

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Presentation to:
National Defense Industrial Association

THE ROLE OF WAVE, TIDAL CURRENT, AND RIVER CURRENT ENERGY IN SUSTAINABLE ENERGY PLANNING

Presented By: Robert J. Harrington, Ph.D.
Tetra Tech, Inc.
Santa Barbara, California



Tetra Tech, Inc.

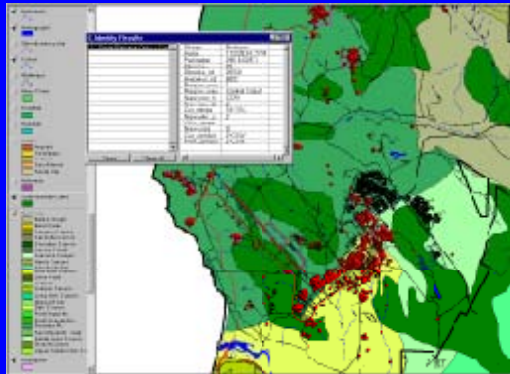
MARINE AND HYDROKINETIC ENERGY--- MHK---INCLUDES ENERGY GENERATED BY:

- THE MOTION OF OCEAN WAVES
- THE EBB AND FLOW OF TIDES
- OFFSHORE CURRENTS (E.G. THE GULF STREAM)
- THE FLOW OF WATER IN STREAMS AND RIVERS



NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

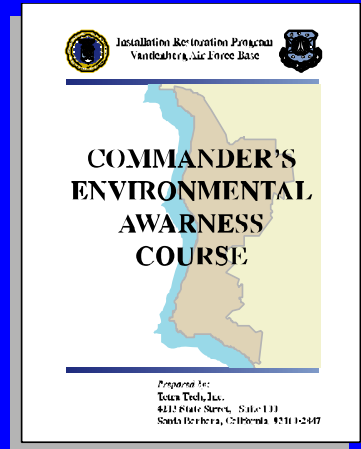
THINGS WE "WOULD LIKE TO DO" ARE WORTHWHILE



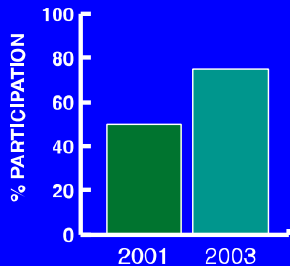
Complete GIS



Expand Recycling Outreach Program



Improve Commanders' Environmental Awareness Course



Survey/Study of Recycling Program Effectiveness



Step-Up Non-Native Plant Eradication



Tetra Tech, Inc.

Things We “Would Like to Do” Are Worthwhile!

- May yield the highest ROI but receive lowest funding priority because the ROI is hardest to quantify.
- By definition most “would like to dos” are initiatives.
- They go “beyond compliance”.
- They are the true essence of environmental accountability & sustainability.
- Among the more rewarding personal endeavors.



3 Steps To Reduce Funding Requirements

1. Reduce uncertainties in funding.
2. Consolidate prime contracts down to one, multi-year, comprehensive best-value procurement.
3. Remove remaining barriers to team integration.



