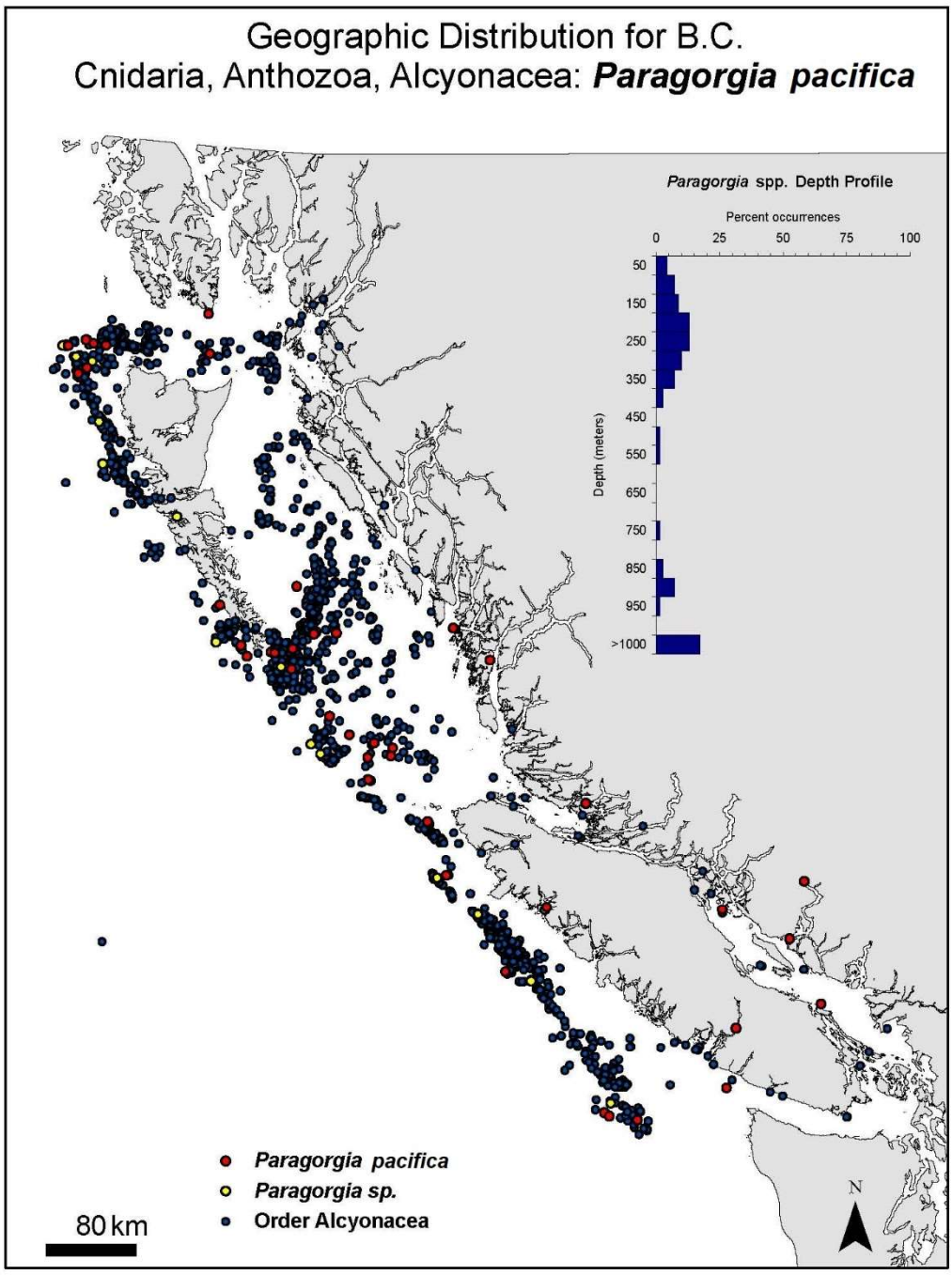
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate? due to factors related to Bottom Contact Fishing Operations.
Paragorgia spp. are sessile, long living and large organisms which makes them highly susceptible to trawling and other fishing impacts.

Threats to Distribution: A= Extreme due to factors related to Climate Change andB (moderate): Since *Paragorgia* spp. inhabit nearshore habitats they are more susceptible to anthropogenic sources of pollution, increases in sedimentation and coastal development.

Other Relevant Information: *P. pacifica* is considered to be a major structure forming coral in both the Alaska and Pacific coast regions of the USA (Lumsden et. al. 2007). Initially it was understood that "An important variation within *P. arborea* "populations" is present in the specimens from Alaska in the North Pacific, corresponding to *P. pacifica* Verill (1922). The sclerites from a specimen in Alaska have the same diagnostic characters including the particular 6-radiates with grooved ornaments but the sclerites from the medulla seem to be reduced in size and ornamentation with respect to the New Zealand *P. arborea.* The surface sclerites (6-radiates) are also found to be smaller than other *Paragorgia* species examined. *P. pacifica* was described on the grounds of colony form and as Verrill (1922) stated, "there may be doubt whether *P. pacifica* is not a variety of *P. arborea*", because it was described without sclerite examination. Nevertheless, the North pacific populations of *P. arborea* seem to be the most derived morphologically, but a more comprehensive examination is required. The most recent DNA analysis (Herrera and Shank, 2016) does substantiate the resurrection of the species name *P. pacifica*.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Paragorgia pacifica
Paragorgia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Paragorgia pacifica
Paragorgia sp.
Order Alcyonacea
80 km
N

Paragorgia stephencairnsi Sánchez, 2005

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Paragorgiidae
Pacific Region Species Code (Hart): 3S9.
TSN: 52107 – genus.
APHIAID: 286608.
Synonyms:
Common Name: bubble gum coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Paragorgia* spp. are sessile, long living, slow growing and large organisms which in conjunction with their relatively shallow distribution make them highly susceptible to fisheries impacts.
Sherwood and Edinger (2009) estimated the age for an Atlantic *Paragorgia* colony at 80 years old and with an axial growth rate of 1.62 cm/yr (P. arborea).
Paragorgia can be 2 m high and wide *(P. arborea*) (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size. There are four species of Paragorgia known in BC waters three are being presented in this document but one *P. jamesi* Herrera & Shank, 2016 has only recently been confirmed with DNA analysis by Herrera and Shank (2016).
Paragorgia spp. are considered to have a medium abundance in Alaska (Lumsden *et al*. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution
There is only one record of *P. stephencairnsi* in BC waters and it was collected by N. McDaniel from the Strait of Georgia. *Paragorgia* sp. is found north of BC in the seamounts of Alaska and south of BC across the US Pacific coast region. *Paragorgia* spp. has a clumped spatial distribution in the Alaska region (Lumsden et. al. 2007).
Sánchez (2005): The Holotype is from Pacific Ocean, off British Columbia, Canada. The Paratype is from off California but this is not mentioned in the distribution.
Depth Profile: The *P. stephencairnsi* record for BC is from 350 m. Sánchez (2005) gives *P. stephencairnsi* a depth range of 350-490 m. 66% of BC records for *Paragorgia* spp. are above 400 m and 17% are associated with depths >1000 m.

Number of Occurrences: A = Very Restricted
There is one unique records of *P. stephencairnsi* within BC and 16 additional records for *Paragorgia* sp
Data Source: The *P. stephencairnsi* record is from the USNM identified by J.A. Sánchez. 5 *Paragorgia* sp. records are from museum specimens and the rest are from DFO survey data.

Population Trend: x = Unknown

More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The *P. stephencairnsi* record was collected in 1973. 66 of 84 records of *Paragorgia* spp. are from 2001 to 2008.

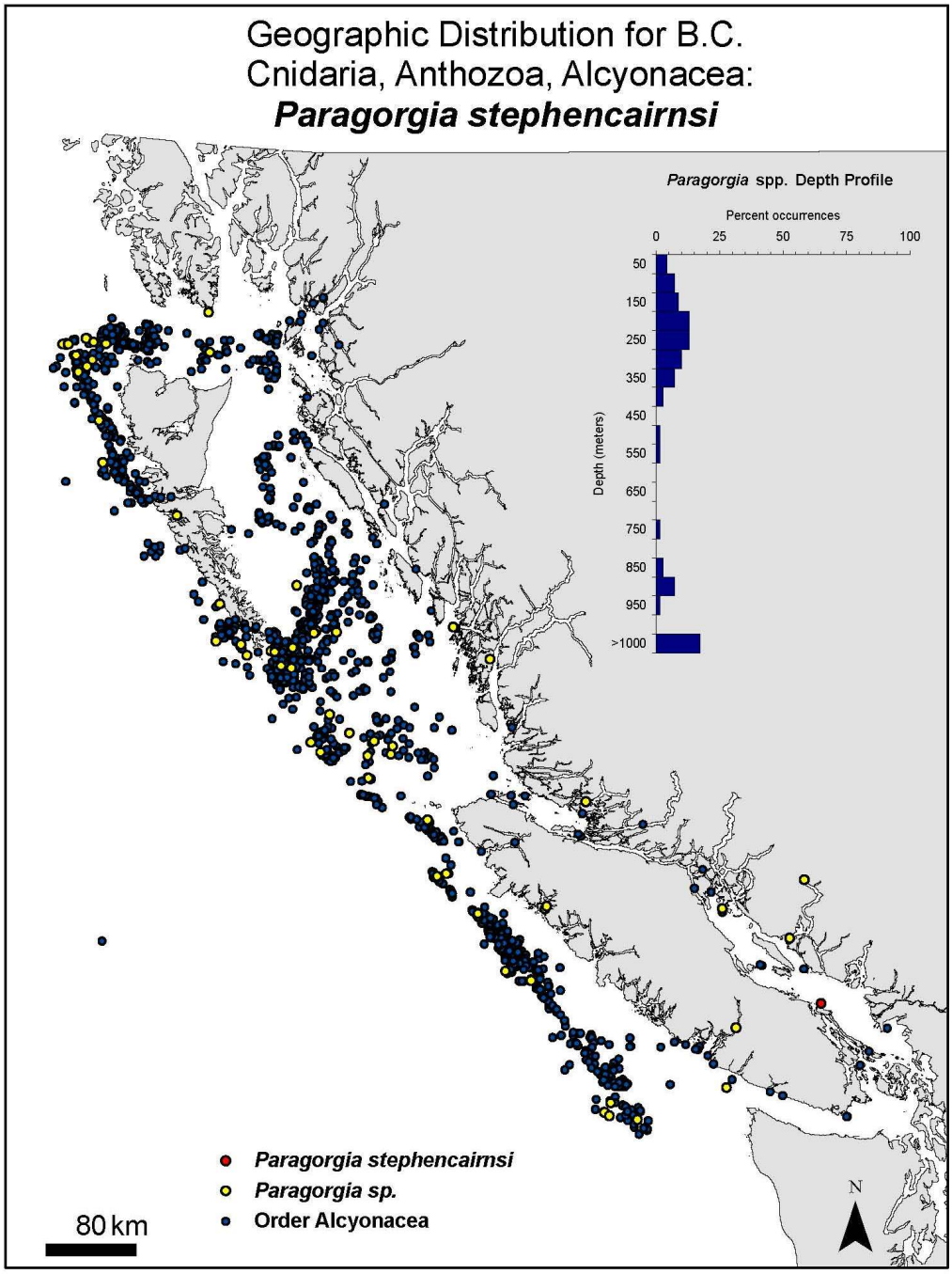
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change and B (moderate): Since *Paragorgia* spp. inhabit nearshore habitats they are more susceptible to anthropogenic sources of pollution, increases in sedimentation and coastal development.

Other Relevant Information: *Paragorgia* spp. is considered to have a high rating of structural importance (Lumsden et. al. 2007).

Editorial Comments: . some of speies record of *P. stephencairnsi* may be *P. jamesi* which is not dealt with in this initial report as it has only recently been confirmed as a species by Hennera & Shank (2016).


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea:
Paragorgia stephencairnsi
Paragorgia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Paragorgia stephencairnsi
Paragorgia sp.
Order Alcyonacea
80 km
N

Paragorgia yutlinux Sánchez, 2005

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Paragorgiidae
Pacific Region Species Code (Hart): 3SA.
TSN: 52107 – genus.
APHIAID: 28661.
Synonyms:
Common Name: bubble gum coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Paragorgia* spp. are sessile, long living, slow growing and large organisms.
Sherwood and Edinger (2009) estimated the age for an Atlantic Paragorgia colony at 80 years old and with an axial growth rate of 1.62 cm/yr (P. arborea).
Paragorgia can be 2 m high and wide (*P. arborea*) (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.
Paragorgia spp. are considered to have a medium abundance in Alaska (Lumsden *et al*. 2007).

Distribution: B = Restricted
There are only two records of *P. yutlinux* in BC waters and they are found on the continental shelf off the WCVI and in QC Sound. *Paragorgia* sp. is found north of BC in the seamounts of Alaska and south of BC across the US Pacific coast region. *Paragorgia* spp. has a clumped spatial distribution in the Alaska region (Lumsden et. al. 2007).
Sánchez (2005): Eastern Pacific Ocean: off British Columbia (Canada) and Washington (USA)
Depth Profile: The *P. yutlinux* records for BC are from 846 - 861 m. Sánchez (2005) gives *P. yutlinux* a depth range of 503 - 1000 m. 66% of BC records for *Paragorgia* spp. are above 400 m and 17% are associated with depths >1000 m.

Number of Occurrences: A = Very Restricted
There are two unique records of *P. yutlinux* within BC and 16 additional records for *Paragorgia* sp. some of which could be *P. yutlinux* but they are not identified to the species level.
Data Source: The *P. yutlinux* records are from the USNM identified by J.A. Sánchez and the RBCM identified by P. Lambert. 5 *Paragorgia* sp. records are from museum specimens and the rest are from DFO survey data.

Population Trend: x = Unknown
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The *P. yutlinux* records were collected in 2003 and 2006. 66 of 84 records of *Paragorgia* spp. are from 2001 to 2008.

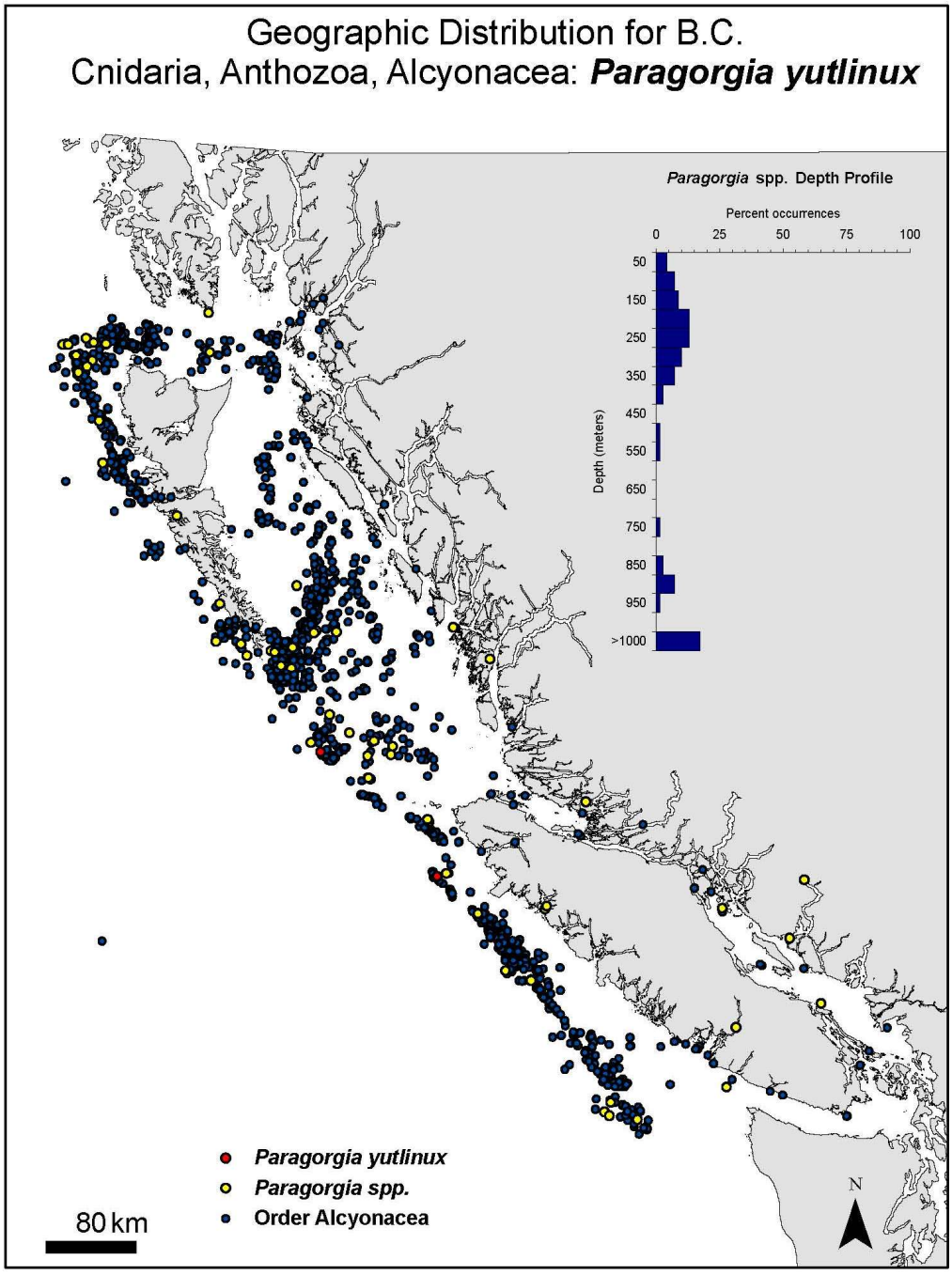
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors associated with Climate Change.

Other Relevant Information: *Paragorgia* spp. is considered to have a high rating of structural importance (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Paragorgia yutlinux
Paragorgia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Paragorgia yutlinux
Paragorgia spp.
Order Alcyonacea
80 km
N

Swiftia pacifica (Nutting, 1912)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Holaxonia, Plexauridae
Pacific Region Species Code (Hart): 3UK.
TSN: 52148 – genus code for ***Swifitia***
AphidID: 1036537
Synonyms: *Callistephanus pacificus*
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Swiftia* spp. are sessile, long living, slow growing and organisms. Sherwood and Edinger (2009) estimated the age for Atlantic members of the family Plexauridae (*Paramuricea* spp.) at 71 and 103 years old and with an axial growth rate of 0.56 – 0.58 cm/yr.
Many members of the order Alcyonacea are large. *Paragorgia arborea* for example is known to reach 2 m high by 2 m wide (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: C = Regional
The records of *S. pacifica* in BC waters are found on the continental shelf off the WCVI and in WCQCI. *S. pacifica* is found north of BC in the Eastern Gulf of Alaska and also in the Western Gulf, Aleutian Islands and seamounts of Alaska. *S. pacifica* occurs south of BC in the Oregon biogeographic province (Lumsden et. al. 2007).
Depth Profile: The *S. pacifica* records for BC are from 915 - 2904 m. S. pacifica has a depth range in the US Pacific of 210-2779 m. (Stone et al 2017) 41% of BC records for *Swiftia* spp. are below 1000 m and 14% are associated with depths between 0 - 50 m.

Number of Occurrences: A = Very Restricted
There are three unique records of *S. pacifica* within BC and 8 additional records for *Swiftia* sp. some of which could be *S. pacifica* but they are not identified to the species level.
Data Source: One *S. pacifica* record is from the USNM verified by F.M. Bayer and the other two are from DFO surveys. One *Swiftia* sp. record is from a museum specimen and the rest are from DFO survey data.

Population Trend: x = Unknown
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch. The *S. pacifica* records were collected in 1890 and 2006. 16 of 23 records of *Swiftia* spp. are from 2000 to 2006.

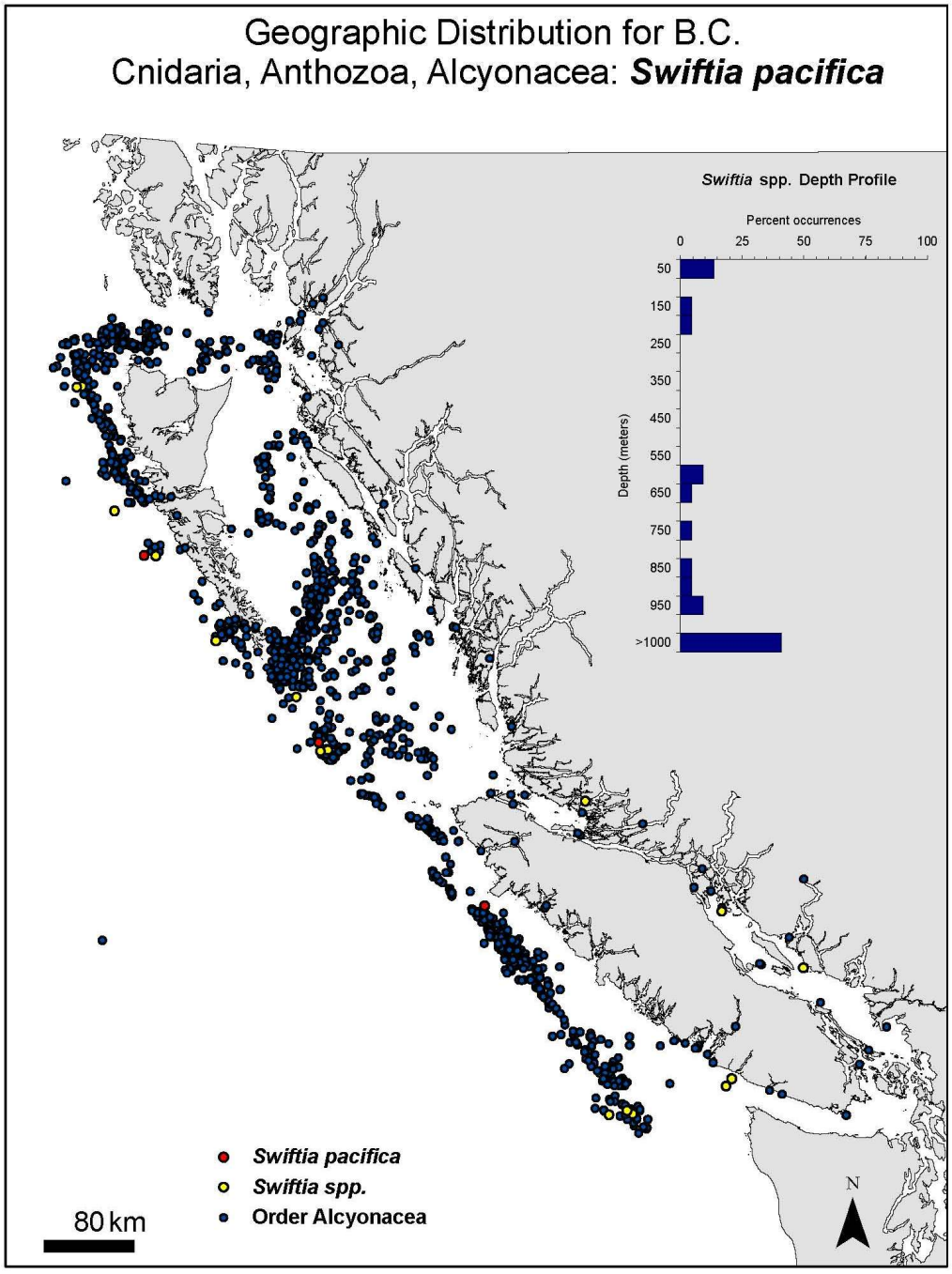
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Plexauridae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007).

Editorial Comments: Gary Williams (pers. comm., 2010) stated that the genera *Swiftia* is restricted to the Atlantic Ocean. "The species we assign to the genus *Swiftia* on the Pacific coast most likely belong to a different presently unnamed genus." WoRMS World List of Octocorallia (Cordeiro, R. et al, 2018) does accept this species as occurring in the Pacific as to Stone and Cairns (2017).


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Swiftia pacifica
Swiftia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Swiftia pacifica
Swiftia spp.
Order Alcyonacea
80 km
N

Swiftia simplex (Nutting, 1909)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Plexauridae
Pacific Region Species Code (Hart): 3UL.
TSN: 52148 – genus.
APHIAID: 1036547
Synonyms: *Psammogorgia simplex*
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Swiftia* spp. are sessile, long living, slow growing and organisms. Sherwood and Edinger (2009) estimated the age for Atlantic members of the family Plexauridae (*Paramuricea* spp.) at 71 and 103 years old and with an axial growth rate of 0.56 – 0.58 cm/yr.
Many members of the order Alcyonacea are large. *Paragorgia arborea* for example is known to reach 2 m high by 2 m wide (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: C = Regional
The records of *S. simplex* in BC waters are found on the continental shelf off the WCVI and QC Sound. *S. simplex* is found north of BC in the Aleutian Islands and seamounts of Alaska. *S. simplex* occurs south of BC across the US Pacific coast region (Lumsden et. al. 2007).
Depth Profile: The *S. pacifica* records for BC are from 538 - 930 m. *S. simplex* has a depth range in the US Pacific of 62 - 1075 m. 41% of BC records for *Swiftia* spp. are below 1000 m and 14% are associated with depths between 0 - 50 m.

Number of Occurrences: B = Restricted
There are six unique records of *S. simplex* within BC and 8 additional records for *Swiftia* sp. some of which could be *S. simplex* but they are not identified to the species level.
Data Source: Two *S. simplex* records are from the RBCM verified by P. Lambert and the other four are from DFO surveys. One *Swiftia* sp. record is from a museum specimen and the rest are from DFO survey data.

Population Trend: x = Unknown
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch. The *S. simplex* records were collected from 2001 to 2006. 16 of 23 records of *Swiftia* spp. are from 2000 to 2006.

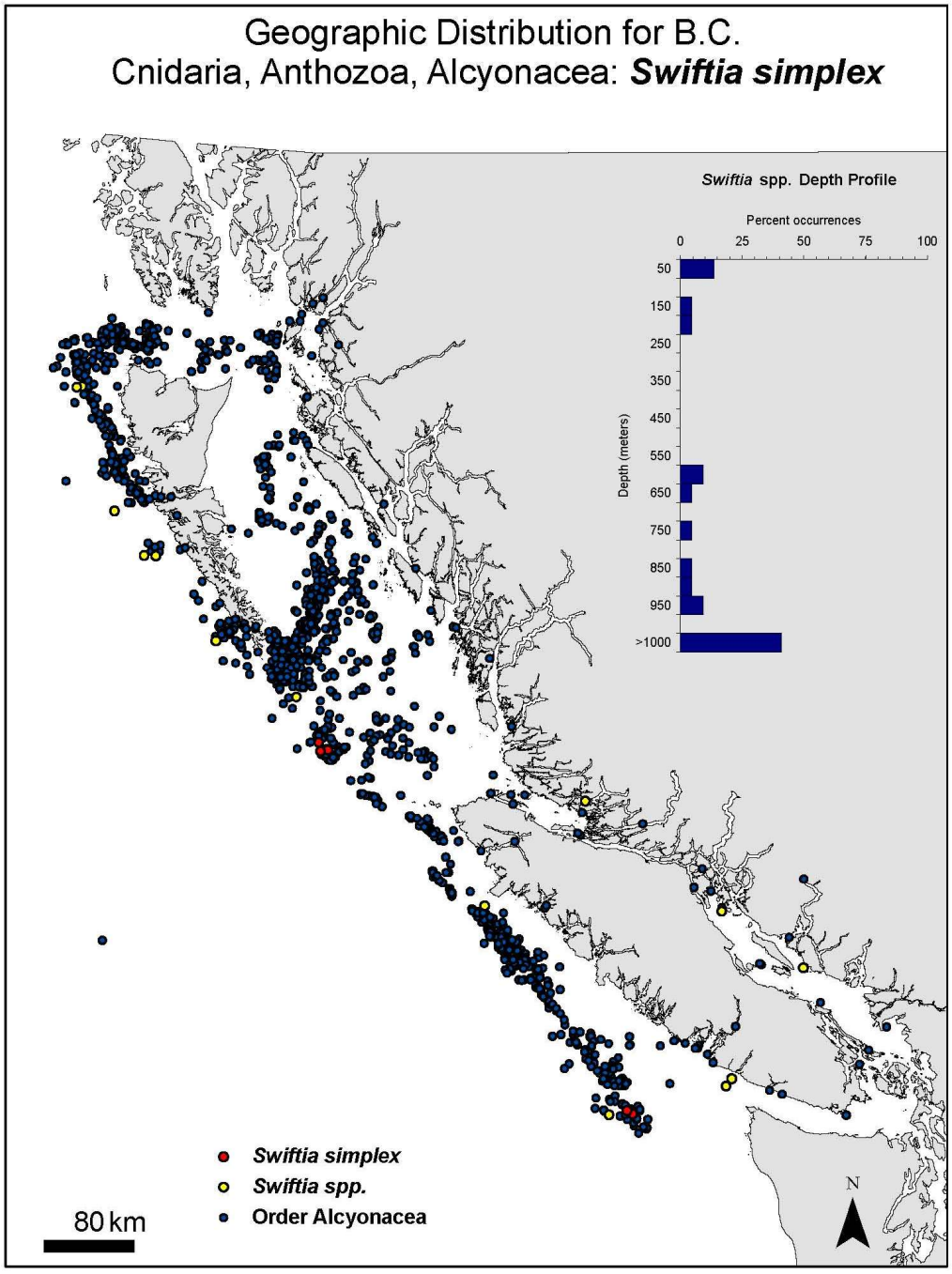
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Plexauridae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007).

Editorial Comments: See comments under *Swiftia pacifica.*


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Swiftia simplex
Swiftia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Swiftia simplex
Swiftia spp.
Order Alcyonacea
80 km
N

Swiftia spauldingi (Nutting, 1909)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Plexauridae
Pacific Region Species Code (Hart): 3UM.
TSN: 719219.
APHIAID: 286420.
Synonyms: *Psammogorgia spauldingi, P. arbuscula, P. teres, Euplexaura marki*
Common Name: short red gorgonian, Spaulding's sea fan coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Swiftia* spp. are sessile, long living, slow growing and organisms. Sherwood and Edinger (2009) estimated the age for Atlantic members of the family Plexauridae (*Paramuricea* spp.) at 71 and 103 years old and with an axial growth rate of 0.56 – 0.58 cm/yr.
Many members of the order Alcyonacea are large. *Paragorgia arborea* for example is known to reach 2 m high by 2 m wide (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: A = Very Restricted
The records of *S. spauldingi* in BC waters are found off of the Nitinat on the WCVI. *S. spauldingi* is found south of BC across the US Pacific coast region (Lumsden et. al. 2007). North of BC "cf *Swiftia" marki* is present in the Eastern Gulf, Western Gulf and Aleutian Islands regions of Alaska. Could this be unverified *S. spauldingi*?
Depth Profile: The *S. spauldingi* records for BC are from 29 - 55 m. 41% of BC records for *Swiftia* spp. are below 1000 m and 14% are associated with depths between 0 - 50 m.

Number of Occurrences: A = Very Restricted
There are two unique records of *S. spauldingi* within BC and 8 additional records for *Swiftia* sp. some of which could be *S. spauldingi* but they are not identified to the species level.
Data Source: The two *S. spauldingi* records are from the RBCM verified by W.C. Austin in 1984. One *Swiftia* sp. record is from a museum specimen and the rest are from DFO survey data.

Population Trend: x = Unknown
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch. The *S. spauldingi* records were collected in 1965. 16 of 23 records of *Swiftia* spp. are from 2000 to 2006.

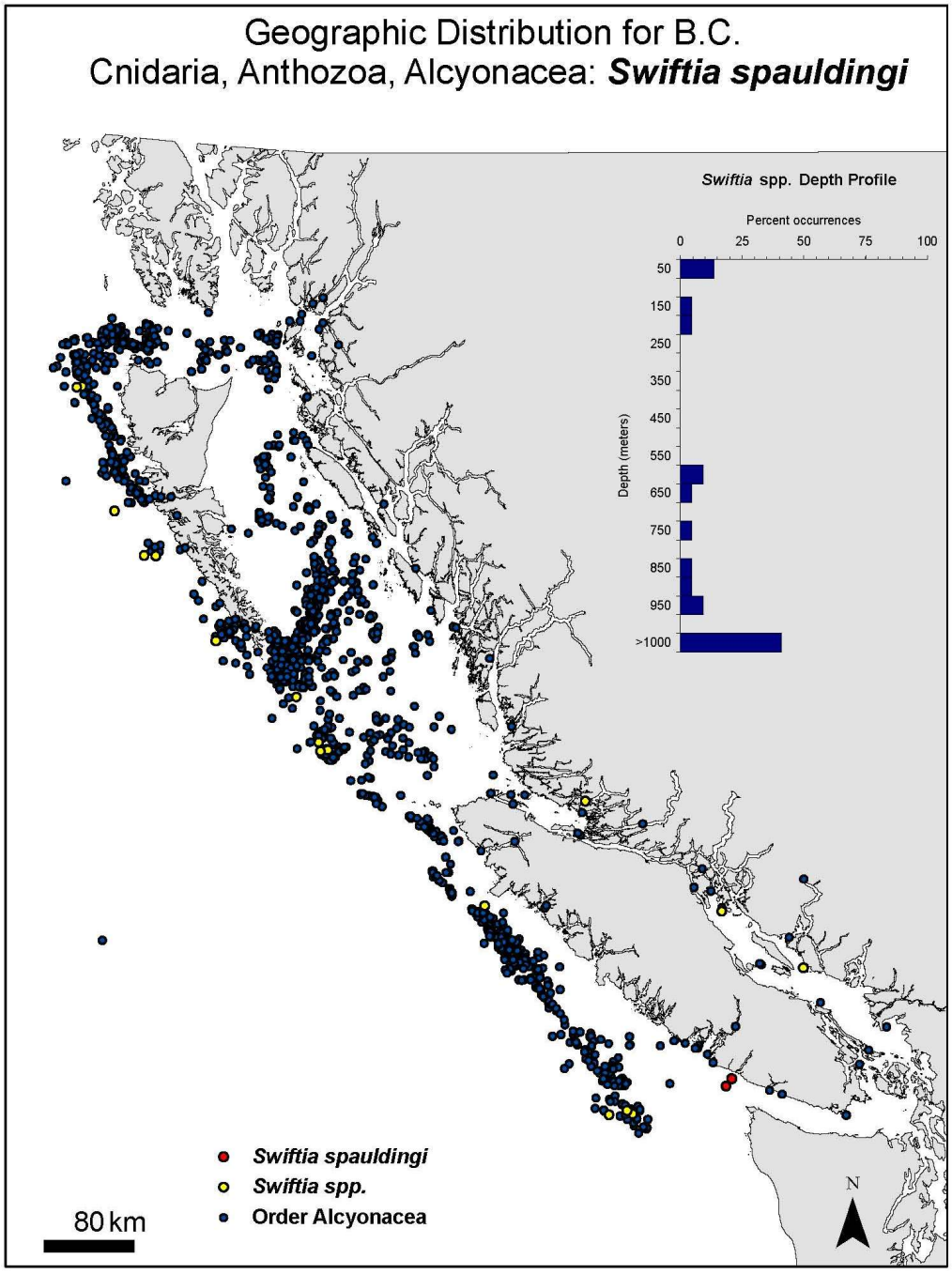
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Plexauridae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007)

Editorial Comments: See comments under *Swiftia pacifica.*


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Swiftia spauldingi
Swiftia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Swiftia spauldingi
Swiftia spp.
Order Alcyonacea
80 km
N

Swiftia torreyi (Nutting, 1909)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Plexauridae
Pacific Region Species Code (Hart): 3UN.
TSN: 52148 – genus.
APHIAID: 1036552.
Synonyms: *Psammogorgia torreyi*
Common Name: dwarf red gorgonian

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Swiftia* spp. are sessile, long living, slow growing and organisms. Sherwood and Edinger (2009) estimated the age for Atlantic members of the family Plexauridae (*Paramuricea* spp.) at 71 and 103 years old and with an axial growth rate of 0.56 – 0.58 cm/yr.
Many members of the order Alcyonacea are large. *Paragorgia arborea* for example is known to reach 2 m high by 2 m wide (R. Stone pers. obs. in Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: B = Restricted
The records of *S. torreyi* in BC waters are found in the inside waters of the Strait of Georgia. *S. torreyi* is found south of BC across the US Pacific coast region (Lumsden et. al. 2007).
Depth Profile: The *S. torreyi* records for BC are from 30 – 220 m and 30-1752 m for Oregon and California (Whitmire et al 2017). 41% of BC records for *Swiftia* spp. are below 1000 m and 14% are associated with depths between 0 - 50 m.

Number of Occurrences: A = Very Restricted
There are three unique records of *S. torreyi* within BC and 8 additional records for *Swiftia* sp. some of which could be *S. torreyi* but they are not identified to the species level.
Data Source: The three *S. torreyi* records are from museum collections, two from the RBCM verified by W.C. Austin in 1984 and one from the USNM verified by F.M. Bayer. One *Swiftia* sp. record is from a museum specimen and the rest are from DFO survey data.

Population Trend: x = Unknown
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch. The *S. torreyi* records were collected in 1974 and 1980. 16 of 23 records of *Swiftia* spp. are from 2000 to 2006.

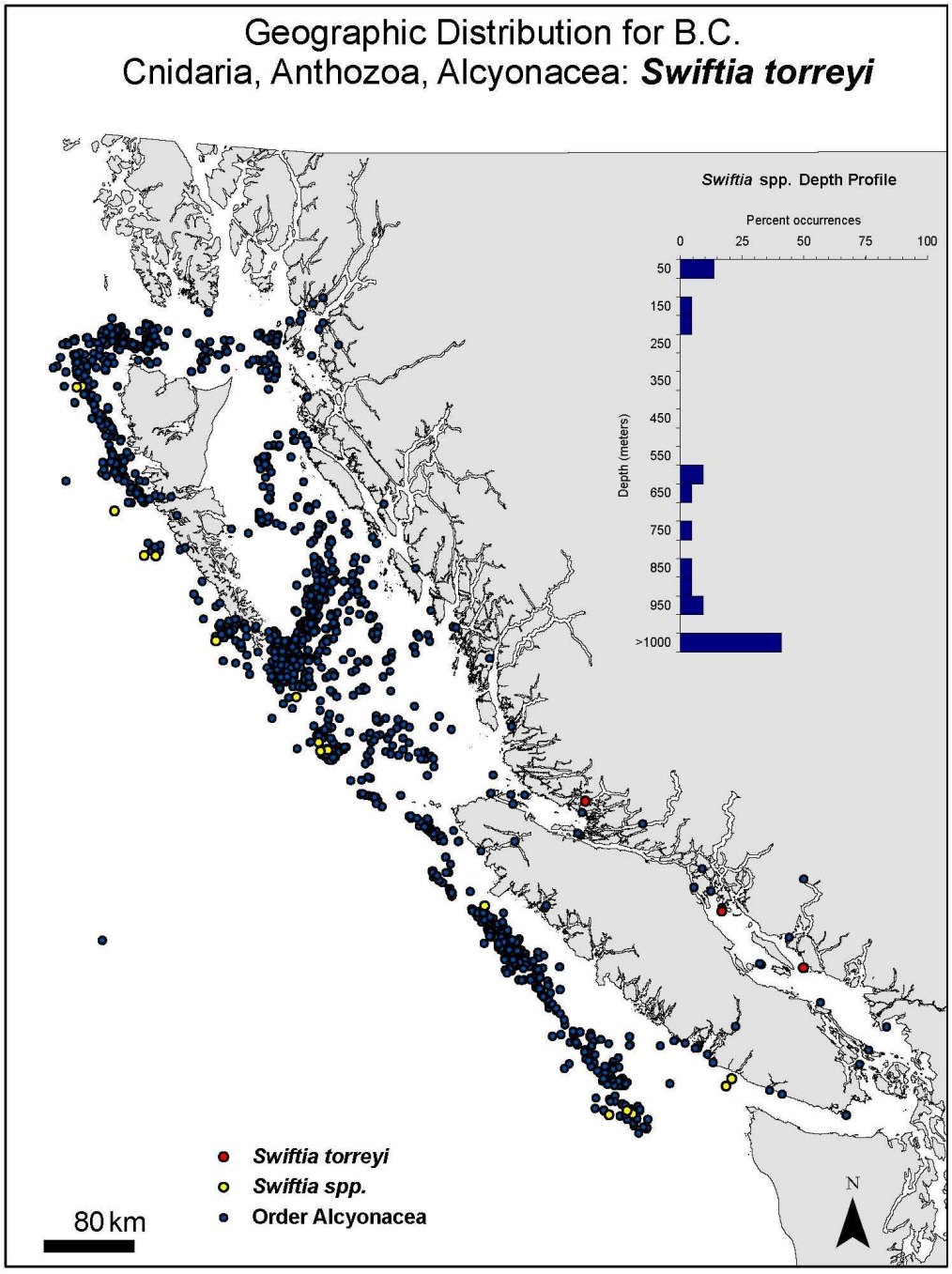
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Plexauridae is not considered a major structure forming family within the Gorgonacea but does provide some degree of structure (Lumsden et. al. 2007)

Editorial Comments:
See comments under *Swiftia pacifica.*


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Swiftia torreyi
Swiftia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Swiftia torreyi
Swiftia spp.
Order Alcyonacea
80 km
N

Amphilaphis sp. Gray, 1870

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Primnoidae
Pacific Region Species Code (Hart): 3QB.
TSN: 52326 – genus.
APHIAID: *125323* genera code for *Thouarella*
Synonyms: *Amphilaphis* is now a synonym for the *Thouarella* Gray, 1870 (Zapata-Guardiola, R et al, 2012).
Common Name:

Editorial Comments: The accepted name for this genus is *Thouarella* in WoRMS and Amphilaphis is the synonymised name. For further information on rankings see *Thouarella* write-up later in report.

Callogorgia kinoshitai Kükenthal, 1913

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Primnoidae
Pacific Region Species Code (Hart): 3QD
TSN: 52314 is the code for *kinoshitae*
APHIAID: 1055877 is the code for ***Callogorgia kinoshitai***
Synonyms: *C. sertosa* (Austin), *Callogorgia kinoshitae* (ITIS)
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *C. kinoshitai* is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.
Although there are quite a few records for *Callogorgia* spp. in BC, there are no validated records of *C. kinoshitai* within BC waters and only one for *Callogorgia* sp.

Population Size: x = Unknown
Not enough information to determine the current population size.
Low numbers of observations are partially based on limited ID skills and possibly represent limited occurrence. Members of Family Primnoidae are among the most common large gorgonians, occurring in dense thickets in some regions and, in the U.S. appear to reach their highest abundance in Alaska (Lumsden et. al. 2007).

