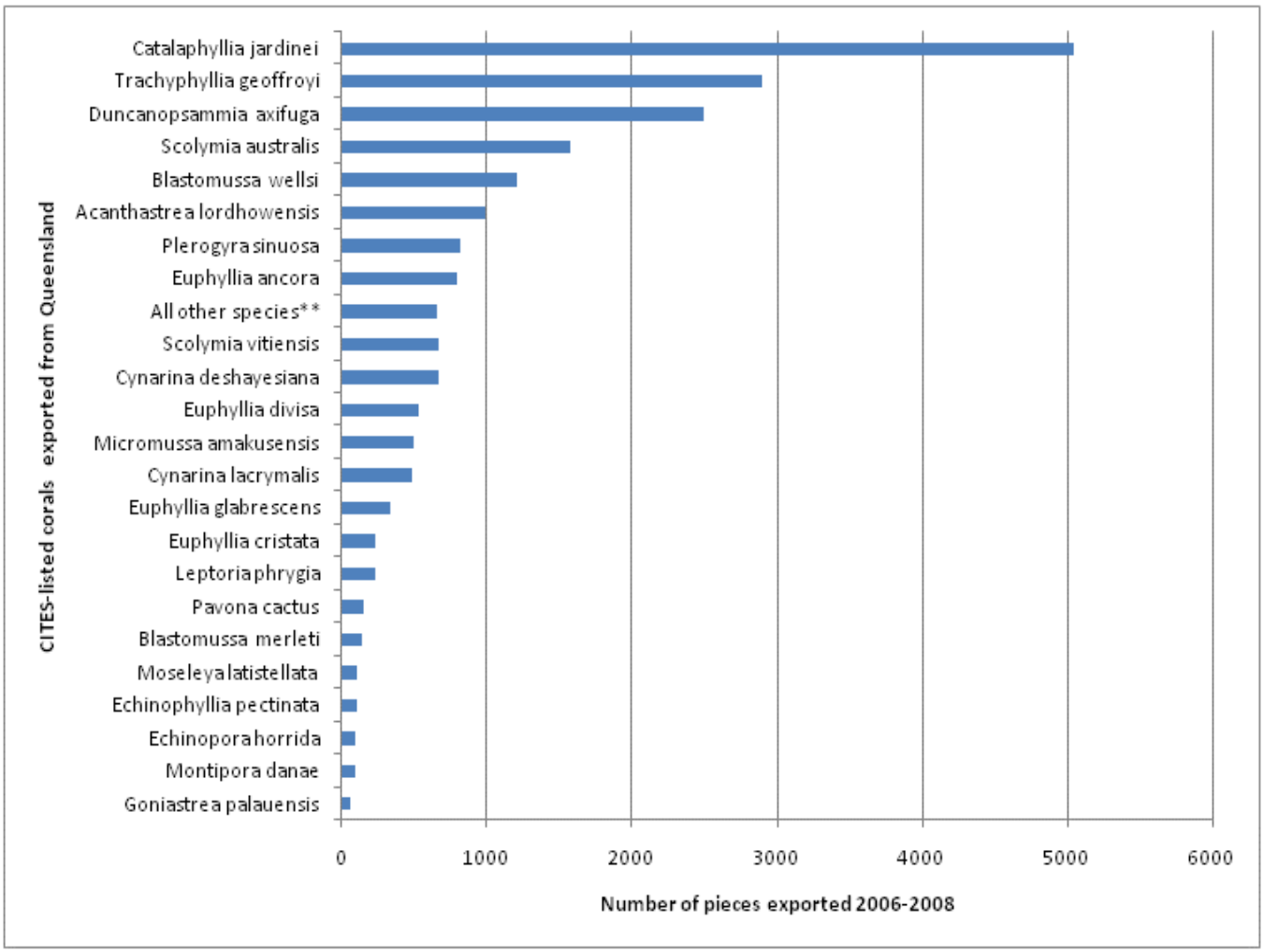

Figure 1: Species of CITES-listed coral exported from the Queensland Coral Fishery from July 2006 to May 2008. Note: All other species** = 47 different species where less than 50 pieces per species have been exported during this period. *(Source DEWHA CITES section export figures, 2006-2008)*

