

SPATIAL DISTRIBUTION AND SEASONAL ABUNDANCE OF
Gracilaria SPECIES IN SANDAKAN, SABAH

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2005

SPATIAL DISTRIBUTION AND SEASONAL ABUNDANCE OF *Gracilaria* SPECIES
IN SANDAKAN, SABAH

By

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Research Report submitted in partial fulfillment of
the requirements for the Degree of
Bachelor of Science (Marine Science)

Department of Marine Science
Faculty of Science and Technology
UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY MALAYSIA
2005

This thesis should be cited as:

Normah, S. (2005). Spatial Distribution and Seasonal Abundance of *Gracilaria* species in Sandakan, Sabah. Undergraduate thesis, Bachelor of Science (Marine Science), Faculty of Science and Technology, Kolej Universiti Sains and Technology Malaysia, Terengganu. 144p.

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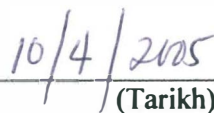
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*“As an appreciation to
the most loving and passionate woman;
who gave birth to me,
Mother.”
(April ‘05)*

ACKNOWLEDGEMENT

SYUKUR, ALHAMDULILLAH

Praise and thanks to Allah, The Almighty for his will, I was able to finish this thesis successfully. Above of all, highest thanks to my supervisor, Dr. Siti Aishah Abdullah @ Christine A. Orosco for her guidance and attentions in making this study a success. To those who had helped me a lot in this project such as Eta (thanks for your help and the printer!), Willie (for the books and database), Pakcik Ibnu and family, I appreciate the help and unforgettable memories during my stay in Sandakan, and foremost, B. Thanks for all of your sacrifices, support, advices, motivation and lending most of your time helping me out during the hard time and sharing my tears. To my beloved and understanding family, Kak Cah, Kak Yah and Abang Man, to both of my loving parents, Mak, Abah, thanks for raising me up and making me the person I am today. Sorry for being stubborn and not listening to you guys. God bless you Mak, Abah. To others whom I did not mention, thank you so much. Arigato gozaimasu.

V_lma

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LIST OF ABBREVIATIONS

°N	degree North
km	kilometer
km ²	square kilometer
spp	more than one species
%	percentage
B.C	Before Christ
US\$	United States Dollar
m	meter
cm	centimeter
x	multiply
g/m ²	gram per meter square
°C	degree Celcius
µm	micrometer
H ₂ O ₂	Hydrogen peroxide
sp.	species
Ø	phi
±	plus-minus
ppt	part per thousand
g/l	gram per liter
m ²	square meter
ind/m ²	individual per square meter

<i>ml</i>	mililiter
Total (Q)	total for quadrates
Total (S)	total for species
<i>Gh</i>	<i>Gracilaria heteroclada</i>
<i>Gc</i>	<i>Gracilaria changii</i>
<i>Ge</i>	<i>Gracilaria edulis</i>
<i>Gs</i>	<i>Gracilaria salicornia</i>
<i>Gsp1</i>	<i>Gracilaria</i> species 1

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ABSTRACT

A study on the spatial distribution and seasonal abundance of *Gracilaria* species in Sandakan, Sabah was carried out in four months of 2004 which is April, June, August, and December. Six stations were selected as the study areas which were Sungai Kayu, Sungai Monyet, Sungai Baru, Sungai Korek, Butasan, and BDC. Five species of *Gracilaria* were found in this study: *Gracilaria changii*, *Gracilaria heteroclada*, *Gracilaria edulis*, *Gracilaria salicornia* and one unidentified *Gracilaria* species. In terms of biomass, *Gracilaria changii* had the highest biomass with a maximum value of 4307.02 g/m² occurred in Butasan during June. The species with the lowest biomass value was *Gracilaria* species 1 with only 0.0005 g/m² which occurred in April at BDC. The longest *Gracilaria* species occurred in June at Butasan with maximum mean length value of 31.66 ± 7.91 cm, represented by *Gracilaria changii*, while the shortest mean length value was 2.33 ± 1.08 cm in April at BDC, which also represented by *Gracilaria changii*. For wet weight, the highest amount obtained was 125.12 ± 221.97 g during August represented by *Gracilaria heteroclada*, while the lowest was represented by *Gracilaria changii* with 0.07 ± 0.12 g during April. Presence of other seaweed species was also noted during the study. The occurrence of competitor organisms such as *Ulva lactuca* (Chlorophyta) had strongly affected the growth and distribution of *Gracilaria* species in BDC. The distribution of *Gracilaria* species in Sandakan, Sabah were also influenced by the seasonal changes of monsoon, apart from anthropogenic activities by local inhabitants from the fishing village nearby.

TABURAN SETEMPAT DAN KELIMPAHAN BERMUSIM SPESIS *Gracilaria* DI SANDAKAN, SABAH.

ABSTRAK

Kajian mengenai taburan setempat dan kelimpahan spesis *Gracilaria* di Sandakan, Sabah telah dijalankan sepanjang empat bulan iaitu April, Jun, Ogos dan Disember 2004. Enam stesen telah dipilih sebagai kawasan kajian adalah Sungai Kayu, Sungai Monyet, Sungai Baru, Sungai Korek, Butasan dan BDC. Lima spesis *Gracilaria* telah dijumpai semasa kajian ini: *Gracilaria changii*, *Gracilaria heteroclada*, *Gracilaria edulis*, *Gracilaria salicornia* dan satu spesis *Gracilaria* yang tidak dapat dikenalpasti. Dari segi perbandingan biomass, *Gracilaria heteroclada* merupakan spesis yang mempunyai nilai biomass tertinggi dengan jumlah 4307.02 g/m², iaitu di Butasan pada bulan Jun. Spesis yang mempunyai nilai biomass terendah adalah *Gracilaria* spesis 1, iaitu 0.0005 g/m² pada bulan April di BDC. Pertumbuhan spesis *Gracilaria* tertinggi berlaku pada bulan Jun di Butasan dengan nilai min panjang maksimum 31.66 ± 7.91 sentimeter, diwakili oleh *Gracilaria changii*, manakala min panjang terendah adalah 2.33 ± 1.08 sentimeter juga diwakili oleh *Gracilaria changii* berlaku pada bulan April di BDC. Bagi berat basah pula, nilai tertinggi diperolehi pada bulan Ogos iaitu 125.12 ± 221.97 g oleh *Gracilaria heteroclada* manakala nilai terendah ialah 0.07 ± 0.12 g oleh *Gracilaria changii* pada bulan April. Selain spesis *Gracilaria*, terdapat juga spesis rumpai laut lain di kawasan kajian. Kehadiran organisma pesaing seperti *Ulva lactuca* telah memberikan kesan ketara terhadap pertumbuhan dan taburan spesis *Gracilaria* di BDC. Taburan spesis *Gracilaria* di Sandakan, Sabah turut dipengaruhi oleh pertukaran monsun, dan aktiviti antropogenik oleh penduduk-penduduk setempat dari perkampungan nelayan yang berhampiran.