Distribution: B = Restricted
cf. *C. kinoshitai* has been identified in BC from the WCVI on the continental slope. *Callogorgia* sp. records continue north along the continental slope to Dixon Entrance. *C. kinoshitai* is found south of BC in the US Pacific Coast region and there are no records for genus *Callogorgia* in the Alaska region (Lumsden et. al. 2007). The East Pacific distribution for this species according to Cairns (2007) is off California.
Depth Profile: The *C. kinoshitai* records for BC have a depth profile of 1160 - 1757 m. Within BC there are no *Callogorgia* spp. records above 600m and 81% of all records are below 1000 m. The US Pacific Coast distribution of *C. kinoshitai* is 127 - 464 m (Lumsden et. al. 2007).

Number of Occurrences: B/C = Restricted to Regional
There are 6 unique records of cf. *C. kinoshitai* within BC and 21 additional records for *Callogorgia* sp. There is only one species of *Callogorgia* thought to occur in BC and thus all records of *Callogorgia* sp. may be assumed to be *C. kinoshitai* (except that the ID is uncertain and may be Fanellia sp.)
Data Source: All the records of *Callogorgia* sp. and *C. kinoshitai* are from DFO surveys. One record of *Callogorgia* sp. validated by F.M. Bayer from the USNM. There are no validated records of *C. kinoshitai* within BC waters.

Population Trend: x = Unknown

Not enough information to determine a trend.
All records of *Callogorgia* spp. are from 2000 to 2006. More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch.

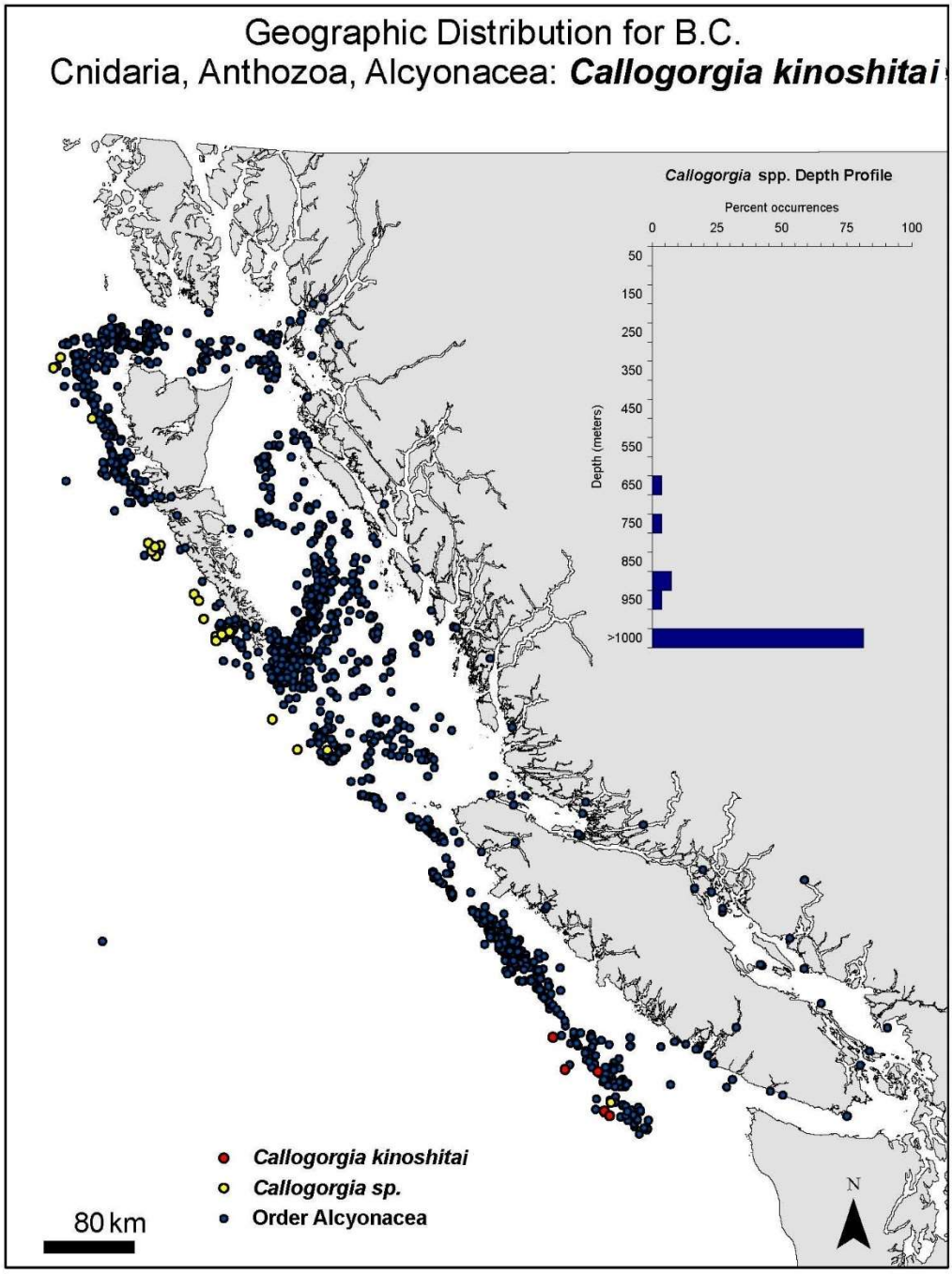
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Primnnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).

Editorial Comments: “This species was clearly named after Kumao Kinoshita, and thus the name is changed to reflect a masculine ending (Cairnes 2018)”.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Callogorgia kinoshitai
Callogorgia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Callogorgia kinoshitai
Callogorgia sp.
Order Alcyonacea
80 km
N

Calyptrophora laevispinosa Cairns, 2007

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Primnoidae
Pacific Region Species Code (Hart): 3QI.
TSN: 719034 – genus.
APHIAID: 409579.
Synonyms: smooth-spined tree coral
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *C. laevispinosa* in BC waters. However, since *C. laevispinosa*'s type locality is just south of BC and it was collected in deep water, it seems likely that the species would occur in BC. Further studies on seamounts and at depths of 2000 - 4000 m will likely reveal specimens of *C. laevispinosa* in BC waters.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
Not enough information to determine the current distribution.
There are no records of *C. laevispinosa* in BC waters. *C. laevispinosa* holotype locality is off Washington: Gorda 1996 Flow, 46.683°N / 126.782°W (Cairns, 2007).
Depth Profile: The *C. laevispinosa* holotype was collected at 3107 m and is the deepest *Calyptrophora* ever collected (Cairns, 2007). Other specimens at the USNM have been collected from Alaska seamounts as shallow as 1778 m.

Number of Occurrences: x = Unknown
There are no records for *C. laevispinosa* within BC.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Primnoidae has a high rating of structural importance in the Alaskan region of the USA.
Sensitive by nature: *C. laevispinosa* is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.

Cairns, 2007: In situ measurements of the holotype for *C. laevispinosa* are approximately 32 cm tall by 59 cm wide.
Andrews et. al. (2002) has estimated the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.

Editorial Comments: N/A

Narella alaskensis Cairns and Baco, 2007

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Primnoidae
Pacific Region Species Code (Hart): 3QP – genus.
TSN: 52320 – genus.
APHIAID: 409561.
Synonyms:
Common Name: Alaska tree coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *N. alaskensis* in BC waters. However, since *N. alaskensis* is so widespread amongst Alaskan Seamounts including Denson and Dickens, which are close to the Canadian Bowie Seamount, it seems likely that the species would occur in BC. Further studies on seamounts and at depths over 2000 m will likely reveal specimens of *N. alaskensis* in BC waters.

Population Size: x = Unknown
Members of Family Primnoidae are among the most common large gorgonians, occurring in dense thickets in some regions and, in the U.S. appear to reach their highest abundance in Alaska (Lumsden et. al. 2007).

Distribution: x = Unknown
There are no records of *N. alaskensis* in BC waters. The distribution of *N. alaskensis* in Cairns and Baco (2007) is for Chirikof, Murray, Welker, Denson and Dickins Seamounts, Gulf of Alaska. *N. alaskensis* is the most widespread and shallowest of the *Narella* in the Gulf of Alaska.
Depth Profile: *N. alaskensis* depth range: 2377 – 3075 m (Cairns and Baco, 2007)

Number of Occurrences: x = Unknown
There are no records for *N. alaskensis* within BC.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information The family Primnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).

Editorial Comments: N/A

Narella bowersi (Nutting, 1908)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Primnoidae
Pacific Region Species Code (Hart): 3QP – genus.
TSN: 52320 – genus.
APHIAID: 286512.
Synonyms: *Stachyodes bowersi*
Common Name: Bowers's gold tree coral

Proposed General Status Ocean Rank: 5 = Undetermined
There is only 1 record of *N. bowersi* in BC waters. Further studies on seamounts and at depths over 1000 m will likely reveal more specimens of *N. bowersi* in the NE Pacific.

Population Size: x = Unknown
Not enough information to determine the current population size. Members of Family Primnoidae are among the most common large gorgonians, occurring in dense thickets in some regions and, in the U.S. appear to reach their highest abundance in Alaska (Lumsden et. al. 2007).

Distribution: x = Unknown
N. bowersi has been identified in BC from Endeavour Seamount. The distribution of *N. bowersi* in Cairns and Bayer (2008) is off Nīhoa, Ni'ihau, Lānai, Pensacola Seamount and Endeavour Seamount off British Columbia.
Depth Profile: Cairns and Bayer (2008) give *N. bowersi* a depth range of 1218 – 1758 m (confirmed for Hawai'i); 2600 m off Washington.

Number of Occurrences: A = Very Restricted
There is 1 record of *N. bowersi* within BC taken from Cairns and Bayer (2008) but not including collection data.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

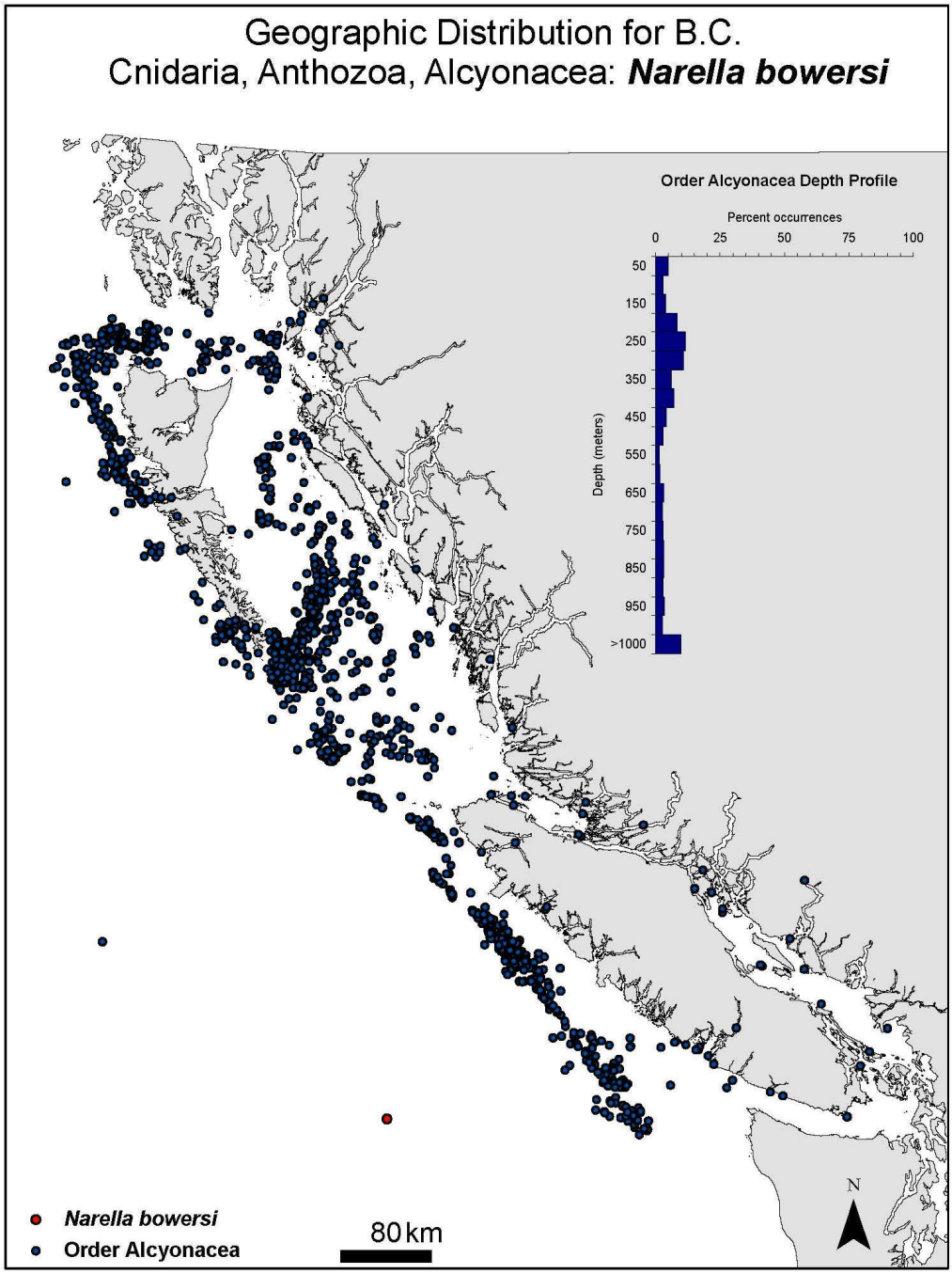
Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Primnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).
Sensitive by nature: *N. bowersi* is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.

Cairns and Bayer, 2008: The largest colony examined was 22.5 cm tall (incomplete colony).
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Narella bowersi
Order Alcyonacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Narella bowersi
Order Alcyonacea
80 km
N

Parastenella gymnogaster Cairns, 2007

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Primnoidae
Pacific Region Species Code (Hart): 3QT.
TSN:
APHIAID: 409580.
Synonyms:
Common Name: bare-bellied tree coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *P. gymnogaster* in BC waters. However, since *P. gymnogaster* is found both north and south of BC waters on seamounts in the US, it seems likely that the species would occur here as well. Further studies on seamounts and at depths over 2000 m will likely reveal specimens of *P. gymnogaster* in BC.

Population Size: x = Unknown
Not enough information to determine the current population size. Members of Family Primnoidae are among the most common large gorgonians, occurring in dense thickets in some regions and, in the U.S. appear to reach their highest abundance in Alaska (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution.
There are no records of *P. gymnogaster* in BC waters. The distribution of *P. gymnogaster* in Cairns (2007) is the Juan de Fuca Ridge off Oregon and eastern Pacific seamounts from off Oregon (Vance Seamount) to the Gulf of Alaska south of the Eastern Aleutian Islands (Derickson Seamount, Gulf of Alaska). Cairns (2007) describes *P. gymnogaster* sp. nov. and describes the type locality as "Welker Seamount off British Columbia". Welker Seamount is in the Gulf of Alaska, north of British Columbia.
Depth Profile: Cairns (2007) gives *P. gymnogaster* a depth range of 1962 – 2773 m. 72% of BC records for *Parastenella* spp. occur at depths >1000 m.

Number of Occurrences: x = Unknown
There are no records of *P. gymnogaster* within BC.
There are 13 records for *Parastenella* sp. some of which could be *P. gymnogaster* but they are not identified to the species level.
Data Source: All the *Parastenella* sp. records are from DFO surveys.

Population Trend: x = Unknown
All records of *Parastenella* spp. are from 2001 to 2006. More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Primnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).
Sensitive by nature: *P. gymnogaster* is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.
Cairns, 2007: The holotype for *P. gymnogaster* is fragmented into many pieces the largest of which is 28cm tall.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.

Editorial Comments: N/A

Parastenella pacifica Cairns, 2007

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Primnoidae
Pacific Region Species Code (Hart): 3QU.
TSN:
APHIAID: 409581.
Synonyms:
Common Name: Pacific tree coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *P. pacifica* is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.
Cairns, 2007: The holotype for *P. pacifica* is broken into many pieces the largest of which is 30cm tall by 15cm wide.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.

Population Size: x = Unknown
Not enough information to determine the current population size. Low numbers of observations are partially based on limited ID skills and possibly represent limited occurrence. Members of Family Primnoidae are among the most common large gorgonians, occurring in dense thickets in some regions and, in the U.S. appear to reach their highest abundance in Alaska (Lumsden et. al. 2007).

Distribution: B = Restricted
P. pacifica has been identified in BC from Dixon Entrance and the WCQCI on the continental slope. The distribution of *P. pacifica* in Cairns (2007) is the Continental slope off Oregon to British Columbia (QCI). Additional specimens have been collected off New Zealand.
Depth Profile: The *P. pacifica* records for BC have a depth profile of 1915 - 2105 m. Cairns (2007) gives *P. pacifica* a depth range of 1527 - 1986 m. 72% of BC records for *Parastenella* spp. occur at depths >1000 m.

Number of Occurrences: A = Very Restricted
There are 2 unique records of *P. pacifica* within BC and 13 additional records for *Parastenella* sp. some of which could be *P. pacifica* but they are not identified to the species level.
Data Source: The 2 *P. pacifica* records are validated records from the USNM, identified by S.D. Cairns. All the additional *Parastenella* sp. records are from DFO surveys.

Population Trend: x = Unknown
Not enough information to determine a trend.
All records of *Parastenella* spp. are from 2001 to 2006. More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they

are not identified to the species level. *P. pacifica* is a new species that was first described in 2007.

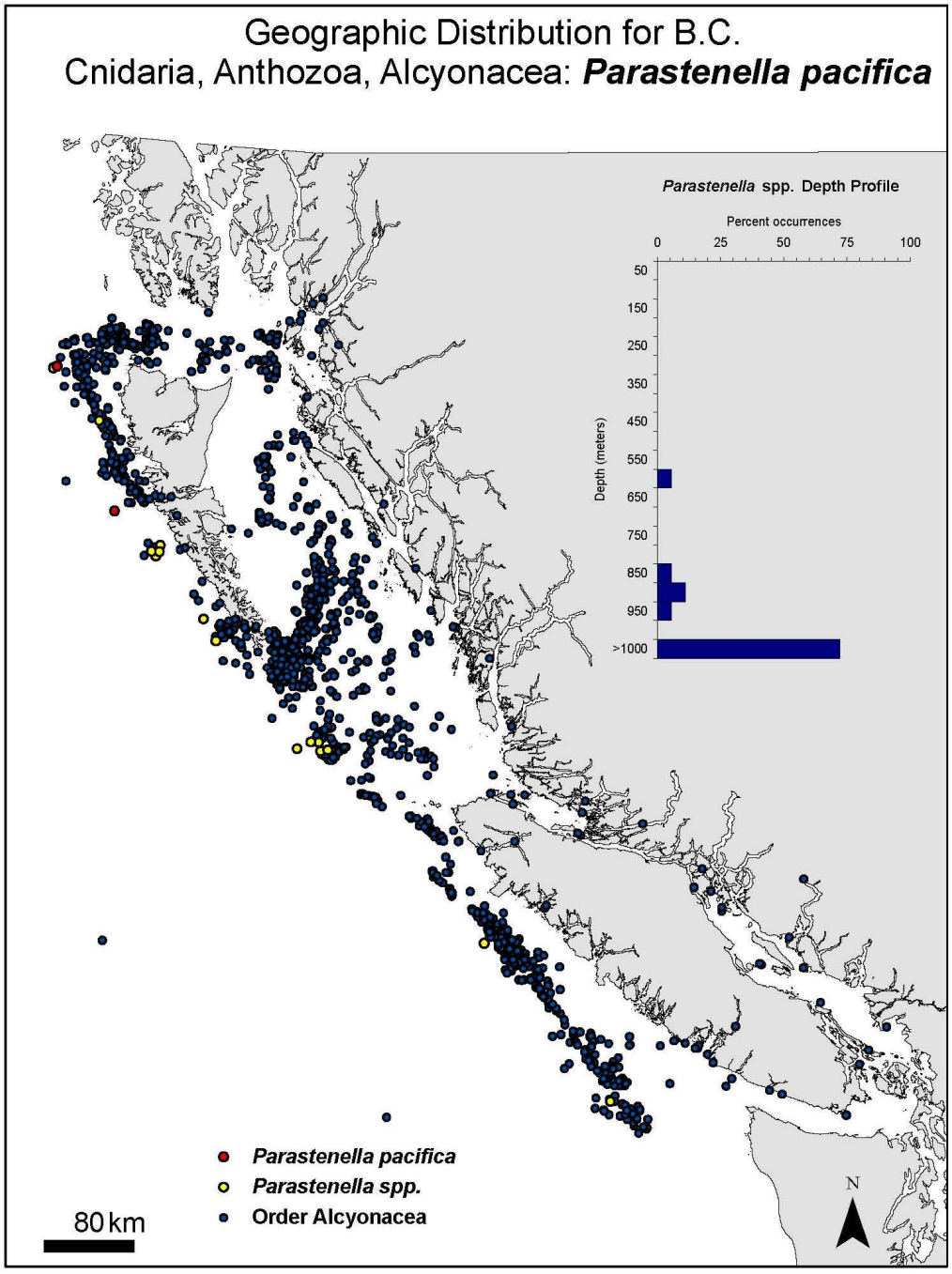
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Primnnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Parastenella pacifica
Parastenella spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Parastenella pacifica
Parastenella spp.
Order Alcyonacea
80 km
N

Parastenella ramosa (Studer, 1894)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Primnoidae
Pacific Region Species Code (Hart): 3QV.
TSN:
APHIAID: 290684.
Synonyms: *Stenella ramosa, Stenella (Parastenella) ramosa*
Common Name: branched tree coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *P. ramosa* is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.
Cairns, 2007: The largest specimen for *P. ramosa* examined was 33cm tall by 16cm wide.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.

Population Size: x = Unknown
Not enough information to determine the current population size. Low numbers of observations are partially based on limited ID skills and possibly represent limited occurrence. Members of Family Primnoidae are among the most common large gorgonians, occurring in dense thickets in some regions and, in the U.S. appear to reach their highest abundance in Alaska (Lumsden et. al. 2007).

Distribution: B = Restricted
P. ramosa has been identified in BC from the WCQCI on the continental slope. The distribution of *P. ramosa* in Cairns (2007) is the Gulf of Panama, Rodriguez Seamount, Davidson Seamount, Monterey Bay, Axial 1998 South Flow, off British Columbia, Gulf of Alaska (Giacomini, Welker and Dickens Seamounts).
Depth Profile: The *P. ramosa* records for BC have a depth profile of 819 - 1860 m. Cairns (2007) gives *P. ramosa* a depth range of 665 - 1750 m. 72% of BC records for *Parastenella* spp. occur at depths >1000 m.

Number of Occurrences: A = Very Restricted
There are 4 unique records of *P. ramosa* within BC and 13 additional records for *Parastenella* sp. some of which could be *P. ramosa* but they are not identified to the species level.
Data Source: The 4 *P. ramosa* records are validated records from the USNM, identified by S.D. Cairns. All the additional *Parastenella* sp. records are from DFO surveys.

Population Trend: x = Unknown
All records of *Parastenella* spp. are from 2001 to 2006. More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level.

Distribution Trend: x = Unknown

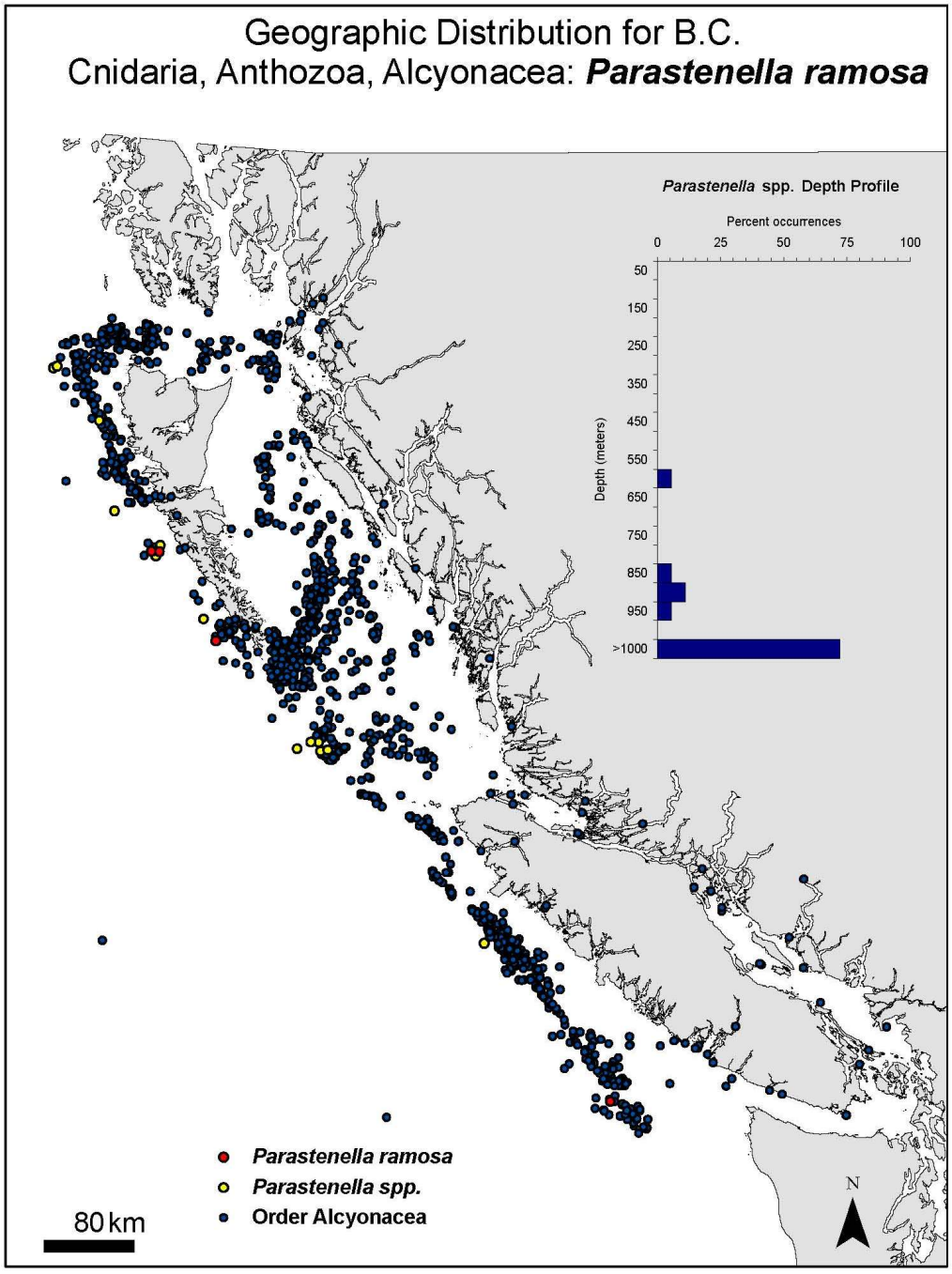
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Members of the Sub-Order Calcaxonia which includes the family Primnnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Parastenella ramosa
Parastenella spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Parastenella ramosa
Parastenella spp.
Order Alcyonacea
80 km
N

Plumarella longispina Kinoshita, 1908

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Calcaxonia, Primnoidae
Pacific Region Species Code (Hart): 3QX.
TSN: 52311 – genus.
APHIAID: 287671.
Synonyms:
Common Name: long-spined tree coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *P. longispina* in BC waters. However, since *P. longispina* is found throughout Alaska and the US Pacific coast, it seems likely that the species would occur in BC.

Population Size: x = Unknown
Not enough information to determine the current population size. Numerous colonies of *P. longispina* were observed in the US Olympic Coast National Marine Sanctuary (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution. There are no records of *P. longispina* in BC waters, however, *P. longispina* is found south of B.C. in the US Pacific coast region and north of BC in the Eastern Gulf of Alaska, Western Gulf of Alaska, Aleutian Islands, and Bering Sea (Lumsden et. al, 2007). The distribution for *Plumarella* spp. is the western Pacific, Patagonia, and the northwest Atlantic (Cairns and Bayer, 2009). The holotype for this species at the Smithsonian was taken from Sagami Bay Japan. Other samples at the Smithsonian have been collected off California and Washington State.
Depth Profile: *P. longispina* depth range: 349 – 603 m (Nutting, 1909). The depth range for *Plumarella* spp. is 10 – 1914 m (Cairns and Bayer, 2009).

Number of Occurrences: x = Unknown
There are no records for *P. longispina* within BC.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: The family Primnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).
Sensitive by nature: *P. longispina* is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.
Nutting, 1909: describes an incomplete colony of *P. longispina* as 10.6 cm tall by 10.6 cm wide.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.

Editorial Comments: N/A

Primnoa pacifica Kinoshita, 1907

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Primnoidae
Pacific Region Species Code (Hart): 3T1.
TSN: 52310,
APHIAID: 286539
Synonyms: *P. resedaeformis* forma *pacifica, P. resedaeformis pacifica, P. resedaeformis* var. *pacifica, P. resedaeformis, P. japonica, P. willeyi*
Common Name: red trees

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Primnoa* spp. are sessile, long living, slow growing and large organisms which in conjunction with their relatively shallow distribution make them highly susceptible to fisheries impacts.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.
Krieger and Wing (2002) found that most *Primnoa* colonies in the southeastern Gulf of Alaska are 1-3 m high.

Population Size: x = Unknown
Not enough information to determine the current population size. Low numbers of observations are partially based on limited ID skills and possibly represent limited occurrence. Considered to have low abundance (*P. pacifica*) off the US Pacific Coast and high abundance (*Primnoa* spp.) in Alaska (NOAA).

Distribution: D = Widespread
Primnoa spp. is found coastwide, around VI, QCI, in inlets and out on the shelf. *P. pacifica* has been identified in BC from Dixon Entrance and the Strait of Georgia. The distribution of *P. pacifica* in Cairns and Bayer (2005) is the Sea of Japan, Sagami Bay, Japan, sea of Okhotsk, Aleutian Islands, Gulf of Alaska, Alexander Archipelago to Dixon Entrance, off La Jolla, California. *Primnoa* spp. has a clumped spatial distribution in Alaska and *P. pacifica* has a solitary one off the US Pacific Coast (Lumsden et. al. 2007).
Depth Profile: The *P. pacifica* records for BC have a depth profile of 350 - 466 m. Cairns and Bayer (2005) gives *P. pacifica* a depth range of 64 - 800 m with a report of specimens found at 9 m. 69% of BC records for *Primnoa* spp. are between 200 – 400 m, 90% are between 0 - 400 m and 3% are associated with depths >1000 m.

Number of Occurrences: A = Very Restricted
There are 4 unique records of *P. pacifica* within BC and 148 additional records for *Primnoa* spp. some of which could be *P. pacifica* but they are not identified to the species level.
Data Source: The four *P. pacifica* records are museum records. Two are from the USNM validated by F.M. Bayer. The other two, housed at the CMN are identified as *P. resedaeformis* which is now recognized as *P. pacifica* in the Pacific and are in need of validation. *Primnoa* spp. records are from DFO except 3 which are housed at the RBCM.

Population Trend: x = Unknown
More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The records identified as *P. pacifica* were collected between 1885 and 2002. It is likely that the population of *Primnoa* spp. has decreased due to disturbance in trawled areas (see threats). 144 of 148 records of *Primnoa* spp. are from 2002 to 2008.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

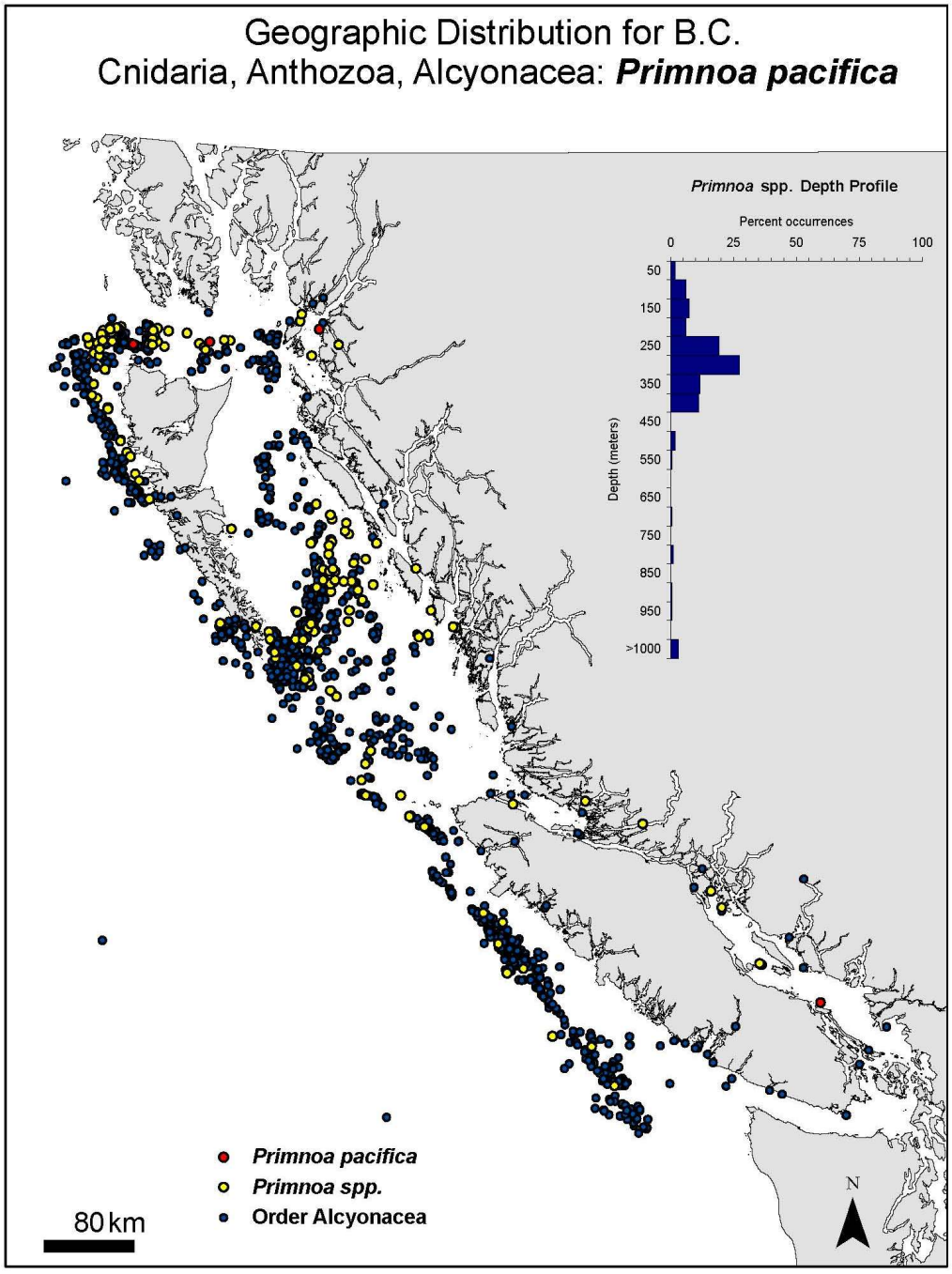
Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

• *Primnoa* spp. are sessile, long living and large organisms which makes them highly susceptible to trawling and other fishing impacts. Most observations of this species are as trawl bycatch however areas where trawling doesn't occur due to rocky habitat or depth may serve as reserves.

Threats to Distribution: A= Extreme due to factors related to Climate Change and B= Moderate due to factors related to Anthropogenic source of pollution, sedimentation and coastal development.

Other Relevant Information: *P. pacifica* is considered to be a major structure forming coral in both the Alaska and Pacific Coast regions of the USA.

Editorial Comments:N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea: Primnoa pacifica
Primnoa spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Primnoa pacifica
Primnoa spp.
Order Alcyonacea
80 km
N

Primnoa pacifica var. willeyi Hickson, 1915

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Primnoidae
Pacific Region Species Code (Hart): P. willeyi - 3T2.
TSN: *P. willeyi* – 52308.
APHIAID: 409549.
Synonyms: *Primnoa willeyi*
Common Name: red trees

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Primnoa* spp. are sessile, long living, slow growing and large organisms which in conjunction with their relatively shallow distribution make them highly susceptible to fisheries impacts.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.
Krieger and Wing (2002) found that most *Primnoa* colonies in the southeastern Gulf of Alaska are 1-3 m high.

Population Size: x = Unknown
Not enough information to determine the current popln. size. Low numbers of observations are partially based on limited ID skills and possibly represent limited occurrence. *Primnoa* spp. considered to have high abundance in Alaska (NOAA).

Distribution: D = Widespread
P. pacifica willeyi is found coastwide, around VI, QCI, in inlets and out on the shelf.
Cairns and Bayer (2005) list the distribution of *P. pacifica willeyi* as most verified records are from off BC and contiguous Alexander Archipelago, Alaska, but it is also known from western Gulf of Alaska (Dickens Seamount) and Aleutian Islands (Amchitka). *Primnoa* spp. has a clumped spatial distribution in Alaska (NOAA)
Depth Profile: The *P. pacifica willeyi* records for BC have a depth profile of 30 - 366 m. with an unverified record from a DFO survey at 1757 m. Cairns and Bayer (2009) gives *P. pacifica willeyi* a depth range of 183 - 755 m. 69% of BC records for *Primnoa* spp. are between 200 – 400 m, 90% are between 0 - 400 m and 3% are associated with depths >1000 m.

Number of Occurrences: B = Restricted
There are 18 unique records of *P. pacifica willeyi* within BC, 16 of which have coordinates. There are 148 additional records for *Primnoa* spp. some of which could be *P. pacifica willeyi* but they are not identified to the species level.
Data Source: 14 of the *P. pacifica willeyi* records are from museum records, 12 of these have the identifier listed. Additionally, 2 records are from DFO surveys and 2 from field notes. All the additional *Primnoa* spp. records are from DFO except 3 which are housed at the RBCM.

Population Trend: x = Unknown

More observations occur in recent years, due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The records identified as *P. pacifica willeyi* were collected between 1907 and 2007. It is likely that the population of *Primnoa* spp. has decreased due to disturbance in trawled areas (see threats). 144 of 148 records of *Primnoa* spp. are from 2002 to 2008.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

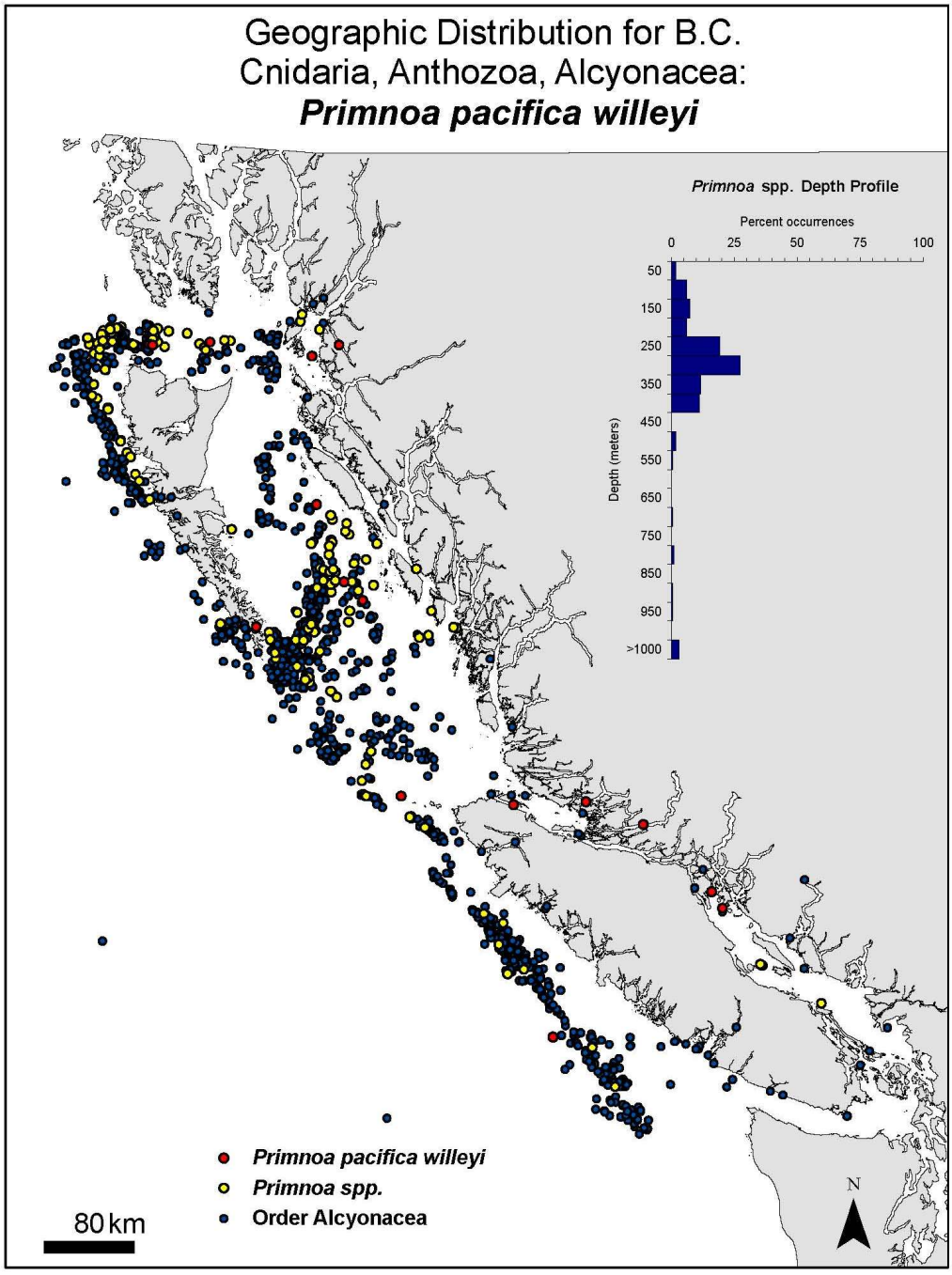
Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

• *Primnoa* spp. are sessile, long living and large organisms which makes them highly susceptible to trawling and other fishing impacts. Most observations of this species are as trawl bycatch however areas where trawling doesn't occur due to rocky habitat or depth may serve as reserves.

Threats to Distribution: A= Extreme due to factors related to Climate Change and B= Moderate due to factors related to Anthropogenic sources of pollution, sedimentation and coastal development.

