

The Surf Resource Sustainability Index

& Thailand Case Trial



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Gold Coast, Queensland, Australia
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Global Surf Cities Conference 2013

DESTINATION

INNOVATION

COLLABORATION



Business **GOLD COAST**

A Gold Coast City Council Initiative

INTRODUCING

“SRSI”

SURFDEX

Surf Resource

Sustainability Index



very low (1.00-1.80); low (1.81-2.60); medium (2.61-3.40); high (3.41-4.20); very high (4.21-5.00)

SRSI Rationale

-  **To benefit surf site conservation**
-  **To create a standardized & easy-to-manage research methodology**
-  **To contribute knowledge useful in the socioeconomic & environmental management of coastal surfing resources**

27 SRSI Indicators

SOCIAL INDEX (8)

1. Clubs–Boardriders
2. Clubs–Lifesaving
3. History
4. Public safety
5. Social experience
6. Socio-psychological carrying capacity
7. Surf community
8. Surf events

ECONOMIC INDEX (5)

9. Surf amenity and infrastructure
10. Surf events
11. Surf industry and commercial activity
12. Surf-related nonmarket activity
13. Surf tourism

ENVIRONMENTAL INDEX (8)

14. Biodiversity
15. Coastal engineering
16. Eco-physical carrying capacity
17. Hazards–Marine life
18. Hazards–Physical
19. Quality–Beach
20. Quality–Water
21. Surf type and quality

GOVERNANCE INDEX (6)

22. Beach & water safety
23. Education & interpretation
24. Legislative status
25. Management
26. Not-for-profit organizations
27. Public access

Social Indicators (SocSRSI)		Importance
(1)	Clubs – Boardriders	3.38 (high)
(2)	Clubs – Lifesaving	3.43 (high)
(3)	History	4.29 (very high)
(4)	Public safety	3.86 (high)
(5)	Social experience	3.86 (high)
(6)	Socio-psychological carrying capacity	4.00 (high)
(7)	Surf community	4.14 (high)
(8)	Surf events	3.52 (high)
	<i>Mean</i>	<i>3.81 (high)</i>

Environmental Indicators (EnvSRSI)		Importance
(14)	Biodiversity	4.29 (very high)
(15)	Coastal engineering	4.19 (high)
(16)	Eco-physical carrying cap.	3.90 (high)
(17)	Hazards – Marine life	3.38 (moderate)
(18)	Hazards – Physical	3.38 (moderate)
(19)	Quality – Beach	4.48 (very high)
(20)	Quality – Water	4.71 (very high)
(21)	Surf type & quality	4.00 (high)
	<i>Mean</i>	<i>4.04 (high)</i>

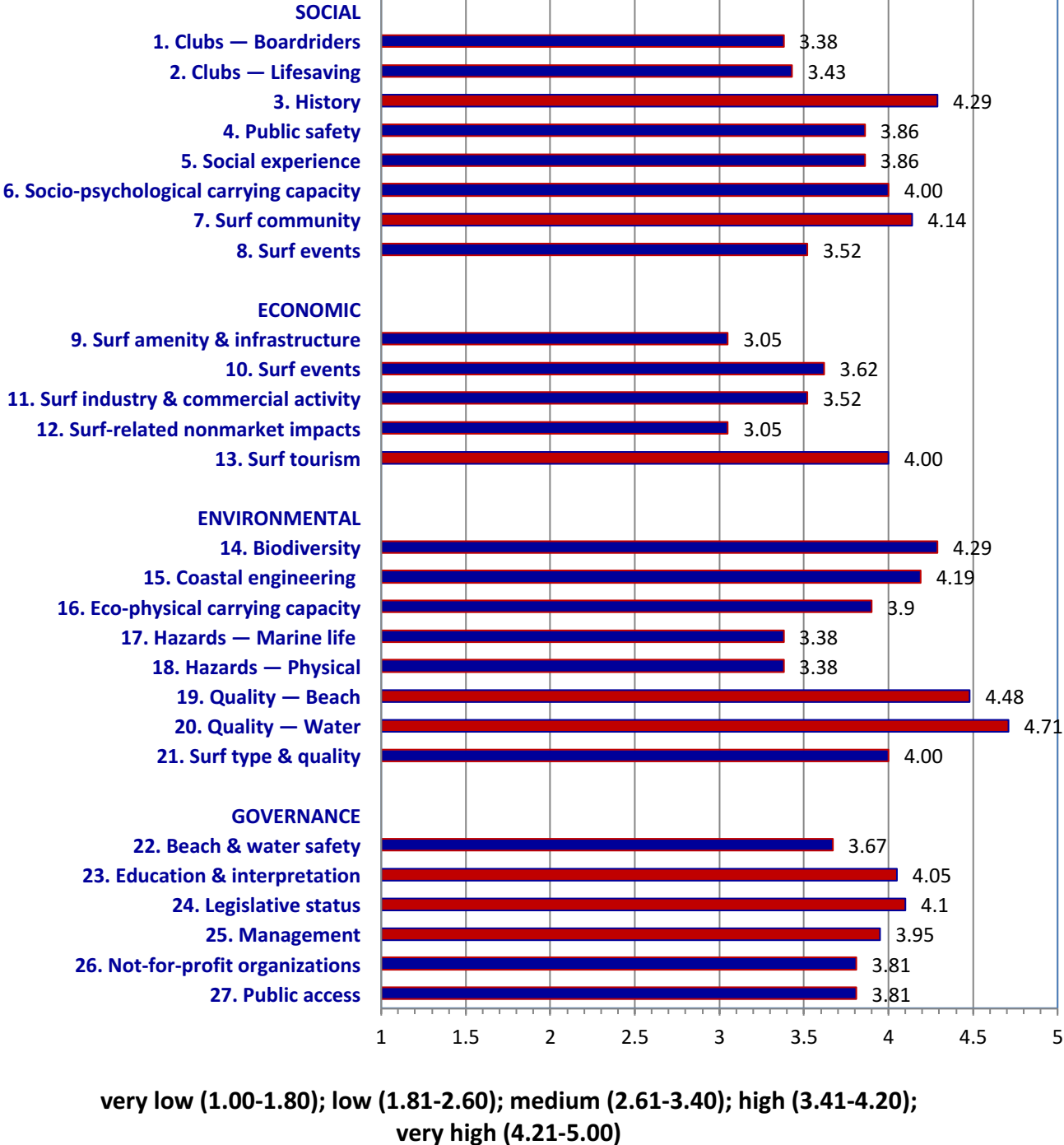
Economic Indicators (EconSRSI)		Importance
(9)	Surf amenity & infrastructure	3.05 (moderate)
(10)	Surf events	3.62 (high)
(11)	Surf industry & commercial activity	3.52 (high)
(12)	Surf-related nonmarket activity	3.05 (moderate)
(13)	Surf tourism	4.00 (high)
	<i>Mean</i>	<i>3.45 (high)</i>

Governance Indicators (GovSRSI)		Importance
(22)	Beach & water safety	3.67 (high)
(23)	Education & interpretation	4.05 (high)
(24)	Legislative status	4.10 (high)
(25)	Management	3.95 (high)
(26)	Not-for-profit organizations	3.81 (high)
(27)	Public access	3.81 (high)
	<i>Mean</i>	<i>3.90 (high)</i>