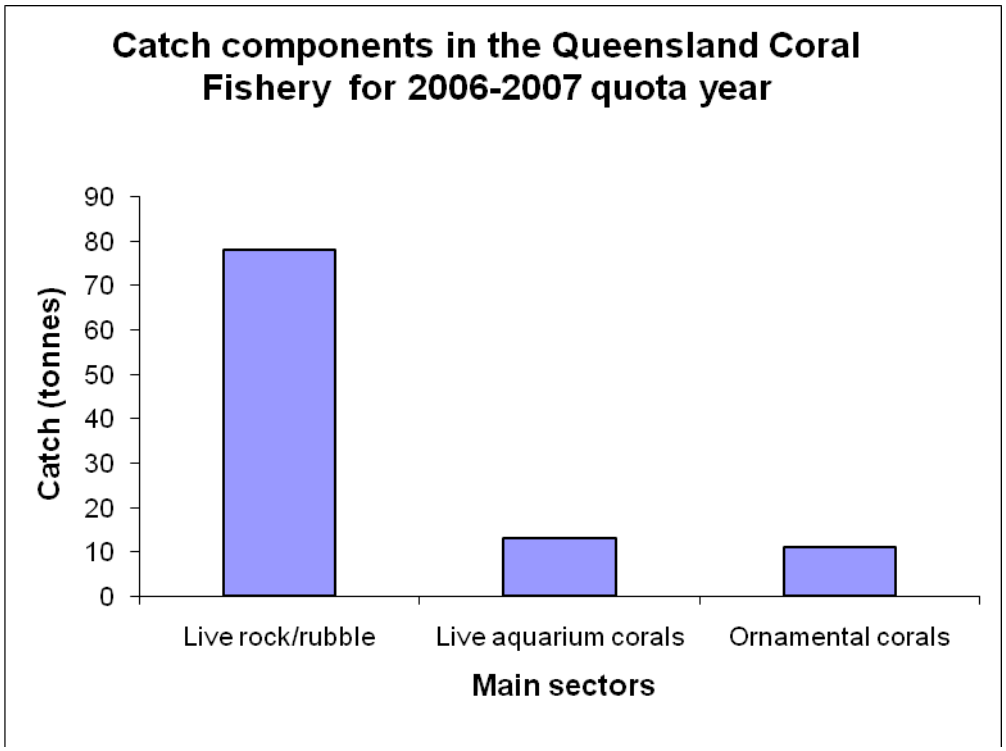

Figure 2: Catch components and market focus for the 2006-2007 quota-reporting year for the Queensland Coral Fishery *(source DPI&F 2008 Annual Status Report*).

Figure 3: The Queensland Coral Fishery Area has the same prescribed boundary as that for the Great Barrier Reef Marine Park. (Note two permits exist for small collection areas just south of the GBRMP specifically to supply two public aquaria – see *Policy for the Management of the Coral Fishery* for details)

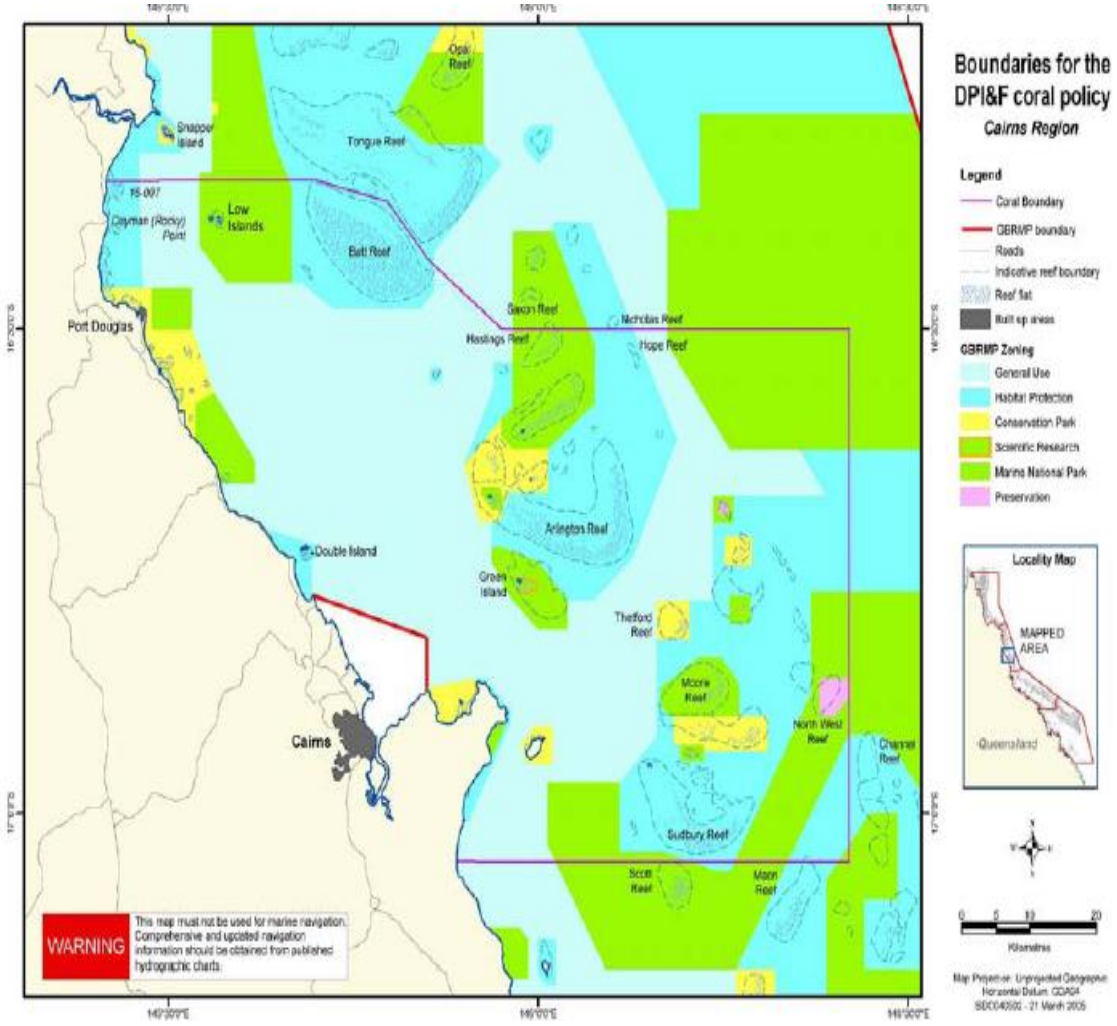

Figure 4: Boundary of the Cairns Region as defined under the DPI&F *Policy for the Management of the Coral Fishery.*

Figure 5: Boundary of the Keppel region as defined under the DPI&F *Policy for the Management of the Coral Fishery*.