Other Relevant Information: *Primnoa* spp. are considered to be major structure forming corals in the Alaskan region of the USA.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Alcyonacea:
Primnoa pacifica willeyi
Primnoa spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Primnoa pacifica willeyi
Primnoa spp.
Order Alcyonacea
80 km
N

Thouarella spp. Gray, 1870

Higher Taxonomic Classification: Cnidaria, Anthozoa, Alcyonacea, Primnoidae
Pacific Region Species Code (Hart): should be same code as Amphilaphis "3QB";
TSN: 52326 – genus.
APHIAID: 125323.
Synonyms: Amphilaphis
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *Thouarella* sp. in BC waters. However, *Thouarella* spp. are found in the Aleutian Islands and in the Oregon region of the US Pacific coast. These regions are very far apart and the species contained within them are not necessarily the same species but theoretically a species from the genera could exist in BC waters. *Thouarella* is a member of the family Primnoidae and is similar in appearance to *Primnoa* the most popular and abundant genera in the family and may be mistaken for it and therefore not properly scrutinized and identified.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
Because *Amphilaphis* is now accepted as a synonym of *Thouarella*, information to determine the current distribution is confusing. There is one record of *Thouarella* sp. (originally described as Amphilaphis sp.) in BC waters off northwest QCI on the shelf. A species of *Thouarella* is found south of B.C. in the US Oregon biogeographic province and 4 species are found north of BC in the Aleutian Islands (Lumsden et. al, 2007) while a specimen of Amphilaphis sp was found south of BC in the US San Diego biogeographic province (verified?) and 3 species are found north of BC in the Aleutian Islands (Lumsden et. al, 2007).The distribution for the genus *Thouarella* in Cairns and Bayer (2009) is the Subantarctic, South Africa, off Chile, western Atlantic from Burdwood Bank to Northern Florida, Japan, and the Aleutian Islands while the distribution for the genus *Amphilaphis* in Cairns and Bayer (2009) is Tristan de Cunha, Bouvet I., Galapagos, Antarctica and Hawaii.
Depth Profile: The genera, *Thouarella,* has a depth range of 60 - 1005 m (Cairns and Bayer, 2009) while Amphilaphis depth range was 55 - 3182 m (Cairns and Bayer, 2009) The depth for the US San Diego region is 114 m. The BC record was from 1000 - 1070 m.

Number of Occurrences: x = Unknown
There is one record for *Thouarella* sp. within BC (see section on Amphilaphis sp. P. 80 of this report.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors associated with Climate Change.

Other Relevant Information: The family Primnoidae has a high rating of structural importance in the Alaskan region of the USA (Lumsden et. al. 2007).
Sensitive by nature: *Thouarella* sp. is a member of family Primnoidae which contains sessile, slow growing, long living, and large species.
Andrews et. al. (2002) estimates the age for a Pacific *Primnoa* colony at over 100 years and with a growth rate of 1.6 - 2.32 cm/yr.

Editorial Comments: Distribution map is the same as *Amphilaphis sp.*

Antipathes sp. Pallas, 1766

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Antipathidae
Pacific Region Species Code (Hart): 5H3.
TSN: 51942 genus.
APHIAID: 103302
Synonyms: Arachnopathes
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
Sensitive by nature: *Antipathes* sp. is a sessile organism.
Antipatharians are long lived with some sp. estimated to live for >100 yrs (Lumsden et. al., 2007).
A temperate species of *Antipathes* was estimated to reach sexual maturity at >31 yrs (Lumsden et. al., 2007).
Antipathes spp. are large corals and are known to reach heights >1 m (Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size. Considered to be one of the most common antipatharian taxa in the Oregon province (from Pt. Conception, CA to the B.C. border) and the entire Pacific Coast Region (WA-CA) of the United States (Lumsden et. al. 2007). Dennis Opresko (pers. comm., 2009) states that the Californian species, A. dendrocristos, "although locally abundant, I am not sure it could be described as common throughout the region."

Distribution: C = Regional
Antipathes sp. is found on the continental slope from the WCVI to the WCQCI.
Antipathes sp. exhibits a coast wide distn. for the U.S. Pacific Coast which borders B.C. waters to the south (Lumsden et. al. 2007). Dennis Opresko (pers. comm., 2009) states that "in general, Antipathes is more common in tropic and subtropic regions than in temperate regions, and furthermore, the taxon (sensu stricta) does not often occur in depths greater than 200 m. The one species described from off California (A. dendrochristos) is found at depths of 100-200 m." Depth profile: The *Antipathes* sp. records for B.C. have a depth range of 367m – 2046m. Lumsden et. al. (2007) reports a range of 82-1162 m for *Antipathes* sp. for the Pacific coast region. 70% of B.C. antipatharian records are found at depths greater than 1000m.

Number of Occurrences: A = Very Restricted
There are 4 unique records for *Antipathes* sp. within B.C.
Data Source: 2 records are from DFO tanner crab surveys, 1 is from a DFO groundfish survey and 1 record is from the USNM, validated by D. Opresko.

Population Trend: x = Unknown

More observations occur in recent years due to an increase in new coral species being described and increased ability to identify corals to the species level and an increase in the desire to do so.
No records for *Antipathes* sp. were captured within B.C. waters until the year 2000.

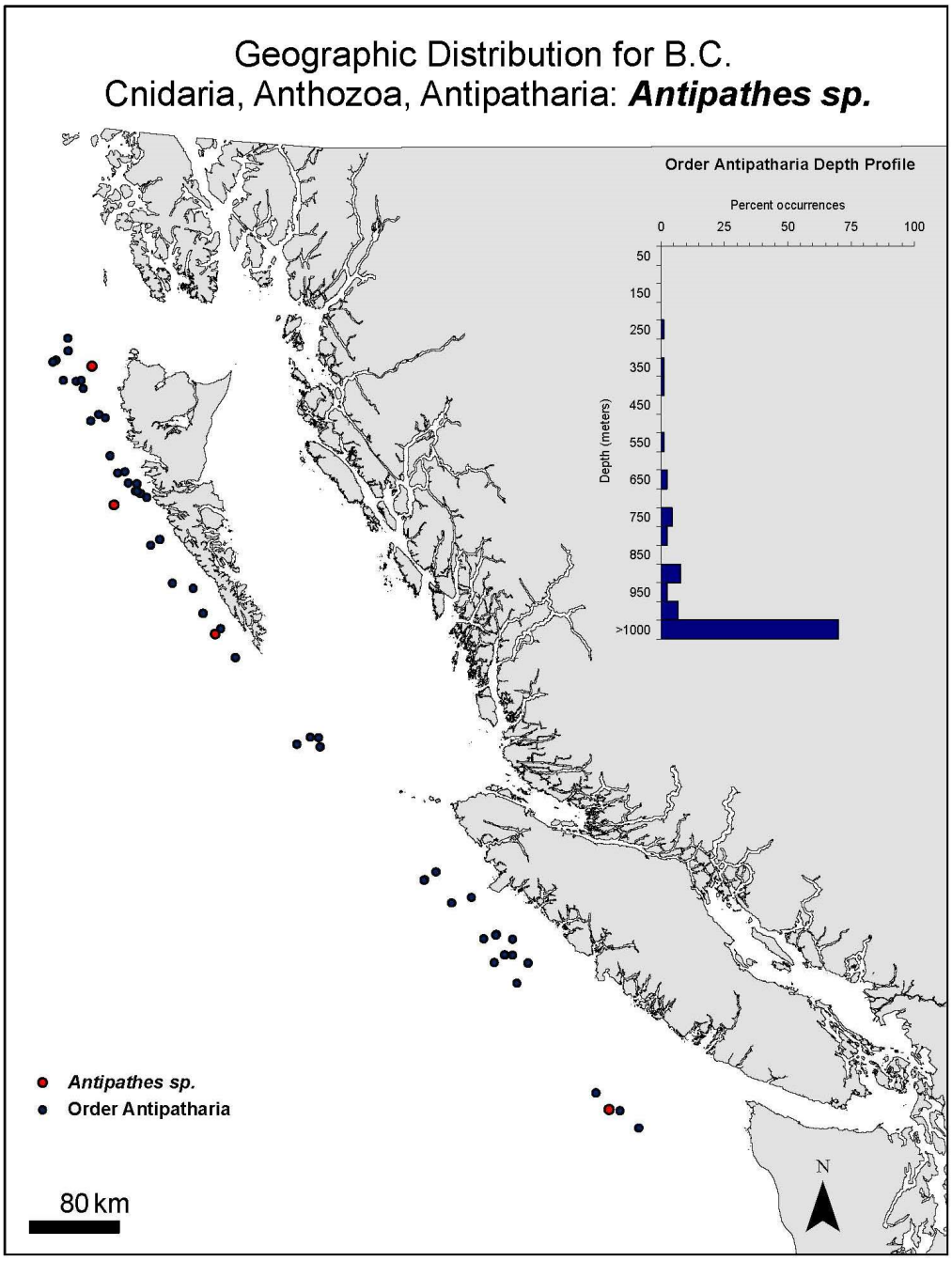
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.
• 30.4% of 23,669 km^2 of predicted habitat suitable for Order Antipatharia in BC potentially overlapped with groundfish trawl, sablefish trap and sablefish longline commercial fishing activities from 1996-2004 (Finney 2010).

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Antipathes* sp. was given a high rating of structural importance for the U.S. Pacific region (Lumsden et. al. 2007).

Editorial Comments: Dennis Opresko (pers. comm., 2009): "Taxon 41, *Antipathes:* the Lumsden *et al*. (2007) statement that "*Antipathes* this is one of the most common antipatharian taxa in the Oregon province" may have been based on old museum records which do not reflect recent taxonomic revisions. In general, *Antipathes* is more common in tropic and subtropic regions than in temperate regions, and furthermore, the taxon (sensu stricta) does not often occur in depths greater than 200 m. The one species described from off California (*A. dendrochristos*) is found at depths of 100-200 m, and although locally abundant, I am not sure it could be described as common throughout the region (this would require checking Lumsden *et al*. to see on what basis they report *Antipathes* to be a commonly occurring taxon in that region."


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Antipathes sp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Antipathes sp.
Order Antipatharia
80 km
N

Parantipathes sp. Brook, 1889

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5H1 - family.
TSN: 51975 – genus.
APHIAID: 103306 - genus.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Parantipathes* sp. is a sessile organism.
- Antipatharians are long lived with some species estimated to live for more than 100 years (Lumsden et. al. 2007).
- A temperate antipatharian species was estimated to reach sexual maturity at >31 yrs (Lumsden et. al. 2007).
- *Parantipathes* sp. may grow over 1 m in height and/or width (Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size. Order Antipatharia is considered to have a medium abundance in the Alaska region (Lumsden et. al. 2007).

Distribution: C = Regional
Parantipathes sp. is found on the continental slope from the WCVI to the WCQCI.
Parantipathes sp. is present in the Eastern Gulf of Alaska region which borders on B.C. waters to the North and also found in the Aleutians and on Seamounts within Alaskan waters (Lumsden et. al. 2007).
Depth Profile: The *Parantipathes* sp. records for B.C. has a depth range of 854m – 1908m. 70% of B.C. antipatharian records are for depths greater than 1000m.

Number of Occurrences: B = Restricted
There are 14 unique records for *Parantipathes* sp. within B.C.
Data Source: 11 records are from DFO tanner crab surveys and 3 records are from the USNM, validated by D. Opresko.

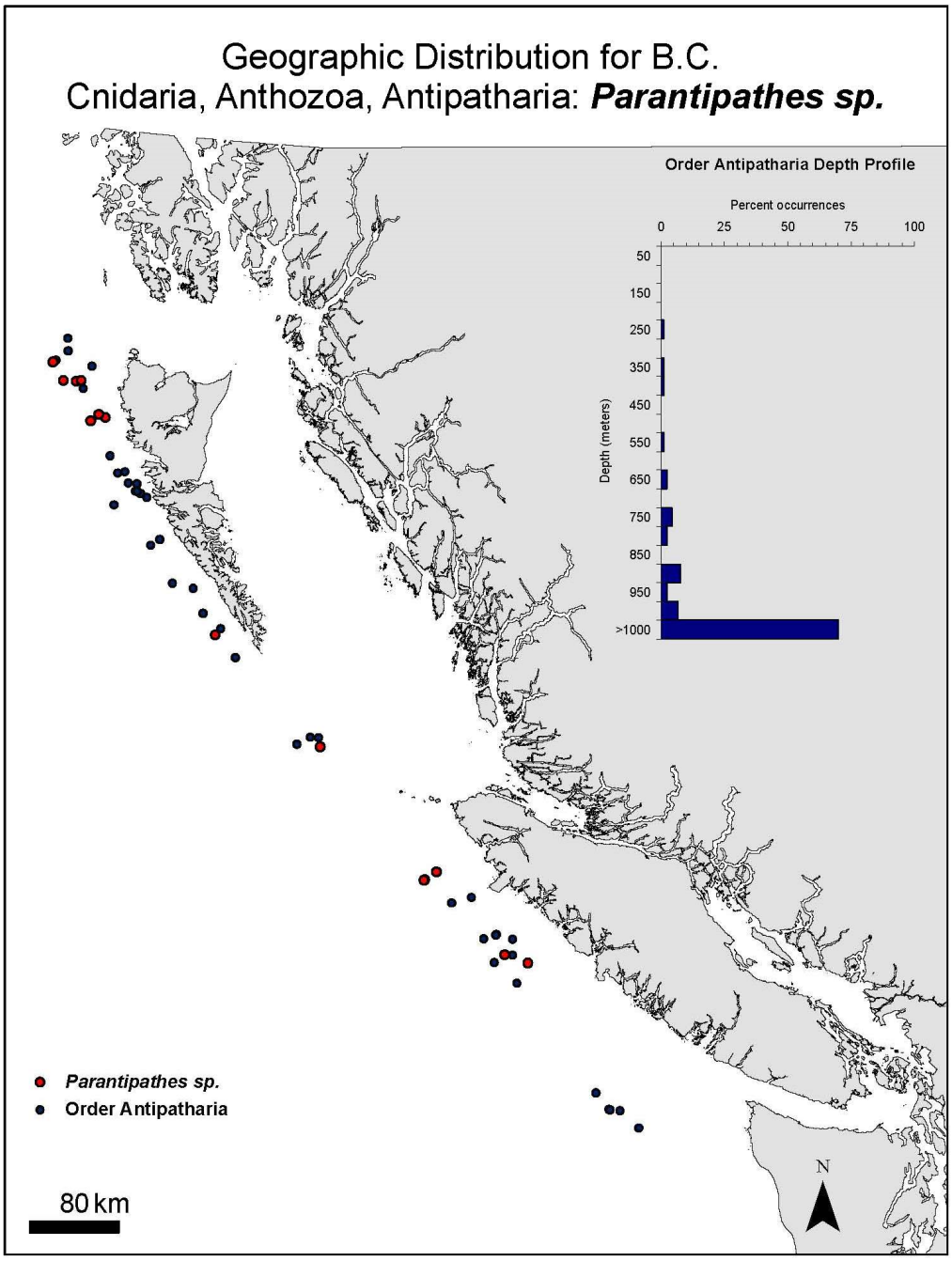
Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Parantipathes* sp. were captured within B.C. waters until the year 2002.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.
Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Antipatharia was given a medium rating of structural importance for the U.S. Alaska region (Lumsden et. al. 2007, p114). Due to the large size of the species it is likely to be of structural importance.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Parantipathes sp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Parantipathes sp.
Order Antipatharia
80 km
N

Chrysopathes formosa Opresko, 2003

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Cladopathidae
Pacific Region Species Code (Hart): 5H6.
TSN:
APHIAID: 289659.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
Sensitive by nature: *Chrysopathes formosa* is a sessile organism.
Antipatharians are long lived with some sp. estimated to live for >100 yrs (Lumsden et. al. 2007).
A temperate antipatharian species was estimated to reach sexual maturity at >31 yrs (Lumsden et. al. 2007).
Antipatharians are considered to be large corals known to reach heights > 1m (Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size. Order Antipatharia is considered to have a medium abundance in the Alaska region (Lumsden et. al. 2007).

Distribution: x = Unknown
There are no records of *Chrysopathes formosa* found within B.C. waters.
Chrysopathes sp. has been identified on the continental slope off the WCVI.
Chrysopathes formosa is present in the U.S. Pacific Coast region in the San Diego province which is South of B.C. and is also present in the Eastern Gulf of Alaska region which borders on B.C. waters to the North. There are no records for either B.C. waters or the U.S. Pacific waters of the Oregon province. Opresko (2003) the taxonomic authority for this species lists its distribution as the Eastern Pacific and the type specimens are from Jasper Seamount (30°25'N, 122°45'W) and Ecuador.
Depth Profile: The *Chrysopathes* sp. records for B.C. have a depth range of 1131m – 1922m. 70% of B.C. antipatharian records are for depths greater than 1000m. Opresko (2003) reports depths for the type specimens of *Chrysopathes formosa* ranging from 733m - 950m.

Number of Occurrences: x = Unknown
There are no records for *Chrysopathes formosa* within B.C.. There are 2 additional records for *Chrysopathes* sp. which could be *C. formosa* but they are not identified to the species level.

Population Trend: x = Unknown
Not enough information to determine a trend.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Chrysopathes formosa* is considered a major structure forming deep coral species (Lumsden et. al. 2007) for the Alaskan region but not for the Pacific region even though it is present there.

Editorial Comments: N/A

Chrysopathes speciosa Opresko, 2003

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Cladopathidae
Pacific Region Species Code (Hart): 5H7.
TSN:
APHIAID: 289661.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Chrysopathes speciosa* is a sessile organism.
Antipatharians are long lived with some sp. estimated to live for >100 yrs (Lumsden et. al 2007).
A temperate antipatharian species was estimated to reach sexual maturity at >31 yrs (Lumsden et. al 2007).
Antipatharians are considered to be large corals known to reach heights > 1m (Lumsden et. al 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.
Considered to be one of the most common antipatharian taxa in the Oregon biogeographic province (from Pt. Conception, CA to the B.C. border) and the entire Pacific Coast Region (WA-CA) of the United States. (Lumsden et. al 2007)

Distribution: C = Regional
Chrysopathes speciosa has been identified on the continental slope from the WCVI to the WCQCI. *Chrysopathes speciosa* is present in the U.S. Pacific Coast region in the Oregon province which borders B.C. to the South and is also present in the Eastern Gulf of Alaska region which borders on B.C. waters to the North. Opresko (2003) the taxonomic authority for this species lists its distribution as the northeast Pacific, off the coasts of Alaska, Oregon and California.
Depth Profile: The *Chrysopathes speciosa* records for B.C. have a depth range of 1052m – 1776m. 70% of B.C. antipatharian records are for depths greater than 1000m. NOAA (2007) reports a depth range of 296m - 1400m for *Chrysopathes speciosa* within the U.S. Pacific Coast region.

Number of Occurrences: A = Very Restricted
There are 4 unique records for *Chrysopathes speciosa* within B.C.. There are 2 additional records for *Chrysopathes* sp. which could be *C. speciosa* but they are not identified to that level.
Data Source: 3 records are from DFO tanner crab surveys and 1 record is from the USNM, validated by D. Opresko.

Population Trend: x = Unknown
Not enough information to determine a trend.

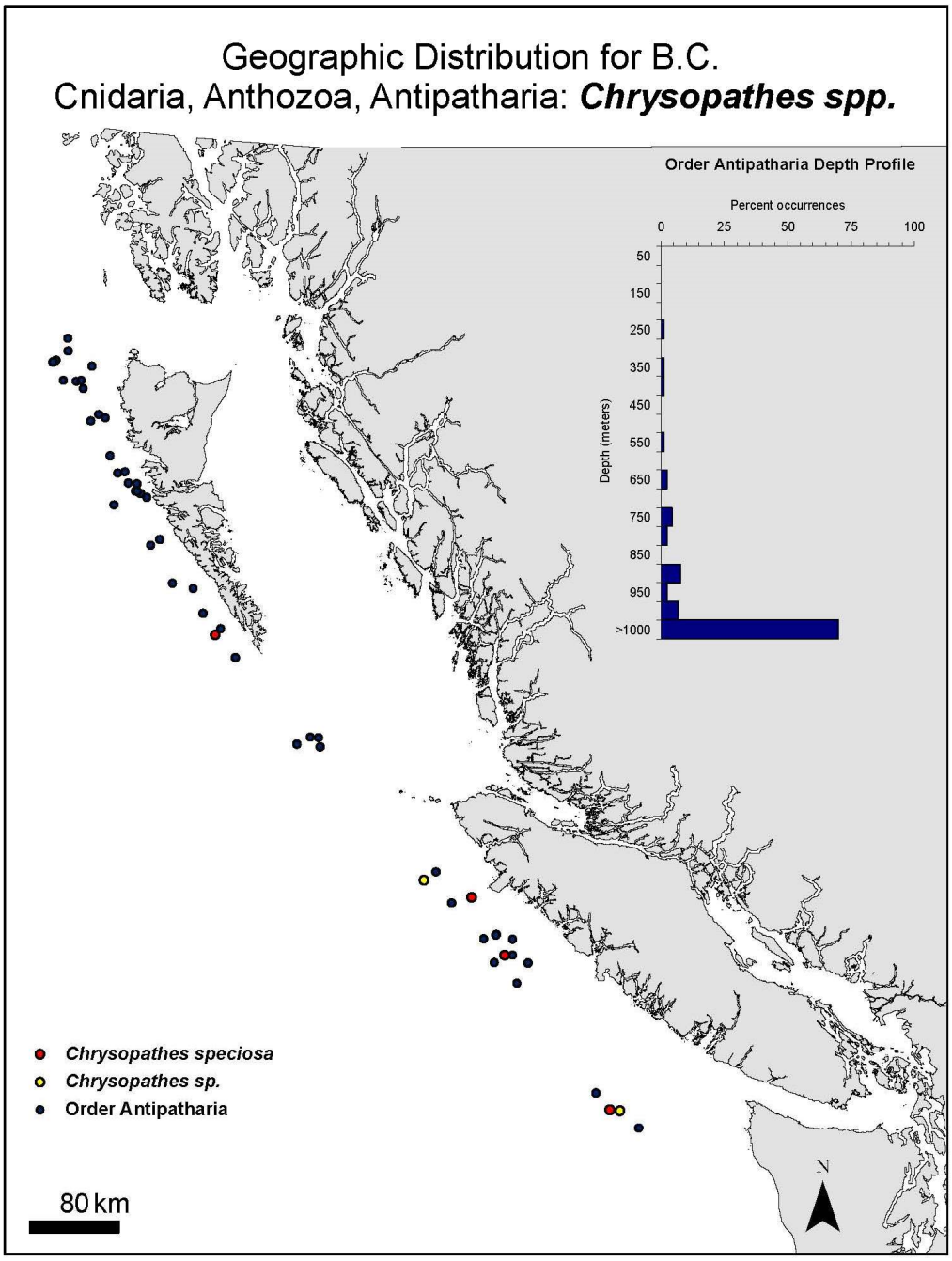
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Chrysopathes speciosa* were captured within B.C. waters until the year 2001.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.
Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Chrysopathes speciosa* is considered a major structure forming deep coral species (Lumsden et. al 2007, p61) for the Alaskan region but not for the Pacific region even though it is present there.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Chrysopathes spp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Chrysopathes speciosa
Chrysopathes sp.
Order Antipatharia
80 km
N

Trissopathes pseudotristicha Opresko, 2003

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Cladopathidae
Pacific Region Species Code (Hart): 5H8 – genus.
TSN: 719058 – genus.
APHIAID: 291243.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There are only 2 records of *Trissopathes pseudotristicha* identified in B.C. and neither of them are voucher specimens. However, the species is known to exist both north and south of B.C. in U.S. waters.

Population Size: x = Unknown
Not enough information to determine the current population size. There are only 2 records of *Trissopathes pseudotristicha* identified in B.C. and neither of them are voucher specimens. Order Antipatharia is considered to have a medium abundance in the Alaska region (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution
Trissopathes pseudotristicha has been found on the continental slope off the WCQCI. *Trissopathes pseudotristicha* is present in the U.S. Pacific Coast region in both the San Diego and Oregon provinces which borders B.C. to the South. *T. pseudotristicha* is also present in the Aleutian Islands and Seamounts within Alaskan waters. Opresko (2003) the taxonomic authority for *T. pseudotristicha* states that the species has been collected from the eastern and central Pacific.
Depth Profile: The *Trissopathes pseudotristicha* records for B.C. have a depth range of 2200m – 2400m. 70% of B.C. antipatharian records are for depths greater than 1000m.

Number of Occurrences: A = Very Restricted
There are 2 unique records for *Trissopathes pseudotristicha* within B.C.
Data Source: Both records are from DFO tanner crab surveys and are not validated.

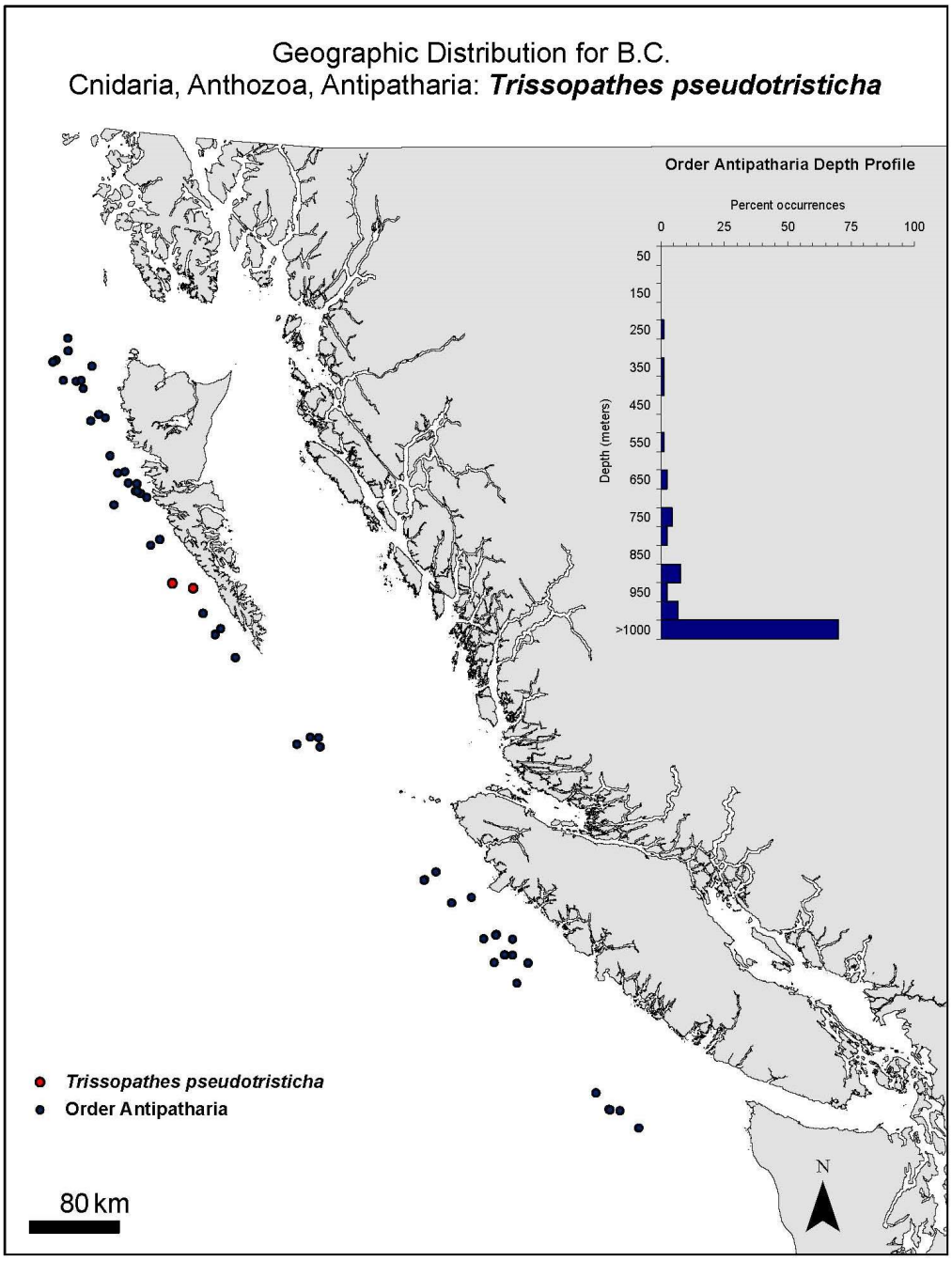
Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Trissopathes pseudotristicha* were captured within B.C. waters until the year 2006.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.**Threats to Distribution:** A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Antipatharia was given a medium rating of structural importance for the U.S. Alaska region (Lumsden et. al. 2007, p114).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Trissopathes pseudotristicha
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Trissopathes pseudotristicha
Order Antipatharia
80 km
N

Bathypathes patula Brook, 1889

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5IC.
TSN: 51979.
APHIAID: 103323
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Bathypathes patula* is a sessile organism.
Antipatharians are long lived with some species estimated to live for more than 100 years (Lumsden et. al. 2007).
A temperate antipatharian species was estimated to reach sexual maturity at >31 yrs (Lumsden et. al. 2007).
Antipatharians are considered to be large corals known to reach heights > 1m (Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population. size. Order Antipatharia is considered to have a medium abundance in the Alaska region (Lumsden et. al. 2007)

Distribution: C = Regional
Bathypathes patula is found on the continental slope from the WCVI to the WCQCI.
Bathypathes patula is present in the Eastern Gulf of Alaska region which borders on B.C. waters to the North.
Depth Profile: The *Bathypathes patula* records for B.C. have a depth range of 631m – 2046m. 70% of B.C. antipatharian records are for depths greater than 1000m. NOAA (2007) reports a range of 20m - 3000m for Order Antipatharia.

Number of Occurrences: B = Restricted
There are 16 unique records for *Bathypathes patula* within B.C.
Data Source: 11 records are from DFO tanner crab surveys, 1 is from a DFO groundfish survey and 4 records are from the USNM, validated by D. Opresko.

Population Trend: x = Unknown
Not enough information to determine a trend.
More observations occur in recent years due to an increase in new coral species being described and increased ability to identify corals to the species level and an increase in the desire to do so. No records for *Bathypathes patula* were captured within B.C. waters until the year 2001.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.
Threats to Distribution: A= Extreme due to factors associated with Climate Change.

Other Relevant Information: *Bathypathes patula* is considered a major structure forming deep coral species (Lumsden et. al. 2007) for the Alaskan region.

Editorial Comments: N/A

Bathypathes sp. Brook, 1889

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5IB – genus.
TSN: 51978 – genus.
APHIAID: 103304 **-genus**
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
All *Bathypathes* voucher specimens from the USNM are of Bathypathes patula. All records of Bathypathes sp. are from DFO records and may be B. patula. There are records of different undescribed Bathypathes species that have been identified in Alaska and Wash – Cal. It is uncertain whether these represent one species with a continuous distribution through B.C. and captured as Bathypathes s*p.* in B.C. records or if the *Bathypathes* sp. records from different geographic areas are all different species and perhaps only B. patula exists in B.C. Bathypathes genus has 9 accepted species and 19 direct children.

Population Size: x = Unknown
Not enough information to determine the current population size. Lumsden et. al. (2007) reports a *Bathypathes* sp. as having a high relative abundance within the U.S. Pacific Coast region (not necessarily the same species as the one reported from BC).

Distribution: C = Regional
Bathypathes sp. is found on the continental slope from the WCVI to the WCQCI. A *Bathypathes* sp. (not necessarily the same species as the one reported from BC) exhibits a coast wide distribution for the U.S. Pacific Coast which borders B.C. waters to the south (Lumsden et. al. 2007). *Bathypathes* spp. are present in the Eastern Gulf of Alaska region which borders on B.C. waters to the north and are also present on seamounts within Alaskan waters. Lumsden et. al. (2007) reports *Bathypathes* sp. as having a solitary colonial spatial distribution within the U.S. Pacific coast region.
Depth Profile: The *Bathypathes* sp. records for B.C. have a depth range of 631m – 2300m. 70% of B.C. antipatharian records are for depths greater than 1000m. Lumsden et. al. (2007) reports a range of 136m - 1243m for *Bathypathes* sp. within the U.S. Pacific Coast region.

Number of Occurrences: A = Very Restricted
There are 5 unique records for *Bathypathes* sp. within B.C.
Data Source: All 5 records are from DFO tanner crab surveys and none are validated as a new species of *Bathypathes.* Check with Dennis Opresko, supposedly B.C. may have B. patula and B. sp. A but we are waiting on DNA confirmation.

Population Trend: x = Unknown

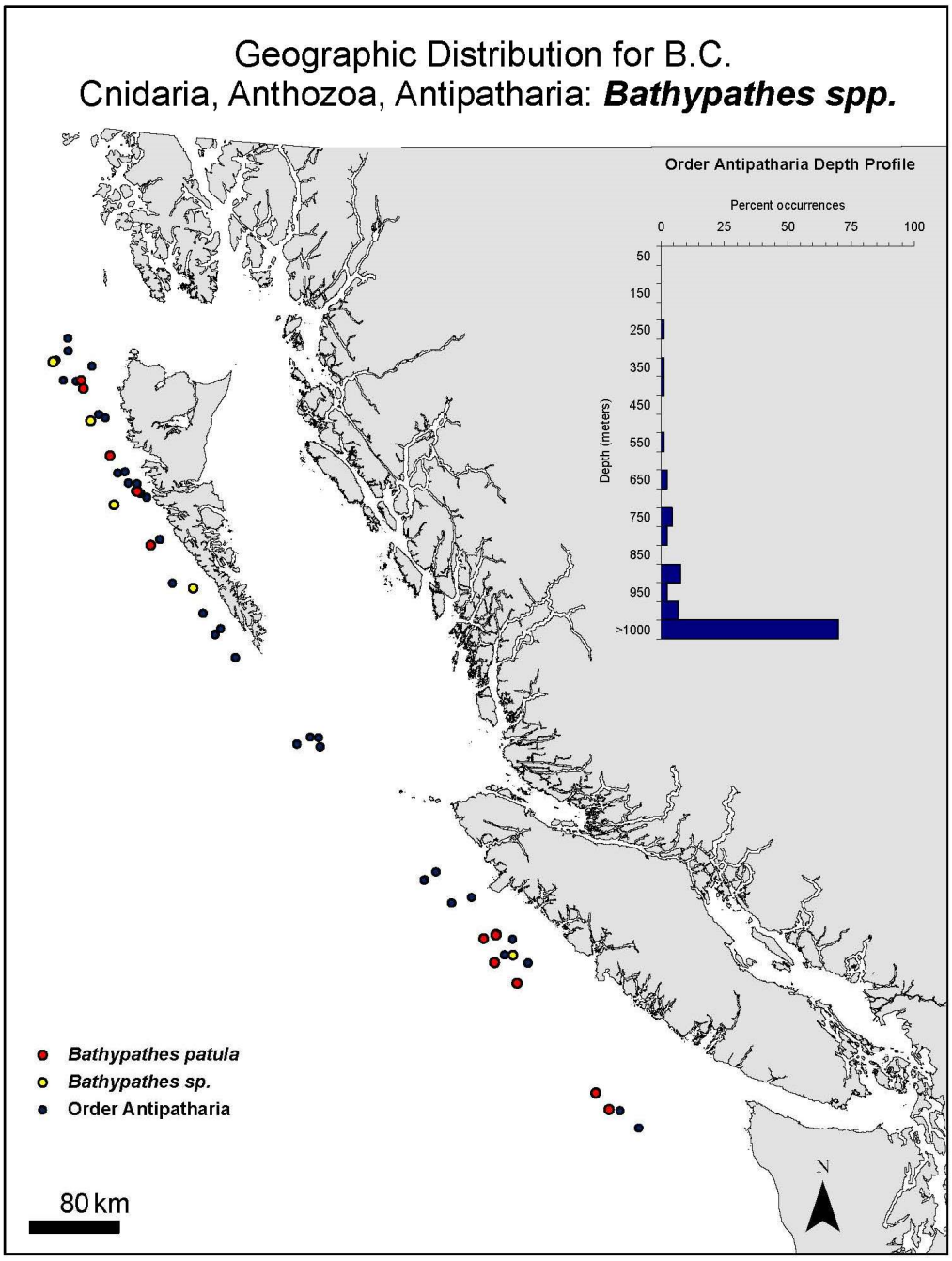
More observations occur in recent years due to an increase in new coral species being described and increased ability to identify corals to the species level and an increase in the desire to do so.
No records for *Bathypathes* spp. were captured within B.C. waters until the year 2001.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.
Threats to Distribution: A= Extreme due to factors associated with Climate Change.

Other Relevant Information: *Bathypathes* sp. (not necessarily the same species as the one reported from BC) was given a medium rating of structural importance for the U.S. Pacific region (Lumsden et. al. 2007).

Editorial Comments: Dennis Opresko (pers. comm., 2009): "Taxon 47. *Bathypathes* sp. The taxon listed by Lumsden *et al*. may not necessarily be the same as the *Bathypathes* sp. reported for the BC, and consequently, comments on "Distribution" of one might not apply to the other. Your notes in the columns "Number of Occurrences" and "Explanation" clearly describe the current situation - the research comparing the specimens from the different regions and the DNA studies on these specimens have not been completed. Unfortunately, there is no current research dedicated specifically for such a study, therefore, it may be some time before it gets sorted out."


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Bathypathes spp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Bathypathes patula
Bathypathes sp.
Order Antipatharia
80 km
N

Dendrobathypathes boutillieri *Opresko, 2005*

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5IE.
TSN:
APHIAID: 289787
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Dendrobathypathes boutillieri* is a sessile organism.
Antipatharians are long lived with some species estimated to live for more than 100 years (Lumsden et. al. 2007).
A temperate antipatharian species was estimated to reach sexual maturity at >31 yrs (Lumsden et. al. 2007).
Dendrobathypathes boutillieri may grow to over 1 m in height and/or width (Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population size.
Order Antipatharia is considered to have a medium abundance in the Alaska region (Lumsden et. al. 2007).

Distribution: B = Restricted
Dendrobathypathes boutillieri has been identified on the continental slope off the WCQCI. *Dendrobathypathes boutillieri* is present in the Eastern Gulf of Alaska region which borders on B.C. waters to the North and is also present in the Aleutian Islands and Seamounts within Alaskan waters.
Depth Profile: The *Dendrobathypathes boutillieri* records for B.C. have a depth range of 1460m – 1908m. 70% of B.C. antipatharian records are for depths greater than 1000m.

Number of Occurrences: A = Very Restricted
There are 3 unique records for *Dendrobathypathes boutillieri* within B.C.. There are 4 additional records for *Dendrobathypathes* sp. which could be *D. boutillieri* but they are not identified to the species level.
Data Source: 1 record is from DFO tanner crab surveys and 2 records are from the USNM, validated by D. Opresko.

Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Dendrobathypathes boutillieri* were captured within B.C. waters until the year 2002.

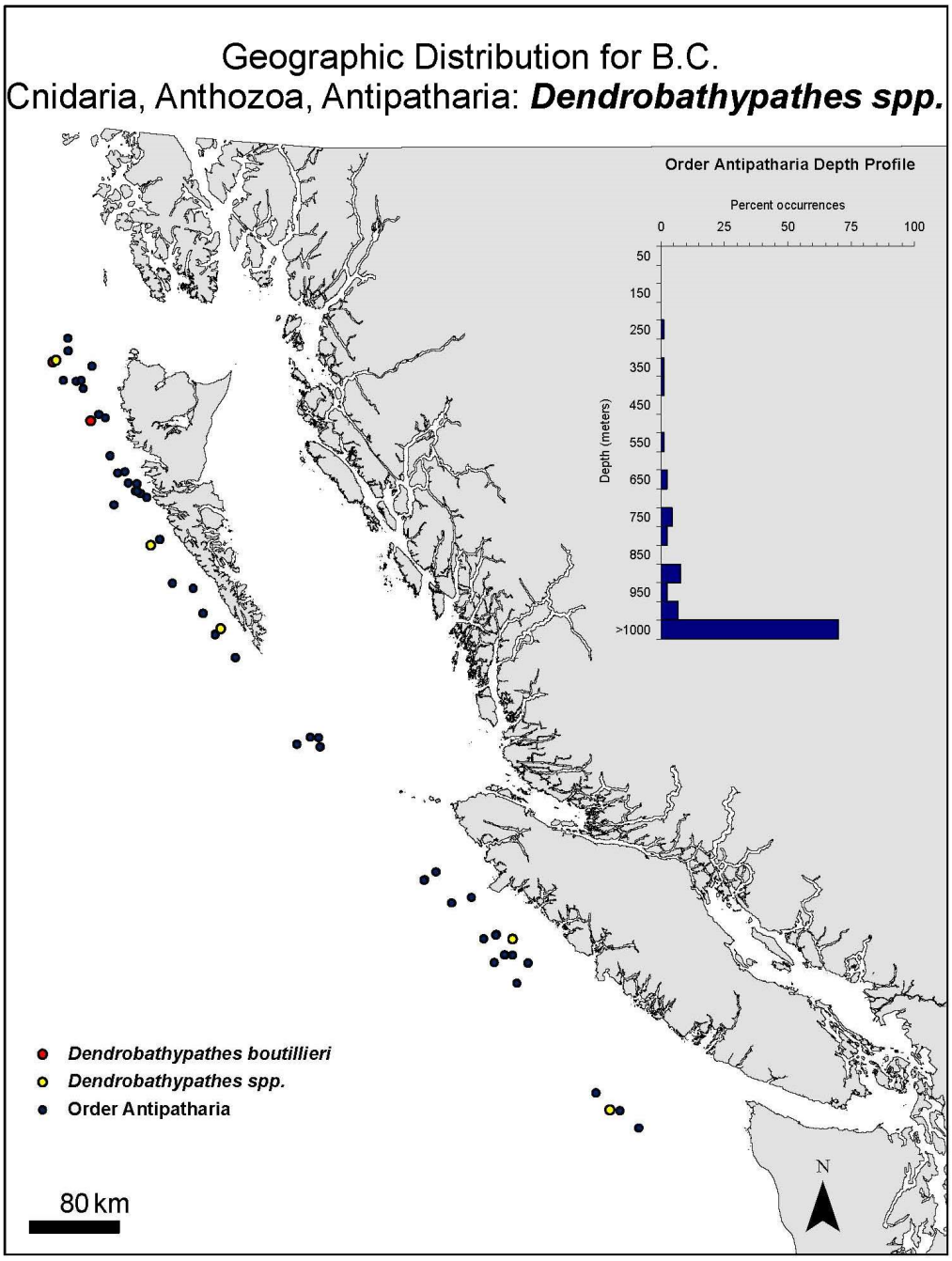
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Dendrobathypathes boutillieri* is considered a major structure forming deep coral species for the Alaskan region (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Dendrobathypathes spp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Dendrobathypathes boutillieri
Dendrobathypathes spp.
Order Antipatharia
80 km
N

Dendrobathypathes sp. A Opresko - pers. comm.

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5ID – genus.
TSN:
APHIAID: 267372 -genus
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There is only one record for *Dendrobathypathes* sp. A identified by D.M. Opresko (2008, pers. comm.). He notes that this is possibly an undescribed species of *Dendrobathypathes* but that the DNA has not yet been analyzed.