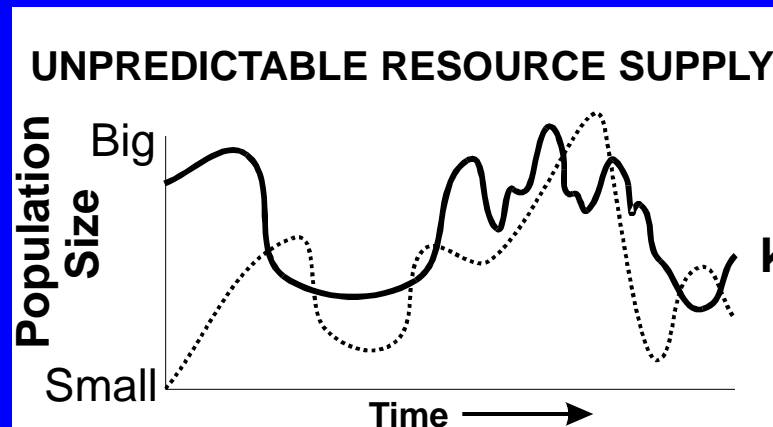
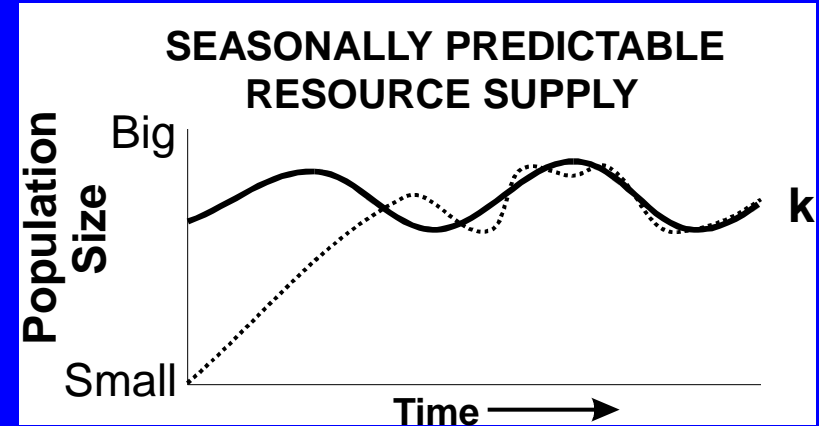
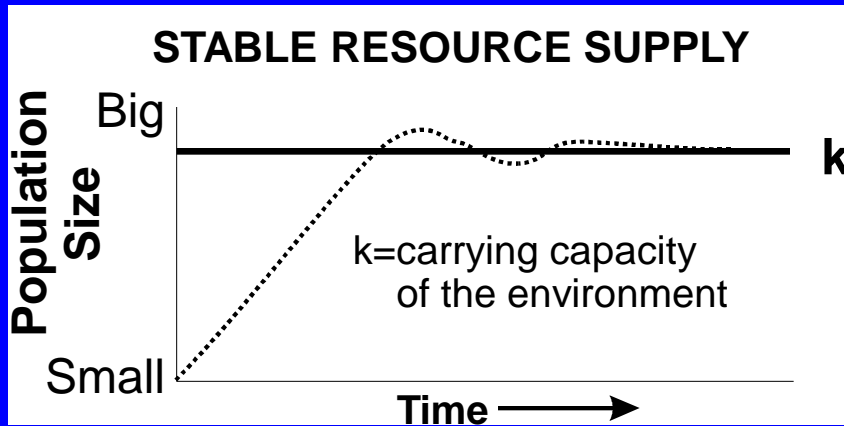
1. Reduce uncertainties in funding (Lessons From Nature).

- Increased predictability in resource supply leads to:
 - increased efficiency in the use of resources (spending)
 - increased diversity (team skill mix)
 - the degree of integration (teamwork)



NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Resource Supply Stability vs. Population Size