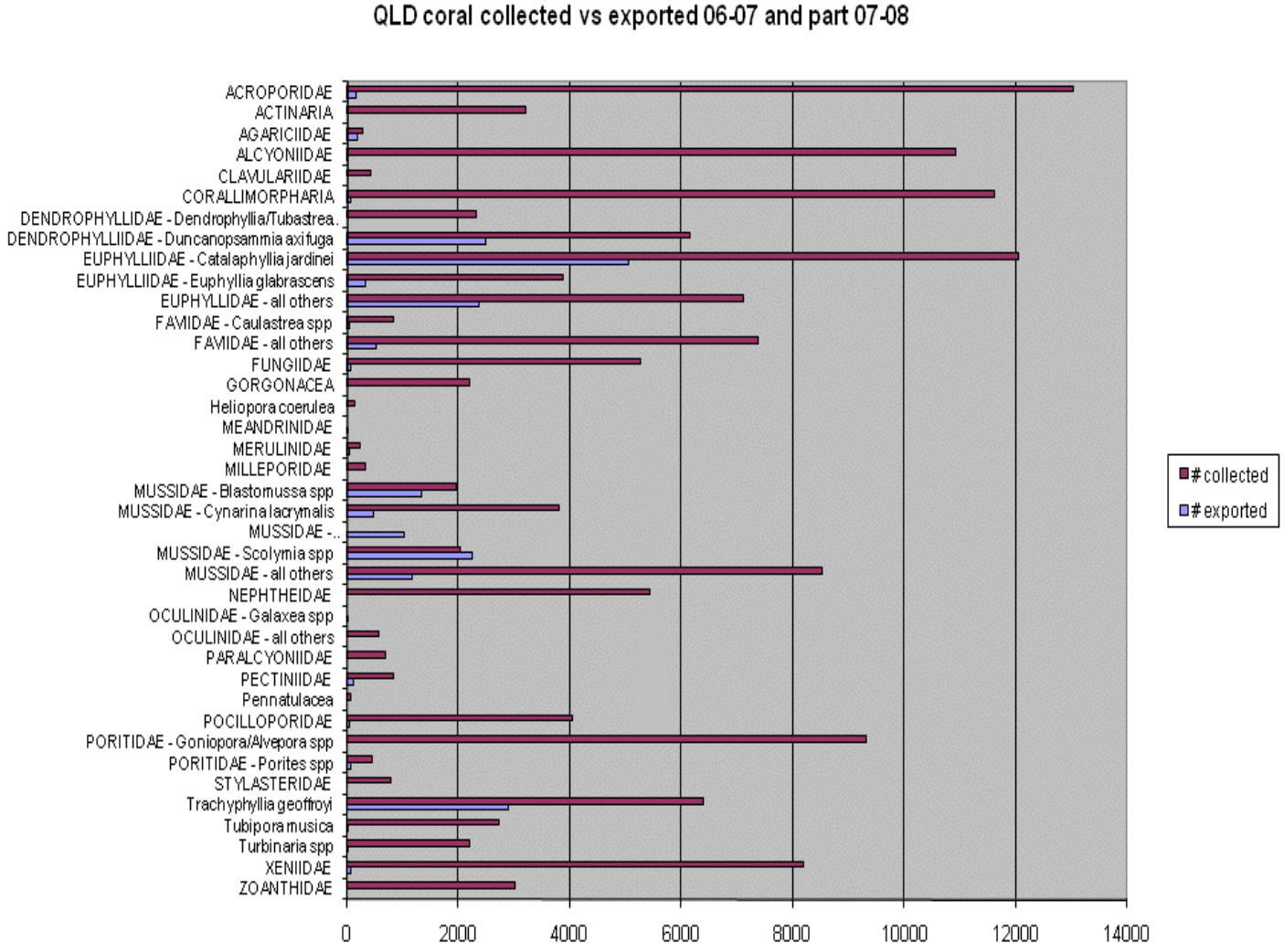

Figure 6: A comparison of number of pieces of coral collected vs. number of pieces exported by species/genus for July 2006 to May 2008.