Population Size: x = Unknown
Not enough information to determine the current population size. There is only one record *Dendrobathypathes* sp. A identified by D.M. Opresko (2008, pers. comm.). He notes that this is possibly an undescribed species of *Dendrobathypathe*s but that the DNA has not yet been analyzed.

Distribution: x = Unknown
Not enough information to determine the current distribution. One specimen of *Dendrobathypathes* sp. A has been identified on the continental slope off the southern tip of the WCQCI. *Dendrobathypathes* sp. is not recorded in U.S. waters.
Depth Profile: The *Dendrobathypathes* sp. A record for B.C. has a depth range of 1396m – 1523m. 70% of B.C. antipatharian records are for depths greater than 1000m.

Number of Occurrences: A = Very Restricted
There is 1 unique record for *Dendrobathypathes* sp. A within B.C.. There are 5 additional records for *Dendrobathypathes* sp. which could be *D.* sp. A but they are not identified to the species level.
Data Source: 1 record from a DFO tanner crab survey, validated by D. Opresko.

Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Dendrobathypathes* spp. were captured within B.C. waters until the year 2001.

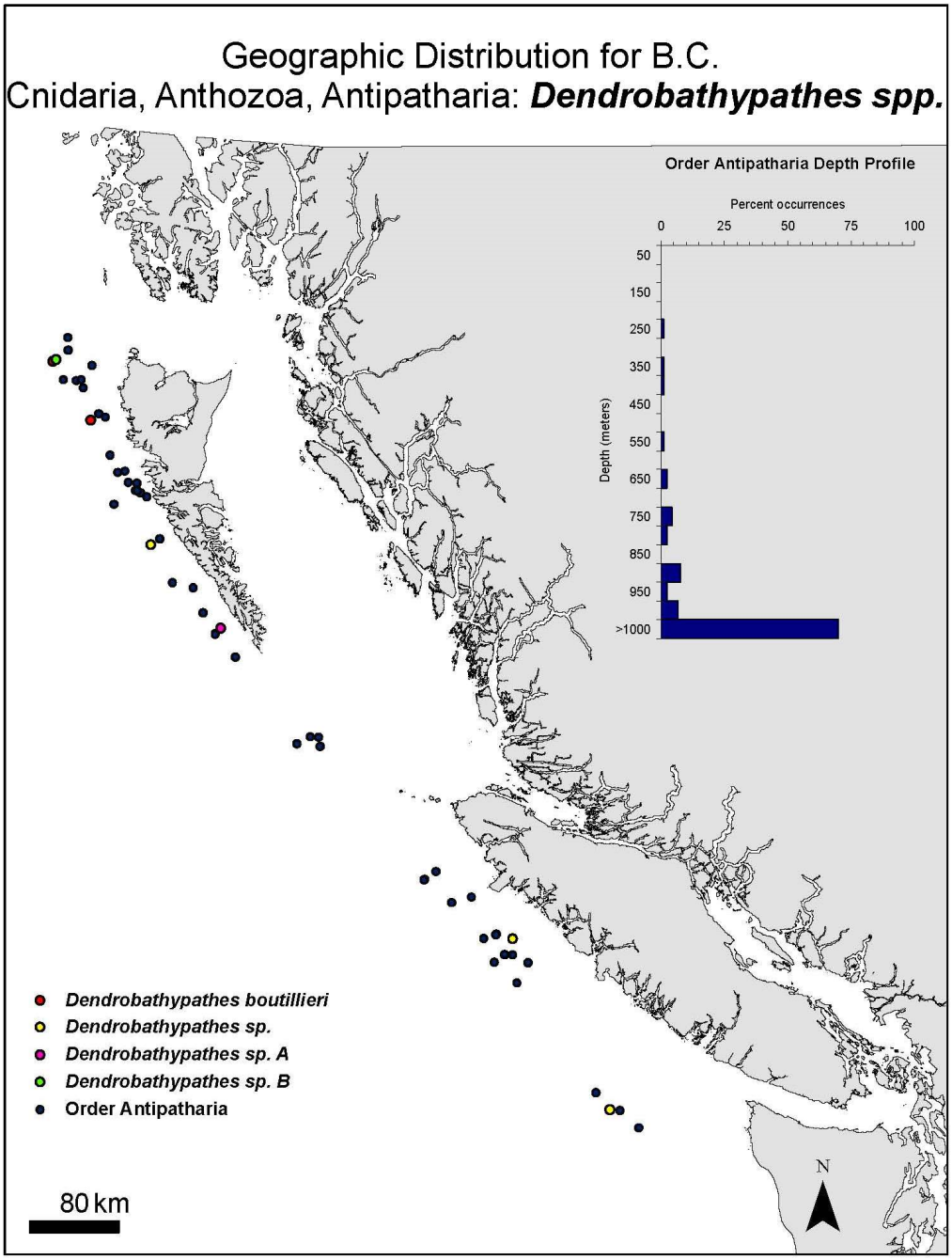
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Antipatharia was given a medium rating of structural importance for the U.S. Alaska region (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Dendrobathypathes spp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Dendrobathypathes boutillieri
Dendrobathypathes sp.
Dendrobathypathes sp. A
Dendrobathypathes sp. B
Order Antipatharia
80 km
N

Lillipathes wingi Opresko, 2005

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5IL.
TSN:
APHIAID: 290293.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Lillipathes wingi* is a sessile organism.
Antipatharians are long lived with some species estimated to live for more than 100 years (Lumsden et. al. 2007).
A temperate antipatharian species was estimated to reach sexual maturity at >31 yrs (Lumsden et. al. 2007).
Antipatharians are considered to be large corals known to reach heights > 1m (Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population. size. Order Antipatharia is considered to have a medium abundance in the Alaska region (Lumsden et. al. 2007).

Distribution: x = Unknown
Within B.C. *Lillipathes wingi* is found on the continental slope from the WCVI to the WCQCI. *Lillipathes wingi* is present in the Eastern Gulf of Alaska region which borders on B.C. waters to the North and also found on Seamounts within Alaskan waters (Lumsden et. al. 2007). Opresko (2005) the taxonomic authority for this species lists its distribution as being found at numerous locations off the Pacific coast of Canada and Alaska.
Depth Profile: The *Lillipathes wingi* records for B.C. has a depth range of 858m – 2300m. 70% of B.C. antipatharian records are for depths greater than 1000 m.

Number of Occurrences: B = Restricted
There are 11 unique records for *Lillipathes wingi* within B.C.. There are 4 additional records for *Lillipathes* sp. which could be *L. wingi* but they are not identified to the species level.
Data Source: 10 records are from DFO tanner crab surveys and 1 record is from the USNM, validated by D. Opresko.

Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Lillipathes wingi* were captured within B.C. waters until the year 2002.

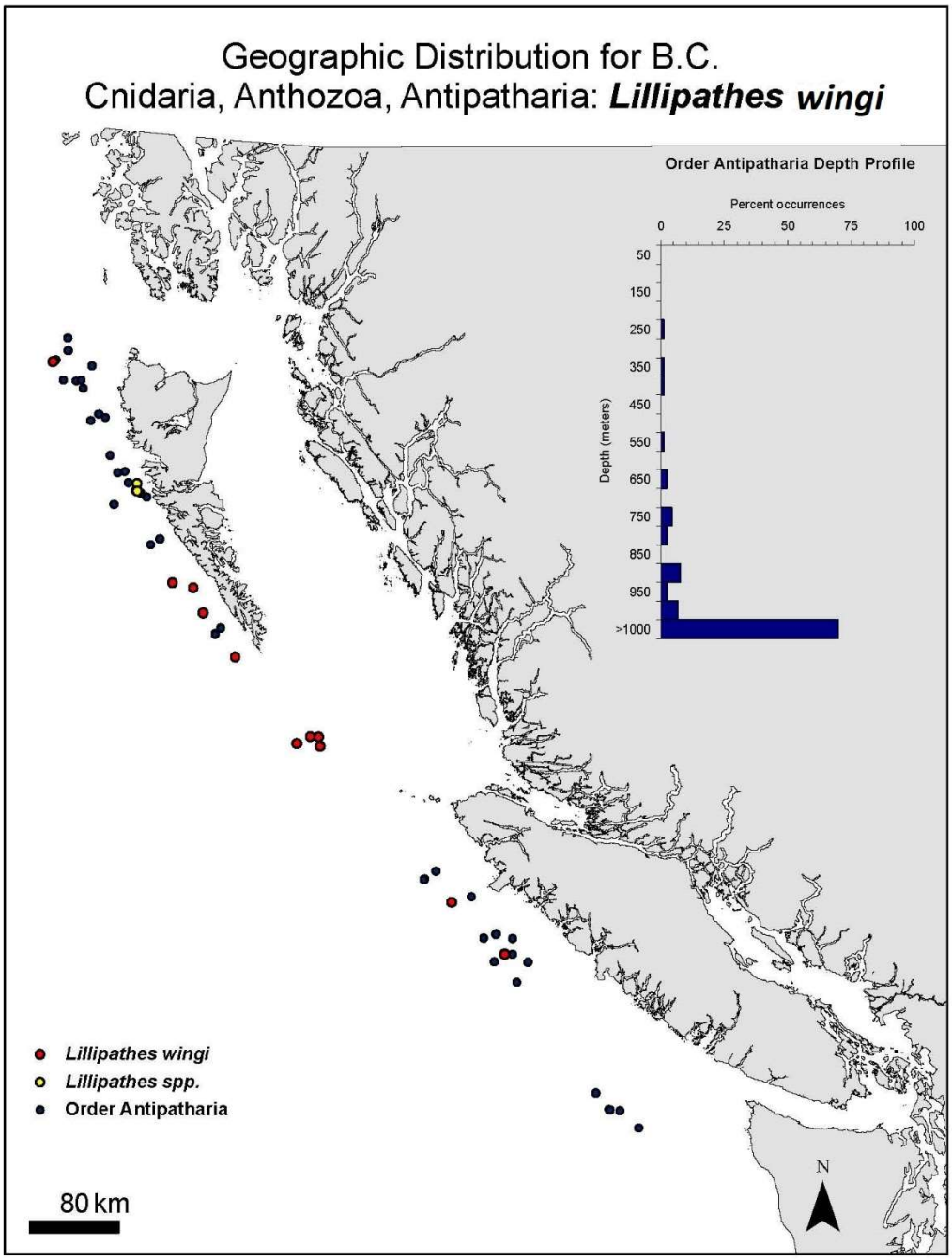
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Antipatharia was given a medium rating of structural importance for the U.S. Alaska region (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Lillipathes wingi
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Lillipathes wingi
Lillipathes spp.
Order Antipatharia
80 km
N

Lillipathes sp. A Opresko - pers. comm.

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5IA – genus.
TSN:
APHIAID: 267553 – genus.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
Not yet described. There is only one record of *Lillipathes* sp. A identified by D.M. Opresko (personal communication, 2008). He notes that it may be an undescribed species and that it's DNA differs from *L. wingi* and *L.* sp. B.

Population Size: x = Unknown
Not enough information to determine the current population. size. There is only one record of *Lillipathes* sp. A identified by D.M. Opresko (pers. comm.). He notes that it may be an undescribed species and that it's DNA differs from *L. wingi* and *L.* sp. B.

Distribution: x = Unknown
Not enough information to determine the current distribution. One specimen of *Lillipathes* sp. A has been identified on the continental slope off the WCVI. *Lillipathes* sp. is found at Davidson Seamount in the Oregon biogeographic province of the U.S. Pacific coast region (Lumsden et. al. 2007, p114) However, this could refer to a different *Lillipathes* sp. from *Lilllpathes* sp. A.
Depth Profile: The *Lillipathes* sp. A record for B.C. has a depth range of 882m – 1052m. 70% of B.C. antipatharian records are for depths greater than 1000m.

Number of Occurrences: A = Very Restricted
There is 1 unique record for *Lillipathes* sp. A within B.C.. There are 4 additional records for *Lillipathes* sp. which could be *L.* sp. A but they are not identified to the species level. Data Source: 1 record from a DFO tanner crab survey, validated by D. Opresko.

Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Lillipathes* spp. were captured within B.C. waters until the year 2002.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information:

Editorial Comments: N/A

Lillipathes sp. B Opresko - pers. comm.

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5IA – genus.
TSN:
APHIAID: 267553 genus.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
Not yet described. There is only one record of *Lillipathes* sp. B identified by D.M. Opresko (pers. comm.). He notes that it may be an undescribed species and that it's DNA differs from *L. wingi* and *L.* sp. A.

Population Size: x = Unknown
Not enough information to determine the current population size.
There is only one record of Lillipathes sp. B identified by D.M. Opresko (pers. comm.). He notes that it may be an undescribed species and that it's DNA differs from *L. wingi* and *L.* sp. A.

Distribution: x = Unknown
Not enough information to determine the current distribution.
One specimen of *Lillipathes* sp. B has been identified on the continental slope off the WCQCI. *Lillipathes* sp. is found at Davidson Seamount in the Oregon province of the U.S. Pacific coast region (Lumsden et. al. 2007) However, this could refer to a different species of *Lillipathes* than *Lillipathes* sp. B..
Depth Profile: The *Lillipathes* sp. B record for B.C. has a depth range of 1042m – 1071m. 70% of B.C. antipatharian records are for depths greater than 1000m.

Number of Occurrences: A = Very Restricted
There is 1 unique record for *Lillipathes* sp. B within B.C.. There are 4 additional records for *Lillipathes* sp. which could be *L.* sp. B but they are not identified to the species level.
Data Source: 1 record from a DFO tanner crab survey, validated by D. Opresko.

Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Lillipathes* spp. were captured within B.C. waters until the year 2002.

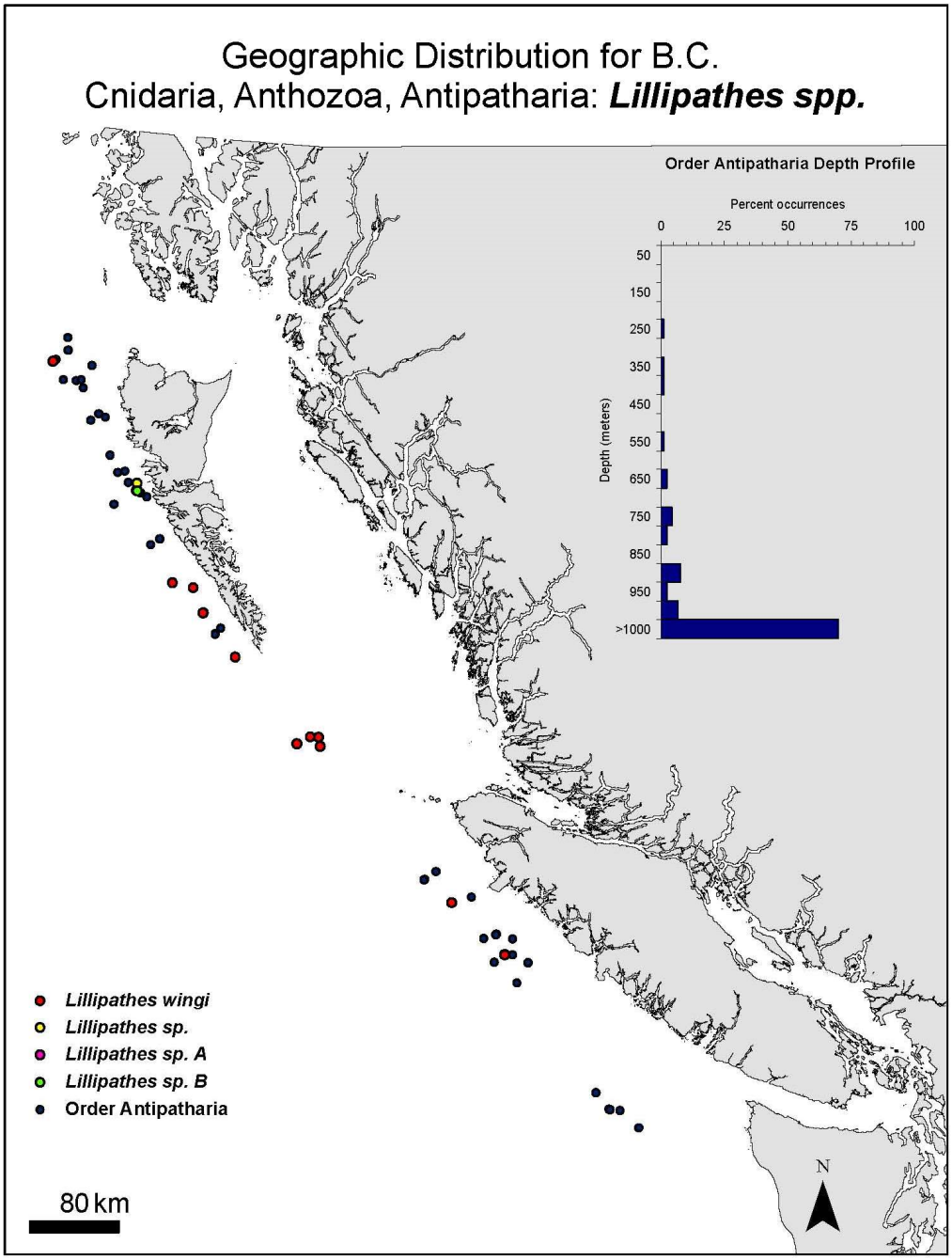
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information:

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Lillipathes spp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Lillipathes wingi
Lillipathes sp.
Lillipathes sp. A
Lillipathes sp. B
Order Antipatharia
80 km
N

Umbellapathes sp. A Opresko - pers. comm.

Higher Taxonomic Classification: Cnidaria, Anthozoa, Antipatharia, Schizopathidae
Pacific Region Species Code (Hart): 5IM – genus.
TSN:
APHIAID: 267936 - genus
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Umbellapathes* sp. A is a sessile organism.
Antipatharians are long lived with some species estimated to live for more than 100 years (Lumsden et. al. 2007).
A temperate antipatharian species was estimated to reach sexual maturity at >31 yrs (Lumsden et. al. 2007).
Antipatharians are considered to be large corals known to reach heights > 1m (Lumsden et. al. 2007).

Population Size: x = Unknown
Not enough information to determine the current population. size. There are only 2 records of *Umbellapathes* sp. A identified in B.C. and they are both from the same tow.

Distribution: x = Unknown
Umbellapathes sp. A has been found on the continental slope off the WCQCI.
U*mbellapathes* sp. is found at Davidson Seamount in the Oregon province of the U.S. Pacific coast region (could refer to a different *Umbellapathes* sp.).
Depth Profile: The *Umbellapathes* sp. records for B.C. have a depth range of 726m – 2046m. 70% of B.C. antipatharian records are for depths greater than 1000m.

Number of Occurrences: A = Very Restricted
There is 1 unique record for *Umbellapathes* sp. A within B.C. and one additional record for *Umbellapathes* sp. which could be *U.* sp. A but is not identified to the species level.
Data Source: 1 record from a DFO tanner crab survey, validated by D. Opresko.

Population Trend: x = Unknown
More observations occur in recent years but this is due to an increase in the ability to identify corals to the species level and an increase in the desire to do so.
No records for *Umbellapathes* sp. were captured within B.C. waters until the year 2004.

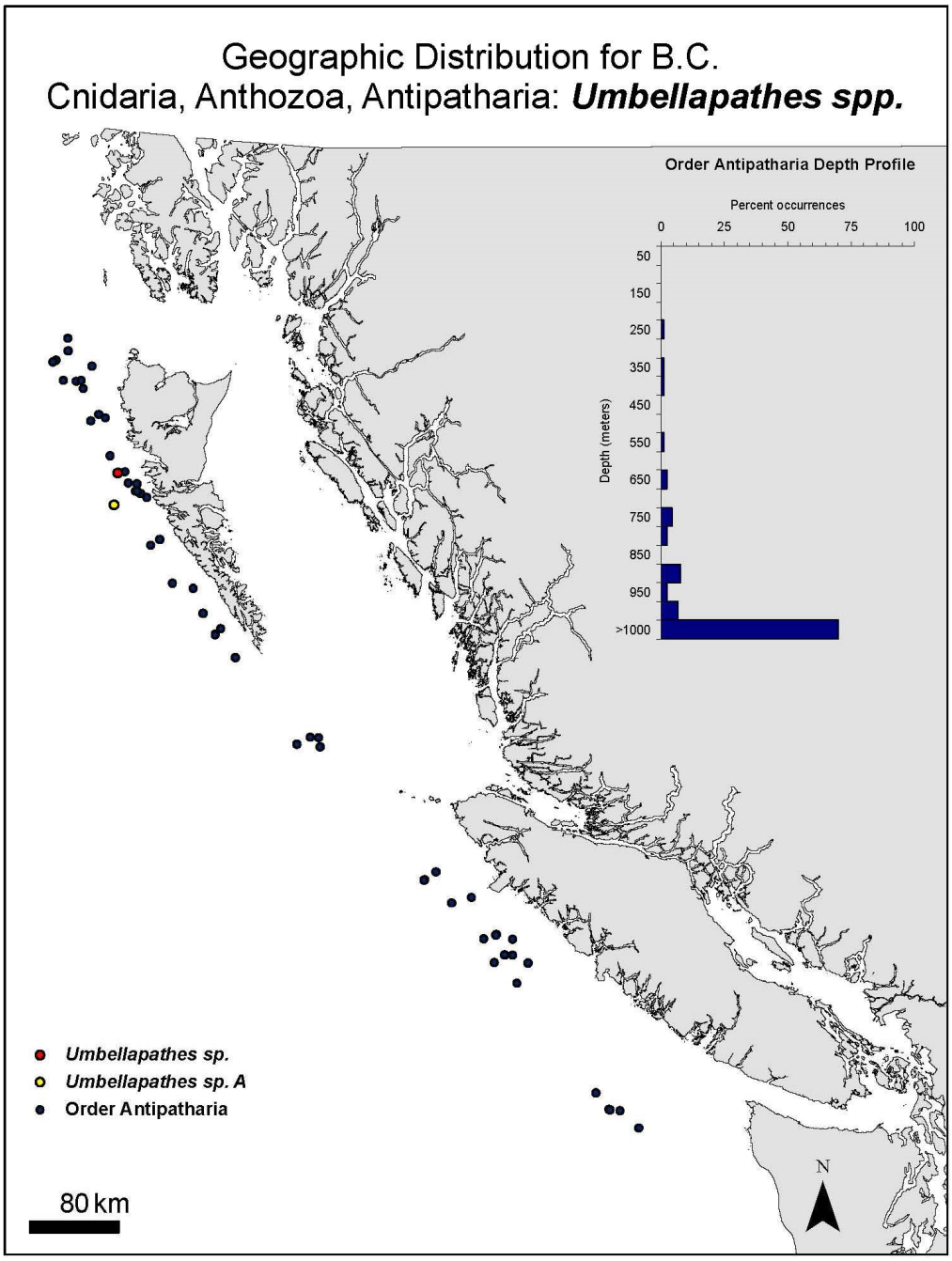
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Umbellapathes helioanthes* was thought to occur in B.C. (Boutillier, personal communication, 2009) but it seems likely that this was *Umbellapathes* sp. A. an undescribed species. *U. helioanthes* distribution is the north Pacific (Opresko, 2005) and the type species are known from Laysan Seamount (25° 40.184`N / 171° 23.507`W)

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Antipatharia: Umbellapathes spp.
Order Antipatharia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Umbellapathes sp.
Umbellapathes sp. A
Order Antipatharia
80 km
N

Anthoptilum grandiflorum (Verrill, 1879)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Anthoptilidae
Pacific Region Species Code (Hart): 3Z4.
TSN: 52365.
APHIAID: 128504.
Synonyms: *Pennatula argentina*, *Virgularia grandiflorum, A. thompsoni*
Common Name: full-flowered sea pen
Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: A. grandiflorum is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
A. grandiflorum has large colonies up to 800mm long (Hochberg and Ljubenkov 1998). P. gurneyi a member of the order Pennatulacea is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). H. willemoesi, another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: C = Regional
A. grandiflorum has been identified in BC waters from the west coast of QCI to VI, in shelf waters. *A. grandiflorum* is known to occur north of BC waters in the Aleutian Islands and Bering Sea regions of Alaska. *A. grandiflorum* also occurs south of BC waters across the US Pacific coast region (Lumsden et. al. 2007). Williams and Alderslade (2011) do confirm that *Anthoptilum grandiflorum* occurs in the North eastern Pacific.
Depth Profile: BC records of *A. grandiflorum* are known from 595 – 2001 m. Within BC there are no *Anthoptilum* spp. records above 600m and 46% occur below 1000 m. *A. grandiflorum* is known from 103 – 1543 m in the US Pacific region (Lumsden et. al. 2007).

Number of Occurrences: C = Regional
There are 21 unique records of *A. grandiflorum* in BC waters and 5 additional records for *Anthoptilum* sp.
Data Source: There are 2 records from the RBCM verified by P. Lambert and the rest are from DFO surveys including the *Anthoptilum* sp. records.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The records of *A. grandiflorum* were collected from 2001 - 2006.

Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.
• 4 metric tons of fisheries bycatch for Order Pennatulacea was reported in BC waters from 1996-2007.
• Order Pennatulacea may be less susceptible to fisheries damage than other hard branching corals due to the flexibility of the skeleton or axial rod (Troffe et. al. 2005). This, along with the ability of some species to burrow into the sediments to avoid harm, remove sediments after smothering and re-anchor when dislodged are all beneficial characteristics to avoid fisheries impacts (Eno et. al. 2001).

Other Relevant Information: *Anthoptilum* spp. is considered to be a major structure forming coral within the Alaska region (Lumsden et. al. 2007).

Editorial Comments: Gary Williams (pers. comm., 2010): "The reasons why identifications of octocorals from this part of the world are considered mostly unreliable to dubious involve several possible factors. Among them are the reality that many groups of octocorals are in dire need of taxonomic revision before reliable taxonomic identifications can be made. An example of this relates to the Pennatulacea. The last species level monograph of that group was that of Kükenthal in 1915! Also, contrary to popular belief, the octocoral fauna of the Pacific northwest has been poorly known, and remains that way."

Anthoptilum murrayi Kölliker, 1880

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Anthoptilidae
Pacific Region Species Code (Hart): 3Z5
TSN: 52364.
APHIAID: 128505.
Synonyms: N/A
Common Name: Murray's sea pen

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records of *A. murrayi* in BC waters; however, the species is found both north and south of BC waters and may therefore exist in BC.

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
A. murrayi has not been identified in BC waters. *A. murrayi* is known to occur north of BC waters in the Aleutian Islands and Bering Sea regions of Alaska. *A. murrayi* also occurs south of BC waters across the US Pacific coast region (Lumsden et. al. 2007). Hochberg and Ljubenkov (1998) state that the presence of *A. murrayi* off California has not been confirmed and that it might have been based on young specimens of *A. grandiflorum*.
Depth Profile: *A. murrayi* is known from 516 – 1083 m in the US Pacific region (Lumsden et. al. 2007). Within BC there are no *Anthoptilum* spp. records above 600m and 46% occur below 1000 m.

Number of Occurrences: x = Unknown
There are 5 unique records for *Anthoptilum* sp. in BC.
Data Source: The *Anthoptilum* sp. records are from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The records of *Anthoptilum* sp. were collected from 2000 – 2005.

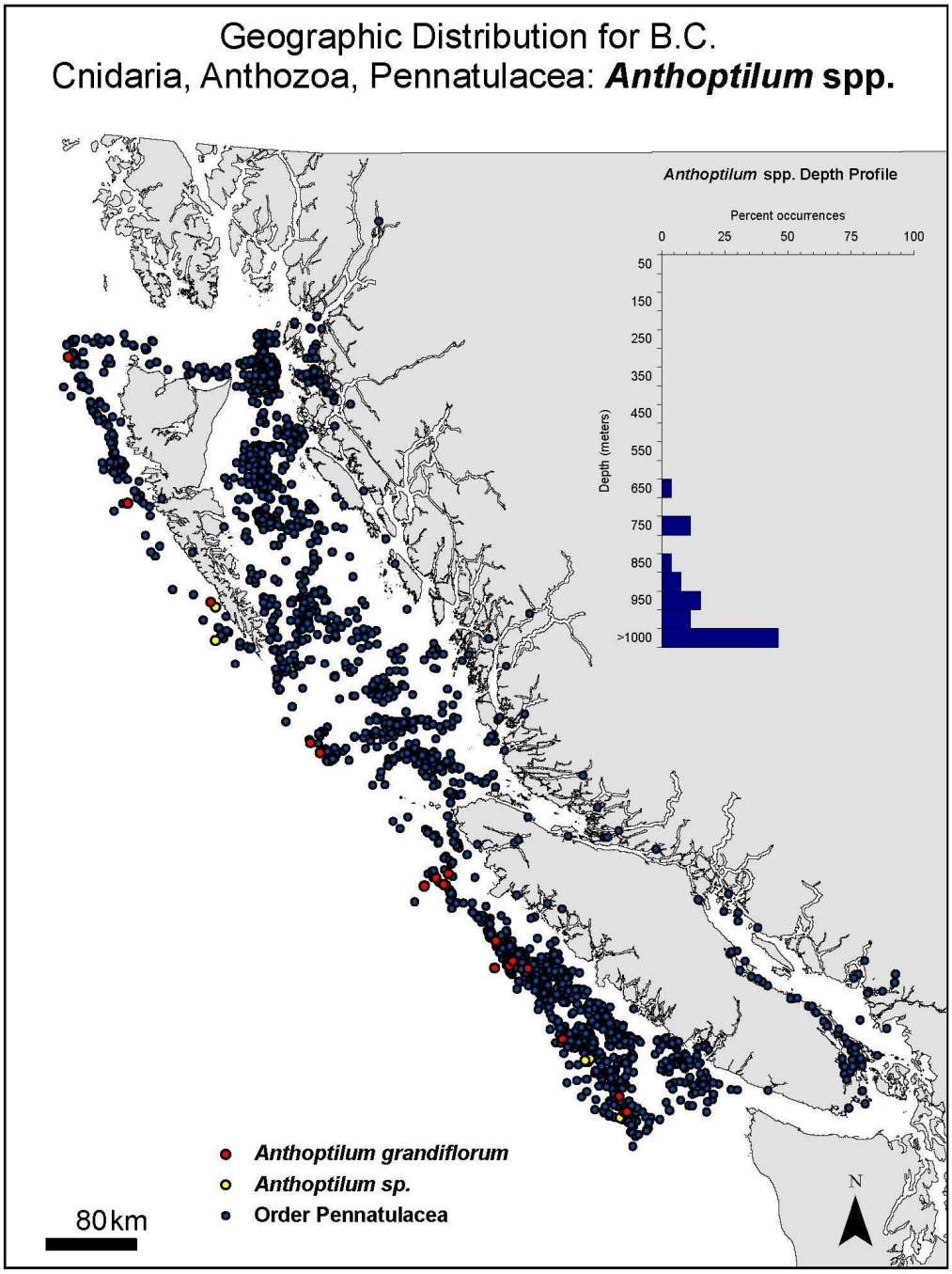
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *Anthoptilum* spp. is considered to be a major structure forming coral within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: *A. murrayi* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
A member of the genus *Anthoptilum, A. grandiflorum,* has large colonies up to 800 mm long (Hochberg and Ljubenkov 1998)
P. gurneyi a member of the order Pennatulacea is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Anthoptilum spp.
Anthoptilum spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Anthoptilum grandiflorum
Anthoptilum sp.
Order Pennatulacea
80 km
N

Funiculina parkeri Kükenthal, 1909

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Sessiliflorae, Funiculinidae
Pacific Region Species Code (Hart): 3Z9.
TSN: 52367. – genus.
APHIAID: 286622
Synonyms: *F. armata*
Common Name: N/A

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *F. parkeri* "colonies are small, slender and delicate" (Hochberg and Ljubenkov 1998) and it is a member of the Order Pennatulacea which contains sessile, slow growing and long living species.
F. parkeri has colonies up to 450 mm long (Hochberg and Ljubenkov 1998)
P. gurneyi a member of the order Pennatulacea is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
F. parkeri has been identified in BC waters under the synonym *F. armata* which occurs on the continental shelf off the WCVI. There is one additional non-verified record of *F. quadrangularis* which occurs off the WCVI as well. *F. parkeri* is known to occur south of BC waters across the US Pacific coast region (Lumsden et. al. 2007). The Austin (1985) distribution of *F. parkeri* is BC, Oregon and S. California. The Hochberg and Ljubenkov (1998) distribution of *F. parkeri* is the Northeast Pacific Ocean, known only from southern California from the locality of the syntypes.
Depth Profile: *F. parkeri* is known from 600 – 1200 m (Hochberg and Ljubenkov 1998).

Number of Occurrences: A = Very Restricted
There is one unique record for *F*. cf. *parkeri* in BC identified under the synonym *F. armata.*
Data Source: The *F.* cf. *parkeri* record was initially identified as *F. armata* by P. Lambert at the RBCM; however, *F. armata* is only known from the Indian Ocean. The *F. quadrangularis* record is from a DFO survey and now considered to be a record for *Funiculina* sp.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in

BC waters, since 1997 there have been 3137 records. The records of *Funiculina* spp. were collected from 2001 and 2004.

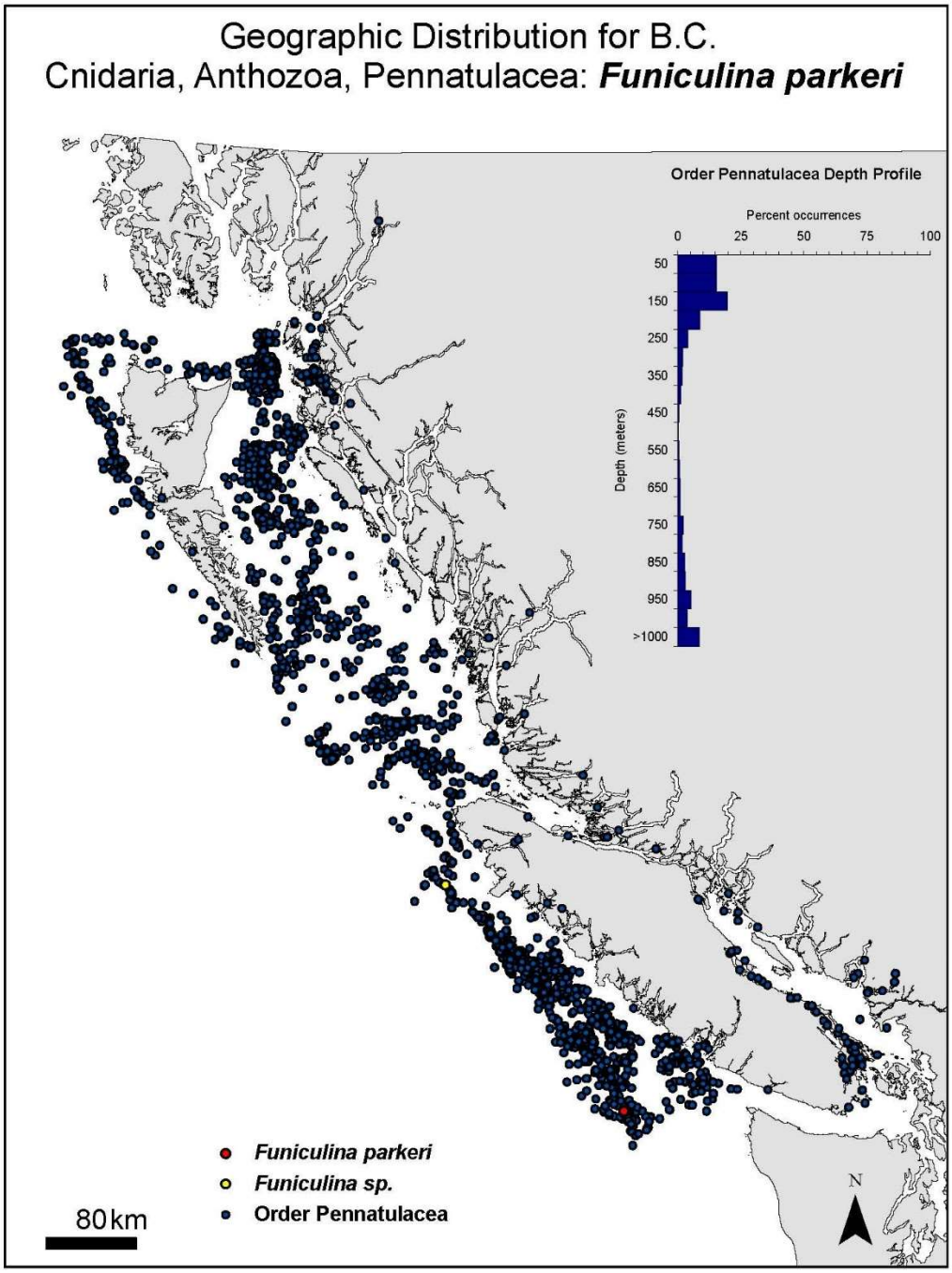
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).

Editorial Comments:
There are three species of the genus *Funiculina*
The distribution of F. *armata* AphiaID code 286621 and *F. quadrangularis* AphiaID code 128506 on the WoRMS distribution map does not show them occurring in the N.E. Pacific. More work is required on these specimen.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Funiculina parkeri
Order Pennatulacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Funiculina parkeri
Funiculina sp.
Order Pennatulacea
80 km
N

Halipteris californica (Moroff, 1902)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Halipteridae
Pacific Region Species Code (Hart): 3XD.
TSN: 719252.
AphiaID: 286623.
Synonyms: *H. contorta, Balticina californica, B. pacifica*, *Pavonaria, Stachyptilum quadridentatum*
Common Name: short sea whip

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *H. californica* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
H. californica grows up to 1400 mm long (Hochberg and Ljubenkov 1998)
H. willemoesi a member of the Order Pennatulacea has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007)

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: C = Regional
H. californica has been identified in BC waters on the continental shelf from the WCQCI to the WCVI. *H. californica* is known to occur north of BC in the Eastern Gulf of Alaska region and south of BC in the San Diego biogeographic province in the US Pacific coast region (Lumsden et. al. 2007). The Hochberg and Ljubenkov (1998) distribution of *H. californica* is the Northeast Pacific Ocean, Alaska to Coronado Bank, Baja California Norte, Mexico.
Depth Profile: BC records of *H. californica* range from 180-2001 m with 78% of records collected below 850 m. According to Hochberg and Ljubenkov (1998) *H. californica* is known from 300–2000 m with most specimens collected in the range of 250-450 m.

Number of Occurrences: C = Regional
There are 25 unique records for *H. californica* in BC.
Data Source: Five *H. californica* records are housed at the RBCM, four of which are verified. The remaining 20 records are from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The records of *H. californica* from the RBCM were collected between 1983 and 2004. The DFO records were collected in 2003 and 2004.

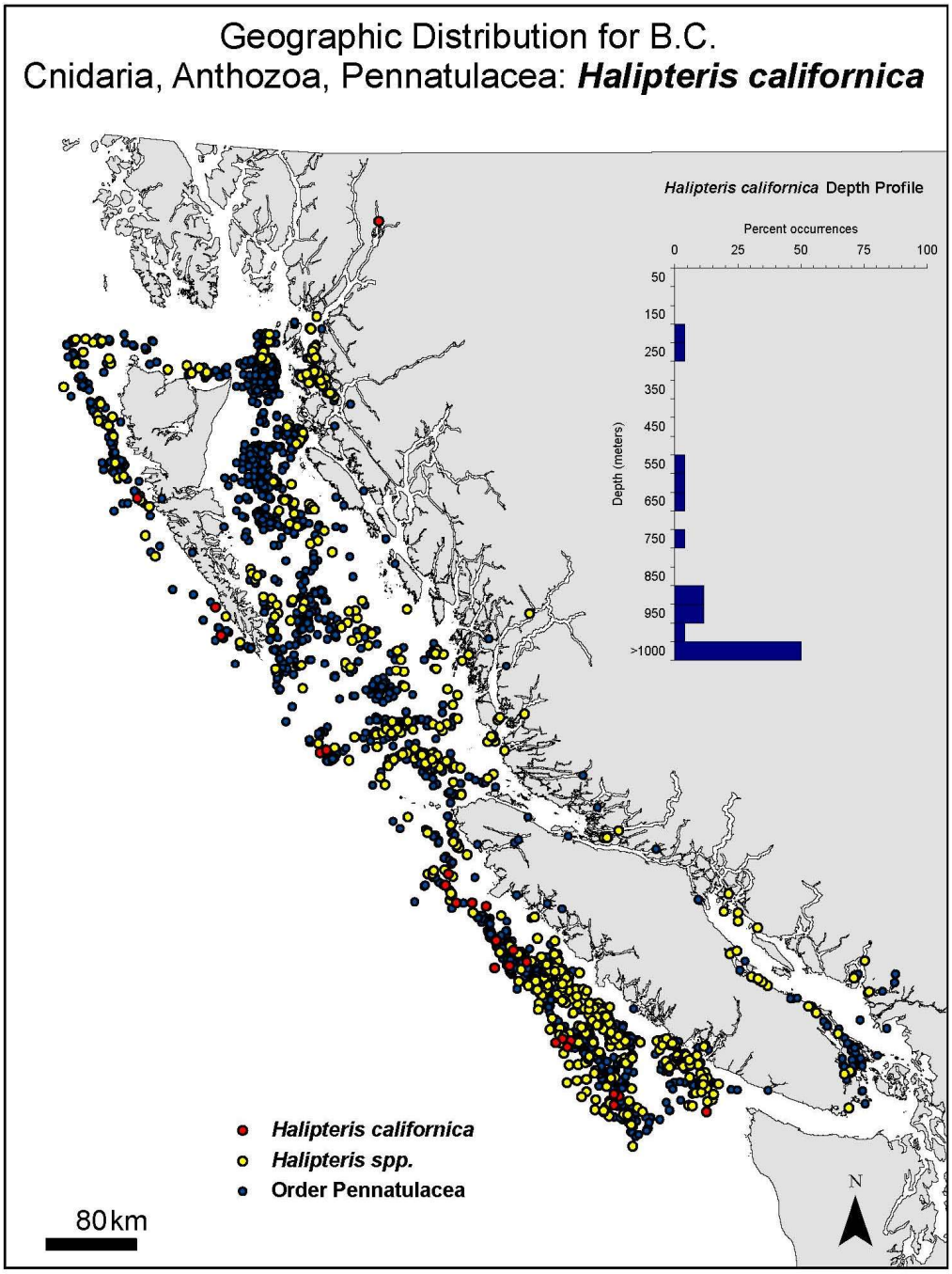
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
There are 653 additional unique records of *H. septentrionalis* recorded under the synonyms *Osteocella septentrionalis* and *Balticina septentrionalis* from DFO surveys. These are synonyms of *H. willemoesi* but the regional code used to represent these names 3U2 is used for generic sea whips so the records may represent either *H. willemoesi* or *H. californica.* 16% of *H. septentrionalis* records are not accounted for within the *H. willemoesi* depth range of 0-250 m. 11% of these records occur below 850 m which is the depth range for 78% of *H. californica* records which appears to have a broader depth distribution than *H. willemoesi.* If 16% of the records for *H. septentrionalis* are in fact *H. californica* then that is an additional 104 records for BC.