IMPORTANCE

INDICATOR DEVELOPMENT



History

Surf Community

Surf Tourism

Beach Quality
Water Quality

Education
Legislation
Management

EXAMPLE – Assessment Chart

GOVERNANCE

Indicator	Qualitative Assessment	Quantitative Assessment
23. Beach & water safety	<i>Description & Details...</i>	1 - 5
23. Education & interpretation	<i>Description & Details...</i>	1 - 5
24. Legislative status	<i>Description & Details...</i>	1 - 5
25. Management	<i>Description & Details...</i>	1 - 5
26. Not-for-profit organizations	<i>Description & Details...</i>	1 - 5
27. Public access	<i>Description & Details...</i>	1 - 5

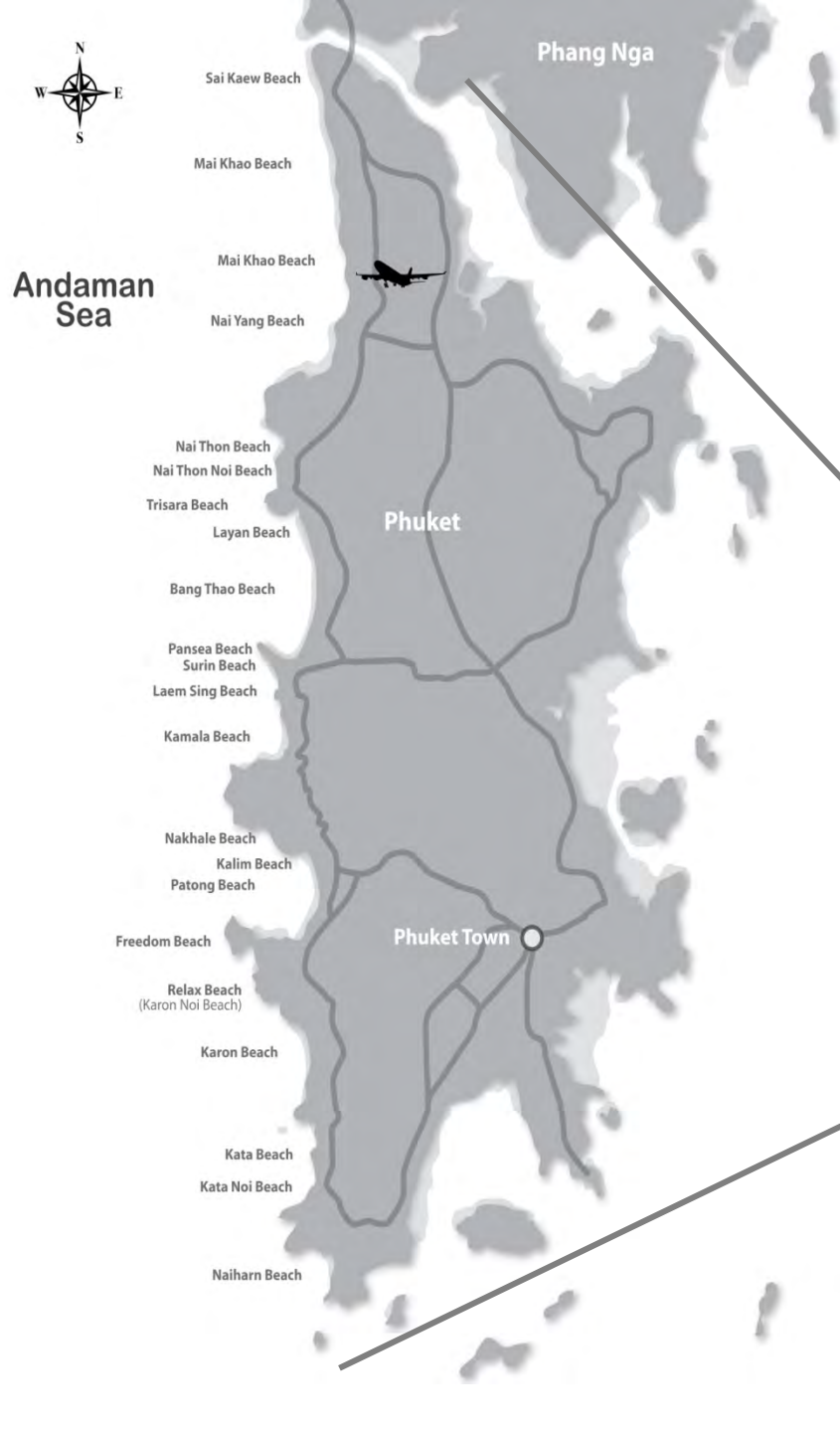
Indicator	Assessment Criteria	Implications
(25) Management	<ul style="list-style-type: none"> Identify the existence of guidelines or standards for activities at the site and assess the effectiveness of enforcement (<i>i.e. gauge the active policy measures in context and practice</i>). 	<ul style="list-style-type: none"> The implications of management include aspects of multi- and mixed-use areas alongside beach and ocean safety. Conservation management is tied to planning, enforcement, and stakeholder engagement.
(26) Not-for-profit organizations	<ul style="list-style-type: none"> Determine the number or type of not-for-profit or related activity affecting authority and activity at the site (if any). Identify past and present successes and failures. Consider project support and potentialities. 	<ul style="list-style-type: none"> Not-for-profit organizations may help to identify, monitor, report, and support issues related to the integrity of the site and its usage. These organizations are an indicator of conservation aptitude as they signify stakeholder engagement (e.g. <i>Surfrider Foundation</i>). However, successes and failures must be determined jointly and in context.
(27) Public access	<ul style="list-style-type: none"> Identify the level of accessibility alongside laws or other issues surrounding public right of entry, such as laws, hotels or infrastructure which inhibit or prohibit entry to sites. Consider if access restrictions at rural sites or islands are in an agreement with traditional resource owners and provide any conservation function. 	<ul style="list-style-type: none"> As conservation normally considers the interaction of stakeholders with the resource as a component to sustainability, the presence of entities or infrastructure inhibiting access (public, private, or governmental) is an indication of reduced conservation aptitude. In unique cases, limited or restrict access may perform a conservation role by limiting over-use of the site.

Phuket, Thailand

2013




SOCIAL  **ECONOMIC**  **ENVIRONMENTAL** 
GOVERNANCE 





KATA BEACH, PHUKET

An aerial photograph of a tropical coastline. In the foreground, a lush green hillside is dotted with several houses, some with red-tiled roofs. The hillside slopes down to a small, sandy beach. The water is a vibrant turquoise color, with white waves breaking on the shore. In the background, a larger beach stretches along the coast, and a town with various buildings is visible. The sky is a clear, pale blue.

“Thailand is a place that people don't ordinarily associate with surfing or the challenges associated with a burgeoning ‘niche’ **surf tourism** destination”

Danny O'Brien
Bond University

✚ The popularity of surfing is increasing

✚ Thais, foreign residents, domestic tourists, international tourists

✚ Research and knowledge lag far behind the growth of the activity



SRSI Thailand



Nai Yang center

SOCIAL INDEX (*SocSRSI*)