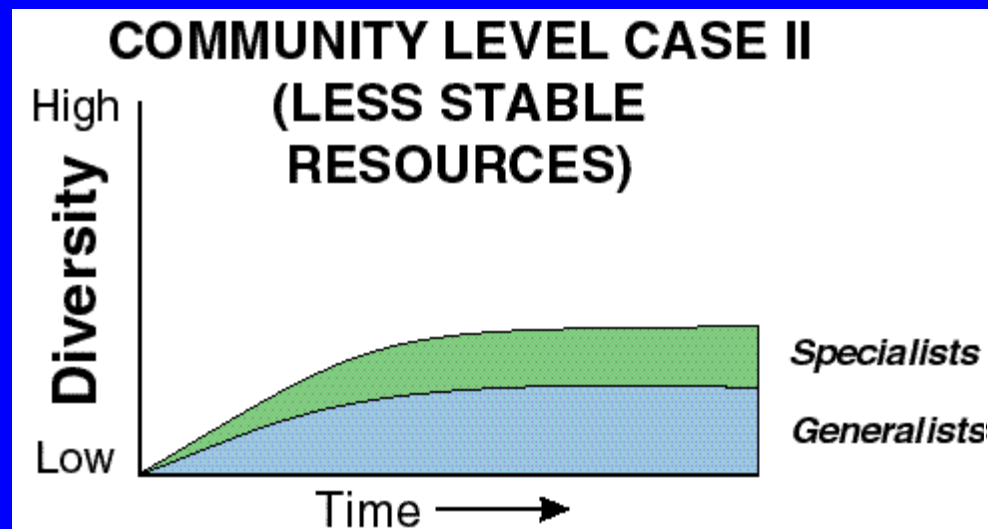
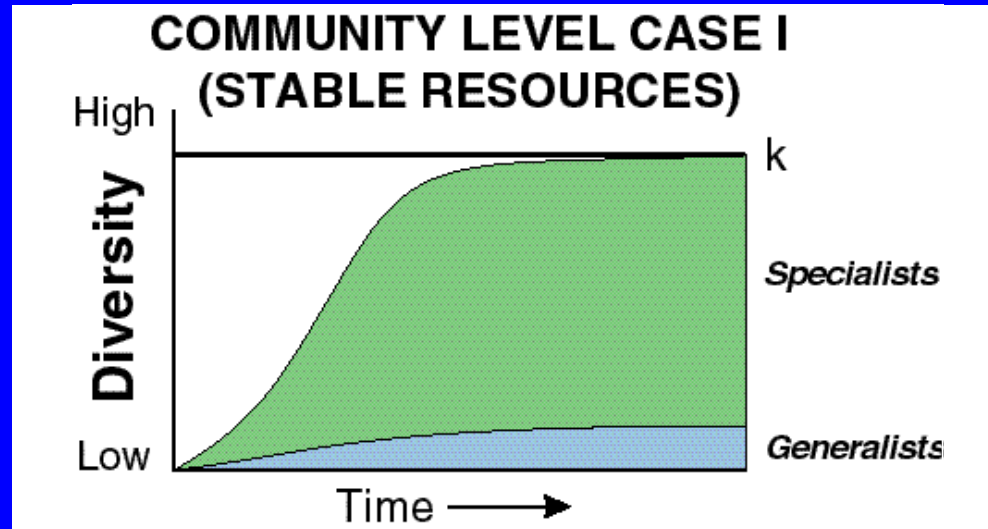


Lesson from Nature #1: Predictability in resource supply leads to increased efficiency in the use of resources



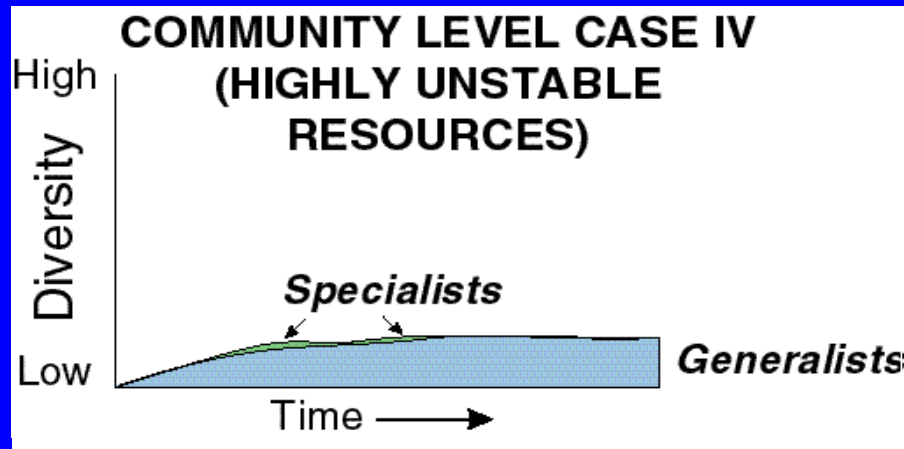
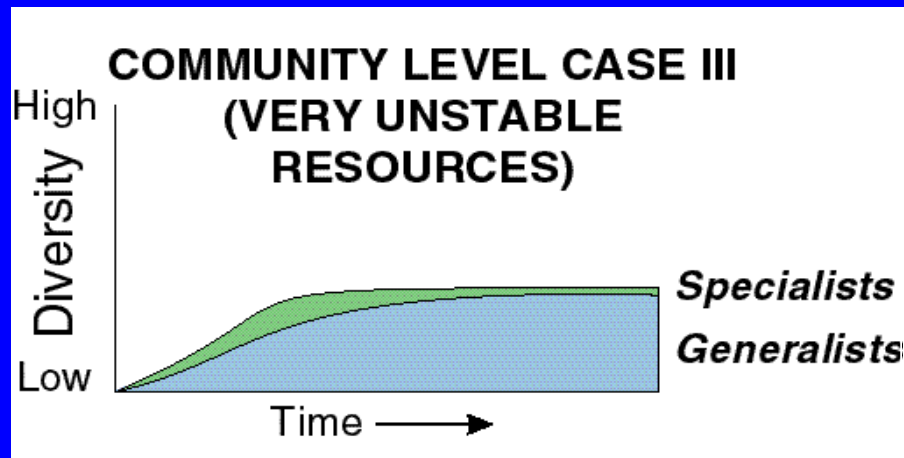
Tetra Tech, Inc.