Editorial Comments: Gary Williams (pers. comm., 2010): "The reasons why identifications of octocorals from this part of the world are considered mostly unreliable to dubious involve several possible factors. Among them are the reality that many groups of octocorals are in dire need of taxonomic revision before reliable taxonomic identifications can be made. An example of this relates to the Pennatulacea. The last species level monograph of that group was that of Kükenthal in 1915! Also, contrary to popular belief, the octocoral fauna of the Pacific northwest has been poorly known, and remains that way."


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Halipteris californica
Halipteris californica Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Halipteris californica
Halipteris spp.
Order Pennatulacea
80 km
N

Halipteris willemoesi Kölliker, 1870

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Halipteridae
Pacific Region Species Code (Hart): 3XF.
TSN: 719253.
AphiaID: 286626.
Synonyms: *Balticina willemoesi, B. septentrionalis, B. finmarchia, H. septentrionalis, Microptilum willemoesi, Virgularia finmarchia, Osteocella septentrionalis, Verrillia blakei, Pavonaria willemoesi*
Common Name: sea whip

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *H. willemoesi* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
H. willemoesi can grow up to 3 m long (Lumsden et. al. 2007)
H. willemoesi has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007)

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007).
H. willemoesi displays a clumped distribution and at Turnour Bay on the north central coast of BC densities of *H. willemoesi* ranged from 7.1 – 14.33/m2 (Troffe et. al. 2005).

Distribution: C = Regional
H. willemoesi has been identified in BC waters coastwide within inside waters including Hecate Strait and QC Sound but not on the west coast. *H. willemoesi* is known to occur north of BC in the Eastern Gulf, Western Gulf, Aleutian Islands and Bering Sea regions of Alaska (Lumsden et. al. 2007).
Depth Profile: BC records of *H. willemoesi* range from 12-220 m with 42% of records collected between 0-50 m.

Number of Occurrences: C = Regional
There are 21 unique records for *H. willemoesi* in BC.
Data Source: 11 *H. willemoesi* records are from museum collections but they were all recorded as synonyms of *H. willemoesi.* Eight records are from field notes and 2 are from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The records of *H. willemoesi* from the RBCM were collected between 1928 and 2005.

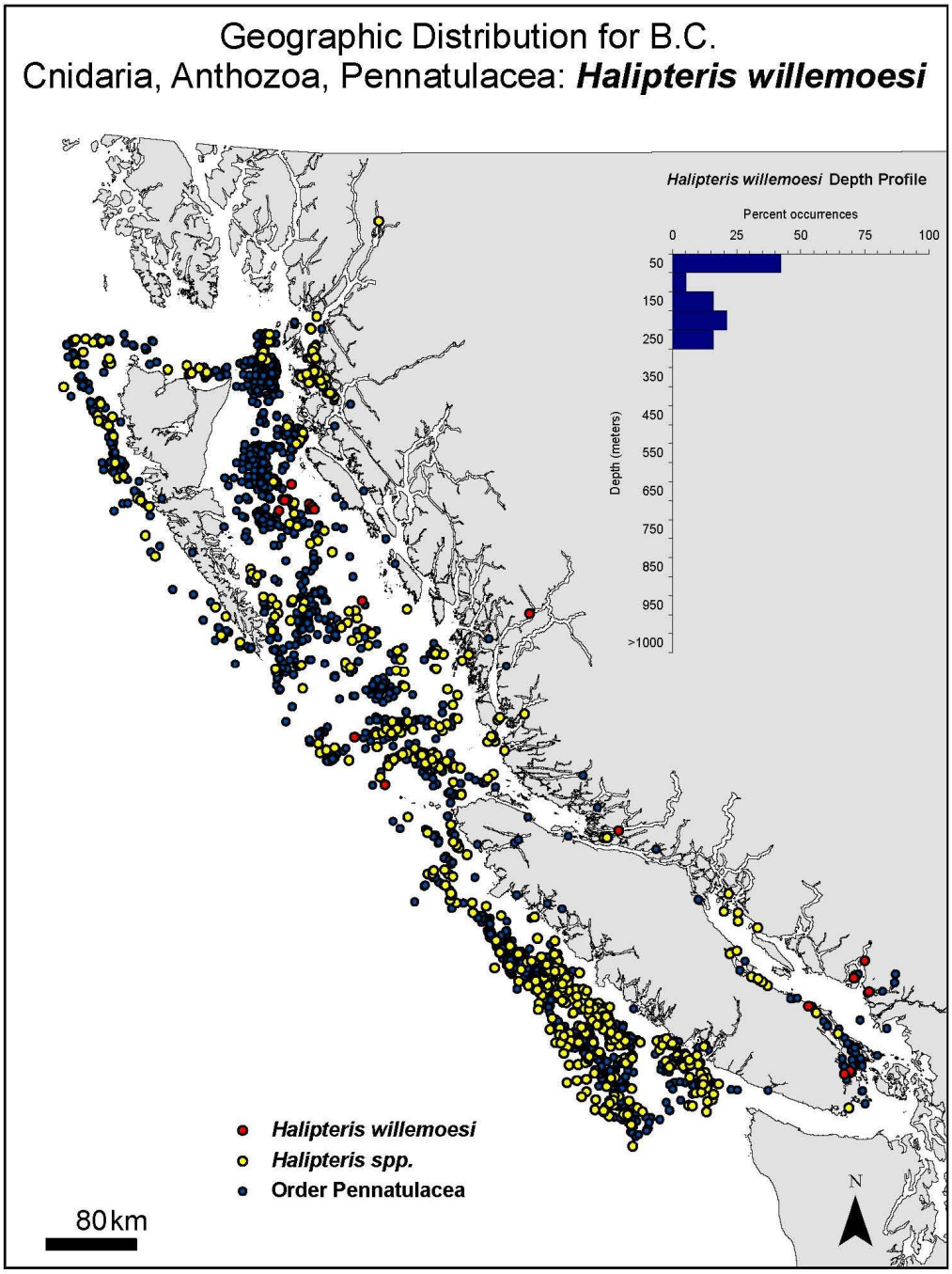
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: *H. willemoesi* is considered to be a major structure forming coral species within the Alaska region (Lumsden et. al. 2007).
There are 653 additional unique records of *H. septentrionalis* recorded under the synonyms *O. septentrionalis* and *B. septentrionalis* from DFO surveys. These are synonyms of *H. willemoesi* but the regional code used to represent these names 3U2 is used for generic sea whips so the records may represent *H. willemoesi* or *H. californica*. The depth profile for the *H. septentrionalis* records shows 84% of records within the 0-250 m range which is the depth range seen for 100% of *H. willemoesi* records within BC. If 84% of the records for *H. septentrionalis* are in fact *H. willemoesi* that is an additional 549 records which would surely extend the BC distribution of *H. willemoesi* to the West Coast of VI and QCI.

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Halipteris willemoesi
Halipteris willemoesi Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Halipteris willemoesi
Halipteris spp.
Order Pennatulacea
80 km
N

Kophobelemnon cf. affine Studer, 1894

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Sessiliflorae, Kophobelemnidae
Pacific Region Species Code (Hart): 3ZG.
TSN: 52360 – genus.
AphiaID: 286627
Synonyms: N/A
Common Name: N/A

Proposed General Status Ocean Rank: 5 = Undetermined
There is only one record of *K.* cf. *affine* and it is an unverified DFO survey record.

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
K. cf. affine has been identified in BC waters on the continental shelf off the WCVI. *K. affine* is reported to occur south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007). The Austin (1985) distribution of *K. affine* is NW Pacific to the Bering Sea to S Alaska to BC, Oregon. The Hochberg and Ljubenkov (1998) distribution of *K. affine* is the Northeast Pacific Ocean, central California (36°; northern limits unknown) to Bay of Panama (7°N).
Depth Profile: The BC record for *K. cf. affine* was collected between 1804-1827 m. *K. affine* is known from 2300–2700 m (Hochberg and Ljubenkov 1998).

Number of Occurrences: A = Very Restricted
There is one unique record for *K. cf. affine* in BC.
Data Source: The *K. cf. affine* record is unverified from a DFO survey.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The BC record of *K.* cf. *affine* was collected in 2003.

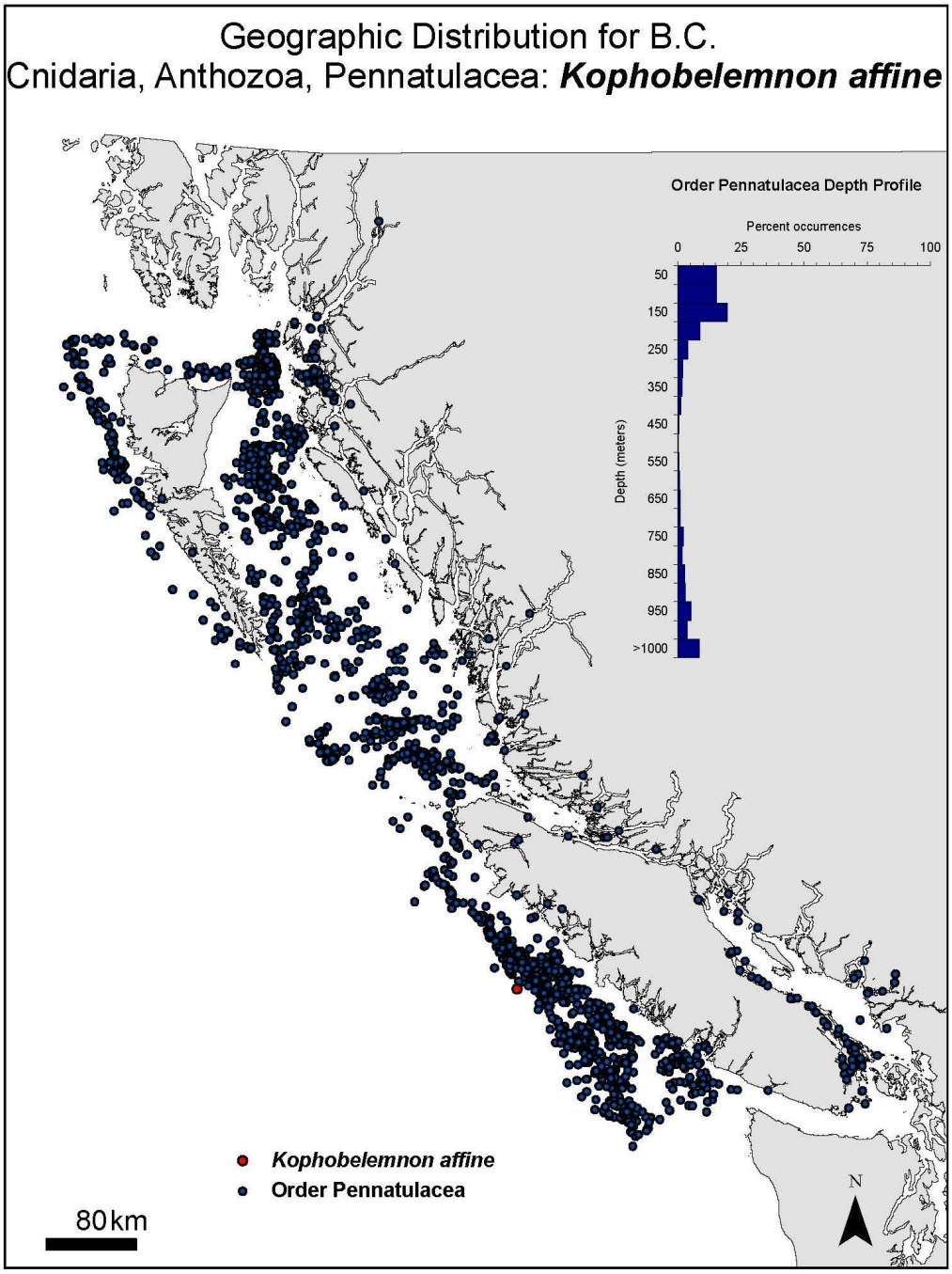
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: *K. affine* is a member of the Order Pennatulacea which contains sessile, slow growing, long living species.
K. affine total colony length of 70-120 mm long (Hochberg and Ljubenkov 1998)
P. gurneyi a member of the order Pennatulacea is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi*, another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: James Boutillier (pers. comm., 2009): "There are samples and photos of Kophobelemnon cf. affine that DFO Pacific region has in its possession which need to be sent to experts to confirm the distribution of this animal in our region."


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Kophobelemnon affine
Order Pennatulacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Kophobelemnon affine
Order Pennatulacea
80 km
N

Kophobelemnon hispidum Nutting, 1912

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Kophobelemnidae
Pacific Region Species Code (Hart): 3ZI.
TSN: 52360 – genus.
AphiaID: 286629.
Synonyms:
Common Name: hairy sea pen

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of *K. hispidum* in BC waters but two authors do mention it as present in BC (Austin, 1985; Hochberg and Ljubenkov, 1998).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
K. hispidum has not been identified in BC waters, except in Austin (1985) where it was identified from Cape St. James, BC. *K. hispidum* is known to occur south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007). The Austin (1985) distribution of *K. hispidum* is BC, Oregon, and Japan. According to Hochberg and Ljubenkov (1998) *K. hispidum* occurs in the deep-sea of the North Pacific Ocean from Japan to Washington.
Depth Profile: Both Austin (1985) and Hochberg and Ljubenkov (1998) reference the species distribution as “deep”, which in Austin (1985) implies a depth below 200 m.

Number of Occurrences: x = Unknown
There are no records except in Austin (1985) of this species in BC waters.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).

K. hispidum is a member of the Order Pennatulacea which contains sessile, slow growing, long living species.
K. hispidum total colony length of 7.8 cm long (Nutting, 1912))
P. gurneyi a member of the order Pennatulacea is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: N/A

Kophobelemnon macrospinosum Thompson, 1927

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Kophobelemnidae
Pacific Region Species Code (Hart): 3ZH – was for *K. biflorum.*
TSN: 52360 – genus.
AphiaID: 128511
Synonyms: *Kophobelemnon biflorum* Pasternik, 1960
Common Name: large-spined sea pen

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of *K. macrospinosum* in BC waters but Austin (1985) states that the synonym *K. biflorum* is present both north and south of BC in US waters. However, Lumsden et. al. (2007), a comprehensive report on US deep coral ecosystems, does not list either *K. macrospinosum* or *K. biflorum* as being present in the Aleutian Islands. According to Hochberg and Ljubenkov (1998) *K. macrospinosum* occurs in the deep-sea of the North Pacific Ocean. Perhaps with more deep-sea exploration the range of this species will become more definitive.

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
Not enough information to determine the current distribution.
K. macrospinosum has not been identified in BC waters. *K. macrospinosum* under the synonym *K. biflorum* is reported to occur south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007). The Austin (1985) distribution *K. macrospinosum* under the synonym *K. biflorum* is the NW Pacific Ocean to the Aleutian Islands and Washington to Oregon, thus occurring both north and south of BC waters. According to Hochberg and Ljubenkov (1998) *K. macrospinosum* occurs in the deep-sea of the North Pacific Ocean.
Depth Profile: Both Austin (1985) and Hochberg and Ljubenkov (1998) reference the species distribution as “deep”, which in Austin (1985) implies a depth below 200 m.

Number of Occurrences: x = Unknown
There are no records of this species in BC waters.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
K. macrospinosum is a member of the Order Pennatulacea which contains sessile, slow growing, long living species.
Closely related species *K. hispidum* has a total colony length of 7.8 cm long in the Nutting (1912) description.
P. gurneyi a member of the order Pennatulacea is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi*, another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: There is no record of the species *K. biflorum* in WoRMS as of 2018.

Pennatula phosphorea Linnaeus, 1758

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Subsessiliflorae, Pennatulidae
Pacific Region Species Code (Hart): 3XL.
TSN: 52419.
AphiaID: 128517.
Synonyms: *P. phosphorea californica, P. aculeata, P. tenuis*
Common Name: phosphorescent sea pen

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *P. phosphorea* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
P. phosphorea can reach up to 40 cm total colony length (Greathead et. al. 2007). *Ptilosarcus gurneyi,* a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: B = Restricted
P. phoshorea has been identified in BC waters off the WCVI on the continental shelf. *P. phosphorea* under the synonym *P. phosphorea cf californica* is known to occur south of BC waters across the US Pacific Coast.
P. phoshorea is known to occur north of BC waters in the Eastern Gulf of Alaska (Lumsden et. al. 2007). The Austin (1985) distribution of *P. phoshorea* is from S. Alaska to BC and S. Oregon. Austin (1985) considers it cosmopolitan. According to Hochberg and Ljubenkov (1998) *P. phosphorea* under the synonym *P. phosphorea californica* occurs in the deep-sea of the North Pacific Ocean. Neither WoRMS nor IT IS recognized "*californica"* as a legitimate variant or sub-species but NOAA does attribute the name "californica" to Kukenthal, 1913.
Depth Profile: BC records of *Pennatula* spp. occur from 860-1410m. *P. californica* records for the US Pacific coast occur between 465-991 m. Hochberg and Ljubenkov (1998) reference the distribution of *P. californica* as 50-825 m, typically below 400 m.

Number of Occurrences: A = Very Restricted
There are two unique records of *P. phosphorea cf californica* in BC, one unique record of *Pennatula* sp. and one unique record of a specimen of *P. sulcate* albeit this is not a recognized species in either WoRMS or IT IS.
Data Source: The *P. sulcate* record is from the Canadian Museum of Natural History with no identifier listed. The other three records are from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The CMN record for *P. sulcata* is from 1953 and the other Pennatula sp. records were collected in 2003.

Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

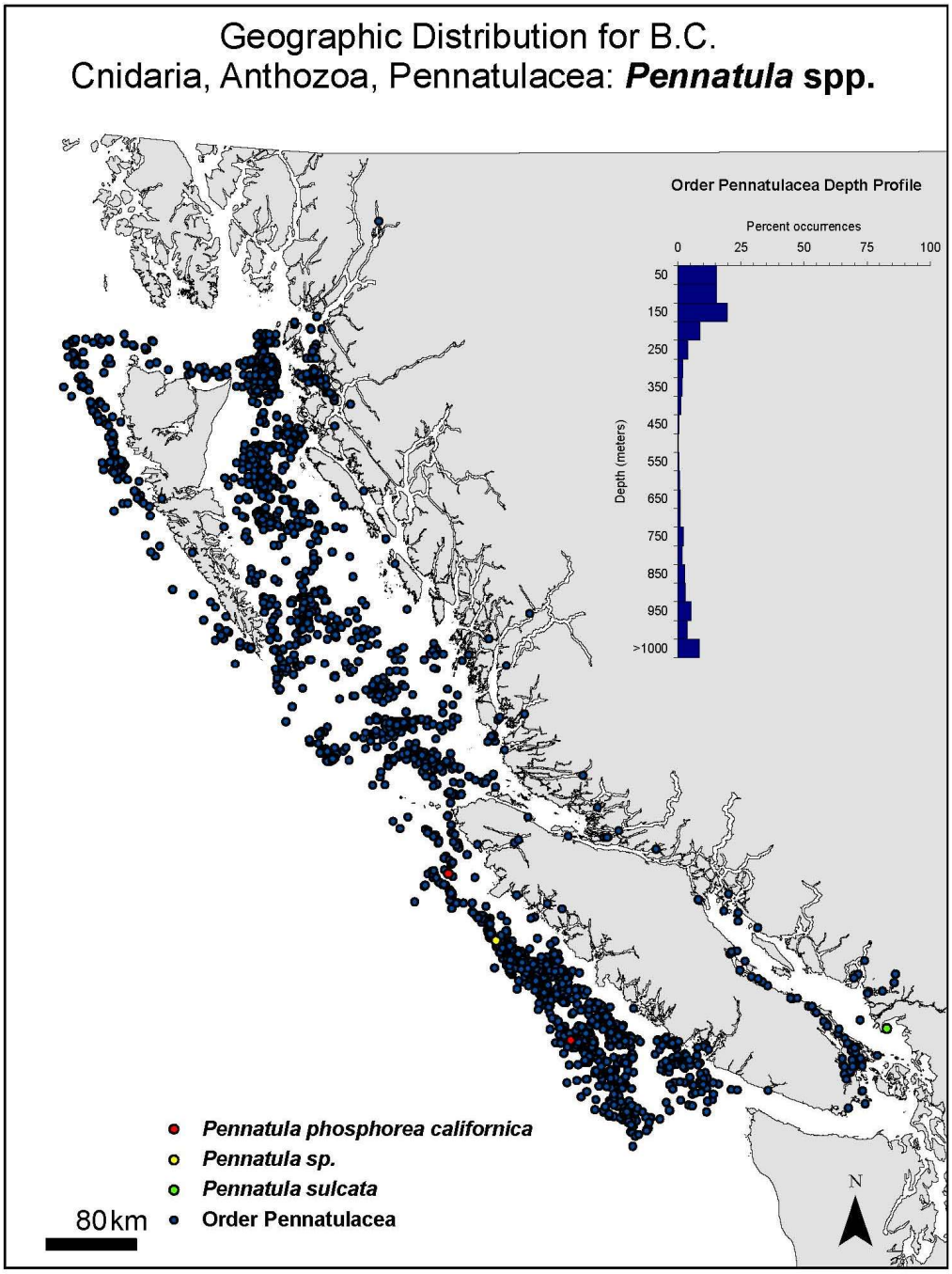
Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations. (see additional notes under Anthoptilum grandifordiflorum)

P. phosphorea can retract to some extent into the sediment (Greathead et. al. 20

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
There is confusion surrounding the species name. There is likely only one Pennatula species in BC. *Pennatula phosphorea californica* or *Pennatula phosphorea* whichever name is valid. ITIS lists *Pennatula phosphorea californica* however, WoRMS only a recognize P. *phosphorea*. ITIS did recognize it as a sub-species in 1996 but the 2002 publication on Common and Scientific Names of Aquatic Invertebrates from the US and Canada: Cnidaria and Ctenophora does no list it.

Editorial Comments: More work needs to be done on the BC samples to ensure that they are the same species observed in Alaska as *Pennatula phosphorea.* There is no mention of a *P. sulcata,* and at this and it is not a valid species.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Pennatula spp.
Order Pennatulacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Pennatula phosphorea californica
Pennatula sp.
Pennatula sulcata
Order Pennatulacea
80 km
N

Ptilosarcus gurneyi (Gray, 1860)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Subsessiliflorae, Pennatulidae
Pacific Region Species Code (Hart): 3U5.
TSN: 52424.
AphiaID: 290947.
Synonyms: *Leioptilus, P. quadrangulare, P. verrilli, P. tenuis, P. quadrangularis*
Common Name: Gurney's sea pen

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *P. gurneyi* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
P. gurneyi can reach up to 48 cm total colony length (Hochberg and Ljubenkov 1998).
P. gurneyi is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C. 1974).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: C/D = Regional/Widespread
P. gurneyi has been identified throughout BC inshore waters. *P. gurneyi* is known to occur south of BC waters across the US Pacific Coast. *P. gurneyi* is known to occur north of BC waters in the Eastern Gulf, Western Gulf and Aleutian Islands regions of Alaska (Lumsden et. al. 2007). The Austin (1985) distribution of *P. gurneyi* is from Alaska to S. California. According to Hochberg and Ljubenkov (1998) *P. gurneyi* occurs in the Northeast Pacific Ocean, along the coast from Prince William Sound, Alaska to northern Baja California, Mexico and out to Guadalupe Island.
Depth Profile: BC records of *Ptilosarcus* spp. occur from 5-841m with 65% between 0-50m and 96% between 0-200 m. 100% of verified *P. gurneyi* records within BC occur between 0-50 m. *P. gurneyi* records for the US Pacific coast occur between 11-922 m. Hochberg and Ljubenkov (1998) reference the distribution of *P. gurneyi* as 3-135 m, shallow subtidal in northern part of range.

Number of Occurrences: D = Widespread
There are 36 museum voucher records for *P. gurneyi* in BC and 127 other unique records recorded as *P. gurneyi* and 52 of *Ptilosarcus* sp. It should be noted that any reference is incorrect as *P. quadrangularis* is now considered a synonym for *P. gurneyi* (Whitmire et al 2017).
Data Source: The 127 non-museum *P. gurneyi* records are from DFO survey and fisheries bycatch. The regional code used 3U5 for *P. gurneyi* is sometimes used as a generic sea pen code and many of the records are likely not *P. gurneyi.* Since *P. gurneyi* seems to occur mainly in the 0-50 m range, 65% of the total number of *P. gurneyi* records in BC equals 105 occurrences.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. Of all the *Ptilosarcus* spp. records 96 occurred from 1882 to 1991 and 161 records post 2000 all of which are from DFO and industry.

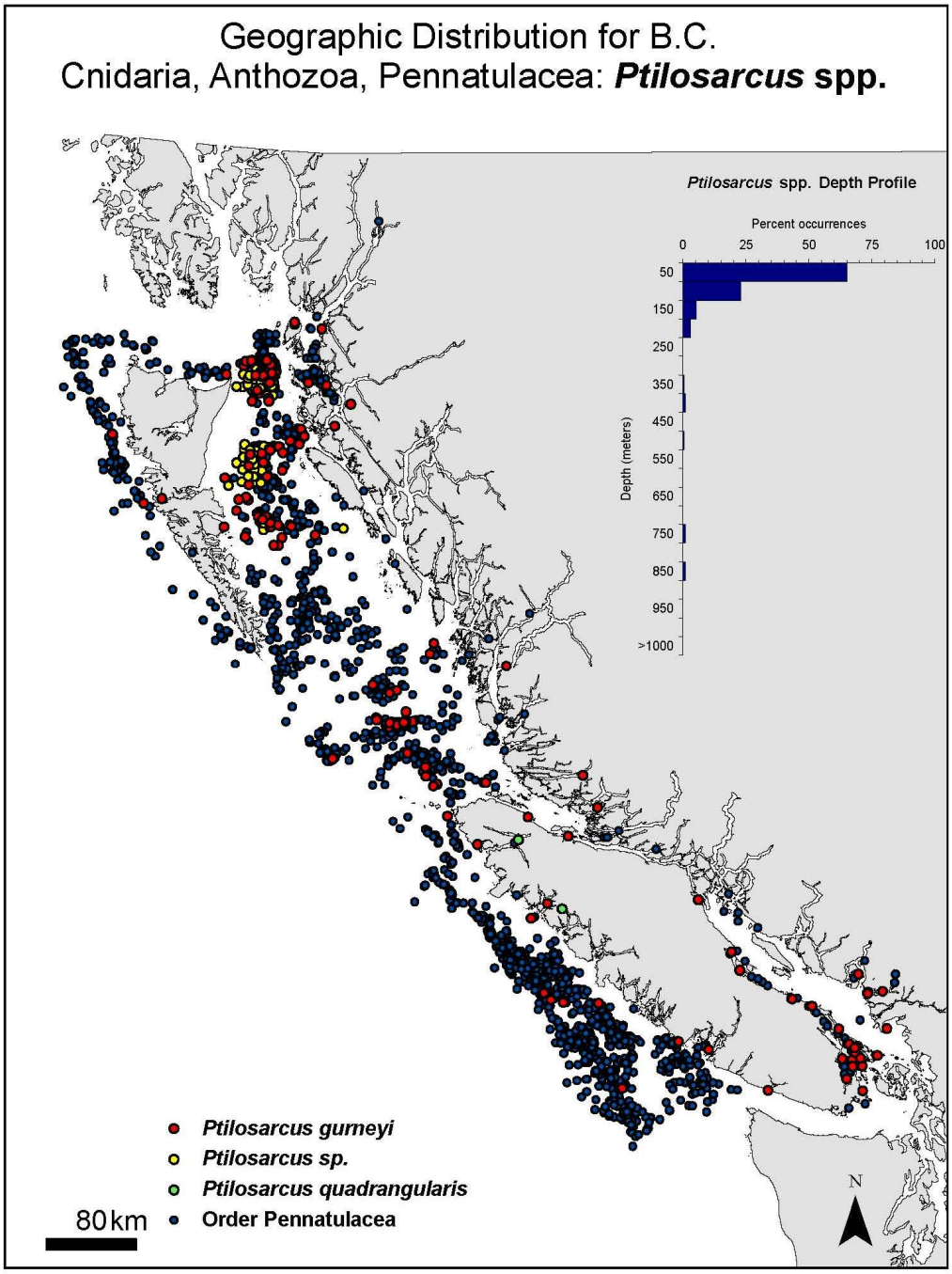
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.
P. gurneyi can retract completely into the sediment (Lumsden et. al. 2007).

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
P. undulatus is present in the Oregon biogeographic province of the US Pacific coast. There may be more than one species of *Ptilosarcus* present in BC, if so then some *Ptilosarcus* sp. records may represent *P. undulates* which is known to occur in the Pacific.

Editorial Comments: Gary Williams (pers. comm., 2010): "The reasons why identifications of octocorals from this part of the world are considered mostly unreliable to dubious involve several possible factors. Among them are the reality that many groups of octocorals are in dire need of taxonomic revision before reliable taxonomic identifications can be made. An example of this relates to the Pennatulacea. The last species level monograph of that group was that of Kükenthal in 1915! Also, contrary to popular belief, the octocoral fauna of the Pacific northwest has been poorly known, and remains that way."


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Ptilosarcus spp.
Ptilosarcus spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Ptilosarcus gurneyi
Ptilosarcus sp.
Ptilosarcus quadrangularis
Order Pennatulacea
80 km
N

Distichoptilum gracile Verrill, 1882

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Sessiliflorae, Protoptilidae
Pacific Region Species Code (Hart): 3ZU.
TSN: 52371.
AphiaID: 128524.
Synonyms:
Common Name: slender sea pen

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of *D. gracile* in BC waters. Austin (1985) lists the species as from Oregon. Hochberg and Ljubenkov (1998) list the northern distribution as Washington.

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: B = Restricted
D. gracile has been identified in BC waters off the west coast of VI and QCI on the shelf. *D. gracile* are known to occur south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007). According to Hochberg and Ljubenkov (1998) *D. gracile* is cosmopolitan and present in the Northeast Pacific Ocean from Washington to Panama (northern limits not determined).
Depth Profile: BC records of *D. gracile* occur from 1164-1922 m. Hochberg and Ljubenkov (1998) reference the distribution of *D. gracile* as 650-4300 m.

Number of Occurrences: A = Very Restricted
There are three records for *D. gracile* in BC waters.
Data Source: All three *D.* cf. *gracile* records are from DFO survey data and are unverified.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The *D. gracile* records resulted from a DFO survey in 2004.

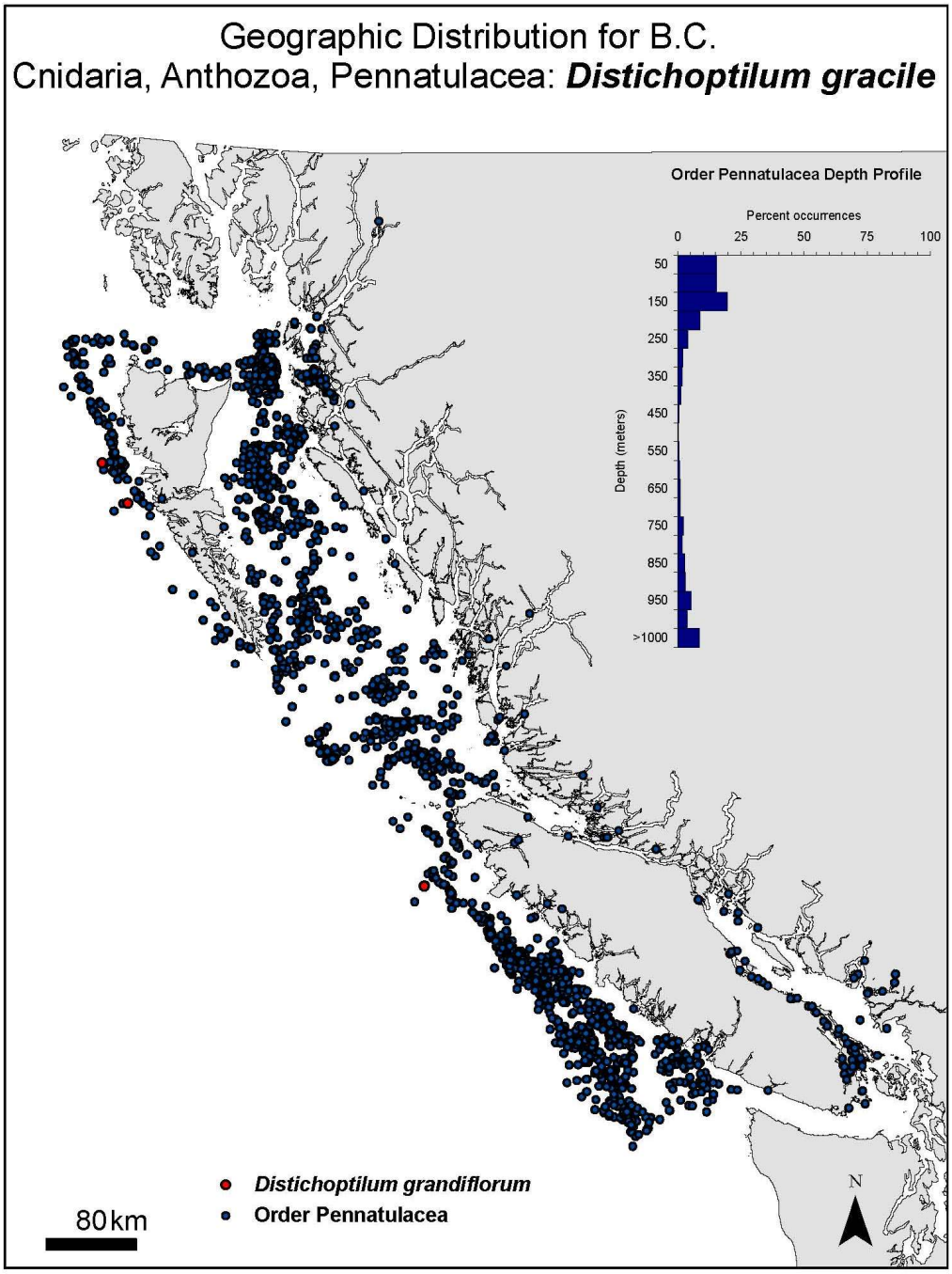
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: *D. gracile* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
D. gracile can reach up to 150 cm total colony length (Hochberg and Ljubenkov 1998). *Ptilosarcus gurneyi*, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: Only one species of *Distichoptillum* recognized in WoRMS (*D. gracilis).* In the recent literature Cairns and Hourigan (2017) do recognize Distichoptilum rigidum (Nutting, 1912) as a valid species with a synonym being noted as *Helicoptilum rigidum* (Nutting, 1912) by Whitmire et al (2017).


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Distichoptilum gracile
Order Pennatulacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Distichoptilum grandiflorum
Order Pennatulacea
80 km
N

Protoptilum sp. Kölliker, 1872

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Sessiliflorae, Protoptilidae
Pacific Region Species Code (Hart): 3ZV – genus.
TSN: 52373 – genus.
AphiaID: 128498 genus.
Synonyms:
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
Protoptilum sp. may occur in BC waters but this is unconfirmed by records. The *Protoptilum* records were thought to occur both north and south of BC which would make it likely for a species to also occur in BC. There are 6 direct children found in WoRMS for this genus but WoRMS does not show any distributional information from the NE Pacific.
Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
There are no records of *Protoptilum* sp. in BC waters except Jamieson et. al. (2006) referencing a personal communication with Jim Boutillier (confirmed) stating that a species of *Protoptilum* is believed to be present in BC. *Protoptilum* sp. A is known to occur north of BC waters in the Eastern Gulf and Western Gulf of Alaska (Lumsden et. al. 2007). According to Williams (1995) *Protoptilum* spp. are present in the eastern Pacific Ocean off California.
Depth Profile: Williams (1995) reference the distribution of *Protoptilum* spp. as 250-4000 m.

Number of Occurrences: x = Unknown
There are no known validated occurrences of *Protoptilum sp*. in BC waters.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records.

Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.
.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: Protoptilum sp. is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
Protoptilum spp. is considered to be "long and slender" (Williams 1995).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: Neither Cairns and Hourigan (2017) nor Whitmire et al (2017) have documented and Protoptilum sp from the NE Pacific although they do confirm Distichoptilum rigidum. As such the Protoptilum records by Lumsden et al (2007) and Williams (1995) may be misidentifications.

Stachyptilum superbum Studer, 1894

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Stachyptilidae
Pacific Region Species Code (Hart): 3ZZ.
TSN: 52378.
AphiaID: 291109.
Synonyms:
Common Name: exquisite sea pen

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *S. superbum* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
S. superbum can reach up to 25 cm total colony length (Hochberg and Ljubenkov 1998). *Ptilosarcus gurneyi,* a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). H. willemoesi, another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: B = Restricted
S. superbum has been identified in BC waters off the WCVI on the continental shelf and QC Sound. *S. superbum* is known to occur south of BC waters across the US Pacific Coast (Lumsden et. al. 2007). According to Hochberg and Ljubenkov (1998) *S. superbum* occurs in the Northeast Pacific Ocean from central California to the Gulf of Panama.
Depth Profile: BC records of *S. superbum* occur between 0-1080 m. Hochberg and Ljubenkov (1998) state the depth distribution of *S. superbum* as 50-950 m.

Number of Occurrences: A = Very Restricted
There are four unique records of *S. superbum* in BC.
Data Source: Two records are from the RBCM verified by W.C. Austin and the other two are from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of *S. superbum* are from the 1970s and the DFO records are from 2004.

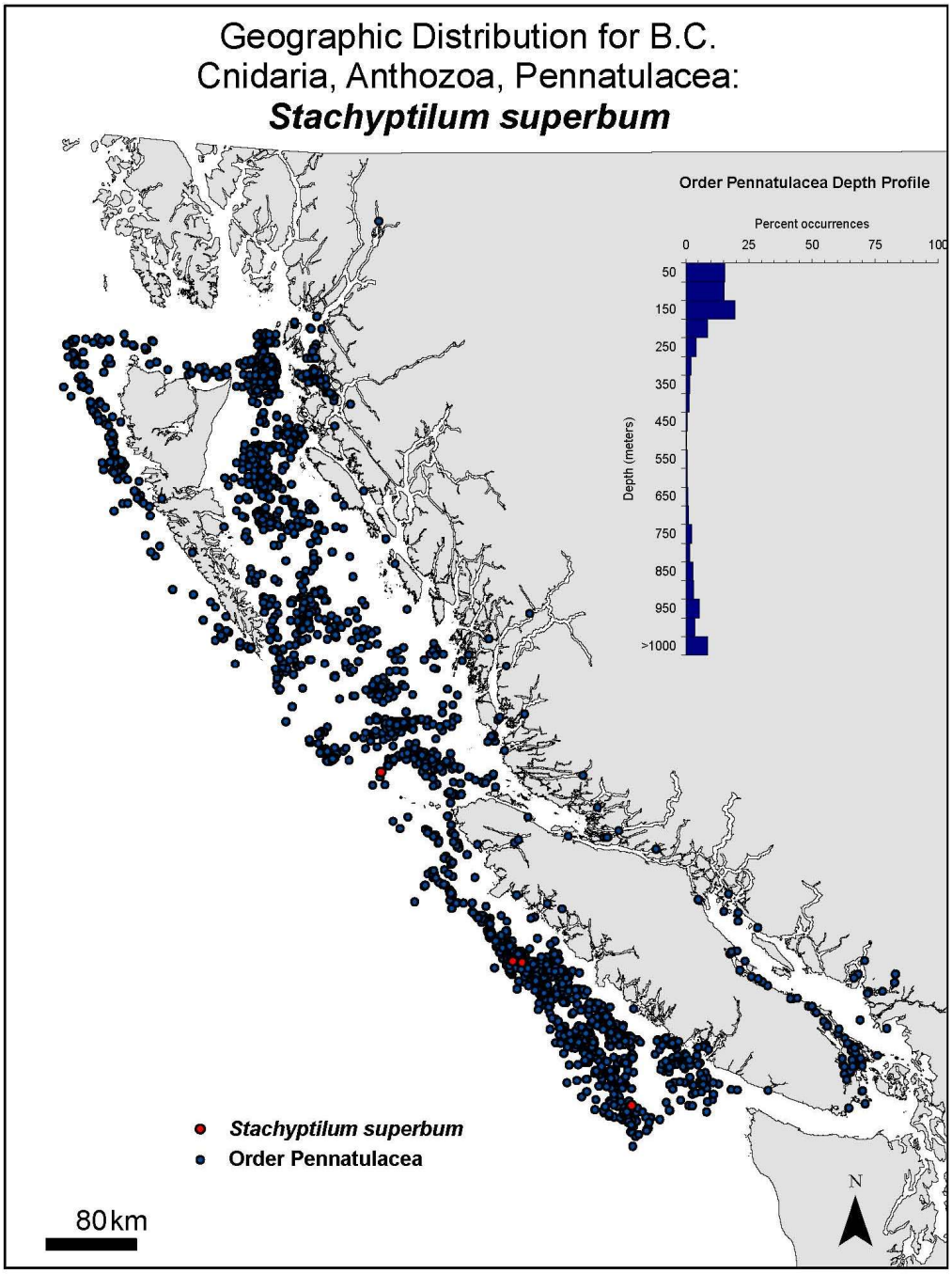
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea:
Stachyptilum superbum
Order Pennatulacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Stachyptilum superbum
Order Pennatulacea
80 km
N

Umbellula lindahli Kölliker, 1874

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Umbellulidae
Pacific Region Species Code (Hart): 3ZP.
TSN: 719032 – genus.
AphiaID: 128531.
Synonyms: *U. Ioma, U. magniflora, U. carpenteri, U. encrinus, Ombellula lindahli*
Common Name: Lindahl's droopy sea pen

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *U. lindahli* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
Umbellula spp. can reach over 1 m total colony length (Lumsden et. al 2007).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: C = Regional
U. lindahli has been identified in BC waters on the continental shelf from the WCVI to the WCQCI. *U. lindahli* is known to occur south of BC waters in the San Diego biogeographic province and north of BC waters in the Eastern Gulf, Western Gulf, Aleutian Islands and Bering Sea regions of Alaska (Lumsden et. al. 2007).
Depth Profile: BC records of *U. lindahli* occur between 263-993 m. The depth distribution of *Umbellula* spp. in BC shows 30% of records occurring at depths greater than 1000 m and 97% occurring at depths greater than 550m.