Kata Noi

Surin

Kamala

Kalim

Karon

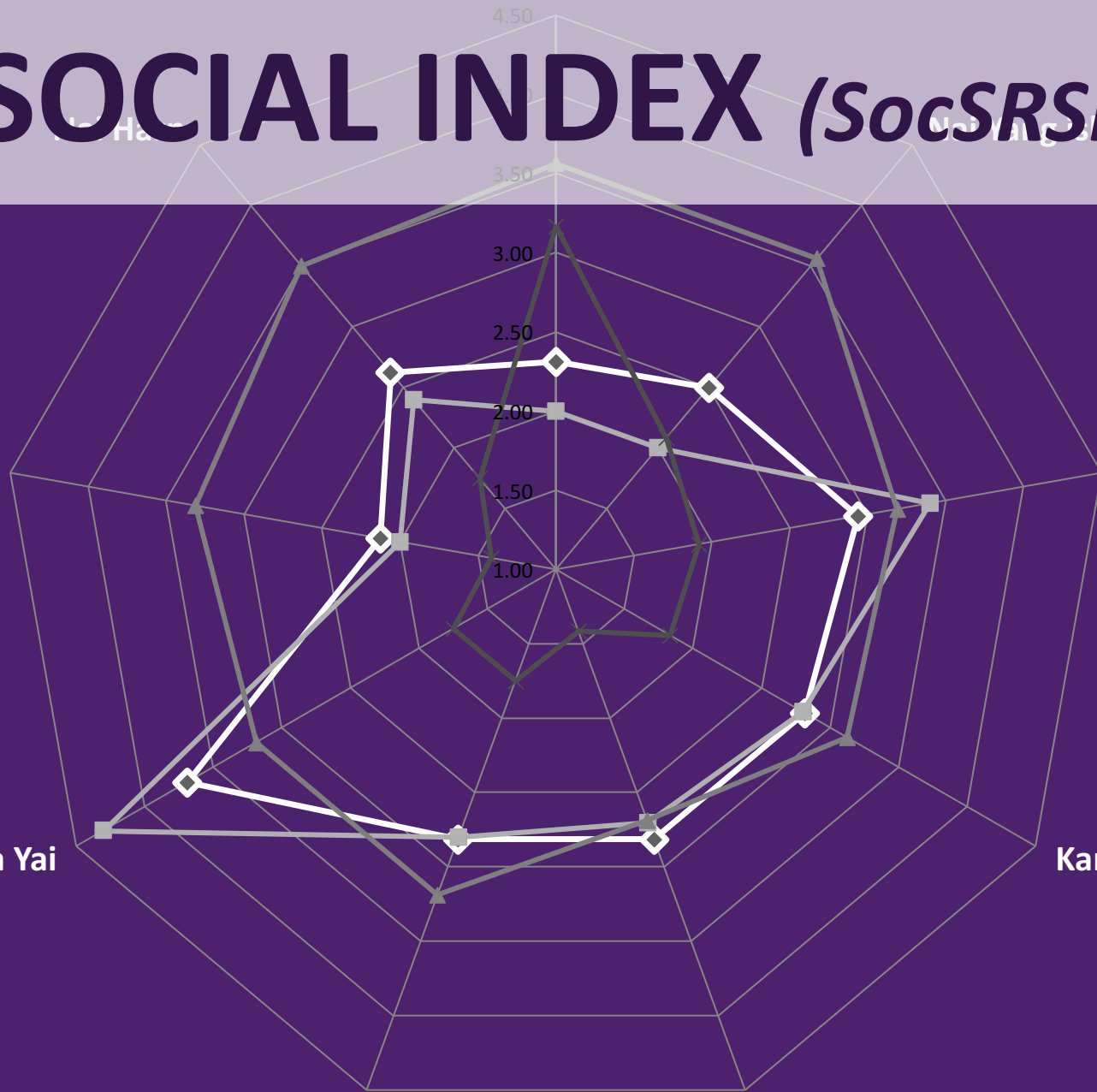
Kata Yai

—◆— socSRSI

—■— econSRSI

—▲— envSRSI

—▼— govSRSI



SOCIAL SITE ASSESSMENTS FOR PHUKET

(SocSRSI)

	Nai Yang (Reef)	Nai Yang (Island)	Surin Beach	Kamala Beach	Kalim Beach	Karon Beach	Kata Yai Beach	Kata Noi Beach	Nai Harn Beach	Mean
SOCIAL INDEX										
(1) Clubs – Boardriders	1.5	1.5	1.5	2.5	1	2.5	3	1	1	1.72
(2) Clubs – Lifesavers	1	1	2	1.5	1	1	1	1	1	1.17
(3) History	2	2	3	3	3	2	4.5	3	3	2.83
(4) Public safety	4	4	3.5	3	4	4	4	2	4	3.61
(5) Social experience	5	4.5	4	3	3.5	4	4	3	3.5	3.83
(6) Socio-psychological carrying cap.	2	4	3.5	4	4	4	4.5	3	3	3.56
(7) Surf community	2	2	4	3	3	3	4.5	3	3	3.06
(8) Surf events	1	1	2	2.5	3	2	4	1	2.5	2.11
Mean	2.31	2.5	2.94	2.81	2.81	2.81	3.69	2.13	2.63	2.74

SURIN BEACH Social Index (*SocSRSI*)

- 1. Clubs — Boardriders:** While no formal boardriders club exist at the site, local surf bars may create an informal club atmosphere and serve as gathering place for boardriders. **1.5**
 - 2. Clubs — Lifesaving:** There are currently no lifesaving clubs or culture. However, surfers perform rescues and respond to aquatic accidents at times. There are officially no lifesaving programs for local youths, but occasional education activities are provided by local expatriates. **2**
 - 3. History:** While the site has some degree of surfing history, there has been very little documentation. Prior to the development of roads to the area in the 1990s (which connected the site to southern beaches), surfing activities occurred in isolation. **3**
 - 4. Public safety:** Interviewees report occasional crime in the parking area and clashes among beach vendors. **3.5**
 - 5. Social experience:** Interviewees suggest that surfing in the area provides good experience with a relatively low level of localism or other negative social issues. **4**
 - 6. Socio-psychological carrying capacity:** A variety of peaks spread out over the length of the beach provide a number of spots where surfers gather to catch the waves, providing more surfing space than many other reefs or point breaks in Phuket. **3.5**
 - 7. Surf community: Two generations of Thai surfers** at the site, with the newer generation comprised mainly of teens. **Expatriate surfers** are a significant component of the community, **serving as role models**, lending equipment, and offering free surf lessons to the Thai youths. **4**
 - 8. Surf events:** Little or no surf event activity at the site. Local surfers attend nearby competitions, such as those at Kamala Beach. **2**
-

SURFING CLUBS



THAI & FOREIGN RESIDENT SURF COMMUNITY



Nai Yang center

ECONOMIC INDEX (*EconSRSI*)