Resource Supply Stability vs. Diversity



NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Resource Supply Stability vs. Diversity (Cont'd)



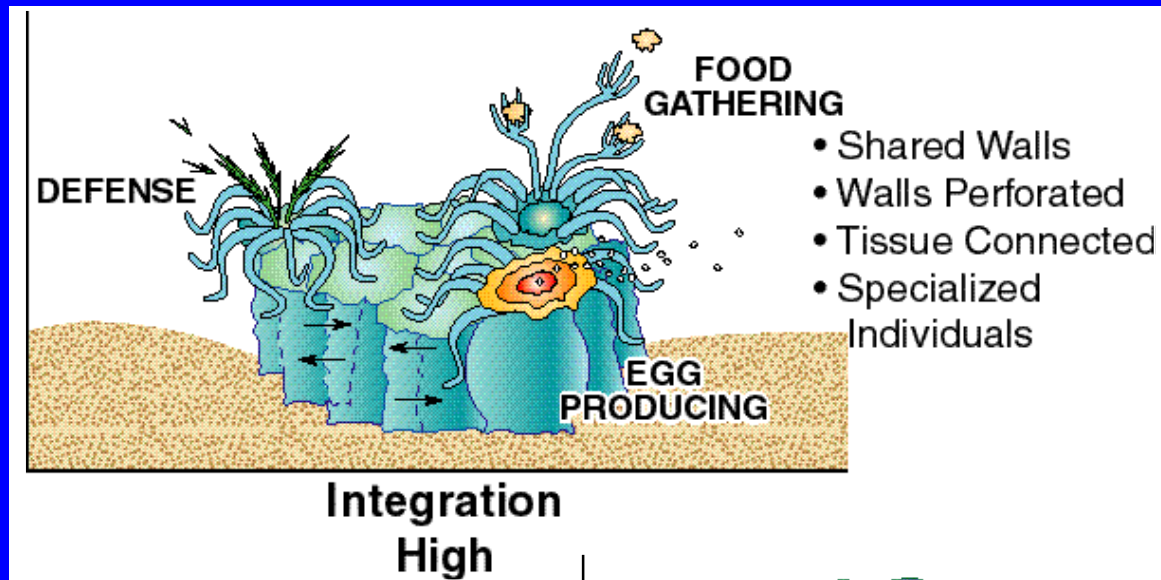
Lesson from Nature #2: Predictability in resource supply leads to the ability to optimize the skill mix



Tetra Tech, Inc.