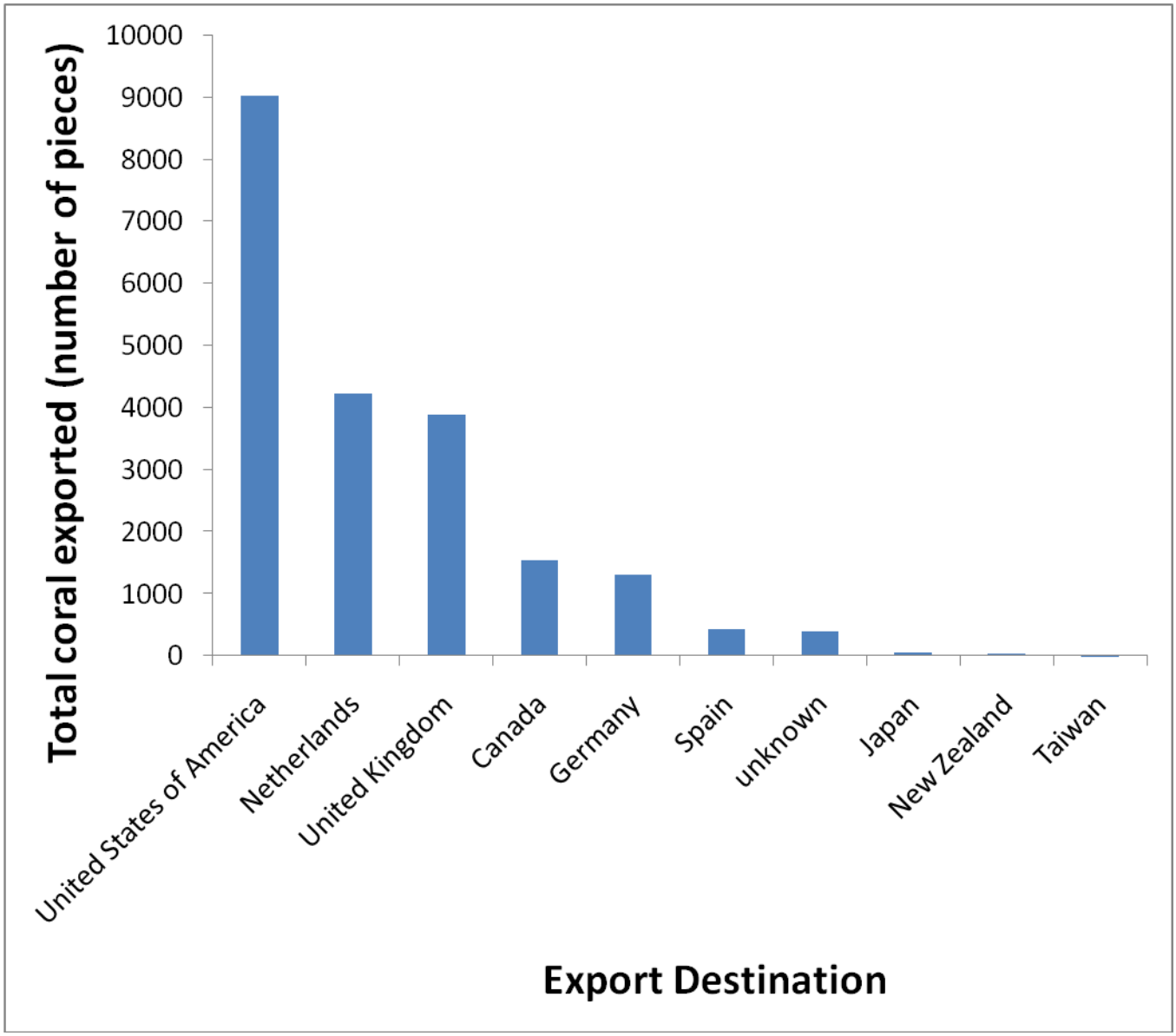

Figure 7: Export destination and quantity of coral from the Queensland Coral Fishery during the period July 2006 to May 2008.

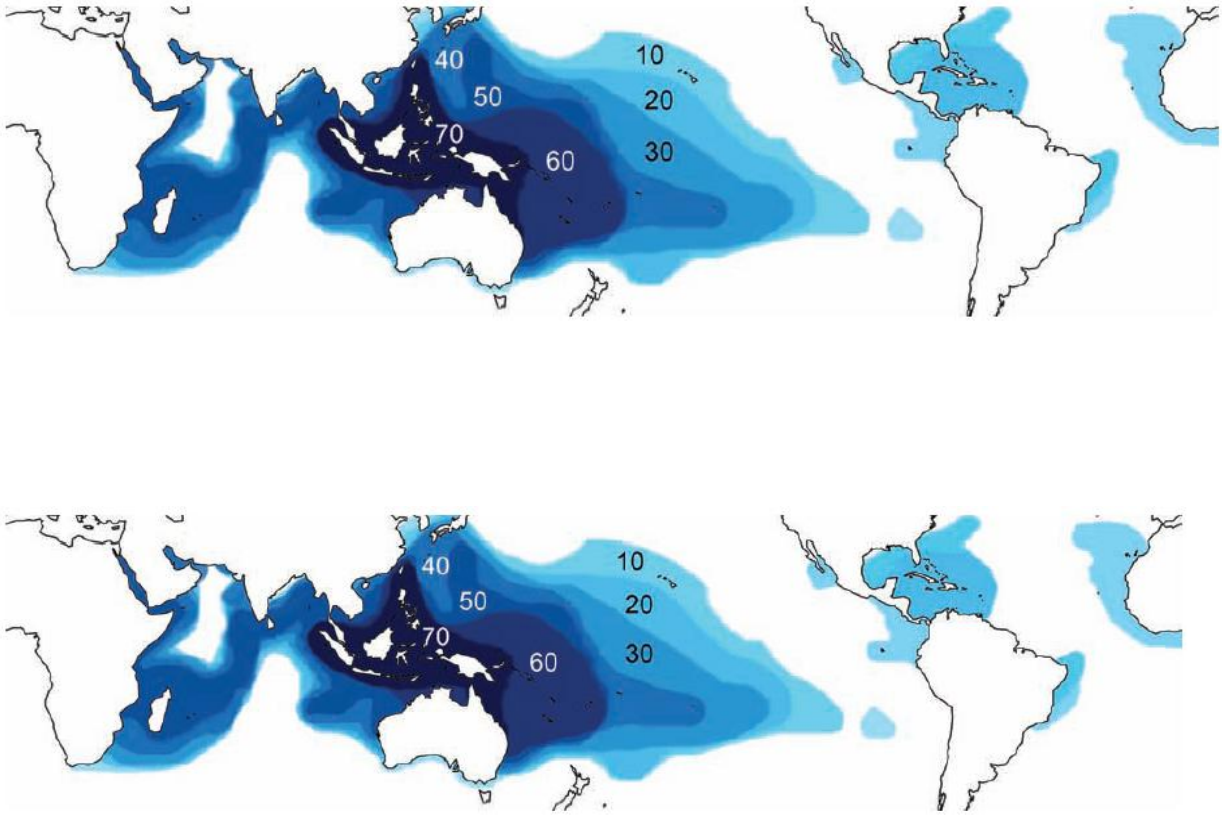

Figure 8: Map indicating global trends in coral biodiversity. The Great Barrier Reef is located at the southern-most extension of the 'Coral Triangle' - the global hotspot for coral biodiversity. (Source: *Hutchings, P.A. and Kingsford M.J. (in press). Chapter 13: Biodiversity. In: The Great Barrier Reef: Biology, Environment and Management. CSIRO Publishing.)*