Kata Noi

Surin

Kamala

Kalim

Karon

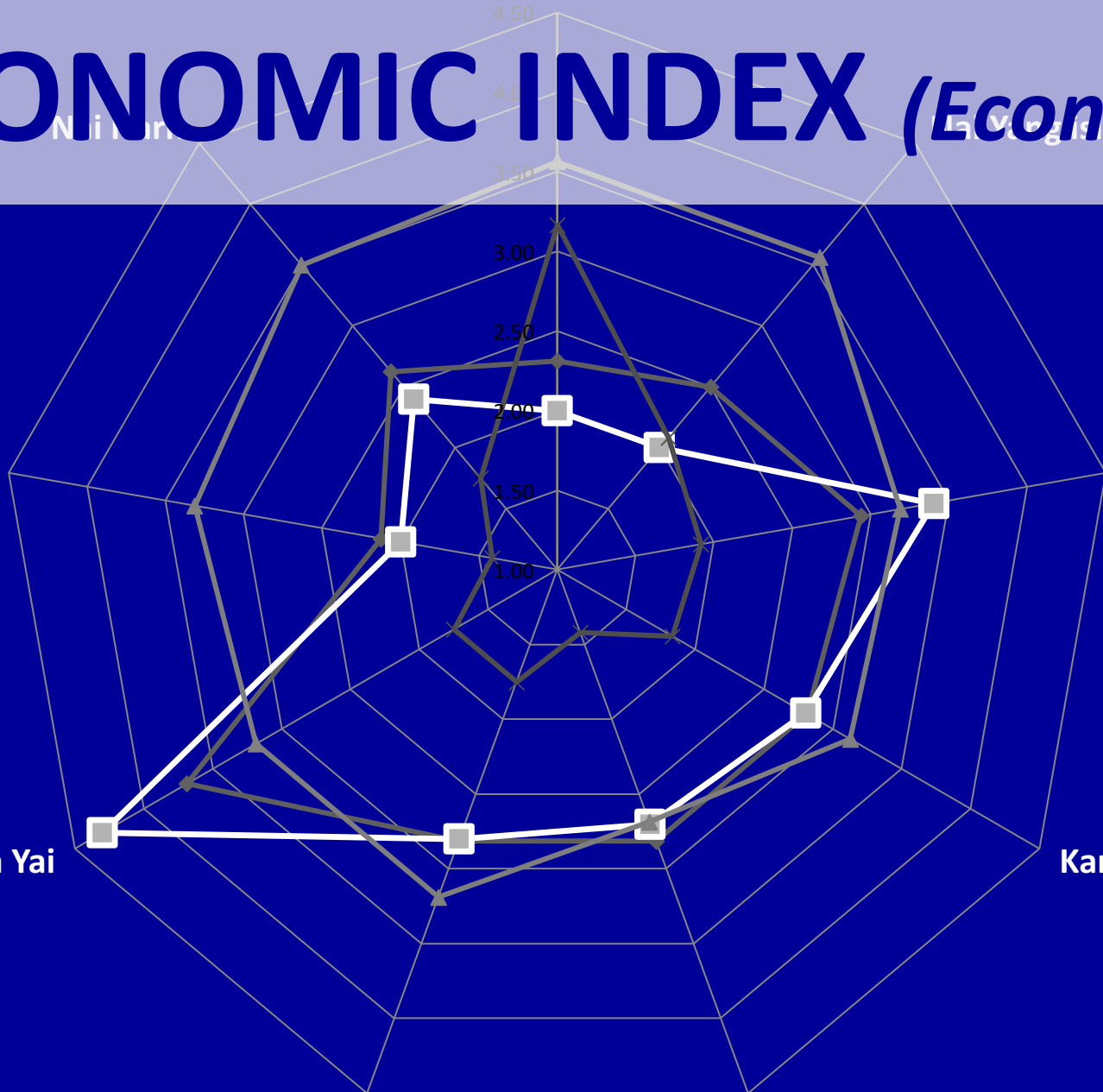
Kata Yai

—●— socSRSI

—■— econSRSI

—▲— envSRSI

—✕— govSRSI



ECONOMIC SURF SITE ASSESSMENT PHUKET

(EconSRSI)

**Nai Yang
(Reef)** **Nai Yang
(Island)** **Surin
Beach** **Kamala
Beach** **Kalim
Beach** **Karon
Beach** **Kata Yai
Beach** **Kata Noi
Beach** **Nai Harn
Beach** ***Mean***

ECONOMIC INDEX

(9) Surf amenity & infrastructure	3	2	3.5	2.5	2.5	3	4	2	2	<i>2.72</i>
(10) Surf events	1	1	2	2.5	3	2	4	1	1	<i>1.94</i>
(11) Surf industry & commercial	2	2	3.5	2.5	2	2	4	1.5	2	<i>2.39</i>
(12) Surf-related nonmarket	3	3	4	3.5	3.5	3.5	4.5	2.5	4	<i>3.50</i>
(13) Surf tourism	1	2	4	3	2.5	3.5	5	3	3	<i>3.00</i>
<i>Mean</i>	<i>2</i>	<i>2</i>	<i>3.4</i>	<i>2.8</i>	<i>2.7</i>	<i>2.8</i>	<i>4.3</i>	<i>2</i>	<i>2.4</i>	<i>2.71</i>

SURIN BEACH Economic Index (*Econ*SRSI)

- 9. Surf amenity & infrastructure:** Beachfront parking area and one public bathroom (located south of the carpark). There are no public showers in the beach park. 3.5
- 10. Surf events:** Little or no surf events or contest activities at the site. 2
- 11. Surf industry & commercial activity:** Several board rental stands on the beach. Several ‘surf bars’ which offer food and drinks and serve as a place for surfers to keep their boards. One of the most established surf shops in Phuket is located nearby. Expatriate surfing community may contribute economically through purchasing foods, surf gear, petrol, etc. when visiting the site. 3.5
- 12. Surf-related nonmarket impacts:** The site serves as a focal point for Phuket surfing culture (second to Kata Beach). Interviews indicate that a number of expats chose the beach due to the availability of waves, and this has led to an expatriate surfing community in the area. Potentially significant existence values and vicarious values attached to the site. 4
- 13. Surf tourism:** Board rentals and surf lessons are offered during the surf season. Interviewees report that **surf tourists and surf tourism businesses** have increased significantly in recent years. 4
-

International Surfing Competitions in Phuket



Photo: Tim Hain

THAI SURF TOURISM ENTREPRENEURS, KATA BEACH



SURF TOURISM





COBRA INTERNATIONAL



Karon Beach, Phuket

**Board Rental Stands have
Mushroomed since 2008**



Nai Yang center

ENVIRONMENTAL INDEX

Nai Harn

Nai Yang island

(EconSRSI)