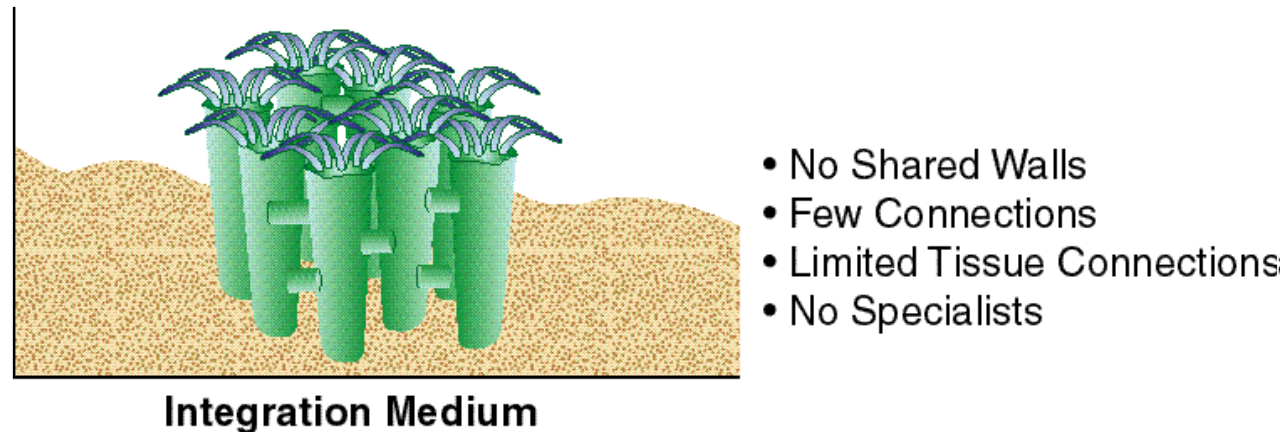
NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Resource Supply Stability vs. Integration



Most Stable Resource
← Supply

Less Stable →
Resource Supply

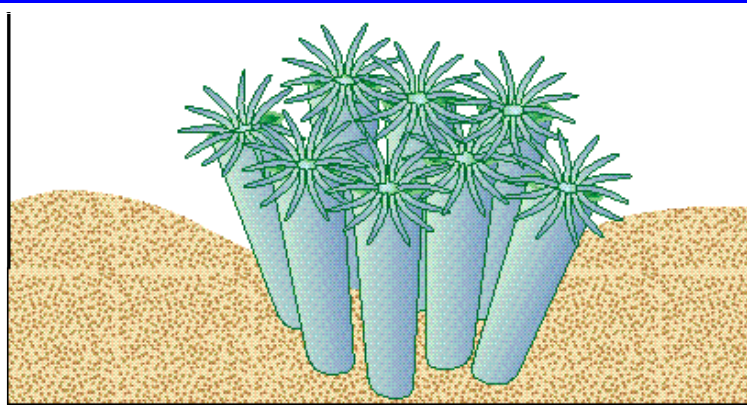


Tetra Tech, Inc.

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Resource Supply Stability vs. Integration (Cont'd)

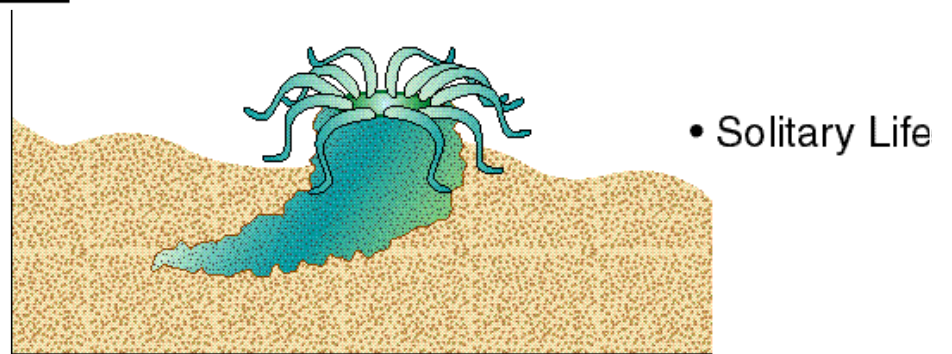
Very Unstable Resource
← Supply



- No Shared Walls
- Thick Walls
- No Connections
- No Tissue Connections
- No Specialists

Integration
Low

Extremely
Unstable Resource
Supply →



- Solitary Life

Integration
Non-Existent

Lesson from Nature #3: The degree of integration is a natural adaptive response to the stability of resources



Tetra Tech, Inc.