Number of Occurrences: B = Restricted
There are seven unique records of *U. lindahli* in BC.
Data Source: Four records are from the RBCM and verified. The other three are from DFO surveys. There are 16 additional unique records of *Umbellula* sp., four of which are from museum collections and the rest from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of *Umbellula* spp. were collected between 1988 and 2001 and the DFO records were collected between 2001 and 2006.

Distribution Trend: x = Unknown

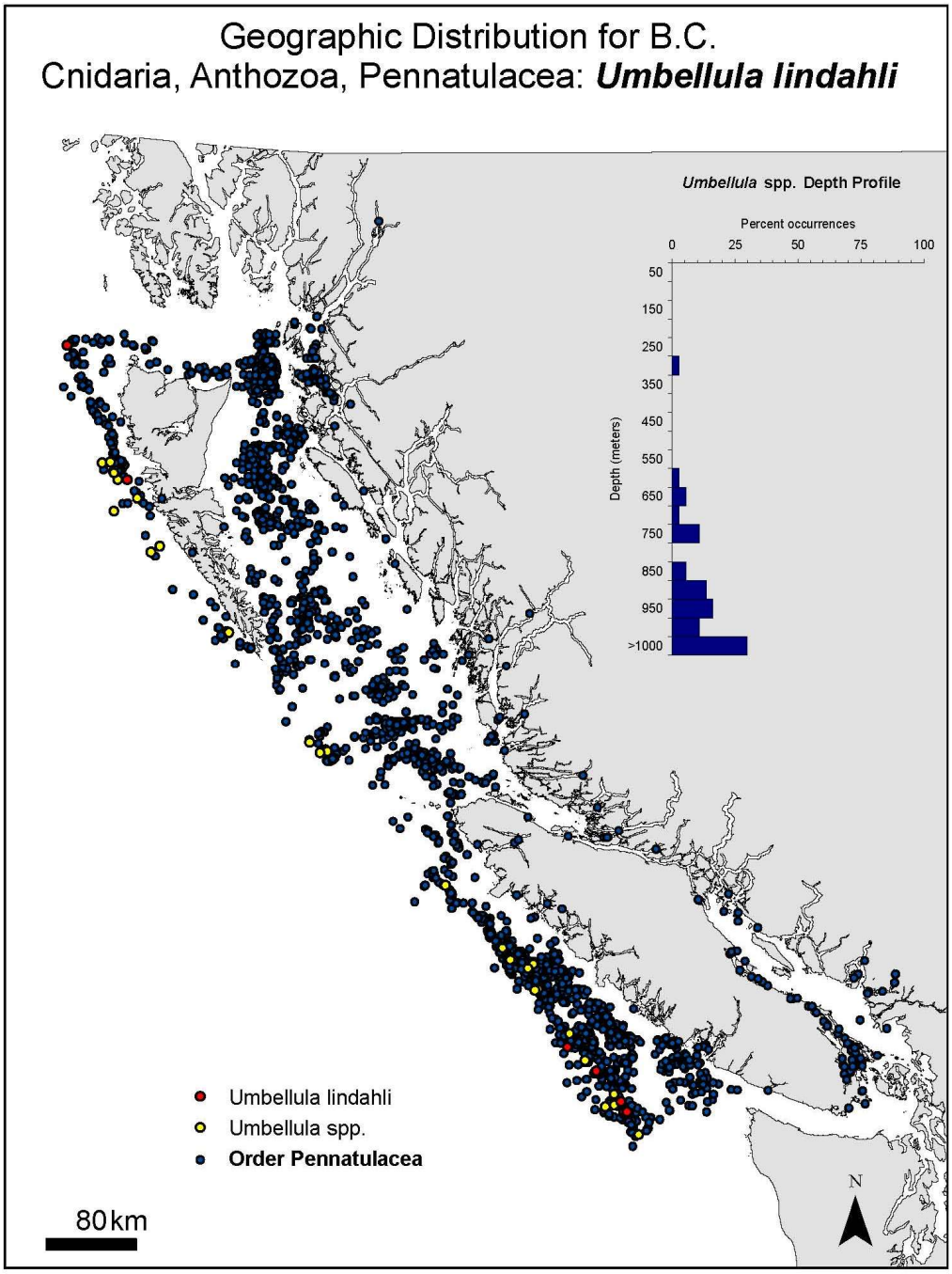
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).

Editorial Comments: Cairns and Hourigan (2017) documented it's distribution in the Atlantic and Pacific waters off North America and WoRMS records show that it is cosmopolitan.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Umbellula lindahli
Umbellula spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Umbellula lindahli
Umbellula spp.
Order Pennatulacea
80 km
N

Umbellula magniflora Kölliker, 1880

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Umbellulidae
Pacific Region Species Code (Hart): 3ZO – genus code
TSN: 719032 – genus.
AphiaID: 173577.
Synonyms: *U. Ioma, Ombellula*
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of *U. magniflora* occurring in BC. The records that do exist are not confirmed with a voucher specimen and all the verified records are of *U. lindahli* or *Umbellula* sp..

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: C = Regional
U. cf. *magniflora* has been reported in BC waters on the continental shelf from the WCVI to the WCQCI. *U. magniflora* is reported to occur south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007). Hochberg and Ljubenkov (1998) list the distribution of *U. magniflora* as the northeast Pacific Ocean off the coast of California.
Depth Profile: BC records of *U.* cf. *magniflora* occur between 571-2105 m. The depth distribution of *Umbellula* spp. in BC shows 30% of records occurring at depths greater than 1000 m and 97% occurring at depths greater than 550m. Hochberg and Ljubenkov (1998) list the depth distribution of *U. magniflora* as present in deep basins, typically below about 500m.

Number of Occurrences: B = Restricted
There are 13 unique records of *U.* cf. *magniflora* in BC.
Data Source: All the *U.* cf. *magniflora* records are from DFO surveys and therefore none are verified. There are 16 additional unique records of *Umbellula* sp., four of which are from museum collections and the rest from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of Umbellula spp. were collected between 1988 and 2001 and the DFO records were collected between 2001 and 2006.

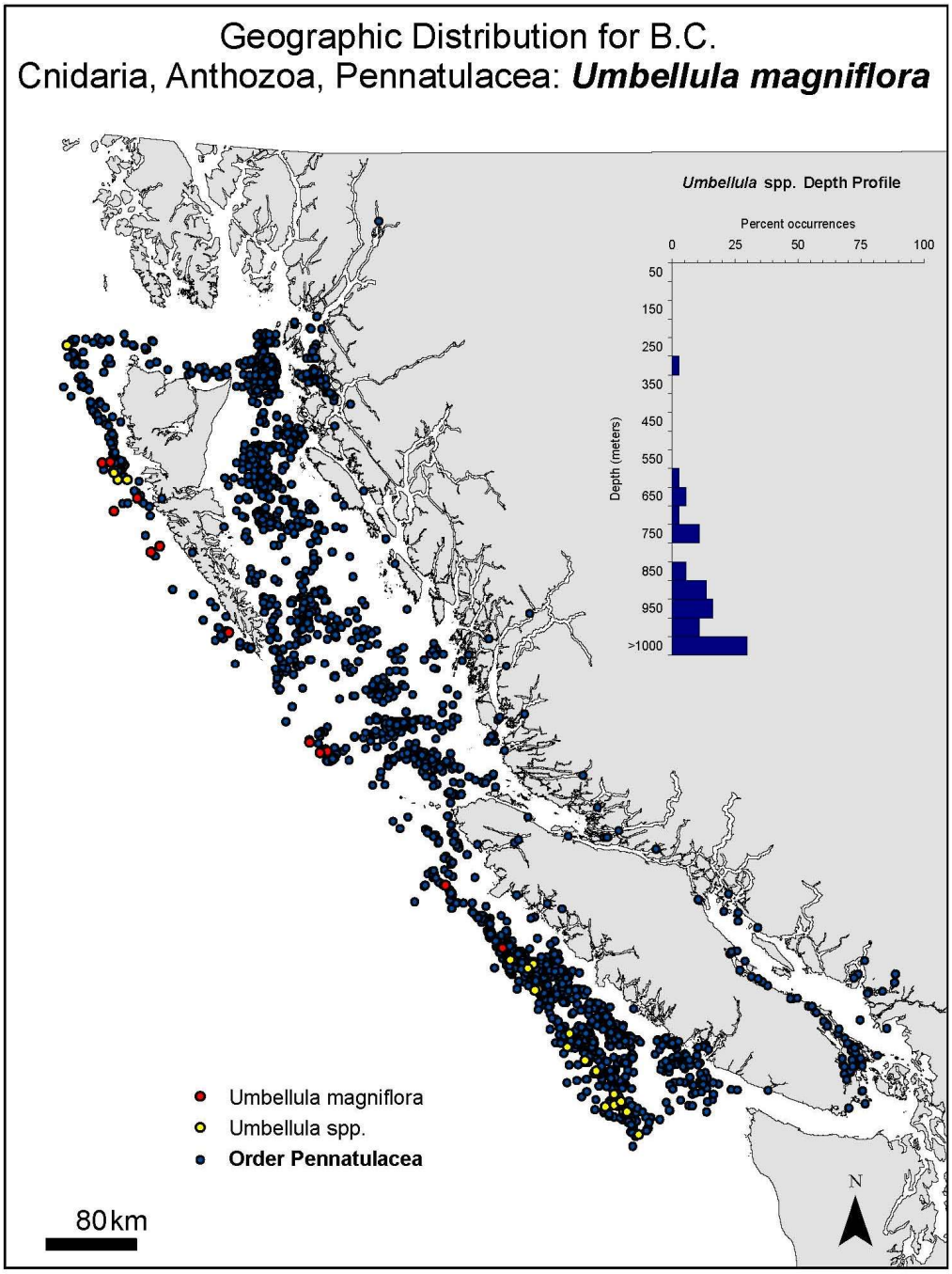
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: U. magniflora is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
Umbellula spp. can reach over 1 m total colony length (Lumsden et. al 2007).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: Cairns and Hourigan (2017) documented it's distribution in the waters of the Oregon bioregion.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Umbellula magniflora
Umbellula spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Umbellula magniflora
Umbellula spp.
Order Pennatulacea
80 km
N

Umbellula thomsoni Kölliker, 1874

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Sessiliflorae, Umbellulidae
Pacific Region Species Code (Hart): 3ZQ.
TSN: 719032 – genus.
AphiaID: 128533.
Synonyms: *Ombellula*
Common Name: Thomson's sea pen

Proposed General Status Ocean Rank: 5 = Undetermined
There is only one DFO survey record for *U.* cf. *thomsoni* which is the only reference to the species in BC waters. It is also present on the DFO regional species code list and Austin (1985) lists this species as present in South Alaska and the Pacific but not anything regarding BC specifically.

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
U. cf. *thomsoni* has been identified in BC waters on the continental shelf off the WCVI. *U. thomsoni* is not mentioned in Lumsden et. al. (2007) as being present in either the Pacific Coast or Alaska regions. Austin (1985) lists the distribution of *U. thomsoni* as the northwest Pacific, Southern Alaska, Pacific, Indian, Atlantic and Antarctic.
Depth Profile: The BC records of *U.* cf. *thomsoni* occur between 943-949 m. The depth distribution of *Umbellula* spp. in BC shows 30% of records occurring at depths greater than 1000 m and 97% occurring at depths greater than 550m.

Number of Occurrences: A = Very Restricted
There is one unique record of *U.* cf. *thomsoni* in BC.
Data Source: The *U.* cf. *thomsoni* record is from a DFO survey and therefore not verified. There are 16 additional unique records of *Umbellula* sp., four of which are from museum collections and the rest from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of *Umbellula* spp. were collected between 1988 and 2001 and the DFO records were collected between 2001 and 2006.

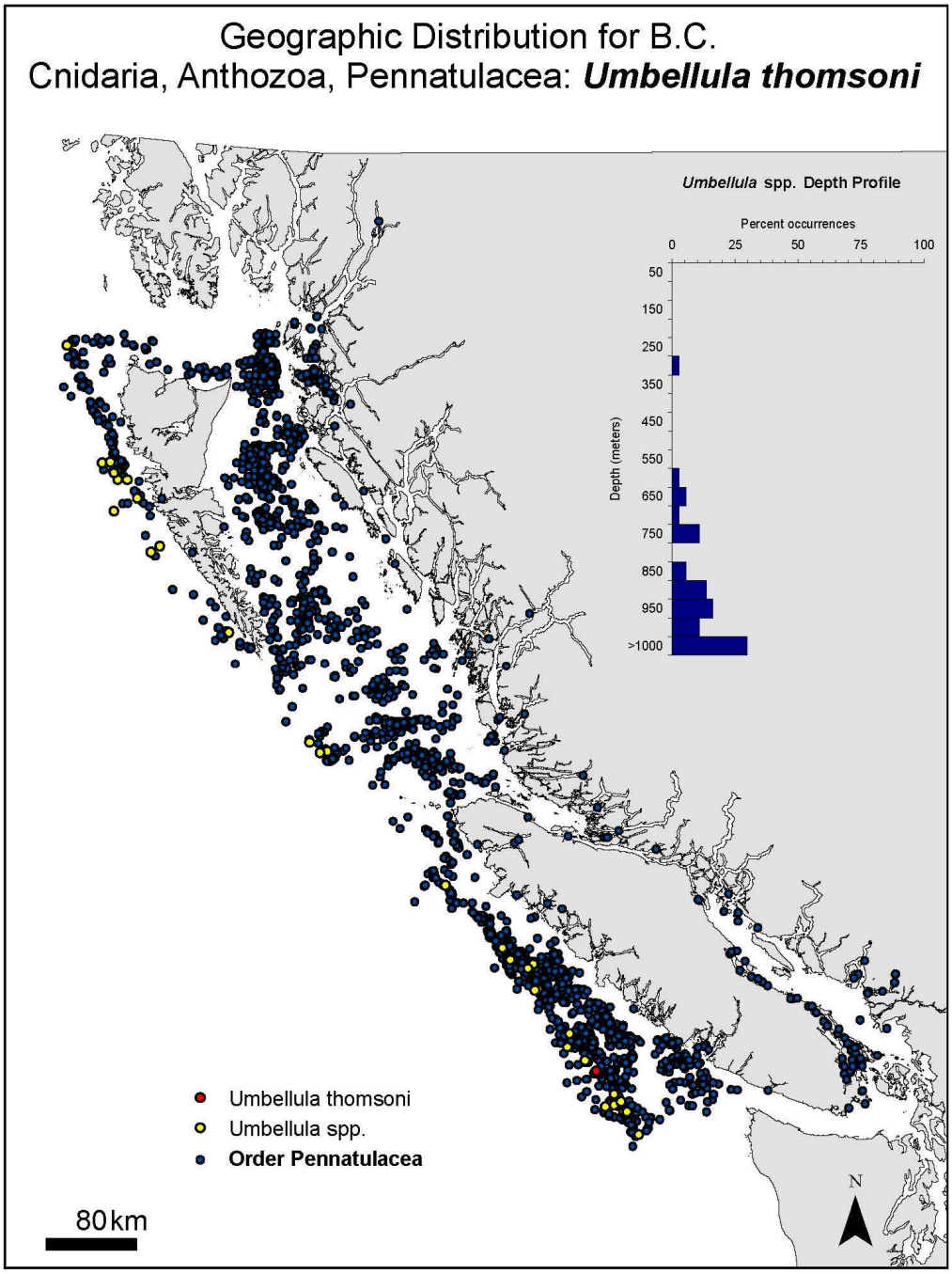
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: *U. thomsoni* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
Umbellula spp. can reach over 1 m total colony length (Lumsden et. al 2007).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: WoRMS does note that the Distribution of this species is cosmopolitan but it is not recognized as occurring in the region by Cairns and Hourigan (2017).


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Umbellula thomsoni
Umbellula spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Umbellula thomsoni
Umbellula spp.
Order Pennatulacea
80 km
N

Acanthoptilum gracile (Gabb, 1863)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Subsessiliflorae, Virgulariidae
Pacific Region Species Code (Hart): 3U9.
TSN: 52403.
AphiaID: 289324.
Synonyms: *Virgularia gracilis*
Common Name: frail sea pen

Proposed General Status Ocean Rank: 3 = Sensitive
There is only one DFO survey record for *A. gracile* but it is a verified voucher specimen and the distribution in Hochberg and Ljubenkov (1998) is continuous through BC waters.
Sensitive by nature: *A. gracile* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
A. gracile colonies are long, very slender, and flexible; total lengths to can reach over 1.5 m (Hochberg and Ljubenkov 1998).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
A. gracile has been identified in BC waters in the inside / inshore waters of Vancouver Island. *A. gracile* is present south of BC waters in the Oregon biogeographic province (Lumsden et. al. 2007). Hochberg and Ljubenkov (1998) list the distribution of *A. gracile* as the Northeast Pacific Ocean from Prince William Sound, Alaska to Mission Bay, California. Limits to distribution not known.
Depth Profile: The BC record of *A. gracile* occurred between 33-46 m. Hochberg and Ljubenkov (1998) list the depth distribution for *A. gracile* as 10-120 m. "This species typically lives at depths greater than 25 m or in shallow embayments where water currents are unidirectional."

Number of Occurrences: A = Very Restricted
There is one unique record of *A. gracile* in BC.
Data Source: The *A. gracile* record is from the RBCM verified by W.C. Austin.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in

BC waters, since 1997 there have been 3137 records. The *A. gracile* record was collected in 1965.

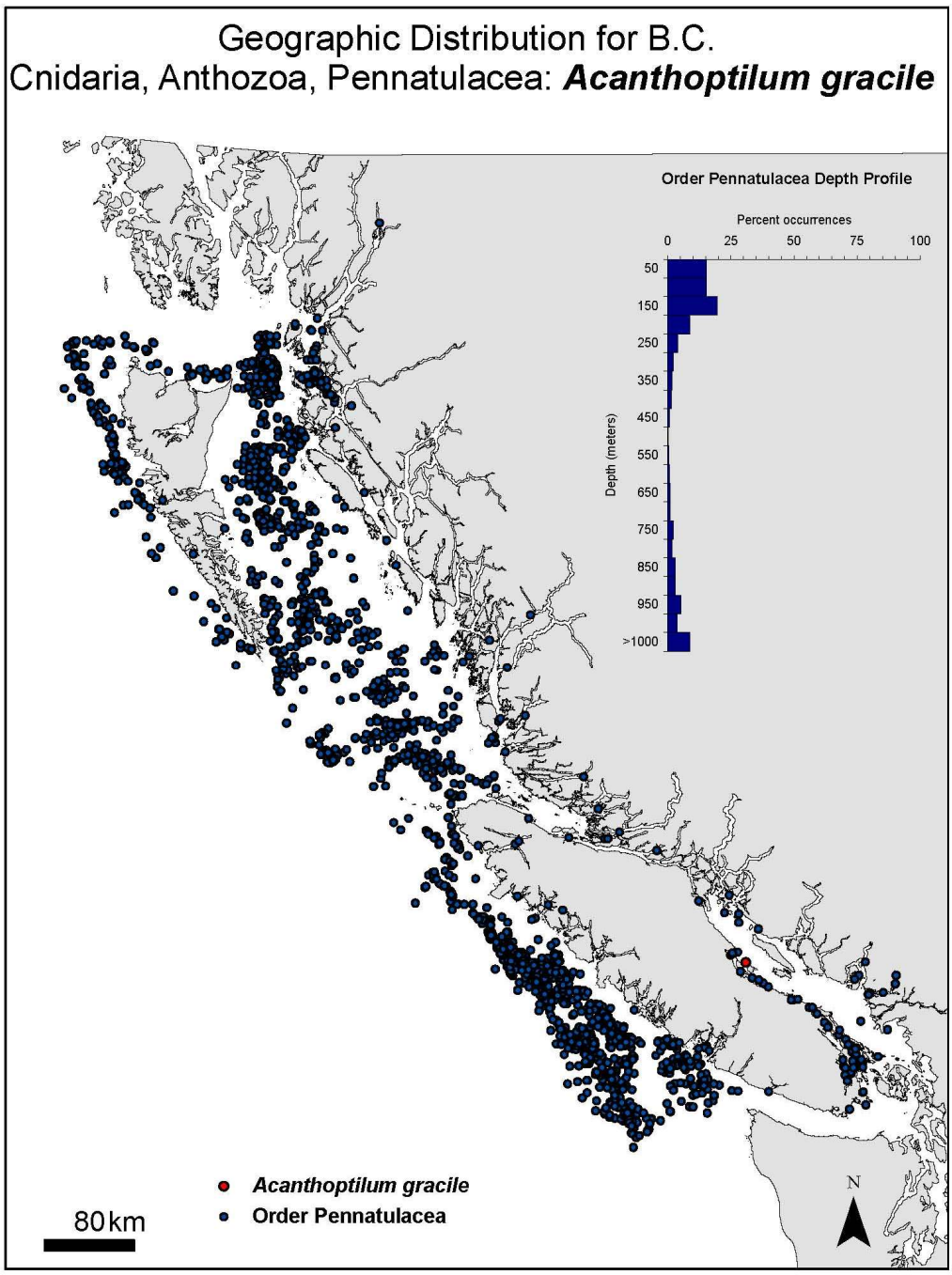
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
The distributional limits are not determined.

Editorial Comments: Photos in WoRMS of *A. gracile* are taken by Neil McDaniel (2018) from Southey Point, Saltspring Island at depths of 18 to 27 m depth. There are two other species, Acanthoptilum album and Acanthoptilum annulatum that Cairns and Hourigan (2017) identify as occurring in waters off the west coast of the USA.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: Acanthoptilum gracile
Order Pennatulacea Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Acanthoptilum gracile
Order Pennatulacea
80 km
N

Stylatula elongata (Gabb, 1862)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Subsessiliflorae, Virgulariidae
Pacific Region Species Code (Hart): 3T4.
TSN: 52390.
AphiaID: 286695.
Synonyms: *S. ringei, S. columbiana, Virgularia elongata*
Common Name: slender sea pen

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *S. elongata* is a member of the Order Pennatulacea which contains sessile, slow growing, long living and large species.
S. elongata is "narrow and elongate; total lengths to 600 mm." (Hochberg and Ljubenkov 1998).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: D = Widespread
S. elongata has been identified in BC waters on the continental shelf from the WCVI to the WCQCI and in the inside waters of the Strait of Georgia. *S. elongata* is known to occur south of BC waters across the US Pacific Coast region (Lumsden et. al. 2007). Hochberg and Ljubenkov (1998) list the distribution of *S. elongata* as the Northeast Pacific Ocean from Puget Sound, British Columbia (48°) to Coronado Islands, Baja California, Mexico (32°N); northern and southern limits unknown.
Depth Profile: BC records of *S. elongata* occur between 0-1910 m. The depth distribution of *Stylatula* spp. in BC shows 61% of records occurring between 0-100 m but 12% occur at depths greater than 1000 m. Hochberg and Ljubenkov (1998) list the depth distribution of *S. elongata* as 0-100 m.

Number of Occurrences: B = Restricted
There are 18 unique records of *S. elongata* in BC.
Data Source: 11 records are from museum collections and eight are verified. The other seven records are from DFO surveys. There are nine additional unique records of *Stylatula* sp., five of which are from museum collections, three from field notes and one from a DFO survey.

Population Trend: x = Unknown

More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of *Stylatula* spp. were collected between 1909 and 1990 and the DFO records were collected between 2003 and 2008.

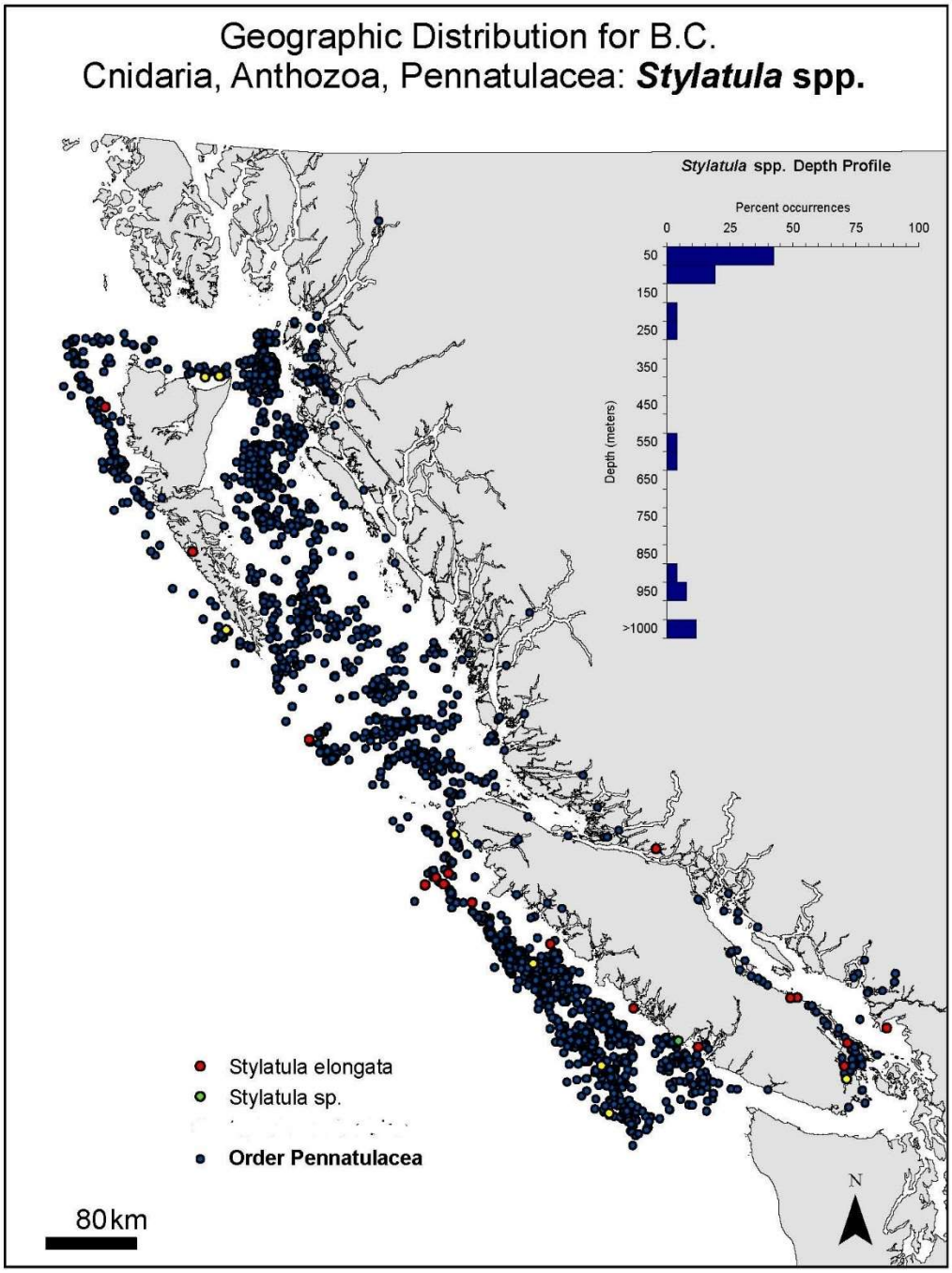
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
There is one record for *S. columbiana* in BC and it is the holotype from the CMN. *S. columbiana* is present in Austin (1985) but only referring to the holotype record. Hochberg and Ljubenkov (1998) and Kozloff (1996) list *S. columbiana* as a synonym of *S. elongata*, however they do not that this is an assumption as there was no examination and comparison of type specimens undertaken.

Editorial Comments: The image of S. elongate in WoRMS was taken by Neil McDaniel (2018) Ritchie Bay in Clayoquot Sound.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea: *Stylatula* spp.
Stylatula spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Stylatula elongata
Stylatula sp.
Order Pennatulacea
80 km
N

Stylatula gracilis Verrill, 1864

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Subsessiliflorae, Virgulariidae
Pacific Region Species Code (Hart): 3T7.
TSN: 52392.
AphiaID: 286696.
Synonyms:
Common Name: delicate sea pen

Proposed General Status Ocean Rank: 5 = Undetermined
There are no verified records of *S. gracilis* in BC waters. Appears to exist south of Monterey Bay California and is present in the 2004 field guide to Alaskan corals (Wing and Barnard 2004). It is present in BC according to Heifetz et. al. (2005). It is possible that this species occurs in BC waters.

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
There are no records of *S. gracilis* in BC waters. S. gracilis is reported to occur south of BC waters across the US Pacific Coast region (Lumsden et. al. 2007) and *S. gracilis* is reported to occur north of BC waters in Alaska according to Wing and Barnard (2004). Hochberg and Ljubenkov (1998) only list the distribution of *S. gracilis* as the Northeast Pacific Ocean from Monterey Bay, California to the Pearl Islands in the Bay of Panama.
Depth Profile: BC records of *Stylatula* sp. occur between 0-920 m. The depth distribution of *Stylatula* spp. in BC shows 61% of records occurring between 0-100 m but 12% occur at depths greater than 1000 m. Hochberg and Ljubenkov (1998) list the depth distribution of *S. gracilis* as 2-20 m.

Number of Occurrences: x = Unknown
There are no known occurrences of *S. gracilis* in BC waters.
There are 9 unique records of *Stylatula* sp. in BC.
Data Source: Five *Stylatula* sp. records are from museum collections, three from field notes and one from a DFO survey.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of *Stylatula* spp. were collected between 1909 and 1990 and the DFO records were collected between 2003 and 2008.

Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: *S. gracilis* is a member of the Order Pennatulacea which contains sessile, slow growing and long living species.
S. gracilis is "relatively small and very slender; lengths typically less than to 400 mm." (Hochberg and Ljubenkov 1998).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: WoRMS shows throughout the NE Pacific through to the Bering Sea. Cairns and Hourigan (2017) only document the distribution off the west coast of USA and not into Alaska.

Virgularia bromleyi tuberculata Kölliker, 1880

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Subsessiliflorae, Virgulariidae
Pacific Region Species Code (Hart): 3V0 -genus.
TSN: 52396 - *V. bromleyi.*
AphiaID: 128540 for *V. tuberculate* and 286705 for *V. bromleyi* (WoRMS treats them as distinct species.) but the Smithsonian lists the specimen collected in BC as *Virgularia bromleyi tuberculata*
Synonyms: *Halisceptrum, V. bromleyi, V. tuberculata,* V. Cystiferum, *Protopthilum carpenteri*
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *V. bromleyi tuberculata* is a member of the Order Pennatulacea which contains sessile, slow growing and long living species.
V. agassizii is "small, total lengths to 70 mm." and *V. californica* "colonies are medium sized, total lengths to 300mm." (Hochberg and Ljubenkov 1998).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: B = Restricted
V. bromleyi tuberculata is present in BC waters within inshore sites from the central coast to the south coast areas and WCVI. *V. bromleyi tuberculata* under the synonym *V. cystiferum* is known to occur south of BC waters across the US Pacific Coast region (Lumsden et. al. 2007). *V. cystiferum* is present in Austin (1985) from Southern Alaska to BC and central to southern California. Whitmire et al (2017) state that V. cystiferum is actually a synonym for V. agassizi which Cairns and Hourigan (2017) identify as occurring in the waters off the west coast of the USA but not in Alaska.

WoRMS list the distribution of *V. bromleyi* from the Pacific and *V. tuberculata* from the Atlantic. Cairns and Hourigan (2017) do not list *V. tuberculate* as occurring in any of the Atlantic or Pacific EEZ waters of the USA.

Depth Profile: BC records of *V. bromleyi tuberculata* occur between 20-80 m. The depth distribution of *Virgularia* spp. in BC has 72% of records occurring between 100-200 m and 100% occurring at depths less than 500 m.

Number of Occurrences: A = Very Restricted

There are unique records of *V. bromleyi tuberculata* in BC.
Data Source: All five *V. bromleyi tuberculata* records are from museum collections and three are from the USNM verified by F.M. Bayer in 2008. There are 28 additional records of *Virgularia* sp. from DFO surveys some of which may represent *V. bromleyi tuberculata.*

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of *Virgularia* spp. were collected between 1974 and 1981 and the DFO records were collected between 2005 and 2007.

Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

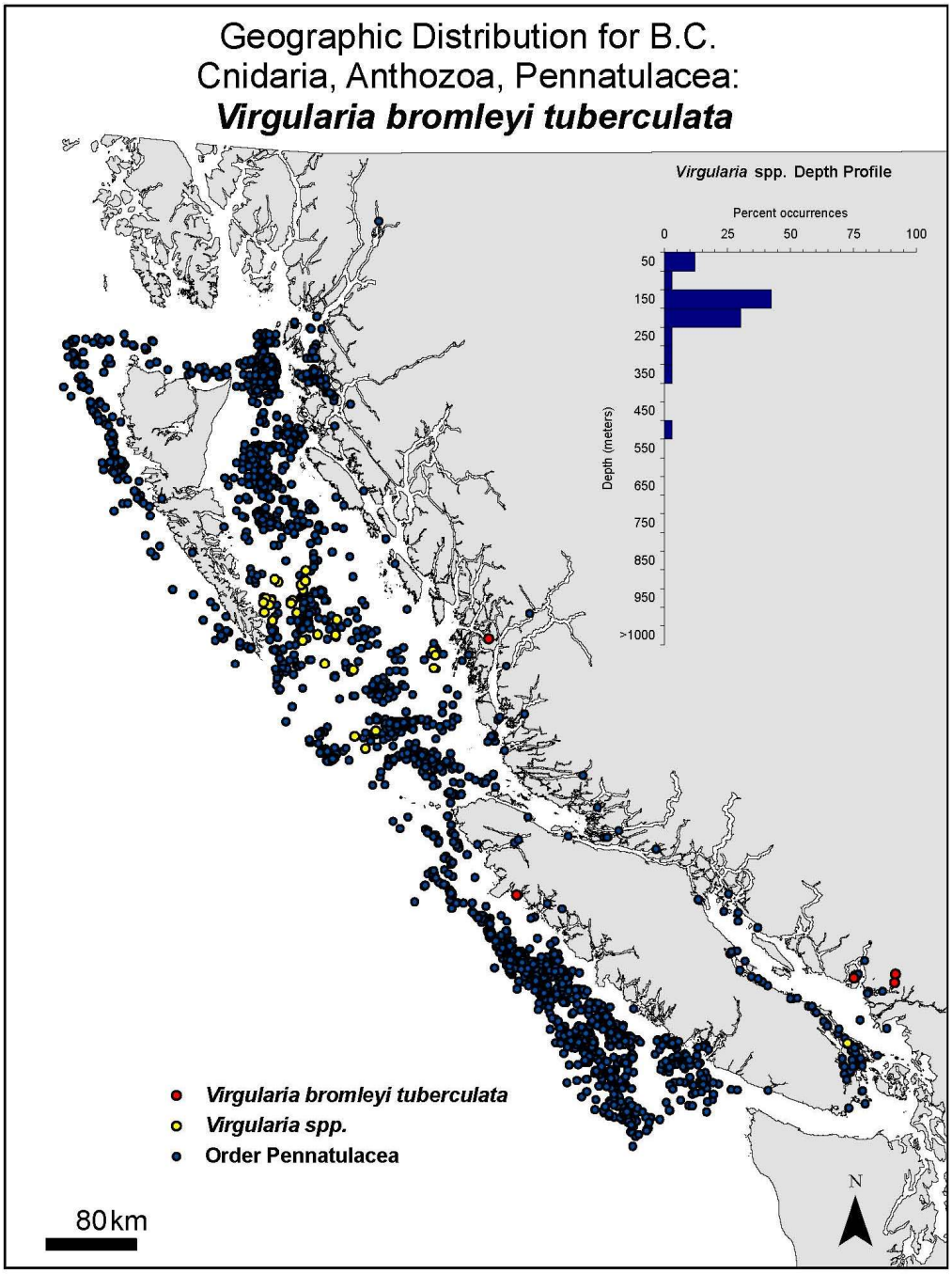
Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Hochberg and Ljubenkov (1998) list two species of *Virgularia, V. agassizii* and *V. californica.*

V. agassizii is known from the "Northeast Pacific Ocean, common throughout California and along the west coast; northern and southern distribution not known. Depth range 30-1000m." *"V. agassizii* is a relatively common deeper-water species.

In contrast, *V. californica* that lives in shallow coastal waters. Based on similarities in the number of autozooids (3-5) per polyp leaf *V. agassizii* often has been confused *V. bromleyi* and *V. tuberculata.* Until a more detailed comparison can be undertaken these species should be treated as distinct and separate."
The genus *Virgularia* is a confusing genus which due to synonymies and unidentified species is difficult to determine how many species are present in BC waters.

Editorial Comments: If we follow the convention of using WoRMS as the standard for naming then the BC species this species would be *Virgularia bromleyi.*


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea:
Virgularia bromleyi tuberculata
Virgularia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Virgularia bromleyi tuberculata
Virgularia spp.
Order Pennatulacea
80 km
N

Virgularia aff. glacialis Lamarck, 1816

Higher Taxonomic Classification: Cnidaria, Anthozoa, Pennatulacea, Virgulariidae
Pacific Region Species Code (Hart): 3V0 -genus.
TSN: 52393 -genus.
AphiaID: 128503 -genus and 128538 for *V. glacialis.*
Synonyms: Possible BC species: *V.* cf. *glacialis, V.* cf. *mirabilis, V. californica, V. agassizii*
Common Name:

Proposed General Status Ocean Rank: 5 = Undetermined
The genus *Virgularia* is a confusing genus which due to synonymies and unidentified species is difficult to determine how many species are present in BC waters but there is likely more than just *V. bromleyi tuberculata.*
Hochberg and Ljubenkov (1998) list two species of *Virgularia: V. agassizii* (deep) and *V. californica* (shallow). "*V. agassizii* is a relatively common deeper-water species in contrast to *V. californica* that lives in shallow coastal waters. Based on similarities in the number of autozooids (3-5) per polyp leaf *V. agassizii* often has been confused *V. bromleyi* and *V. tuberculata*. Until a more detailed comparison can be undertaken these species should be treated as distinct and separate."
Austin (1985) lists 3 species of *Virgularia: V. cystiferum* (shallow), *V.* cf. *glacialis* (deep) and *V.* cf. *mirabilis* (deep).
The range for *V. californica* according to Hochberg and Ljubenkov (1998) includes BC.

Population Size: x = Unknown
Order Pennatulacea is considered highly abundant in both the Alaskan and Pacific Coast regions of the USA (Lumsden et. al. 2007)

Distribution: x = Unknown
V. cf. *glacialis* is reported in BC waters at Walker Hook, Saltspring Island and from Oregon according to Austin (1985) albeit the distribution in WoRMS is the North Atlantic. *V.* cf. *mirabilis* another Atlantic species was reported from BC according to Austin (1985). *Virgularia* sp. is present in the Eastern Gulf of Alaska according to Lumsden et. al. (2007). *V. californica* (not a valid species according to WoRMS) is present in the Northeast Pacific Ocean, from southeast Alaska, through Puget Sound, Washington, to San Diego California according to Hochberg and Ljubenkov (1998). *V. agassizii* is known from the Northeast Pacific Ocean, common throughout California and along the west coast according to Hochberg and Ljubenkov (1998).

Depth Profile: BC records of *V.* cf. *glacialis* occur between 0-12 m but Austin (1985) lists it as a deep species (below 200 m). *V.* cf. *mirabilis* is also listed as a deep species by Austin (1985). *V. californica* is known from 5-25 m and *V. agassizii* is known from 30-1000 m (Hochberg and Ljubenkov, 1998). The depth distribution of *Virgularia* spp. in BC has 12% of records occurring between 0-50 m.

Number of Occurrences: A = Very Restricted

There are two unique records of *V.* cf. *glacialis* in BC.
Data Source: Both records are from the RBCM museum collection, verified by W.C. Austin in 1984. There are 28 additional records of *Virgularia* sp. from DFO surveys.

Population Trend: x = Unknown
More observations of corals occur in recent years, due to an increase in DFO and industry recording of coral bycatch. Prior to 1997 there were 335 records of order Pennatulacea in BC waters, since 1997 there have been 3137 records. The museum records of *Virgularia* spp. were collected between 1974 and 1981 and the DFO records were collected between 2005 and 2007.

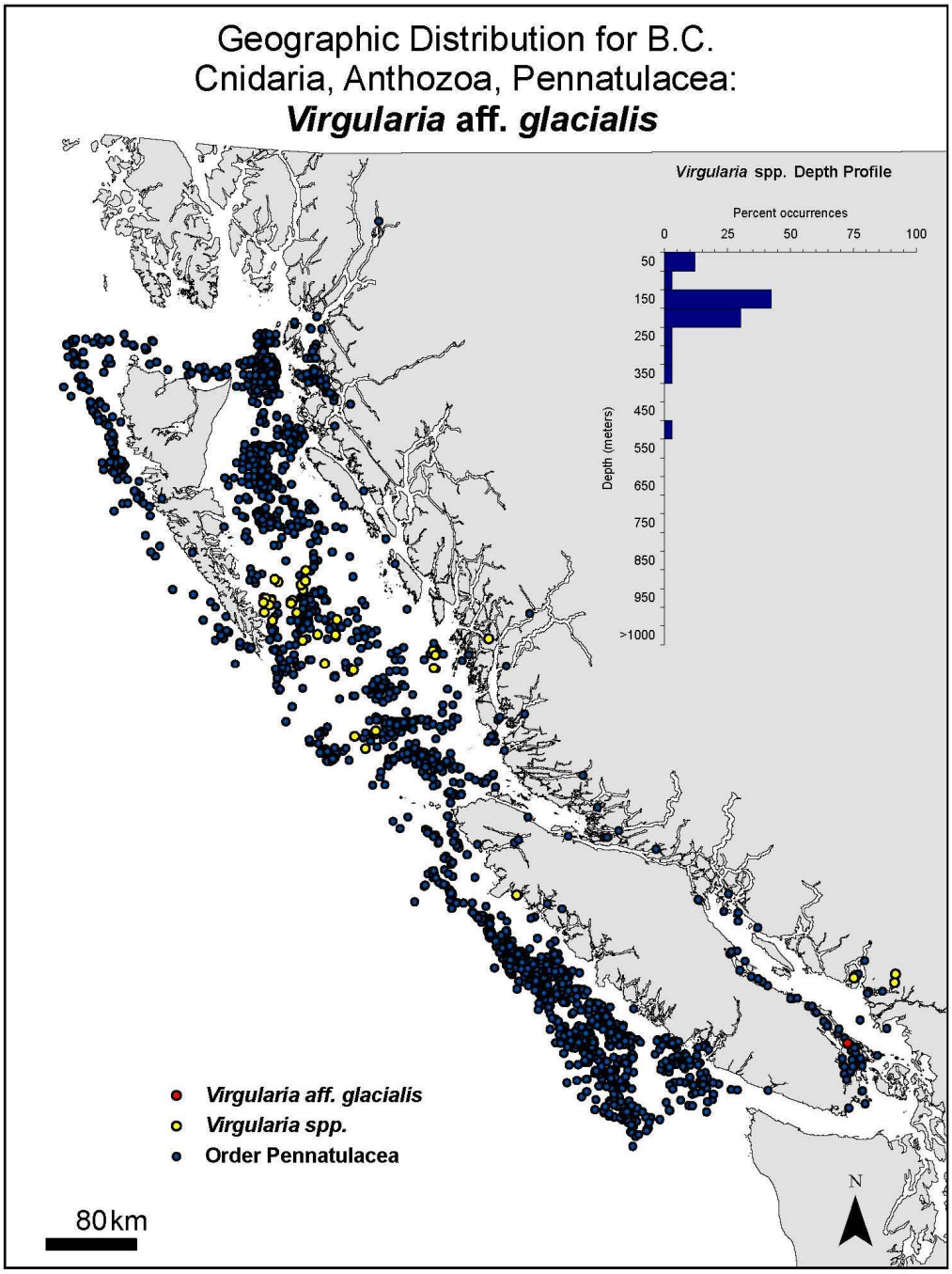
Distribution Trend: x = Unknown
Not enough information to determine a trend in distribution

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Pennatulacea has a medium rating of overall structural importance within the Alaska region (Lumsden et. al. 2007).
Sensitive by nature: *Virgularia* spp. is a member of the Order Pennatulacea which contains sessile, slow growing and long living species.
V. agassizii is "small, total lengths to 70 mm." and *V. californica* "colonies are medium sized, total lengths to 300mm." (Hochberg and Ljubenkov 1998).
Ptilosarcus gurneyi, a member of the order Pennatulacea, is "long lived (15yr +), takes 5 or 6 years to reach sexual maturity and has a spatially clumped pattern of recruitment" (Birkeland C., 1974). *H. willemoesi,* another member of the Order Pennatulacea, has an estimated longevity approaching 50 years and a growth rate of 3.6 to 6.1 cm/yr (Wilson et. al. 2007).