Kata Noi

Surin

Kata Yai

Kamala

Karon

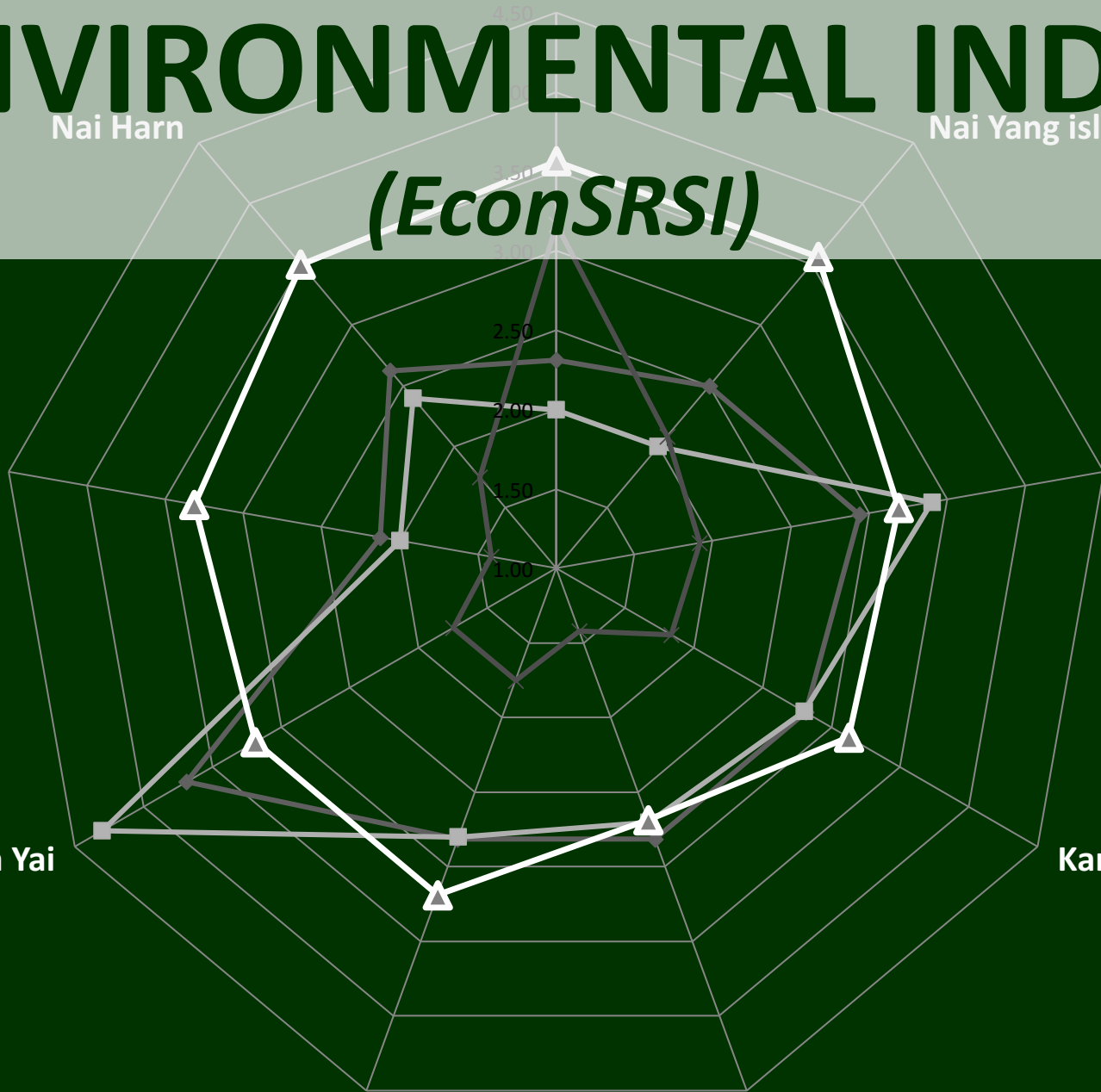
Kalim

—◆— socSRSI

—■— econSRSI

—▲— envSRSI

—×— govSRSI



ENVIRONMENTAL SURF SITE ASSESSMENT PHUKET

(EnvSRSI)

Nai Yang
(Reef)

Nai Yang
(Island)

Surin
Beach

Kamala
Beach

Kalim
Beach

Karon
Beach

Kata Yai
Beach

Kata Noi
Beach

Nai Harn
Beach

Mean

ENVIRONMENTAL INDEX

(14) Biodiversity	4	3.5	2	2	1	2	2	2	2.5	<i>2.33</i>
(15) Coastal Engineering	4	4	3	3	2	3	3	2	3	<i>3.00</i>
(16) Eco-physical Carrying Capacity	2	4	4	4	3	4	4	4	4	<i>3.67</i>
(17) Hazards – Marine (<i>reverse scale</i>)	3.5	3.5	4	4	4	4	4	4	4	<i>3.89</i>
(18) Hazards – Physical (<i>reverse scale</i>)	3	3	2.5	3	3	3	3	3	2.5	<i>2.89</i>
(19) Quality – Beach	3.5	3	3	3	2.5	3.5	3	3.5	4	<i>3.22</i>
(20) Quality – Water	4.5	3.5	3.5	3	2	3	2.5	4	4	<i>3.33</i>
(21) Surf Type & Quality	4	4	3.5	3	4	3	4	4	4	<i>3.72</i>
<i>Mean</i>	<i>3.56</i>	<i>3.56</i>	<i>3.19</i>	<i>3.13</i>	<i>2.69</i>	<i>3.19</i>	<i>3.19</i>	<i>3.31</i>	<i>3.5</i>	<i>3.26</i>

SURIN BEACH Environmental Index (*EnvSRSI*)

- 14. Biodiversity:** Tin mining during the previous century resulted in the destruction of many coral reefs in the area. While studies on the ecological integrity of the site were not conducted before or after the tin mining era, anecdotal evidence suggests that considerable change had taken place at the site. 2
- 15. Coastal engineering:** Decades of dredging from the maritime tin mining industry has altered the coastal area. Given that the area was not surfed prior to the tin mining era, the effect on coastal surfing resources cannot be identified for sure. Interviewees speculate that there were reef breaks at one time, whereas today there are only near shore beach breaks. 3
- 16. Eco-physical carrying capacity:** Surfers cause a relatively low impact at the site in relation to other activities occurring at the beach, such as jet ski rentals and parasail boats. Interviewees suggest that the ecological carrying capacity for surfers is relatively high. 4
- 19. Quality — Beach:** Extensive foreshore developments fronting the surfing area and issues of encroachment by beach concessions are well-known (e.g. reported in the Phuket media). Beach litter, while a visible and daily issue, is normally gathered and removed by beach concessions in the mornings. Beach litter is better controlled than at larger beaches (e.g. Karon and Kamala). 3
- 20. Quality — Water:** While there are no major klongs (canals) at the site, urban runoff is suspect and restaurants and hotels may be point sources of pollution. Issues of water quality may be associated with the loss of coral reefs in the past and due to the suspension of mine tailings during the surf season. 3.5
- 21. Surf type & quality:** Multiple-shifting beach breaks. Surfable waves at all tides. Favorable sand bars develop for surfing during the surf season (May to October). However, the off season sees unfavorable sand bars for surfing (i.e. sand re-deposits on the foreshore). Waves are particularly vulnerable to onshore winds (i.e. the beach is not sheltered from the wind). 3.5

Beach Litter



Marine Debris

Every day tons of marine debris are
puked up on Phuket Beaches



Coastal Erosion



Nai Yang center

GOVERNANCE INDEX

Nai Harn

Nai Yang island

(GovSRSI)