2. Consolidation of Prime Contracts Down to One (Where The Savings Come From).

- A reduced client administrative burden;
- Contractor cost reductions achieved through the stabilizing effect of a larger work base;
- Optimization of the team skill mix;
- Proportional reductions in the contractor's administrative burden.



Implementation Efficiencies of Consolidation Include But Are Not Limited To:

- A single point of contact for all required services;
- Service-wide standardization of quality management, training, deliverable production and other operating procedures;
- Systematic and rapid incorporation of continuous improvement initiatives;
- The need by one contractor to validate data generated by another is eliminated.



Reasonable Doubts Concerning Consolidation

1. I'm stuck with the same prime for 5 years or more.

Mitigation:

- Best value selection
- A great SOW/site walk/pre-bid conference
- Technical library for bidding purposes
- Two month phase-in/option years
- Monthly progress meetings
- Award fee program well defined



Reasonable Doubts Concerning Consolidation

2. What about SBE/SDBE, etc. commitments?

Mitigation:

- Clearly defined objectives/goals/monitoring plan
- Small business plan required and scored
- Profit incentives
- Clearly defined procedures/resources to link “small” business to prime



Reasonable Doubts Concerning Consolidation

3. I might lose access to “preferred small businesses”.

Mitigation:

- “Suggestions” that a firm be considered for subcontracts is appropriate and legal
- Subcontracts greater than \$100K are competed and evaluated based on:
 - ▣ technical
 - ▣ past performance
 - ▣ cost
- Smaller subcontracts may potentially be single sourced
- Proposed “team” subcontractors are not guaranteed the work



Reasonable Doubts Concerning Consolidation

4. I might (should?) get a better price if I compete the work.

Mitigation:

– Ask the following questions:

- ▣ What is the real cost of conducting multiple source selections?
- ▣ What is the real cost of managing multiple large & small business primes?
- ▣ How much time do I spend dealing with scope gaps and overlaps?
- ▣ When I want to implement a program-wide improvement (e.g. all deliverables on C Ds) what am I up against?



Reasonable Doubts Concerning Consolidation (Cont'd)

– Ask the following questions:

- How many times have I paid to have a report section entitled “Base Background” written?
- How much money is spent by one contractor validating the analytical data of another?
- How much money is lost when just one contractor fails to be cooperative with the others, even if I eventually terminate that contractor?
- How much leverage do I have with a contractor who stands to lose a \$200K contract vs. a \$20M contract?



Reasonable Doubts Concerning Consolidation (Cont'd)

– Ask the following questions:

- How much corporate attention and oversight is provided a \$2M contract vs. a \$20M contract?
- Can multidisciplinary initiatives be done for less money by a single “4 pillar” support team or a team comprising several prime contractors?
- If one prime is overstaffed and another understaffed, is it easy for them to share personnel?
- Can cross-training of employees in one prime organization help meet occasional surge requirements?



Reasonable Doubts Concerning Consolidation (Cont'd)

– Ask the following questions:

- Do I believe in the concept of economy of scale?
- Could I get more “Would Like to Dos” done more frequently and efficiently if I have one, single, best-value selected, four pillar prime at my disposal?



3. Remove Remaining Barriers to Integration

Integration = Teamwork

Integrated Management = The many exercises leaders must do to ensure:

- Economies of scale are experienced
- Implementation efficiencies are realized



Integrated Team Characteristics

- Workforce holds a mission orientation and clear understanding of the client's needs.
- Workforce believes individual productivity benefits the team and team productivity benefits the individual.
- Everyone knows what everyone else is responsible for and is capable of doing.



Integrated Team Characteristics (Cont'd)

- Skill sets are well differentiated.
- Communication barriers are few or non-existent.
- Standardized approaches and procedures are employed but are not “limiting”.
- Access for surge support is readily available (and it’s just as easy to ramp down).



Summary

- Reduction in funding uncertainty reduces inefficiencies, improves the skill mix & enhances teamwork.
- Consolidation of environmental services leads to integration.
- The cost benefits of consolidation combined with increased predictability of funding are enormous.
- The “Would Like to Dos” have a high ROI and are the essence of environmental accountability and sustainability.