Table 1. Vulnerability rankings for CITES-listed coral taxa harvested in the Queensland Coral Fishery as at the end of 2007 (taxa in orange are moderately vulnerable). See Roelofs and Silcock, (2008) for a full explanation of the scoring for the five vulnerability indices. Dist = distribution; VAR = Vulnerability Assessment Rating. Categories for VAR are as follows: Very low = <2 (these taxa are not vulnerable to harvesting activity in the QCF); Low = 2-2.99 (These taxa are at low risk from QCF harvesting activity; Medium = 3-3.99 (these taxa have characteristics that make them moderately vulnerable to harvesting by the fishery; High = 4-5 (these taxa have characteristics that make them highly vulnerable to over harvesting by the fishery). * Some taxonomists classify these genera as belonging to the Family Euphillidae.

Order	Family	Genus	Species	Common name	Dist	Eco-niche	Bleaching	Access	Abundance	VAR
Scleractinia	Acroporidae	*Acropora*		Staghorn coral	1	2	5	4	2	2.8
Scleractinia	Acroporidae	*Montipora*		Velvet coral	1	4	5	4	2	3.2
Scleractinia	Caryophyllidae	*Catalaphyllia**	*jardinei*	Elegance coral	1	4	2	3	3	2.6
Scleractinia	Caryophyllidae	*Euphyllia**	*glabrascens*	Torch coral	1	2	2	3	3	2.2
Scleractinia	Caryophyllidae	*Euphyllia**		Branching hammer coral	1	2	2	3	4	2.4
Scleractinia	Caryophyllidae	*Physogyra**		Bubble coral	1	2	2	4	2	2.2
Scleractinia	Caryophyllidae	*Plerogyra**		Bubble coral	1	4	2	3.5	4	2.9
Scleractinia	Dendrophyllidae	*Dendrophyllia*		Cup corals	2	2	2	2.5	4	2.5
Scleractinia	Dendrophyllidae	*Duncanopsammia*	*axifuga*	Whisker coral	3	2	2	2.5	4	2.7
Scleractinia	Dendrophyllidae	*Tubastrea*		Daisy coral	1	2	2	3	2	2
Scleractinia	Dendrophyllidae	*Turbinaria*		Cup coral	1	2	2	4	2	2.2
Scleractinia	Dendrophylliidae	*Balanophyllia*		Flower coral	3	2	2	3	4	2.8
Scleractinia	Dendrophylliidae	*Heteropsammia*		Button coral	1	4	2	3	2	2.4
Scleractinia	Faviidae	*Caulastrea*		Trumpet coral	1	4	3	3.5	3	2.9
Scleractinia	Faviidae	*Favia*		Moon coral	1	2	3	3	2	2.2
Scleractinia	Faviidae	*Favites*		Moon coral	1	2	3	3	3	2.4
Scleractinia	Faviidae	*Goniastrea*		Honeycomb coral	1	2	3	4	2	2.4
Scleractinia	Faviidae	*Leptastrea*		Star coral	1	2	3	4	3	2.6
Scleractinia	Faviidae	*Leptoria*		Maze coral	1	2	3	3.5	2	2.3
Scleractinia	Faviidae	*Montastrea*		Moon coral	1	2	3	3	3	2.4
Scleractinia	Faviidae	*Moseleya*		Corallimorph coral	1	2	3	3.5	4	2.7
Scleractinia	Faviidae	*Oulophyllia*		Moon coral	1	2	3	3.5	3	2.5
Scleractinia	Faviidae	*Platygyra*		Maze coral	1	2	3	3.5	4	2.7
Scleractinia	Faviidae	*Plesiastrea*		Star coral	1	2	3	3.5	3	2.5
Scleractinia	Fungidae	*Fungia*		Disk coral	1	2	2	3	3	2.2