Kata Noi

Surin

Kata Yai

Kamala

Karon

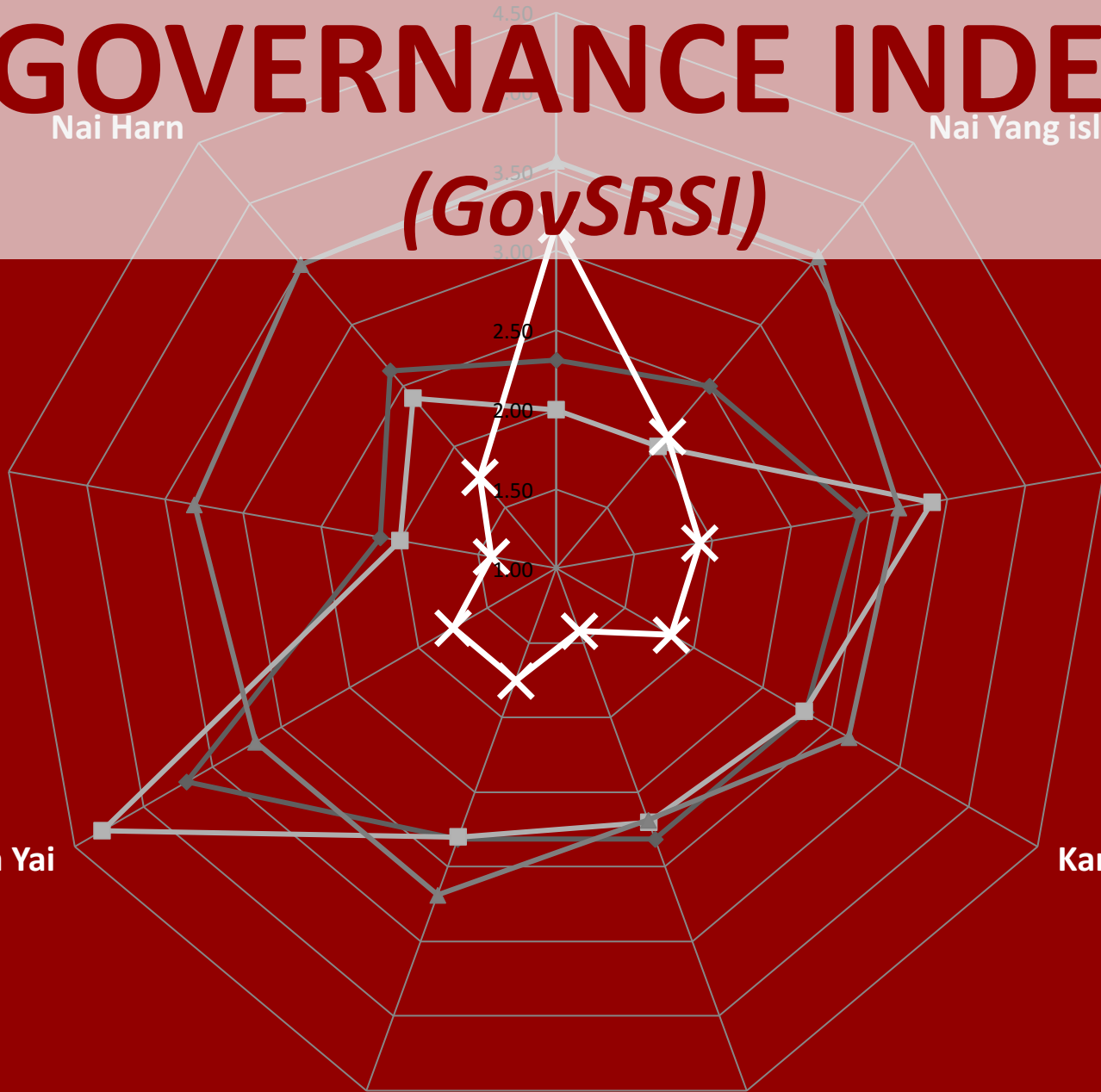
Kalim

—◆— socSRSI

—■— econSRSI

—▲— envSRSI

—✕— govSRSI



GOVERNANCE SITE ASSESSMENT PHUKET

(GovSRSI)

Nai Yang
(Reef)

Nai Yang
(Island)

Surin
Beach

Kamala
Beach

Kalim
Beach

Karon
Beach

Kata Yai
Beach

Kata Noi
Beach

Nai Harn
Beach

Mean

GOVERNANCE INDEX

(22) Beach & water safety	2.5	1	2.5	2	1.5	2.5	2.5	2	2	2.06
(23) Education & interpretation	2.5	1	2	2	1	2	2	1.5	2	1.78
(24) Legislative status	4	4	1	1	1	1	1	1	1	1.67
(25) Management	2.5	2	1	1	1	1	1	1	1	1.28
(26) Not-for-profit organizations	3.5	1.5	1.5	2.5	1	1	1	1	1	1.56
(27) Public access	4	3	3.5	2.5	3	3	3	2	3.5	3.06
MEAN	3.17	2.08	1.92	1.83	1.42	1.75	1.75	1.42	1.75	1.90

SURIN BEACH Governance Index (*GovSRSI*)

- 22. Beach and water safety:** Unstable lifeguard contracts (unpredictable presence of lifeguard services). Interviewees note significant issues of ungoverned mixed use area (i.e. the surf zone is shared with swimmers, surfers, jet ski etc.). Area is notorious for tourist drownings. Surfers regularly perform rescues. **2.5**
- 23. Education & interpretation:** One warning sign in the parking lot. Information at hotels and from other sources is nonexistent or very limited. Lifeguards may post red or yellow flags; however, tourists of various nationalities may not understand the meaning of warning flags or signage. **2**
- 24. Legislative status:** Although the area is well-known as a key surfing destination in Phuket, interviewees report that there is currently no legislation or governance of surfing resources or other activities, including the environmental protection of the site. **1**
- 25. Management:** The key issue at the site remains the unmanaged mixed-use area. Interviewees report that existing guidelines or standards, if any, are not enforced, particularly those pertaining to development and encroachment. **1**
- 26. Not-for-profit organizations:** While not-for-profit activity is uncommon at the site, occasional beach cleanups may be organized by local not-for-profit and hotel-supported organizations. However, these efforts are mainly temporary remedies with limited long-term effects. **1.5**
- 27. Public access:** Access is provided by a beachfront parking area and a narrow park located in the center of the beach. The beach park is easily accessible here; however much of the beach is overwhelmingly clustered with restaurants which inhibit use and access. **3.5**
-

UNMANAGED MIXED-USE AREAS



RIP CURRENTS

+PHUKET
OCEAN SAFETY

**Surf City
Phuket**

WHAT TO DO IF YOU'RE IN A RIP CURRENT

- Relax and float with the current. Do not panic! Remember, the current is not dangerous! —only panicking is dangerous!
- Stay calm and swim parallel with the beach! —Let the waves push you back to the beach.
- If necessary, hold your breath and dive under the waves! —Breathe after the wave passes and before the next wave comes.
- If there are surfers or swimmers nearby, raise your arm and ask for help!

Concept by S.A. Martin / Prince of Songkla University

Beach & Ocean Safety





องค์การบริหารส่วนจังหวัดภูเก็ต
Phuket Provincial Administrative Organization

โครงการรักษาความปลอดภัยชายฝั่ง Lifeguard Project



RED AND YELLOW - ชงแดงและเหลือง
Patrolled area - the safest swimming area
มีเจ้าหน้าที่ Lifeguard คอยดูแล ควรเล่นน้ำในบริเวณนี้



Patrolled beach

หาดนี้มีเจ้าหน้าที่ Lifeguard คอยดูแล

สามารถเล่นน้ำได้ในพื้นที่ระหว่างธงเหลืองแดงที่ปักไว้ รับชมชายหาดท่านั้น



YELLOW - ชงเหลือง
Warning - potentially dangerous condition
ควรระมัดระวังในการเล่นน้ำในบริเวณนี้