Editorial Comments: Gary Williams (pers. comm., 2010): "The reasons why identifications of octocorals from this part of the world are considered mostly unreliable to dubious involve several possible factors. Among them are the reality that many groups of octocorals are in dire need of taxonomic revision before reliable taxonomic identifications can be made. An example of this relates to the Pennatulacea. The last species level monograph of that group was that of Kükenthal in 1915! Also, contrary to popular belief, the octocoral fauna of the Pacific northwest has been poorly known, and remains that way." Virgularia is an excellent example of some of the confusion that has occurred.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Pennatulacea:
Virgularia aff. glacialis
Virgularia spp. Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Virgularia aff. glacialis
Virgularia spp.
Order Pennatulacea
80 km
N

Caryophyllia (Caryophyllia) alaskensis Vaughan, 1941

Higher Taxonomic Classification: Cnidaria, Anthozoa, Hexacorallia, Scleractinia, Caryophylliidae
Pacific Region Species Code (Hart): 3J7.
TSN: 53541.
AphiaID: 286724.
Synonyms: *C. alaskensis*
Common Name: tan cup coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Caryophyllia alaskensis* is a solitary, sessile, and fragile organism. Order Scleractinia is highly susceptible to the predicted changes in ocean chemistry associated with global climate change.

Population Size: x = Unknown
Not enough information to determine the current population size.
Order Scleractinia is considered to have a low abundance in the Alaska region (Lumsden et. al. 2007).

Distribution: D = Widespread
Caryophyllia (C.) alaskensis is distributed throughout the B.C. coast in near shore and offshore waters from the WCQCI and WCVI to the Strait of Georgia. Caryophyllia (C.) alaskensis is present in the Eastern Gulf of Alaska region which borders on B.C. waters to the north and in the Western Gulf and Aleutian Island regions of Alaska (Lumsden et. al. 2007).
Cairns (1994) lists the distribution of *Caryophyllia (C.). alaskensis* from the Strait of Georgia B.C. to the Commander Islands, off Kamchatka Alaska.
The Strait of Georgia, B.C. appears to be the southern limit for this species.
Depth profile: The *Caryophyllia (C.) alaskensis* records for B.C. have a depth range of 0m – 1600m, with 73% of records found at depths less than 200m.

Number of Occurrences: B = Restricted
There are 12 unique records for *Caryophyllia (C.) alaskensis* within B.C.
Data Source: 10 records are from museum collections and 1 is from field notes and 1 is from a DFO tanner crab survey.

Population Trend: x = Unknown
Not enough information to determine a trend.
More Scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but most are not identified to the species level. Records identified as *Caryophyllia (C.) alaskensis* are mostly from other sources and were collected from 1878 – 2004.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.
Most scleractinians are small in size with a low profile. This may mean they are less vulnerable to the effects of bottom fishing than other large rigid corals.

Threats to Distribution: A= Extreme due to factors related to Climate Change.
This threat has the potential to affect the entire population. Order Scleractinia is especially susceptible to ocean acidification and subsequent decreases in the depth of the aragonite saturation horizon (ASH). Aragonite is the form of calcium carbonate used in the hard external skeleton of scleractinians and as the ASH gets shallower so does the habitat available to these species (Guinotte et. al. 2006).

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007)

Editorial Comments: N/A

Caryophyllia (Caryophyllia) arnoldi Vaughan, 1900

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Caryophylliidae
Pacific Region Species Code (Hart): 3JB.
TSN: 53556.
AphiaID: 286728.
Synonyms: *C. arnoldi*
Common Name: Arnold's stony coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Caryophyllia (C.) arnoldi* is a sessile and fragile organism. Order Scleractinia is highly susceptible to the predicted changes in ocean chemistry associated with global climate change.

Population Size: x = Unknown
Not enough information to determine the current population size. Order Scleractinia is considered to have a low abundance in the Alaska region (Lumsden et. al. 2007). Solitary cup corals are common in the U.S. Oregon province (from Pt. Conception, CA to the B.C. border) (Lumsden et. al. 2007).

Distribution: C = Regional
Caryophyllia (C.) arnoldi is distributed throughout the B.C. coast in nearshore waters. It exhibits a coast wide distribution in nearshore hard bottom habitats for the U.S. Pacific coast region which borders B.C. waters to the south (It is especially common around the Channel Islands in southern California). *Caryophyllia (C.) arnoldi* is present in the Eastern Gulf of Alaska region which borders on B.C. waters to the north and in the Western Gulf region and Aleutian Islands region and on seamounts in Alaskan waters (Lumsden et. al. 2007).
Cairns (1994) Distribution: known from San Diego to Prince William Sound, gulf of Alaska, including Queen Charlotte Islands, Vancouver Island, San Juan Island, off British Columbia, and the Channel Islands and Banks; 40-656 m – Pleistocene off San Pedro, California and Juneau, Alaska.
Depth profile: The *Caryophyllia (C.) arnoldi* records for B.C. have a depth range of 0–2105 m, with 71% of records found at depths less than 100m. Lumsden et. al. (2007) reports a depth range of 183m - 505m fo

Number of Occurrences: C = Regional
There are 26 unique records for *Caryophyllia (C.) arnoldi* within B.C.
Data Source: 25 records are from museum collections and 1 is from a DFO tanner crab survey.

Population Trend: x = Unknown
Not enough information to determine a trend.
More Scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but most are not identified to the species level.

Records identified as *Caryophyllia (C.) arnoldi* are mostly from other sources and were collected between 1888 and 2004.

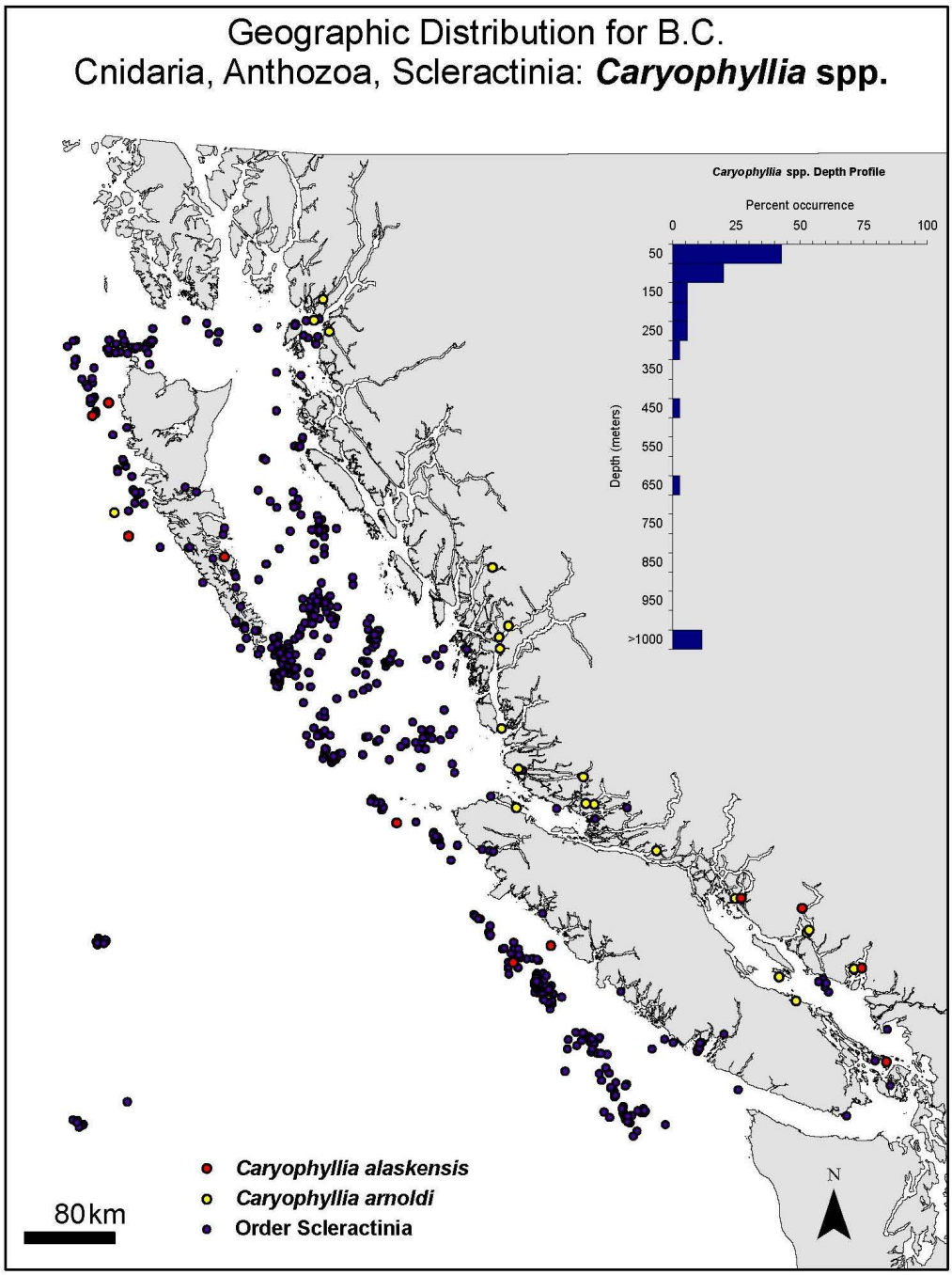
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.
Most scleractinians are small in size with a low profile. This may mean they are less vulnerable to the effects of bottom fishing than other large rigid corals.

Threats to Distribution: A= Extreme due to factors related to Climate Change.
This threat has the potential to affect the entire population. Order Scleractinia is especially susceptible to ocean acidification and subsequent decreases in the depth of the aragonite saturation horizon (ASH). Aragonite is the form of calcium carbonate used in the hard external skeleton of scleractinians and as the ASH gets shallower so does the habitat available to these species (Guinotte et. al. 2006).

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007)

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Scleractinia: Caryophyllia spp.
Caryophyllia spp. Depth Profile
Percent occurrence
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Caryophyllia alaskensis
Caryophyllia arnoldi
Order Scleractinia
80 km
N

Desmophyllum dianthus (Esper, 1794)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Caryophylliidae
Pacific Region Species Code (Hart): 3JF.
TSN: 572071.
AphiaID: 135159.
Synonyms: *D. cristagalli, D. cumingii, Madrepora diathus*
Common Name: cockscomb cup coral

Proposed General Status Ocean Rank: 5 = Undetermined
There is one record for *Desmophyllum* cf. *dianthus* in B.C. and it is not a voucher specimen. However, *D. dianthus* is also listed in Austin (1985) as occurring in B.C. off Vancouver Island. *Desmophyllum dianthus* is considered to be a cosmopolitan species and is found throughout the U.S. Pacific coast region but not in Alaska. Perhaps B.C. is the northern range limit for this species or these records represent an accidental occurrence or mis-identification.

Population Size: x = Unknown
Not enough information to determine the current population size. Solitary cup corals are common in the U.S. Oregon province (from Pt. Conception, CA to the B.C. border) (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution. Only one specimen of *Desmophyllum* cf. *dianthus* has been identified in B.C. waters and it occurs off the WCVI. *Desmophyllum dianthus* occurs across the U.S. Pacific coast region which borders B.C. waters to the south. It was reportedly observed on numerous high-relief, hard-bottom features below 120m, off Pt. Conception, California (Lumsden et. al. 2007). Depth profile: The *Desmophyllum* cf. *dianthus* record from B.C. has a depth range of 1160m – 1175m. 54% of all Scleractinian records for B.C. are found at depths less than 300m. Cairns, N.E. Pacific: 33-1097 m; Elsewhere: 35-2460 m. WoRMS reports its distribution as cosmopolitan

Number of Occurrences: A = Very Restricted
There is 1 unique record for *Desmophyllum* cf. *dianthus* within B.C.
Data Source: The B.C. record is from the 2001 DFO tanner crab survey and not validated by a museum expert. Austin (1985) also lists *D. dianthus* as being present *off Vancouver Island but any coordinates for this record could not be found.

Population Trend: x = Unknown
Not enough information to determine a trend.
More Scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but most are not identified to the species level. The *Desmophyllum* cf. *dianthus* record from B.C. was recorded in 2001.

Distribution Trend: x = Unknown

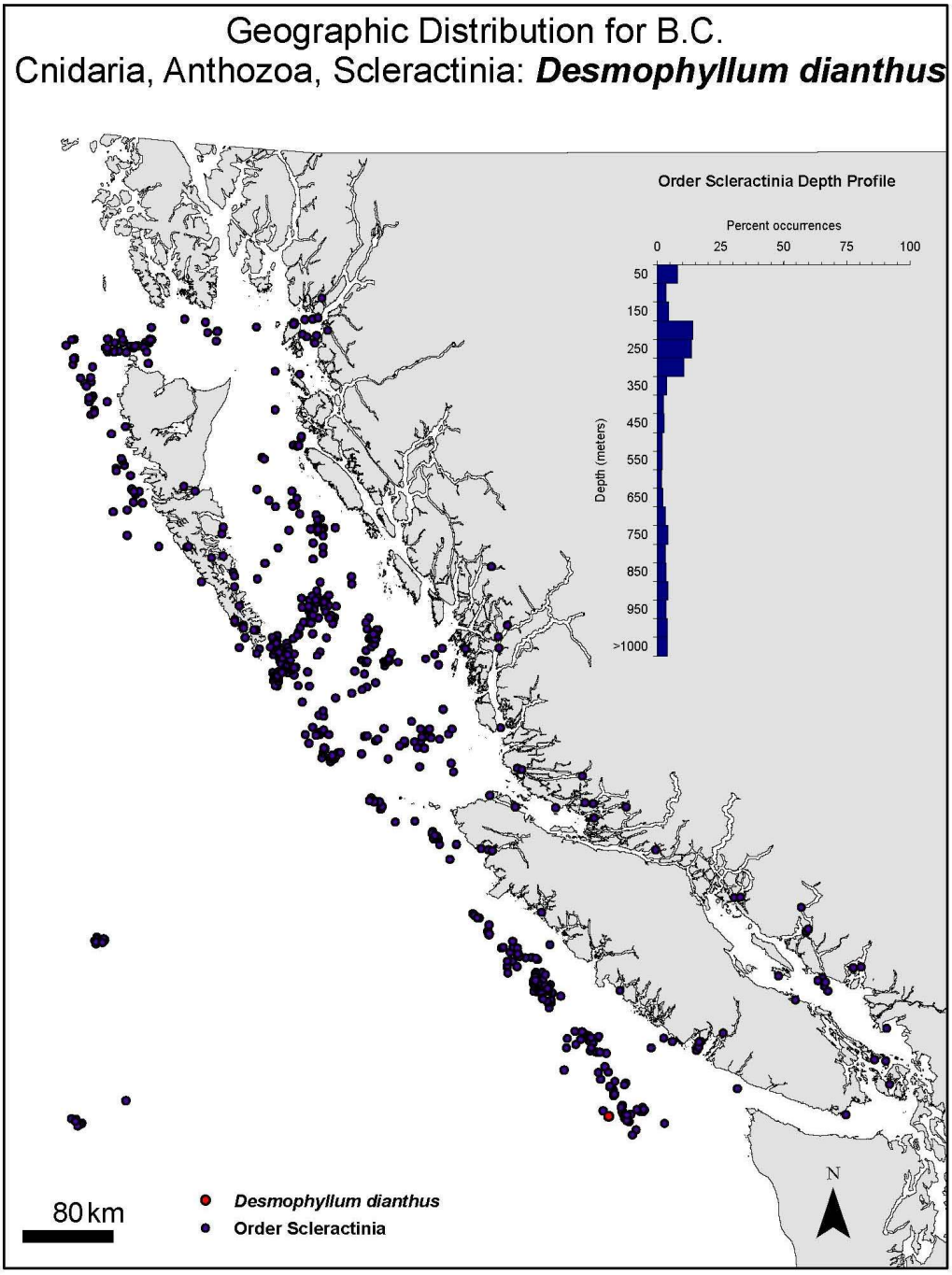
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.
Most scleractinians are small in size with a low profile. This may mean they are less vulnerable to the effects of bottom fishing than other large rigid corals.

Threats to Distribution: A= Extreme due to factors related to Climate Change.
This threat has the potential to affect the entire population. Order Scleractinia is especially susceptible to ocean acidification and subsequent decreases in the depth of the aragonite saturation horizon (ASH). Aragonite is the form of calcium carbonate used in the hard external skeleton of scleractinians and as the ASH gets shallower so does the habitat available to these species (Guinotte et. al. 2006).

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007, p69).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Scleractinia: Desmophyllum dianthus
Order Scleractinia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
80 km
Desmophyllum dianthus
Order Scleractinia
N

Desmophyllum pertusum (Linnaeus 1758)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Caryophylliidae
Pacific Region Species Code (Hart): 3JJ.
TSN: 53706.
AphiaID: 135161(was for *Lophelia pertusa*) is now 1245747 (for *D. pertusum*).
Synonyms: *L. californica, L. prolifera, Madrepora pertusa, M. prolifera, Dendrosmilia nomlandi, Lophelia pertusa*
Common Name: branching white coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *D. pertusum* is fragile, slow growing, and extremely susceptible to physical destruction from fishery impacts. Large colonies from the northeast Atlantic are thought to represent hundreds of years of accretion (Lumsden et. al. 2007, p7)
Order Scleractinia is highly susceptible to the predicted changes in ocean chemistry associated with global climate change.
Although there is only one voucher specimen and one unverifiable record of live *D.pertusum* in B.C. it is likely to be found elsewhere based on recent discoveries just south of B.C. in the OCNMS.

Population Size: x = Unknown
Not enough information to determine the current population size. *D.pertusum* is considered to have a high relative abundance in the Pacific region, specifically off southern California (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution.
D.pertusum in the northeast Pacific is known primarily from Seamounts (Cairns, 1994). There are three records for *D.pertusum* in B.C. waters, one is a dead specimen of reef material from the Strait of Georgia, one is a small specimen from Alberni Inlet and the third is a record from Knight Inlet (no specimen), V. Tunnicliffe pers. comm. More recent investigation found correspondence from John Wells in 1981 that identified V. Tunnicliffe's reef building corals samples as *Solenosmilia variabilis*. A sample from the area was subsequently examined and it was determined that it was actually *D. pertusa* (Conway et al 2007).
D. pertusa is also present across the Pacific region which borders on B.C. waters to the south and west. It was collected from four sites in the Olympic Coast National Marine Sanctuary (OCNMS), one of which may be the largest aggregation of *D. pertusum* in the northeast pacific (Lumsden et. al. 2007). The OCNMS is just south of the B.C./Washington border. Recent DFO surveys of Cobb Seamount and Milbank Snd. also photographed aggregations of what appear to be *D. pertusum.*
Depth profile: The live *L. pertusa* record from Alberni Inlet, B.C. was found at a depth of 270 m. Cairns (1994) list the bathymetric distribution for *L. pertusa* in the NE Pacific as 82-488 m. Worldwide: 39-2170 m but most common in the 200-1000 m range (Lumsden et. al. 2

Number of Occurrences: A = Very Restricted
There are 2 unique record for living *D. pertusum* (with coordinates) within B.C.
Data Source: The two records with associated specimens (1 live and 1 dead) are voucher specimens from the Smithsonian (USNM).
D.pertusum was discovered in the OCNMS in 2004 and more sites were found during a survey in 2006.This occurred in close proximity to B.C. waters and it is likely that there is more *L. pertusa* in B.C. waters.

Population Trend: x = Unknown
More Scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The live *D. pertusa* specimen was identified in 1992 (unsure of collection date) and the dead specimen was collected in 2005.

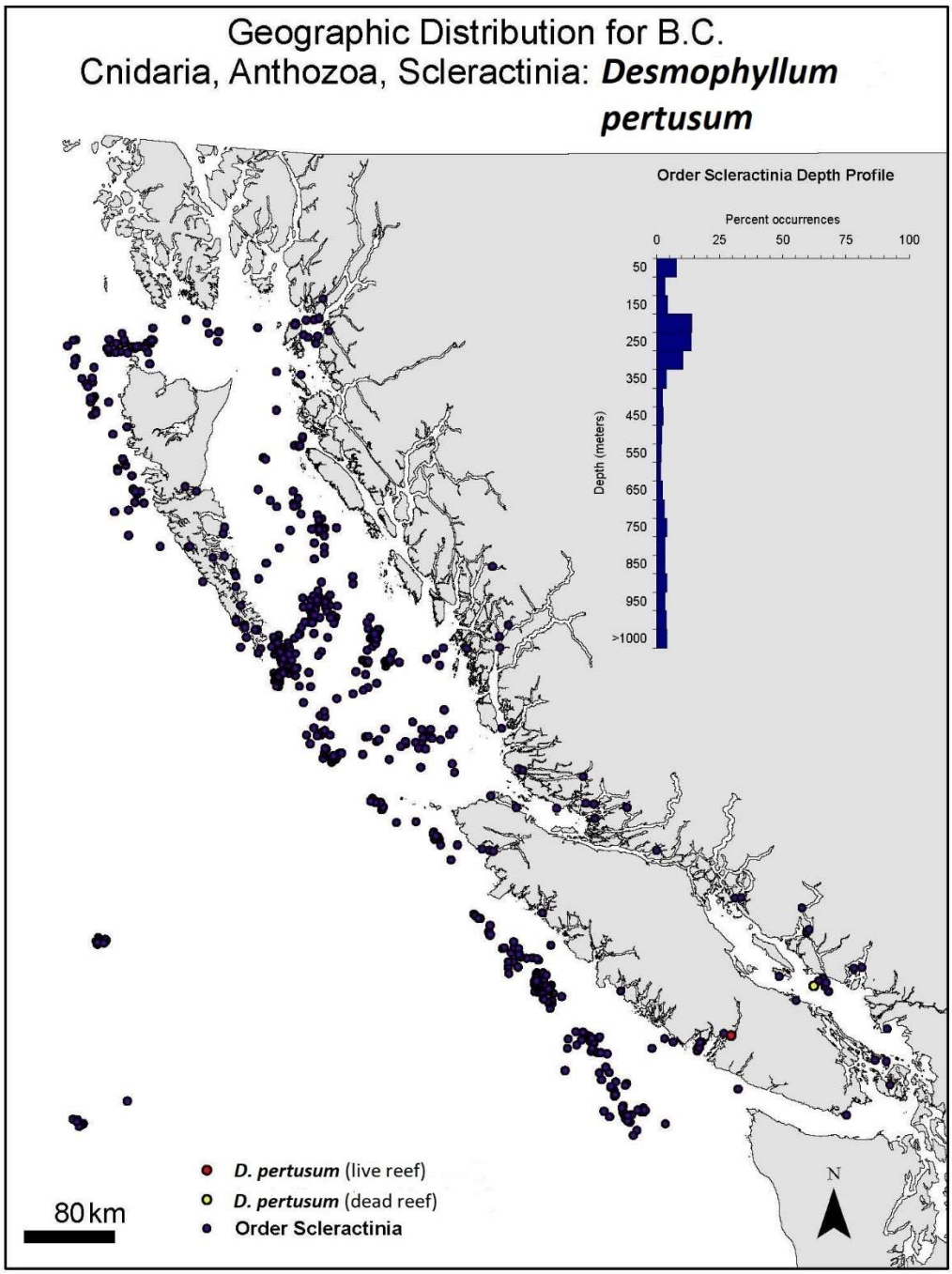
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations.
Most scleractinians are small in size with a low profile. This may mean they are less vulnerable to the effects of bottom fishing than other large rigid corals.

Threats to Distribution: A= Extreme due to factors related to Climate Change.
This threat has the potential to affect the entire population. Order Scleractinia is especially susceptible to ocean acidification and subsequent decreases in the depth of the aragonite saturation horizon (ASH). Aragonite is the form of calcium carbonate used in the hard external skeleton of scleractinians and as the ASH gets shallower so does the habitat available to these species (Guinotte et. al. 2006).

Other Relevant Information: Worldwide *D. pertusum* is the most important constituent of deep-water coral reefs forming massive complexes hundreds of kilometers long and up to 30m high (Lumsden et. al. 2007, p6). *D. pertusum* was given a high rating of structural importance for the Pacific region of the U.S.A. (Lumsden et. al. 2007, p115).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Scleractinia: Desmophyllum pertusum
Order Scleractinia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
D. pertusum (live reef)
D. pertusum (dead reef)
Order Scleractinia
80 km
N

Paracyathus stearnsii Verrill, 1869

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Caryophylliidae
Pacific Region Species Code (Hart): 3JK.
TSN: 53563.
AphiaID: 286830.
Synonyms: *P. caltha, P. calthus* (amended spelling), *P. tiburonensis*
Common Name: brown cup coral

Proposed General Status Ocean Rank: 3 = Sensitive
P. stearnsii is a solitary, sessile and fragile organism. Polyps 8-15 mm in size.
Order Scleractinia is highly susceptible to the predicted changes in ocean chemistry associated with global climate change.
Age and Repro: Fadlallah and Pearce (1982) found *P. stearnsii* to be a long-lived species, estimated to live beyond 40 years. It produces large numbers of small planktonic planulae which are widely dispersed but suffer a high mortality rate.

Population Size: x = Unknown
Not enough information to determine the current population size. Cairns (1994) considers *P. stearnsii* a common, relatively shallow species and therefore one of the most frequently collected corals in the Northeast Pacific. Solitary cup corals are common in the U.S. Oregon biogeographic province (from Pt. Conception, CA to the B.C. border). *P. stearnsii* is common around the U.S. Channel Islands and in Monterey Bay (Lumsden et. al. 2007). Fadlallah and Pearse (1982) found densities of 24.5 *P. stearnsii* / m2 in the Hopkins Marine Life Refuge off Pt. Cabrillo, California.

Distribution: C = Regional
P. stearnsii is distributed within near shore habitat throughout the B.C. coast. It is also found throughout the U.S. Pacific coast region which borders B.C. waters to the south (Lumsden et. al. 2007).
Cairns (1994) Distribution: From Skidegate, Queen Charlotte Islands (Durham, 1947) to Bahia Asuncion (27°01'N), Baja California and Tiburon Island, Gulf of California (as P. tiburonensis): 20-134 m.
Depth profile: The *P. stearnsii* records for B.C. have a depth range of 0m – 62m, with 93% of records found at depths less than 50m.

Number of Occurrences: B = Restricted
There are 15 unique records for *P. stearnsii* within B.C. and 2 additional records for *Paracyathus* sp.
Data Source: All 17 records are from museum collections.

Population Trend: x = Unknown
More scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. Records identified as *P. stearnsii* are from other sources and were collected from 1888 – 1984.

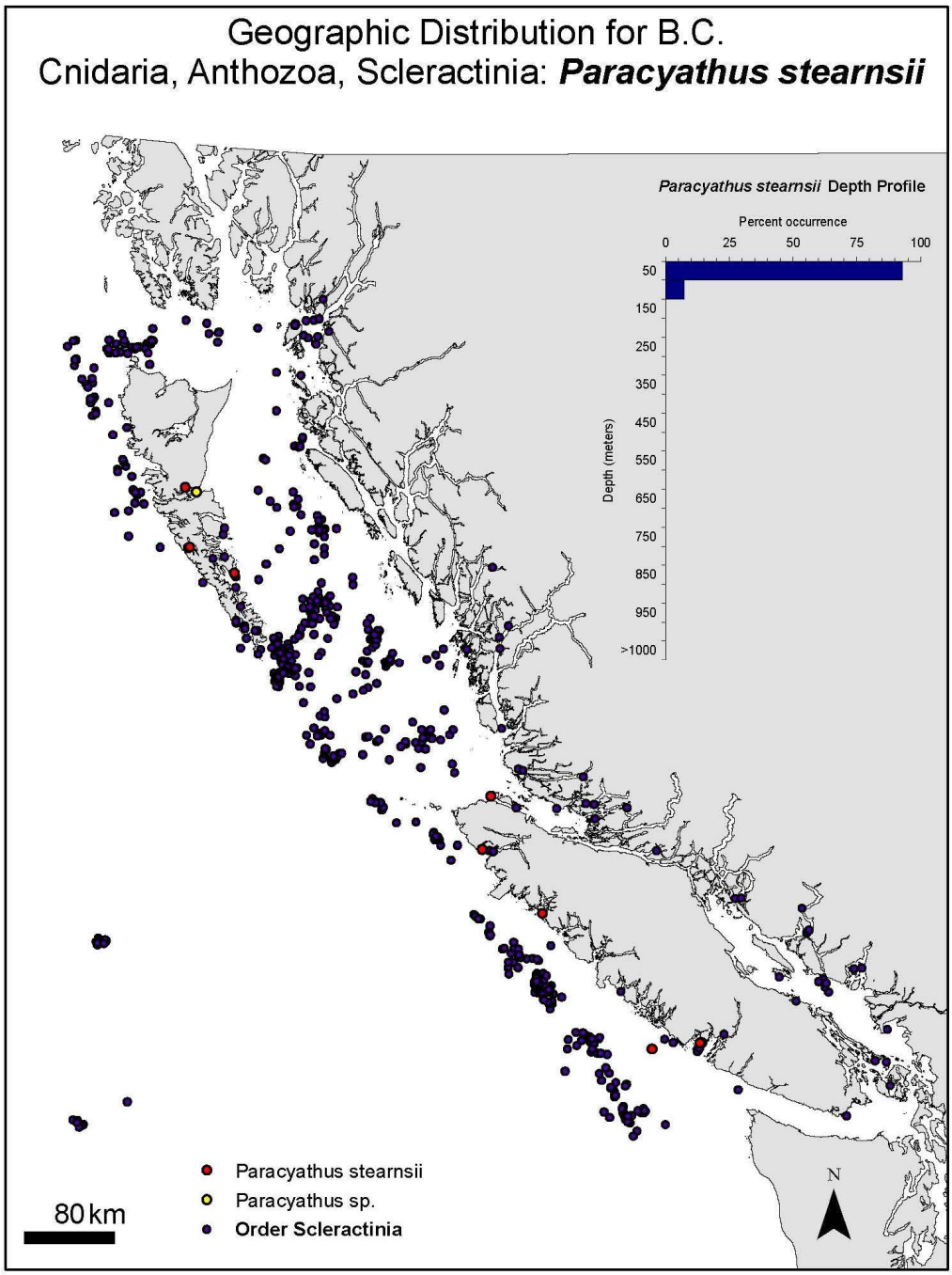
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing operations and nearshore anthropogenic activities.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Scleractinia: Paracyathus stearnsii
Paracyathus stearnsii Depth Profile
Percent occurrence
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Paracyathus stearnsii
Paracyathus sp.
Order Scleractinia
80 km
N

Balanophyllia (Balanophyllia) elegans Verrill, 1864

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Dendrophylliidae
Pacific Region Species Code (Hart): 3J4.
TSN: 53774.
AphiaID: 286920.
Synonyms:
Common Name: orange cup coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Balanophyllia elegans* is a solitary, sessile and fragile organism. Polyps 2-12 mm in size.
Order Scleractinia is highly susceptible to the predicted changes in ocean chemistry associated with global climate change.
Age and Repro (Fadlallah, 1983): High larval survivorship; early onset of reproduction; high juvenile and random adult mortality; est. 6 – 11 year life span; solitary; large polyps (2-12 mm) and a 1:1 sex ratio (Fadllallah and Pearse, 1982).

Population Size: x = Unknown
Not enough information to determine the current population size. Order Scleractinia is considered to have a low abundance in the Alaska region (Lumsden et. al. 2007). Solitary cup corals are common in the U.S. Oregon province (from Pt. Conception, CA to the B.C. border), including over 36,000 observations of *Balanophyllia elegans* at Cordell Bank in northern California (Lumsden et. al. 2007).

Distribution: C = Regional
Balanophyllia elegans is distributed mostly within near shore habitat throughout the B.C. coast. It exhibits a coast wide distribution in near shore hard bottom habitats for the U.S. Pacific coast region which border B.C. waters to the south. *Balanophyllia elegans* is also present in the Eastern Gulf of Alaska region which borders on B.C. waters to the north and in the Western Gulf and Aleutian Island regions of Alaska (Lumsden et. al. 2007).
Cairns (1994) Distribution: Snipe Bay, Alaska to Sacramento Reef, Pacific coast of northern Baja California (29°44'N) (Gerrodette, 1979), including Queen Charlotte Islands, Vancouver Island, and Cortes, Tanner, and Cordell Banks. Bathymetrically known from 0-293 m (Durham, 1947).
Depth profile: The *Balanophyllia elegans* records for B.C. have a depth range of 0m – 100m, with 90% of records found at depths less than 50m.

Number of Occurrences: C = Regional
There are 48 unique records for B*alanophyllia elegans* within B.C.
Data Source: 32 records are from museum collections and 16 are from field notes.

Population Trend: x = Unknown
More scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level.

Records identified as *Balanophyllia elegans* are from other sources and were collected from 1878 – 1991.

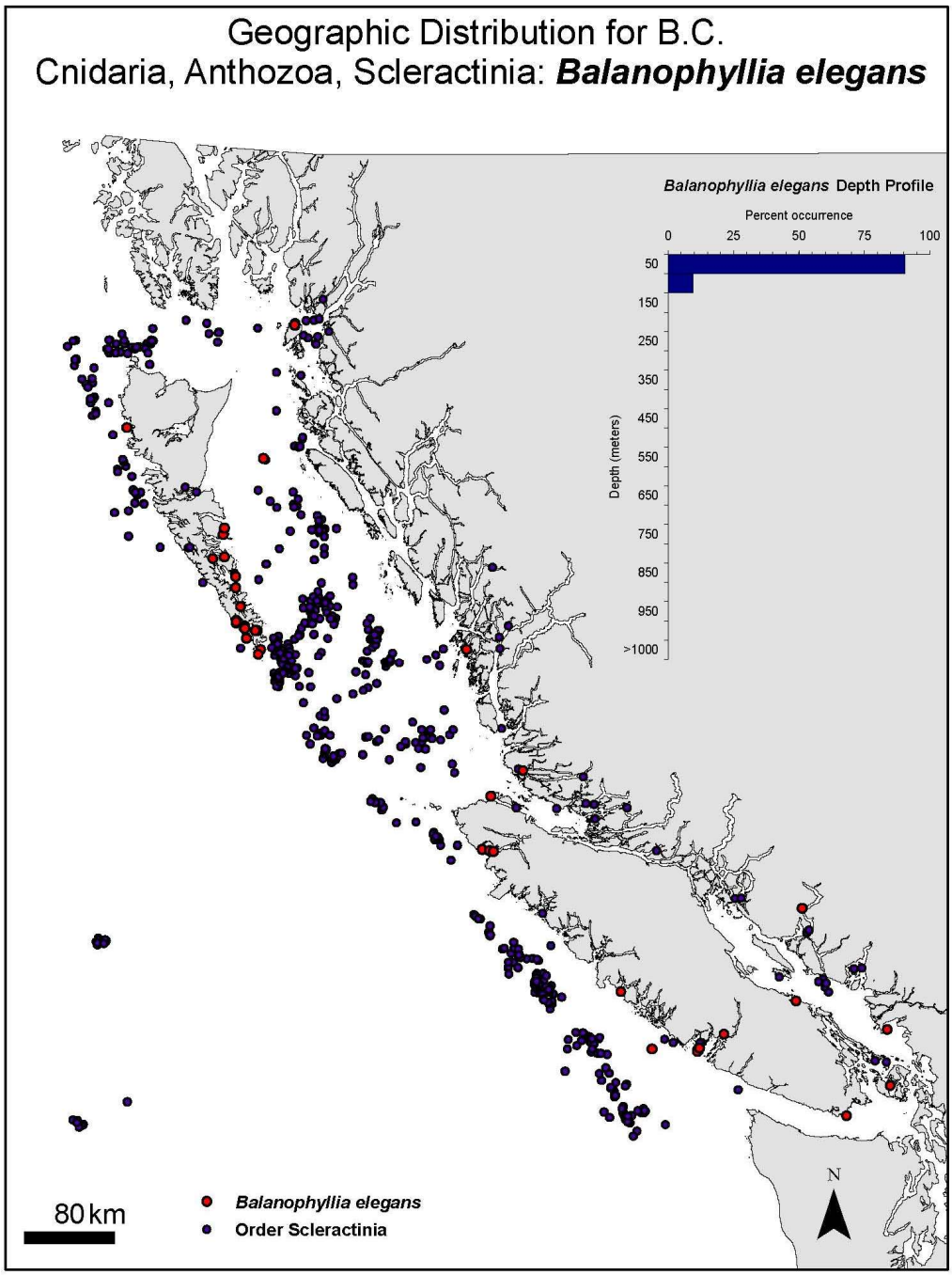
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing operations and nearshore anthropogenic activities.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007).

Editorial Comments: Photo in WoRMS was taken by Neil McDaniel (2018) from Enterprise Reef near Active Pass.


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Scleractinia: Balanophyllia elegans
Balanophyllia elegans Depth Profile
Percent occurrence
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
80 km
Balanophyllia elegans
Order Scleractinia
N

Javania cailleti (Duchassaing and Michelotti, 1864)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Flabellidae
Pacific Region Species Code (Hart): 3K7.
TSN: 53740.
AphiaID: 135198.
Synonyms: *J. delicata, Desmophyllum cailleti, D. eburneum, D. nobile, D. vitreum, D. delicatum, D. galapagense, Galaxea eburnea*
Common Name: Caillet's stony coral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *Javania cailleti* is a solitary, sessile and fragile organism.
Order Scleractinia is highly susceptible to the predicted changes in ocean chemistry associated with global climate change.

Population Size: x = Unknown
Not enough information to determine the current population size. Order Scleractinia is considered to have a low abundance in the Alaska region (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution.
Javania cailleti has been collected only rarely in the North Pacific. There are three records for *J. cailleti* in B.C. waters, two occur off the WCQCI and one off the WCVI. *Javania cailleti* is also present in the Eastern Gulf of Alaska region which borders on B.C. waters to the north and in the Western Gulf and Aleutian Island regions of Alaska (Lumsden et. al. 2007).
Depth profile: The *Javania cailleti* records for B.C. have a depth range of 1280–1425 m. Cairns (1994) list the bathymetric distribution as 86-2165 m.

Number of Occurrences: A = Very Restricted
There are 3 unique records for *Javania cailleti* within B.C.
Data Source: All 3 records are voucher specimens from museum collections. There is also one record of *J. californica* from a DFO tanner crab tow in QC Sound at 1362–1500 m which is not validated and probably a *J. cailleti* specimen. Cairns, 1994, states that *J. californica* is known only from Monterey Bay and Cordell Bank from 62-170 m.

Population Trend: x = Unknown
More scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. Records identified as *Javania cailleti* are from other sources and were collected between 1966 and 2001.

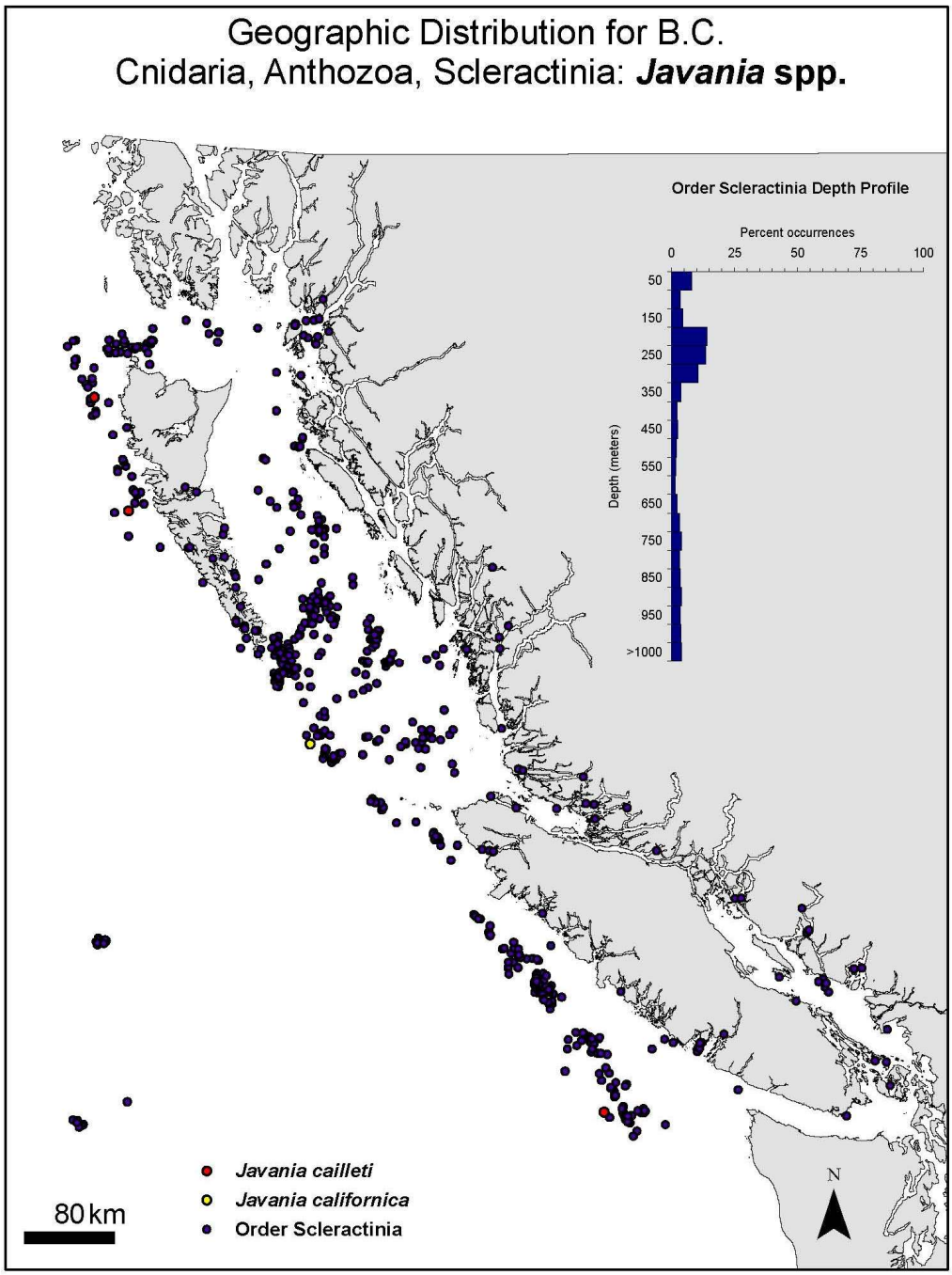
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Bottom Contact Fishing Operations..