Scleractinia	Fungiidae	*Cycloseris*		Domed mushroom coral	1	4	2	2	4	2.6
Scleractinia	Fungiidae	*Diaseris*		Diaseris	1	4	2	4	2	2.6
Scleractinia	Fungiidae	*Heliofungia*		Tentacled mushroom	1	2	2	4	2	2.2
Scleractinia	Fungiidae	*Polyphyllia*		Slipper coral	1	2	2	3.5	2	2.1
Scleractinia	Merulinidae	*Hydnophora*	*actinoformis*	Carpet coral	1	2	4	3.5	3	2.7
Scleractinia	Merulinidae	*Merulina*		Ruffled coral	1	2	2	3.5	2	2.1
Scleractinia	Mussidae	*Acanthastrea*		Starry cup coral	1	2	2	4	4	2.6
Scleractinia	Mussidae	*Blastomussa*		Pineapple coral	1	2	2	4	4	2.6
Scleractinia	Mussidae	*Cynarina*		Button coral	1	2	2	2	4	2.2
Scleractinia	Mussidae	*Micromussa*		Micromussa	1	2	2	4	5	2.8
Scleractinia	Mussidae	*Mussa*		Spiny flower coral	1	2	2	3	4	2.4
Scleractinia	Mussidae	*Scolymia*		Doughnut coral	1	4	2	3	4	2.8
Scleractinia	Mussidae	*Symphyllia*		Lobed brain coral	1	4	2	3.5	4	2.9
Scleractinia	Occulinidae	*Galaxea*		Galaxy coral	1	2	2	3	2	2
Scleractinia	Pectinidae	*Pectinia*		Lettuce coral	1	2	3	3	4	2.6
Scleractinia	Pectiniidae	*Echinophyllia*		Encrusting coral	1	2	3	3	2	2.2
Scleractinia	Pectiniidae	*Mycedium*		Elephant ears	1	2	3	3	2	2.2
Scleractinia	Pocilloporidae	*Pocillopora*		Cauliflower coral	1	2	5	3.5	2	2.7
Scleractinia	Pocilloporidae	*Seriatopora*		Birds nest coral	1	2	5	3	3	2.8
Scleractinia	Pocilloporidae	*Stylophora*		Finger coral	1	2	5	3	2	2.6
Scleractinia	Poritidae	*Alveopora*		Daisy coral	1	2	2	2	4	2.2
Scleractinia	Poritidae	*Goniopora*		Flowerpot coral	1	2	2	3	2	2
Scleractinia	Poritidae	*Porites*		Boulder coral	1	2	2	3	2	2
Scleractinia	Siderastreidae	*Pavona*		Leaf coral	1	2	2	4	4	2.6
Scleractinia	Stylasteridae	*Distichopora*		Miniature fan coral	1	2	2	3	4	2.4
Scleractinia	Trachyphyllidae	*Trachyphyllia*	*geoffroyi*	Open brain coral	1	4	2	2.5	3	2.5
Antipatharia	Antipathidae	*Cirrhipathes*		Black coral	1	2	2	3	2	2

Table 2: Reef building status and IUCN conservation status of hard corals exported from the Queensland coral fishery (species list as at mid 2008). Other CITES-listed genera/species collected for the domestic market are included for comparison. The range of IUCN classifications is included when only a genus is identified. CR = critically endangered, EN = endangered, VU = vulnerable, NT = near threatened, LC = least concern, DD = data deficient. Hermatypic = reef building; ahermatypic = not a main contributor to the reef matrix.

FAMILY	**GENUS/SPECIES**	**IUCN Conservation status**	**EXPORT QUANTITY**	**REEF BUILDING STATUS**
Caryophyllidae	*Catalaphyllia jardinei**	VU	5047	ahermatypic, soft bottom
Trachiphylliidae	*Trachyphyllia geoffroyi*	NT	2899	ahermatypic, solitary, free living
Dendrophyllidae	*Duncanopsammia axifuga*	NT	2497	ahermatypic, soft bottom
Mussiidae	*Scolymia australis*	LC	1577	ahermatypic, solitary
Mussiidae	*Blastomussa wellsi*	NT	1212	Ahermatypic
Mussiidae	*Acanthastrea lordhowensis*	NT	986	Hermatypic
Caryophyllidae	*Plerogyra sinuosa **	NT	820	? hermatypic
Caryophyllidae	*Euphyllia ancora**	VU	793	Ahermatypic
Mussiidae	*Scolymia vitiensis*	NT	672	ahermatypic, solitary
Mussidae	*Cynarina deshayesiana*	NT	663	ahermatypic, solitary, free living sometimes
Caryophyllidae	*Euphyllia divisa**	NT	527	Ahermatypic
Mussidae	*Micromussa amakusensis*	NT	492	Hermatypic
Mussidae	*Cynarina lacrymalis*	NT	486	ahermatypic, solitary, free living sometimes
Caryophyllidae	*Euphyllia glabrescens**	NT	338	Ahermatypic
Caryophyllidae	*Euphyllia cristate**	VU	233	Ahermatypic
Faviidae	*Leptoria Phrygia*	NT	228	Hermatypic
Siderastreidae	*Pavona cactus*	VU	155	Hermatypic
Mussiidae	*Blastomussa merleti*	LC	133	Hermatypic
Faviidae	*Moseleya latistellata*	VU	103	Hermatypic

Pectiniidae	*Echinophyllia pectinata*	DD	99	Hermatypic
Acroporidae	*Montipora danae*	LC	92	Hermatypic
Faviidae	*Echinopora horida*	NT	92	Hermatypic
Faviidae	*Goniastrea palauensis*	NT	52	Hermatypic
Faviidae	*Caulastraea furcata*	LC	49	Ahermatypic
Mussidae	*Lobophyllia hemprichii*	LC	35	Hermatypic
Poritidae	*Porites vaughani*	LC	30	Hermatypic
Agariciidae	*Leptoseris explanata*	LC	30	Hermatypic
Fungiidae	*Heliofungia actinoformis*	VU	27	Ahermatypic
Occulinidae	*Galaxea fascicularis*	NT	24	?hermatypic
Fungiidae	*Cycloseris cyclolites*	Not listed	24	ahermatypic, solitary
Merulinidae	*Hydnophora exesa*	NT	22	Hermatypic
Tubiporidae	*Tubipora musica*	NT	22	?hermatypic
Acroporidae	*Acropora nobilis*	LC	20	Hermatypic
Acroporidae	*Montipora digitata*	LC	20	Hermatypic
Poritidae	*Porites cylindrica*	NT	20	Hermatypic
Acroporidae	*Acropora yongei*	LC	20	Hermatypic
Fungiidae	*Fungia fungates*	NT	16	ahermatypic, solitary
Pocilloporidae	*Seriatopora hystrix*	LC	15	Hermatypic
Dendrophylliidae	*Turbinaria reniformis*	VU	15	Hermatypic
Mussidae	*Isophyllia sinuosa*	LC	12	?hermatypic **
Dendrophylliidae	*Turbinaria peltate*	VU	11	Hermatypic
Faviidae	*Favites abdita*	NT	10	Hermatypic
Merulinidae	*Hydnophora microconos*	NT	10	Hermatypic
Poritidae	*Porites nigrescens*	VU	10	Hermatypic
Occulinidae	*Galaxea astreata*	VU	10	Hermatypic
Faviidae	*Favia pallida*	LC	10	Hermatypic
Faviidae	*Platygyra daedalea*	LC	10	Hermatypic
Siderastreidae	*Pavona varians*	LC	10	Hermatypic