Strong current - Rip current

อันตราย - ร่องน้ำลึก



RED - ชงแดง
Beach closed - do not enter water
ปิดหาด - ห้ามลงเล่นน้ำโดยเด็ดขาด



No swimming

ห้ามลงเล่นน้ำ

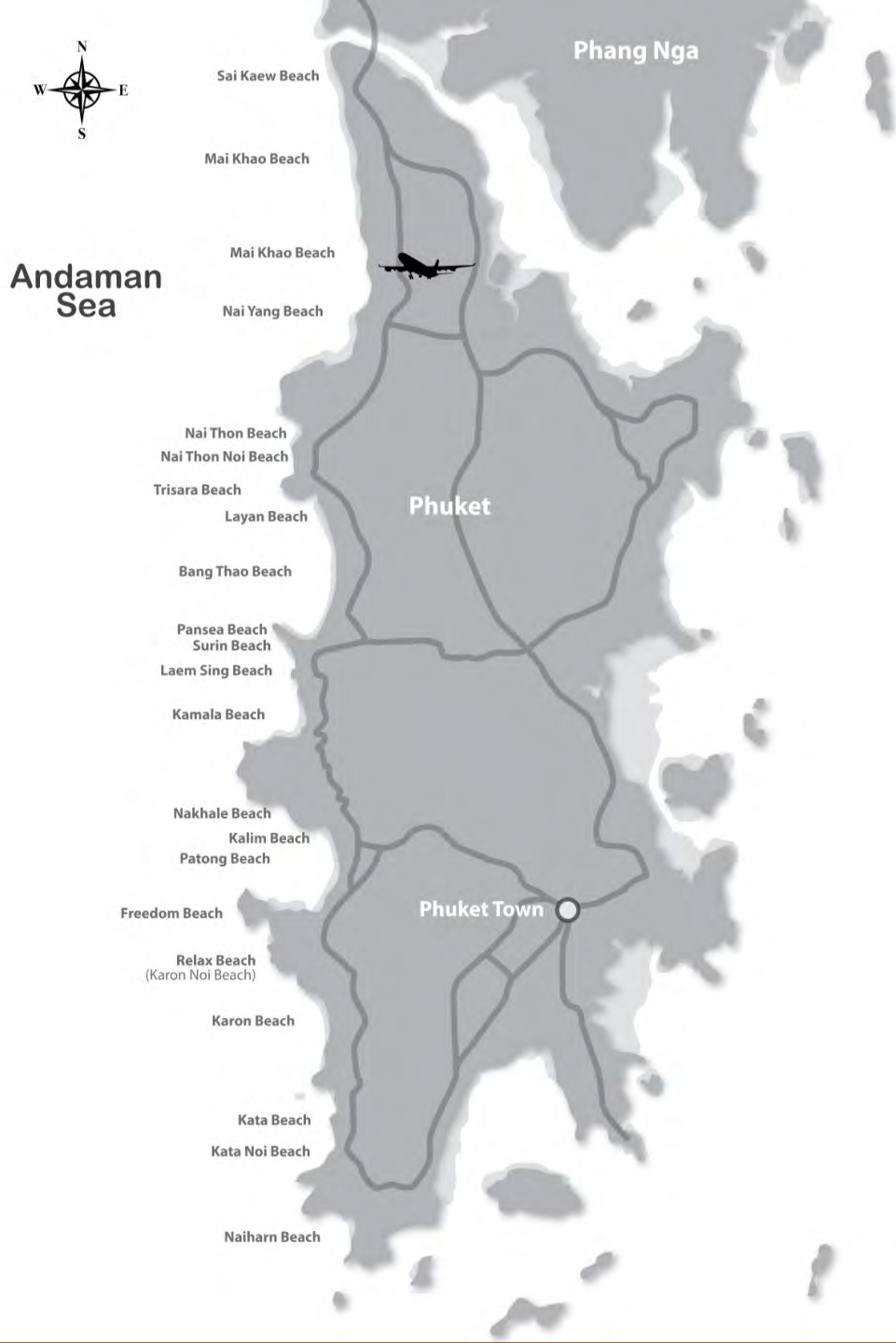
เล่นน้ำปลอดภัยโปรดเชื่อฟังคำเตือนจากเจ้าหน้าที่ Lifeguard Safest swimming warning from Lifeguard officer