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Anthozoa, Scleractinia: Javania spp.
Order Scleractinia Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Javania cailleti
Javania californica
Order Scleractinia
80 km
N

Fungiacyathus (Bathyactis) marenzelleri (Vaughan, 1906)

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Fungiacyathidae
Pacific Region Species Code (Hart): 3KV.
TSN: 53110.
AphiaID: 135205
Synonyms: *F. symmetricus fragilis, F. symmetricus aleuticus, Bathyactis symmetrica, B. marenzelleri*
Common Name: Marenzeller's stony coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records for *F. marenzelleri* in B.C. However, *F. marenzelleri* is considered to be a cosmopolitan species and is found throughout the U.S. Pacific coast region and in the Aleutian Islands. Perhaps, this species has a disjunct distribution that does not include B.C. waters or perhaps due to its depth range at 3800-5000m for the N. Pacific, this species has not yet been collected in B.C. waters.

Population Size: x = Unknown
Not enough information to determine the current population size. Solitary cup corals are common in the U.S. Oregon province (from Pt. Conception, CA to the B.C. border) (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution. No specimens of *F. marenzelleri* have been identified in B.C. waters. *F. marenzelleri* occurs across the U.S. Pacific coast region which borders B.C. waters to the south. *F. marenzelleri* is also present in the Aleutian Islands region of the U.S.A. (Lumsden et. al. 2007)
Cairns (1994) Distribution: Widespread in Pacific from off Peru (Vaughan, 1906b) to Colombia (Marenzeller, 1904b); off Pacific coast of Baja California, California, and Washington (Keller, 1976); Aleutian, Kurile-Kamchatka, and Japan Trenches (Keller, 1976); Shatskiy Rise (Moseley, 1881).
Depth profile: Cairns (1994) lists the bathymetric distribution for *F. marenzelleri* as 300-6328 m with most records for the north Pacific between 3800-5000 m.

Number of Occurrences: x = Unknown
There are no records of *F. marenzelleri* within B.C.

Population Trend: x = Unknown
More scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but most are not identified to the species level. Having said that, the opportunities for collecting observations of this species is very limited as there is no fishing reported in the 3899-5000m depth range for this species and very limited ROV work.
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due factors related to Commercial Fishing and Submarine Cable deployment, maintenance and removal.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007).

Editorial Comments: N/A

Leptopenus discus Moseley, 1881

Higher Taxonomic Classification: Cnidaria, Anthozoa, Scleractinia, Micrabaciidae
Pacific Region Species Code (Hart): 3KY.
TSN: 572250.
AphiaID: 287466.
Synonyms: *L. irinae*
Common Name: discoid stony coral

Proposed General Status Ocean Rank: 5 = Undetermined
There are no records for *L. discus* in BC. However, *L. discus* has been found off California, Washington, and the Aleutian Islands. Perhaps, this species has a disjunct distribution that does not include B.C. waters or perhaps due to its depth range at 3599-5000m for the N. Pacific, this species has not yet been collected in B.C. waters.

Population Size: x = Unknown
Not enough information to determine the current population size. Solitary cup corals are common in the U.S. Oregon province (from Pt. Conception, CA to the B.C. border) (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution. No specimens of *L. discus* have been identified in B.C. waters. *L. discus* occurs in the Oregon biogeographic province of the U.S. Pacific coast region which borders on B.C. waters to the south. *L. discus* is also present in the Aleutian Islands region of the U.S.A. (Lumsden et. al. 2007) Cairns (1994) Distribution: Off Baja California (west of Patton Escarpment); off Washington (Keller, 1977); Aleutian and Kurile Trenches (Keller, 1977).
Depth profile: Cairns (1994) lists the bathymetric distribution for *L. discus* as 3599-5000 m.

Number of Occurrences: x = Unknown
There are no records of *L. discus* within B.C.

Population Trend: x = Unknown
More Scleractinian observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but most are not identified to the species level. Having said that, the opportunities for collecting observations of this species is very limited as there is no fishing reported in the 3599-5000m depth range for this species and very limited ROV work.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: C= Limited due to factors related to Submarine cable deployment, maintenance and removal.

Threats to Distribution: A= Extreme due to factors related to Climate Change.

Other Relevant Information: Order Scleractinia was given a low rating of structural importance for the Alaskan region of the U.S.A. (Lumsden et. al. 2007).

Editorial Comments: N/A

Errinopora pourtalesii (Dall, 1885)

Higher Taxonomic Classification: Cnidaria, Hydrozoa, Anthoathecata, Filifera, Stylasteridae
Pacific Region Species Code (Hart): 3SC.
TSN: 50907.
AphiaID: 289915.
Synonyms: *E. pourtalesi, Errina pourtalesii*
Common Name: Pourtales's lace hydrocoral

Proposed General Status Ocean Rank: 5 = Undetermined
There is only one record of *E. pourtalesii* in BC waters and it is lacking coordinates and other valuable information including who identified the record. Since *E. pourtalesii* is found both north and south of BC waters in the US, it seems likely that the species does in fact occur here. Both Austin (1985) and Jamieson (2006) list *E. pourtalesii* as being present in BC.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
Not enough information to determine the current distribution. There is one record of *E. pourtalesii* in BC waters and it is in the Strait of Georgia, unfortunately the record does not have coordinates. *E. pourtalesii* is found north of B.C. in the Eastern Gulf of Alaska region, Western Gulf of Alaska and Aleutian Islands. It is also found south of BC in the Oregon biogeographic province where it is considered to exhibit a narrow distribution, off central California at shelf depths (Lumsden et. al. 2007).
Depth profile: The *E. pourtalesii* record for B.C. does not have depth associated with it. 86% of Family Stylasteridae records are found at depths less than 50m. NOAA (p.154) lists the bathymetric distribution of *E. pourtalesii* for the U.S. Pacific coast as 49 - 183 m.

Number of Occurrences: A = Very Restricted
There is 1 record for *E. pourtalesii* within BC and it is lacking coordinate information.
Data Source: The record is from a museum, the CAS, but no identifier is listed.

Population Trend: x = Unknown
More hydrozoan observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. There is no collection date associated with the BC E. pourtalesii record.

Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations..

Threats to Distribution: A= Extreme due to factors related to Climate Change and Moderate due to factors related too anthropogenic nearshore and onshore activities.

Other Relevant Information: Order Anthoathecatae was given a high rating of structural importance in the Alaska region. It is considered to have medium colony size and high abundance (Lumsden et. al. 2007).

Editorial Comments: N/A

Stylantheca papillosa (Dall, 1884)

Higher Taxonomic Classification: Cnidaria, Hydrozoa, Anthoathecata, Filifera, Stylasteridae
Pacific Region Species Code (Hart): 3SE
TSN: 572465;
AphiaID: 291143 for *S. papillosa*
Synonyms: *Allopora petrograpta, Stylantheca porphyra*1, Stylantheca petrograpta*2*
Common Name:

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *S. papillosa*'s encrusting, sessile nature and shallow depth makes it especially susceptible to harm from a changing environment, point source pollution and coastal development.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
S. papillosa is a combination of *S. petrograpta* and *S. porphyra* (Cairns 1983, 1992 and Cairns et al 2011). *S. petrograpta* was found off southern Vancouver Island. It is also found south of B.C. in the U.S. Oregon biogeographic province and north of B.C. in the eastern Gulf of Alaska and the Aleutian Islands. Lumsden *et al*. (2007) stated that *S. petrograpta* is found only in the northern part of the Oregon province off the southern part of Vancouver Island and in Puget Sound *S. porphyra* is also found south of B.C. in the U.S. Oregon biogeographic province and north of B.C. in the eastern Gulf of Alaska.
Depth profile: The combined records of *S. papillosa* from both synonyms for B.C. were mostly missing depth information but the records with depth, range from 0m – 12m. 86% of Family Stylasteridae records are found at depths less than 50m. Lumsden et. al. (2007) lists the bathymetric distribution of *S. papillosa* for the U.S. Pacific coast as intertidal.

Number of Occurrences: A = Very Restricted
Within B.C there are 4 unique records for *S. petrograpta,* 1 unique record for *S. porphyra* and 4 additional records for *Stylantheca* sp which could be *S. papillosa* but are not identified to the species level.
Data Source: The five combined records of *S. petrograpta S. pophyra* are from museum collections and the four *Stylantheca* sp. records are from field notes that were collected between 1973 and 2002.

Population Trend: x = Unknown
More hydrozoan observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. .

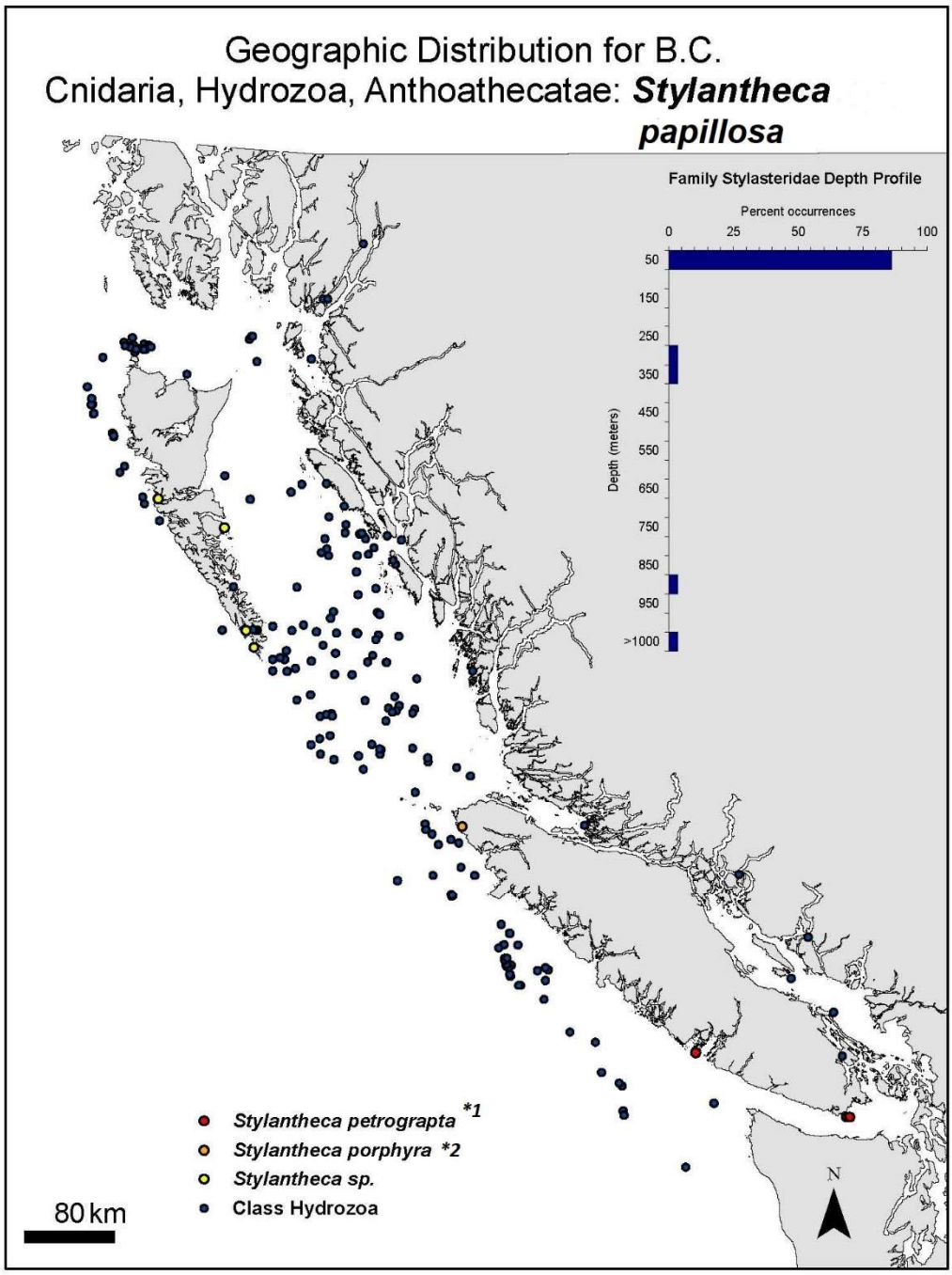
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations..

Threats to Distribution: A= Extreme due to factors related to Climate Change and Moderate due to factors related too anthropogenic nearshore and onshore activities.

Other Relevant Information: *Stylantheca papillosa* (Dall, 1884) is a single species that combines *S. petrograpta and S. porphyra. Order Anthoathecatae* is unaccepted and subsequent spelling is *Anthoathecata.*

Editorial Comments:
Stylantheca porphyra status in WoRMS is unaccepted. The accepted name is *Stylantheca papillosa* (Dall, 1884) which is a single species that combines *S. porphyra* and *S. petrograpta.*
Order Anthoathecatae is unaccepted and subsequent spelling is *Anthoathecata.*


Geographic Distribution for B.C.
Cnidaria, Hydrozoa, Anthoathecatae: Stylantheca papillosa
Family Stylasteridae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Stylantheca petrographa *1
Stylantheca porphyra *2
Stylantheca sp.
Class Hydrozoa
80 km
N

Stylaster californicus (Verrill, 1866)

Higher Taxonomic Classification: Cnidaria, Hydrozoa, Anthoathecata, Stylasteridae
Pacific Region Species Code (Hart): 3SG.
TSN: 50925.
AphiaID: 285860.
Synonyms: *Allopora californica, Stylaster norvegicus californicus?*
Common Name: California hydrocoral or California lace hydrocoral

Proposed General Status Ocean Rank: 5 = Undetermined / 8 = Accidental
According to Lumsden et. al. (2007, p122) *S. californicus* has a northern distributional limit of the Farallone Islands off San Francisco, CA. Therefore the B.C. record may be a range extension or an accidental occurrence.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: x = Unknown
Not enough information to determine the current distribution. Only two specimens of *S. calfornicus* have been identified in B.C. waters and they were collected at the same time and may represent the same colony from Race Rocks on southern Vancouver Island. *S. calfornicus* is also found south of B.C. in the U.S. Pacific coast region. Lumsden et. al. (2007) states that the Farallone Islands (off San Francisco, CA) mark the northern distributional extent of *S. californicus* so the B.C. record may be a range extension or an accidental occurrence.
Depth profile: The *S. californicus* record for B.C. does not have associated depth info. 86% of Family Stylasteridae records are found at depths less than 50m. NOAA (p154) lists the bathymetric distribution of *S. californicus* for the U.S. Pacific coast as 35 - 90m while WoRMS lists it as 4-110m

Number of Occurrences: A = Very Restricted
There is 1 unique record for *S. californicus* within B.C. and 13 additional records for *Stylaster* sp. which could be *S. californicus* but are not identified to the species level.
Data Source: The *S. californicus* record is found in two museum collections with the ID being confirmed in 1973 by Kathy Thompson of the RBCM and in 2006 by Stephen Cairns of the USNM. Six *Stylaster* sp. records are from museums, five are from field notes and two are from DFO surveys.

Population Trend: x = Unknown
Not enough information to determine a trend.
More hydrozoan observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The record identified as *S. californicus* was collected in 1973.

Distribution Trend: x = Unknown

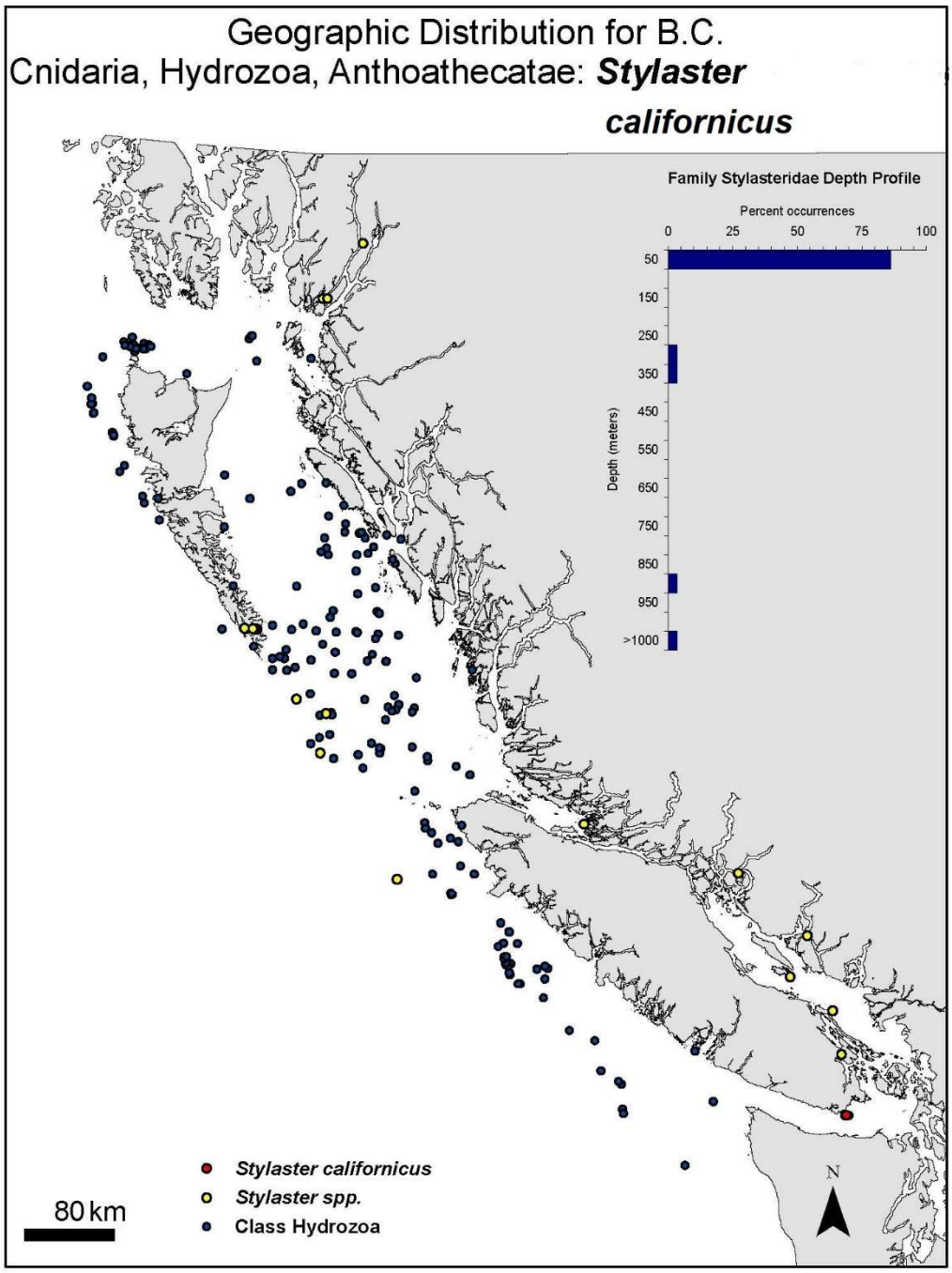
According to Lumsden et. al. (2007, p122) *S. californicus* has a northern distributional limit of the Farallone Islands off San Francisco, CA. Therefore the B.C. record may be a range extension or an accidental occurrence.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations.

Threats to Distribution: A= Extreme due to factors related to Climate Change and Moderate due to factors related too anthropogenic nearshore and onshore activities.

Other Relevant Information:

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Hydrozoa, Anthoathecatae: Stylaster californicus
Family Stylasteridae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Stylaster californicus
Stylaster spp.
Class Hydrozoa
80 km
N

Stylaster campylecus (Fisher, 1938)

Higher Taxonomic Classification: Cnidaria, Hydrozoa, Anthoathecata, Filifera Stylasteridae
Pacific Region Species Code (Hart): 3SH.
TSN: 50946.
AphiaID: 346433.
Synonyms: *Allopora campyleca, Allopora moseleyanus, Allopora polyorchis, Stylaster boreopacifica typical, S campylecus campylecus, S campylecus tylotus, S moseleyanus, S polyorchis*
Common Name: white branching hydrocoral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *S. campylecus'* sessile nature and shallow depth makes it especially susceptible to harm from a changing environment, point source pollution and coastal development. It is a flabellate or fan-shaped species and is known to grow to at least 10cm tall and has a fragile calcium carbonate skeleton. One Alaskan species of *Stylaster* is known to reach almost 1 m tall.

Population Size: x = Unknown
Not enough information to determine the current population size. *S. campylecus* is considered to be a major structural component of Aleutian Island coral gardens (Lumsden et. al. 2007).

Distribution: x = Unknown
Not enough information to determine the current distribution. Only two specimens of *S. campylecus* have been identified in B.C. waters and they were collected at the same time and may represent the same colony from Belle Bay in Portland Canal on BC's north coast. *S. campylecus* is found north of B.C. in the Eastern Gulf of Alaska region and in the Western Gulf and Aleutian Islands regions as well (Lumsden et. al. 2007). Austin lists the distribution as Aleutians to off Washington with a specimen from Cobb Seamount in international waters.
Depth profile: The *S. campylecus* record for B.C. has a depth of 0 – 23 m. 86% of Family Stylasteridae records are found at depths less than 50m. WoRMS details the depth range as being 150-500 m.

Number of Occurrences: A = Very Restricted
There is 1 unique record for *S. campylecus* within B.C. and 13 additional records for *Stylaster* sp. which could be *S. campylecus* but are not identified to the species level.
Data Source: The *S. campylecus* record is found in two museum collections with the ID being confirmed in 1998 by Bill Austin of the RBCM and in 2006 by Stephen Cairns of the USNM. Six *Stylaster* sp. records are from museums, five are from field notes and two are from DFO surveys.

Population Trend: x = Unknown

More hydrozoan observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level.

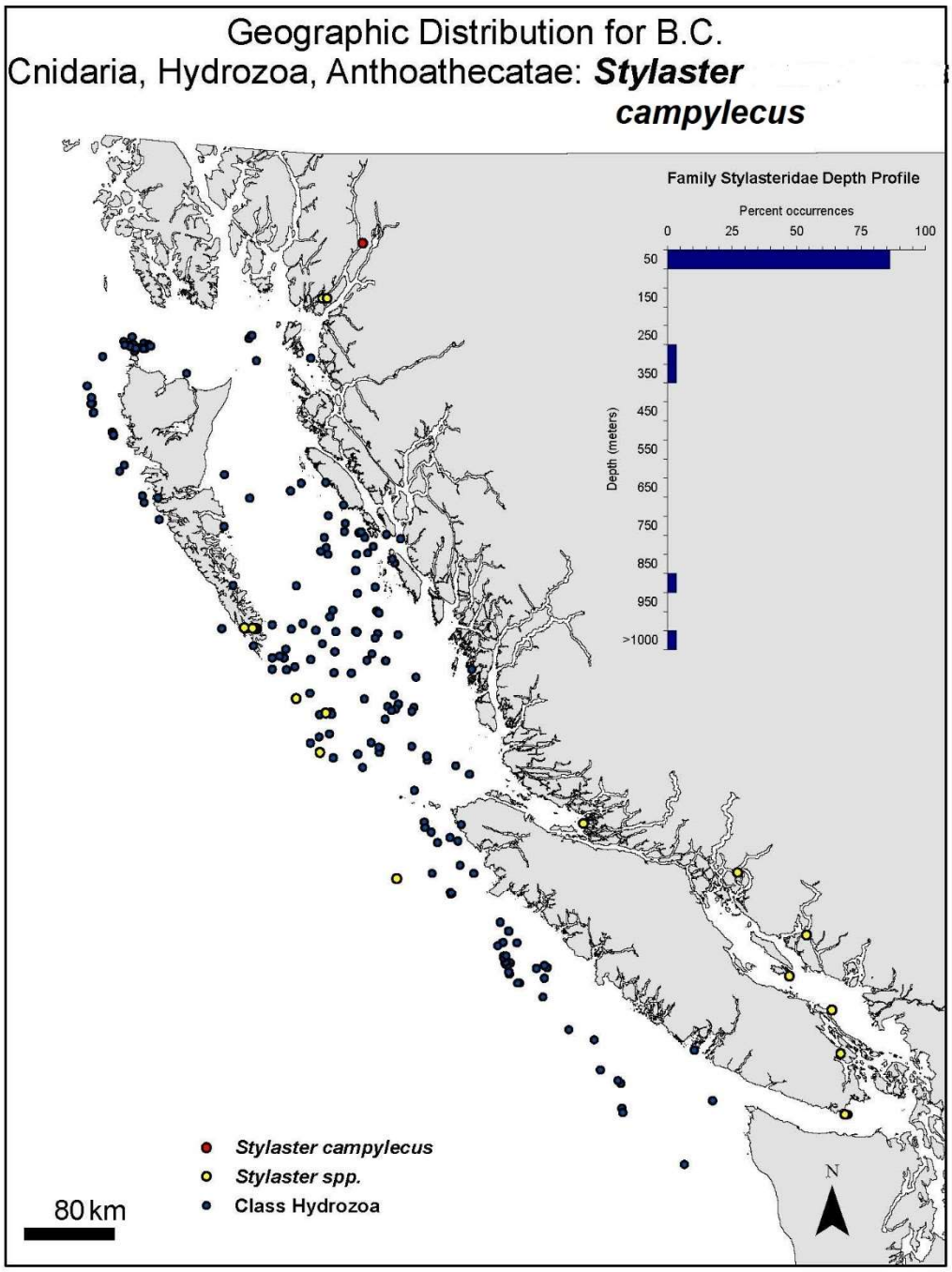
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors related to Bottom Contact Fishing Operations..
3.3 metric tons of fisheries bycatch for Order Hydrozoa was reported in B.C. waters from 1996-2007.

Threats to Distribution: A= Extreme due to factors related to Climate Change and Moderate due to factors related too anthropogenic nearshore and onshore activities. arms)

Other Relevant Information: *S. campylecus* is considered to be a major structural component of Aleutian Island coral gardens and are often encrusted with the demosponge myxilla incrustans. Together they form a rigid platform that other sedentary and sessile invertebrates can use as an elevated feeding platform (Lumsden et. al. 2007).

Editorial Comments: N/A


Geographic Distribution for B.C.
Cnidaria, Hydrozoa, Anthoathecatae: Stylaster campylecus
Family Stylasteridae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Stylaster campylecus
Stylaster spp.
Class Hydrozoa
80 km
N

Stylaster norvegicus pacificus (Gunnerus, 1768) synonymised with S verrillii (Dall, 1884)

Higher Taxonomic Classification: Cnidaria, Hydrozoa, Anthoathecatae, Stylasteridae
Pacific Region Species Code (Hart): 3SI.
TSN: 50937.
AphiaID: 117968 is not a valid species as it is now synonymised with S *verrillii 286915*
Synonyms: *Allopora norvegica, Stylaster norvegicus pacificus* is a synonym for *Stylaster verrillii*
Common Name: pink branching hydrocoral

Editorial Comments: See comments on *S. norvegicus pacificus* now being accepted as *S. verrillii.* All records of this species in museums and in DFO data need to be modified to reflect this change.

Stylaster venustus (Verrill, 1870)

Higher Taxonomic Classification: Cnidaria, Hydrozoa, Anthoathecata, Stylasteridae
Pacific Region Species Code (Hart): 3SL.
TSN: 50971.
AphiaID: 285914.
Synonyms: *Allopora venustus*
Common Name: pink branching hydrocoral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *S. venustus'* sessile nature and shallow depth makes it especially susceptible to harm from a changing environment, point source pollution and coastal development. It is a flabellate or fan-shaped species and is known to grow up to 15cm across and has a fragile calcium carbonate skeleton. One Alaskan *Stylaster* sp. is known to reach almost 1 m tall.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: A = Very Restricted
S. venustus has been identified in BC near shore waters south of Vancouver Island and the Queen Charlotte Islands. *S. venustus* is found south of B.C. in the U.S. Pacific coast region. Lumsden et. al. (2007) states that the Farallone Islands (off San Francisco, CA) mark the southern distributional extent of *S. venustus. S. venustus* is also found north of BC in the Eastern Gulf of Alaska region.
Depth profile: The *S. venustus* records for B.C. have a depth profile of 0 – 9 m. 86% of Family Stylasteridae records are found at depths less than 50m. Lumsden et. al. (2007) lists the bathymetric distribution of *S. venustus* for the U.S. Pacific coast as 49–84 m. WoRMS lists the depth profile as 10-108 m.

Number of Occurrences: A = Very Restricted
There are 4 unique records for *S. venustus* within B.C. and 13 additional records for *Stylaster* sp. which could be *S. venustus* but are not identified to the species level.
Data Source: The four *S. venustus* records are found in four separate museum collections. One from the CMN has no coordinates and no identifier, one from the YPM has no identifier and the RBCM and USNM records are both from Race Rocks off southern VI and identified by Stephen Cairns of the USNM in the early 1980's.
Six *Stylaster* sp. records are from museums, five are from field notes and two are from DFO surveys.

Population Trend: x = Unknown
More hydrozoan observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The records identified as *S. venustus* were collected between 1878 and 1987.

Distribution Trend: x = Unknown

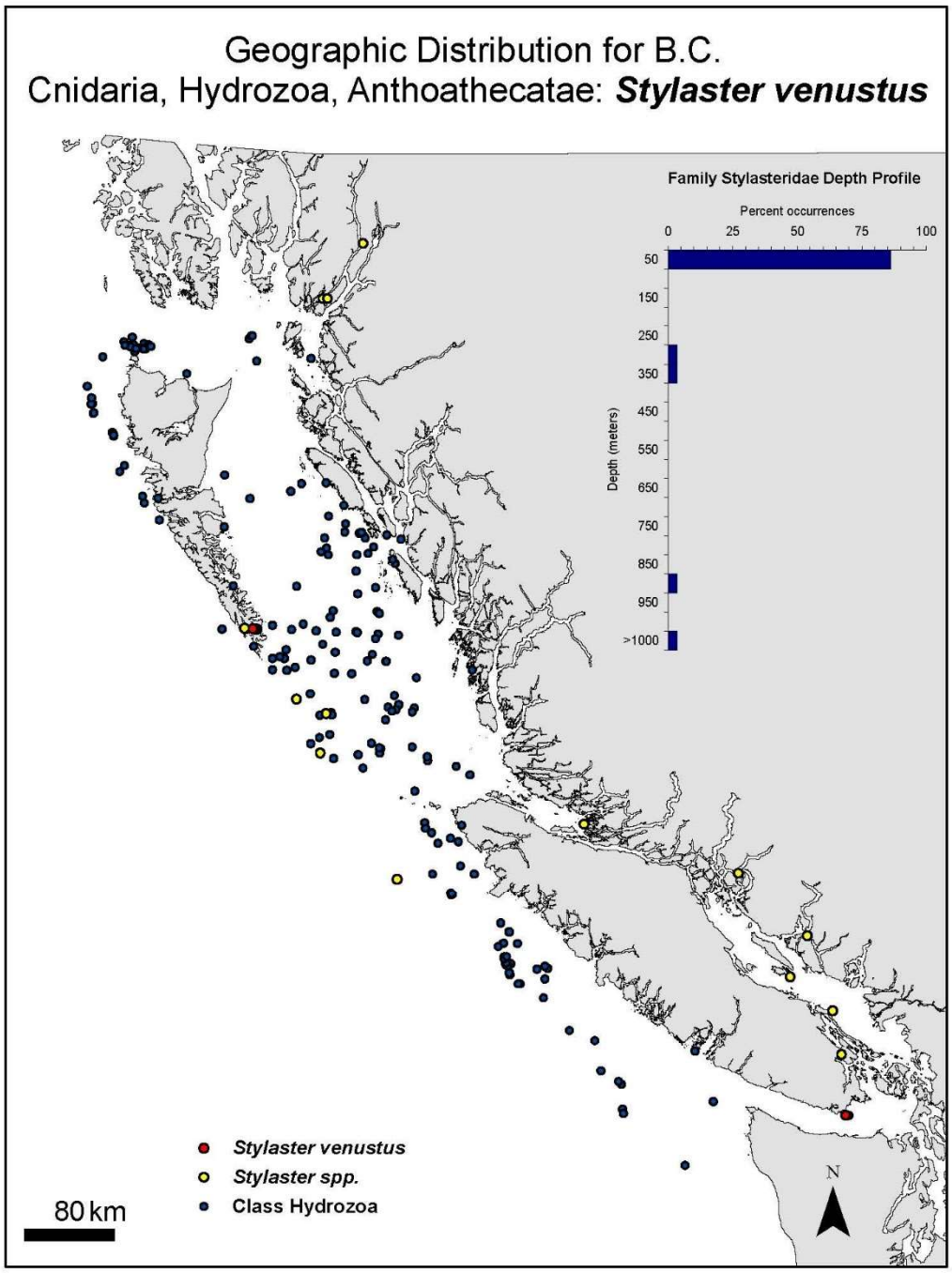
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors associated with Commercial Fishing.
3.3 metric tons of fisheries bycatch for Order Hydrozoa was reported in B.C. waters from 1996-2007.

Threats to Distribution: A= Extreme due to factors associated with Climate change and Moderated due to factors associated with anthropogenic disturbances in coastal areas.

Other Relevant Information: Order Anthoathecatae was given a high rating of structural importance in the Alaska region. It is considered to have medium colony size and high abundance (Lumsden et. al. 2007)

Editorial Comments: Photo in WoRMS was taken by Neil McDaniel (2018) from Race Rocks.


Geographic Distribution for B.C.
Cnidaria, Hydrozoa, Anthoathecatae: Stylaster venustus
Family Stylasteridae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Stylaster venustus
Stylaster spp.
Class Hydrozoa
80 km
N

Stylaster verrillii (Dall, 1884)

Higher Taxonomic Classification: Cnidaria, Hydrozoa, Anthoathecatae, Stylasteridae
Pacific Region Species Code (Hart): 3S3.
TSN: 50927.
AphiaID: 285915.
Synonyms: *Stylaster norvegicus pacificus, Allopora verrillii, Allopora verrillii*
Common Name: pink branching hydrocoral

Proposed General Status Ocean Rank: 3 = Sensitive
Sensitive by nature: *S. verrillii'*s sessile nature and shallow depth makes it especially susceptible to harm from a changing environment, point source pollution and coastal development. It is a flabellate or fan-shaped species and is known to grow up to 15cm across and has a fragile calcium carbonate skeleton. One Alaskan *Stylaster* sp. is known to reach almost 1 m tall.

Population Size: x = Unknown
Not enough information to determine the current population size.

Distribution: A = Very Restricted
S. verrillii has been identified in BC in the near shore inside waters of the Strait of Georgia. *S. verrillii* is found north of B.C. in the Eastern Gulf of Alaska region and Aleutian Islands. *S. norvegicus pacificus* records from B.C, were distributed within near shore habitat along the inside waters of the B.C. coast. There is no mention of this species in U.S. waters either to the north or to the south due to taxonomic uncertainty regarding this species or group of species.
Depth profile: The *S. verrillii* and *S. norvegicus pacificus* records for B.C. have a depth profile of 0 – 27 m. 86% of Family Stylasteridae records are found at depths less than 50m.

Number of Occurrences: A = Very Restricted
There are 2 unique records for *S. verrillii,* and 5 unique records of *S. norvegicus pacificus* within B.C. and 13 additional records for *Stylaster* sp. which could be *S. verrillii* but are not identified to the species level.
Data Source: The two *S. verrillii* records are housed at the RBCM and were identified as *Allopora verrillii* (a synonym of *S. verrillii*) by Stephen Cairns of the USNM in the early 1980's. The five *S. norvegicus pacificus* records are found in two museum collections: the CMN with no identifier listed and the RBCM with 2 of 4 records identified by Phil Lambert in the late 1970's. All 5 specimens were identified as *Allopora norvegica pacifica* which is a synonym of *S. norvegicus pacificus.* These are non-valid ID's and will need to be changed.
As for the 13 *Stylaster* sp. records six are from museums, five are from field notes and two are from DFO surveys.

Population Trend: x = Unknown

More hydrozoan observations occur in recent years due to an increase in DFO and industry recording of coral bycatch but they are not identified to the species level. The records identified as S. verrillii were collected between 1973 and 1976.

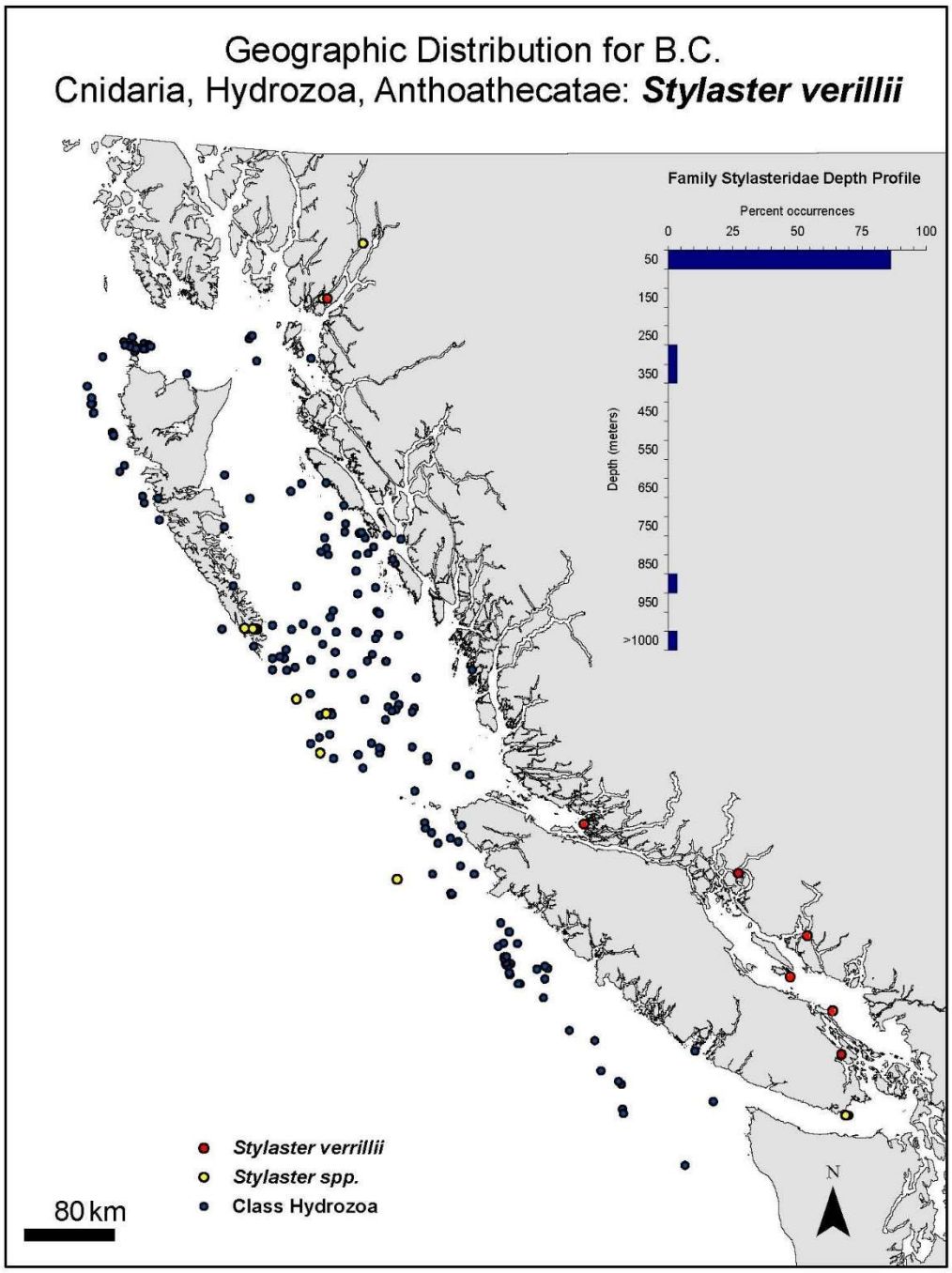
Distribution Trend: x = Unknown
Not enough information to determine a trend.

Threats to Population: B= Moderate due to factors associated with bottom contact fishing operations.

Threats to Distribution: A= Extreme due to factors associated with Climate Change and moderate due to factors associated with anthropogenic disturbances in coastal areas

Other Relevant Information: Order Anthoathecatae was given a high rating of structural importance in the Alaska region. It is considered to have medium colony size and high abundance (Lumsden et. al. 2007)

Editorial Comments: Photo in WoRMS was taken by Neil McDaniel (2018) from Knight Inlet. The map of S. *verrillii* combines the locations of *S norvegicus pacificus* and *S. verrillii* (accepted) into a single distribution map. All DFO and museum records of *S. norvegicus pacificus* need to be modified accordingly.


Geographic Distribution for B.C.
Cnidaria, Hydrozoa, Anthoathecatae: Stylaster verillii
Family Stylasteridae Depth Profile
Percent occurrences
0
25
50
75
100
Depth (meters)
50
150
250
350
450
550
650
750
850
950
>1000
Stylaster verrillii
Stylaster spp.
Class Hydrozoa
80 km
N

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