Acropoidae	*Montipora tuberculosa*	LC	10	Hermatypic
Pocilloporidae	*Pocillopora verrucosa*	LC	10	Hermatypic
Pocilloporidae	*Seriatopora caliendrum*	NT	10	Hermatypic
Pocilloporidae	*Stylophora pistillata*	NT	10	Hermatypic
Merulinidae	*Merulina ampliata*	LC	10	Hermatypic
Pectiniidae	*Mycedium elephantotus*	LC	10	Hermatypic
Fungiidae	*Fungia scutaria*	LC	8	ahermatypic, solitary
Pocilloporidae	*Pocillpora eydouxi*	NT	7	Hermatypic
Faviidae	*Favia speciosa*	LC	5	Hermatypic
Caryophyllidae	*Euphyllia paraencora**	VU	4	Ahermatypic
Mussidae	*Lobophyllia hatai*	LC	4	Hermatypic
Faviidae	*Australogyra zelli*	VU	4	Hermatypic
Faviidae	*Plesiastrea versipora*	LC	2	Hermatypic
Meandrinidae	*Ctenella chagius*	EN	2	Hermatypic
Mussidae	*Lobophyllia pachysepta*	NT	2	Hermatypic
Mussidae	*Symphyllia agaricia*	LC	1	Hermatypic
Caryophyllidae	*Physogyra lichtensteini**	VU	1	?hermatypic
Faviidae	*Diploastrea heliopora*	NT	1	Hermatypic

	Other CITES-listed coral collected in the fishery			
Acroporidae	*Montipora*	DD,LC - EN		Hermatypic
Dendrophyliidae	*Balanophyllia*	DD		Ahermatypic
Dendrophyliidae	*Dendrophyllia*	Not listed		Ahermatypic
Dendrophyliidae	*Heteropsammia*	LC, NT		ahermatypic, solitary
Dendrophyliidae	*Tubastrea*	Not listed		Ahermatypic
Dendrophyliidae	*Turbinaria*	LC-VU		Hermtypic
Faviidae	*Favia sp*	LC-VU		Hermatypic
Faviidae	*Favites*	LC-VU		Hermatypic
Faviidae	*Leptastrea*	LC-VU		Hermatypic
Faviidae	*Montastrea*	LC-VU		Hermatypic

Faviidae	*Moseleya sp.*	VU	Hermatypic
Faviidae	*Oulophyllia*	LC-NT	Hermatypic
Fungiidae	*Diaseris*	Not listed	ahermatypic, solitary
Fungiidae	*Heliofungia*	VU	ahermatypic, solitary
Fungiidae	*Polyphyllia*	LC-NT	ahermatypic, solitary
Helioporidae	*Heliopora coerulea*	VU	Hermatypic
Merulinidae	*Merulina*	LC	Hermatypic
Milliporidae	*Millipora*	DD, LC-EN,CR	Hermatypic
Mussiidae	*Micromussa*	DD, NT	Hermatypic
Mussiidae	*Mussa*	LC	hermatypic**
Pectiniidae	*Echinophyllia*	DD, LC or VU	? hermatypic
Pectiniidae	*Pectinia*	DD, NT-EN	? hermatypic
Poritidae	*Alveopora*	NT-EN	ahermatypic - usually soft bottom
Poritidae	*Goniopora*	NT	ahermatypic - usually soft bottom
Siderastreidae	*Pavona*	DD, LC-VU	Hermatypic
Stylasteridae	*Distichopora*	Not listed	Ahermatypic

* Note - Note some taxonomists identify these species as belonging to the Family Euphyllidae

** Note - supposed to be Atlantic genera

Table 3: Provides a comparison of the relevant elements of the suite of management tools for the Queensland Coral Fishery against the broad criteria of the *EPBC* Guidelines for the Ecologically Sustainable Management of Fisheries, and the CITES IUCN guidelines for making a Non Detriment Finding for the Coral Fishery. Further details on the explicit requirements for an *EPBC Act* sustainable fisheries assessment can be found at:
http://www. environment.gov.au/coasts/fisheries/publications/pubs/guidelines.pdf