EDUCATION & INTERPRETATION



**Surf Site Not-for-Profit
Organization**



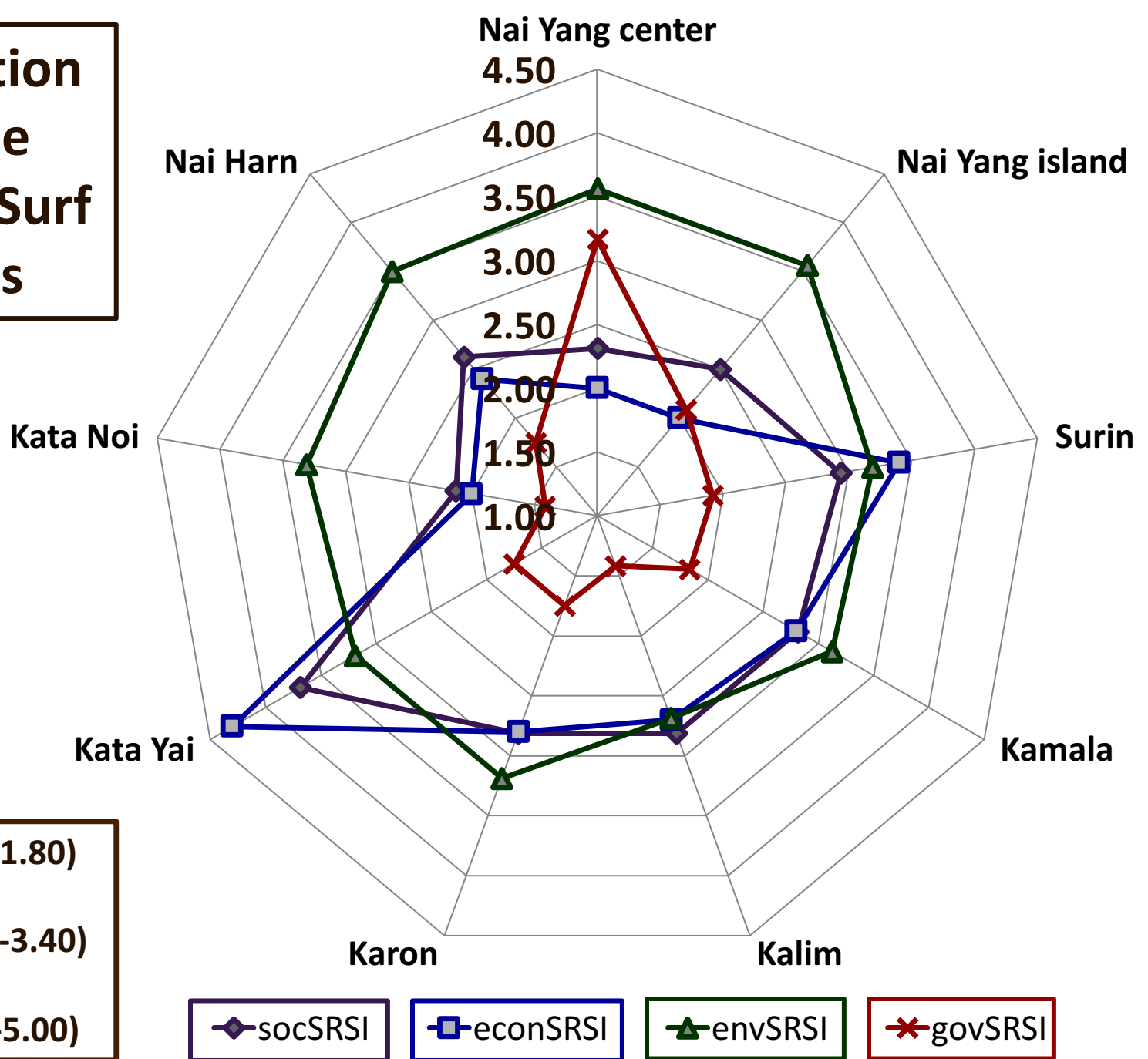


MEAN INDEX VALUES



MEAN INDICATOR VALUES

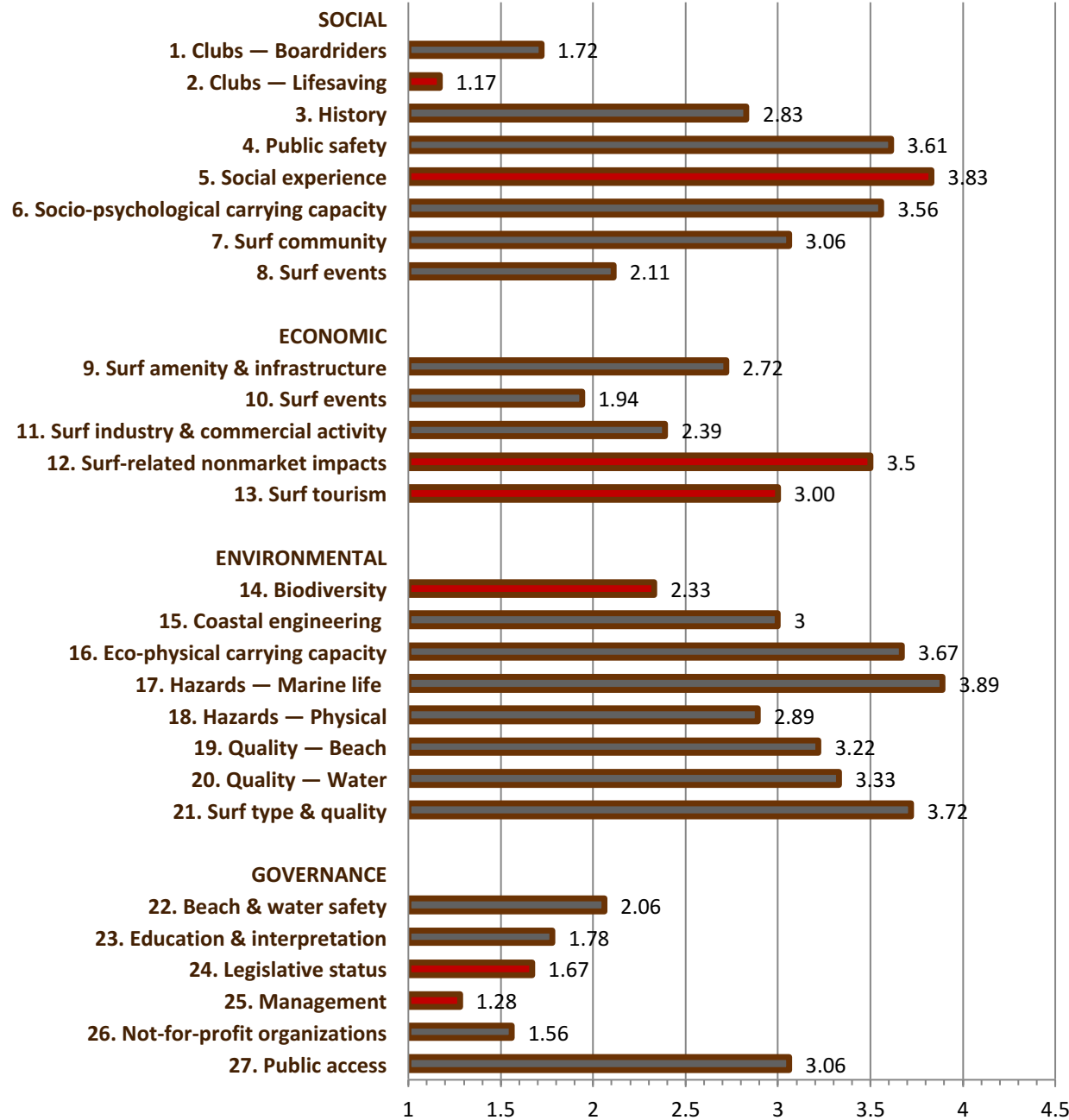
Conservation Aptitude 9 Phuket Surf Beaches



MEAN INDICATOR VALUES

Conservation
Aptitude

Phuket Surf
Beaches



very low (1.00-1.80); low (1.81-2.60); medium (2.61-3.40);
high (3.41-4.20); very high (4.21-5.00)

Life Saving
(very low)

Social
Experience
(high)

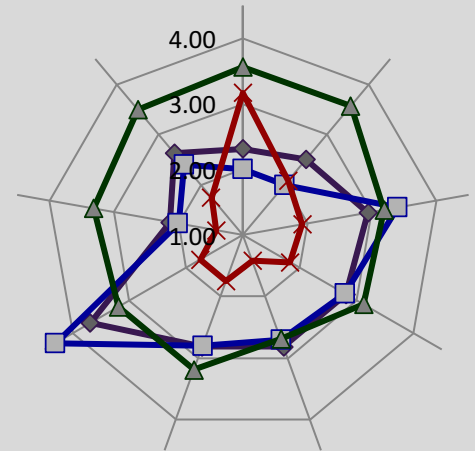
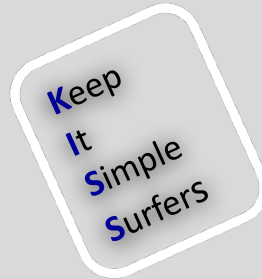
Non-market
(high) &
Surf Tourism
(medium)

Bio-
diversity
(low)

Legislation &
Mgt.
(very low)

BROAD IMPLICATIONS OF THE INDEX

✚ Easy to use (KISS)



- Available to Surfers, Graduate Students & Academics

✚ Pinpoints **problematic site aspects**

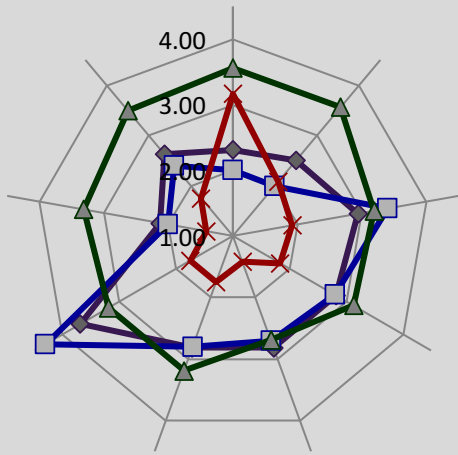
✚ Pinpoints **favorable site attributes**

✚ Ideal for **Cross-sectional analysis**

- Comparing one beach with another in a given region

✚ Ideal for **Trend analysis**

- Studying changes at a given beach over time

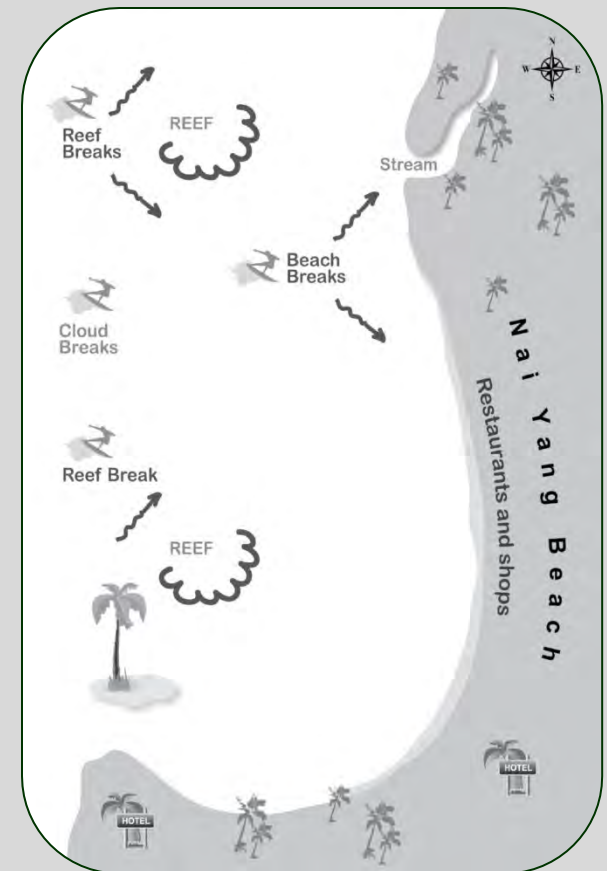


SURFING RESERVES

✈ Provides data-driven metrics
for the argument to protect
surf sites

✈ Data can be used to
encourage policy makers

- We must consider that most
policy makers are not surfers



CONCLUDING THOUGHT

ทรัพย์ในดิน สิน

Sap-Nai-Din, Sin-Nai-Nam”

**Treasure on the Land —
Wealth in the Water**

A celebrated Thai proverb attests to the significance of coastal resources
in the Kingdom of Thailand

**Research Articles Available at San Diego State University
Center for Surf Research
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**Please share your thoughts and suggestions
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