EPBC Guidelines, broad criteria. In each case the regime should:	Relevant elements of the Queensland Coral Fishery:	Relevant CITES NDF guidelines:
Be documented, publicly available and transparent	○ *Policy for the Management of the Coral Fishery* (describes key components of the management arrangements, history and practices in the wild caught fishery) http://www2.dpi.qld.gov.au/extra/pdf/fishweb/coralreefpolicy.pdf *Other management policies and guidelines will be available online when finalised*	• 1.2, 1.5, 1.6 Type of harvest ○ Degree of control ○ Demographic segment removed ○ Level of harvest ○ Reason for harvest ○ Commercial destinations • 2.11 Management history • 2.12 Management Plan or equivalent • 2.13 Aim of harvest regime in Management Plan • 2.14 Quotas
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public	○ Coral Policy developed from the bottom-up over a 4-year period ○ 30-day public consultation period and targeted consultation for final introduction of State management policies ○ 30-day public consultation on fishery management submissions for *EPBC* sustainable fisheries assessments	
Ensure that a range of expertise and community	○ The Harvest Management Advisory Committee (Harvest MAC) supports the dive-based fisheries including coral – membership	

interests are involved in individual fishery management committees and during the stock assessment process	includes representatives from fishers, managers (DPI&F, GBRMPA & EPA), science, conservation, compliance and an independent Chair with fisheries management experience ○ Issue-specific Working Groups set up under the Harvest MAC are expertise-based (often subsets of the MAC)	
Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured	• Overarching fisheries and marine park legislation provides strategic objectives • *Policy for the Management of the Coral Fishery* – gave effect to fishery restructure – identifies operational fishery objectives, fishery area, quota, species caps, spatial review points • *Ecological Risk Assessment* – guides development of performance criteria based on relative risk • *Performance Measurement System* – (in development) identifies key criteria for monitoring and auditing fishery performance to ensure effective ecosystem-based management • *Environmental Stress Response Plan* – (in development) provides a tool to address exceptional local circumstances through an objective, transparent, performance-based framework • *GBRMP Climate Change Action Plan* – broad strategic framework to manage the marine park for resilience • GBRMP fisheries and climate change action plan – (in development) will provide fishery-specific strategies & objectives to prioritise and measure effectiveness of actions.	• 2.12 Management Plan or equivalent • 2.13 Aim of harvest regime in Management Plan • 2.14 Quotas • 2.1 Biological characteristics • 2.2 Ecological adaptability • 2.3 Dispersal efficiency • 2.4 Interactions with humans • 2.5 National distribution • 2.6 national abundance • 2.7 National population trends • 2.9 Major threats • 2.21 Use compared with other threats • 2.15 Harvesting in protected areas
Be capable of controlling the level of harvest in the fishery using input and/or output controls	○ Overarching fisheries legislation prescribes many of the input controls ○ *Policy for the management of the Coral Fishery* – prescribes remaining input and output controls; prescribes detailed logbook reporting, real-time quota reporting ○ GBRMP legislation including *2003 Zoning Plan* defines zoning	• 2.12 Management Plan or equivalent • 2.15 Harvesting in protected areas • 2.19 Methods used to monitor harvest • 2.24 Proportion strictly protected from harvest

	system, including ~33% no-take zones ○ Licences and permits specify operational conditions at an individual level	
Contain the means of enforcing critical aspects of the management arrangements	○ Legislation, policy, licence and permit conditions (including logbook and quota reporting functions) are enforced through compliance officers (from mainly DPI&F but also GBRMPA and EPA) ○ Compliance activities are prioritised based on comprehensive risk assessments ○ Increasing focus on stewardship incentives and establishment of third-party audit processes; increasing partnerships with local communities – enhances compliance with voluntary management measures	• 2.8 Quality of information • 2.10Illegal trade or harvest • 2.12 Management Plan or equivalent • 2.16 Harvesting in areas with strong resource tenure or ownership (note not strict legal ownership – rather increasing co-management approach at regional scale) • 2.18 Confidence in harvest management • 2.20 Confidence in harvest monitoring • 2.22 Incentives for species conservation • 2.23 Harvest in areas with open access (note very limited recreational take outside marine park boundaries – not true open access) • 2.25 Effectiveness of strict protection measures • 2.26 Regulation of harvest effort
Provide for the periodic review of the performance of the fishery management arrangements and the	○ *EPBC Act* fisheries assessment process is one of continuous improvement. Periodic review of export approval occurs every 12 months as part of the annual reporting requirement of export accreditations. Reassessments occur every 3-5 years depending on	

management strategies, objectives and criteria	the outcome of the previous assessment. However, export accreditation can be for less than 3 years if a fishery exhibits sustainability concerns that need to be addressed in the short term. o Legislation can be reviewed as needed (cumbersome process) o *Policy for the management of the Coral Fishery* – designed to be adaptive, reviewed as needed (new information to hand or a reference point triggers further management action) and relatively easy to amend quickly o Policy objectives and actions designed to be responsive o *Environmental Stress Response Plan* – adaptive management to address externalities e.g. climate change impacts	
Be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates	**Fishery-specific:** o Explicit fine spatial scale (individual dive sites) monitoring of catch and effort data to finest possible taxonomic resolution o *Ecological Risk Assessment* o *Performance Measurement System* o *Environmental Stress Response Plan* o Industry initiative to monitor a few species at small (regional) scale in response to coral bleaching in the area o Cross matching coral export data with fisheries catch data **Other broad scale GBR-wide monitoring mechanisms:** o AIMS Long Term Monitoring Program for coral cover on the GBR o GBRMPA 'Bleachwatch' and 'Eye on the Reef' Programs o ReefCheck and other community-based under water surveys o Water Quality monitoring program (extensive Commonwealth and State government bilateral agreement for the GBR) o Monitoring tourism and recreational use o Permitting all use of coral in the GBRMP	• 1.23 Incentives for habitat conservation • 2.19 Methods used to monitor harvest

Require compliance with relevant threat abatement plans, recovery plans, the *National Policy on Fisheries Bycatch* and bycatch action strategies developed under that policy	○ Not applicable, no relevant threat abatement or recovery plans for coral on the GBR ○ Not applicable – no bycatch in this fishery	
Comply with any relevant international or regional management regime to which Australia is party	See CITES NDF Guidelines listed in column 3 of this Table	See above listings