



Gulf of the Farallones National Marine Sanctuary

***Green Operations Plan Status
&
2009 Emissions Inventory***

***Sanctuary Advisory Council (SAC) Meeting
12 August 2010***

Bodega Marine Lab; Bodega Bay, CA

Background

- **Goal:** Improve the energy conservation and efficiency of the Gulf of the Farallones National Marine Sanctuary Crissy Field Headquarters
- **Via:** Green Operations chapter of the GFNMS Ocean Climate Initiative Action Plan (Action Plan)
- **Recommendations from Aug 09 SAC Meeting:**
 - Adopt and implement Action Plan at GFNMS
 - Distribute plan to all sanctuaries
 - Present status of Action Plan each year
 - Present emissions inventory each year

Accomplishments 2009

- ✓ Working Group formed to draft Green Operations Plan
- ✓ Partnered with Park to complete 2008 inventory of Greenhouse Gas (GHG) emissions (baseline).
- ✓ SAC approved plan and requested that it be adopted by site, and forwarded to every national sanctuary
- ✓ Site adopted the plan
- ✓ Stellwagen Bank Sanctuary completes emissions audit
- ✓ Green Team began to implement plan

Accomplishments 2010

- ✓ Climate Change Impacts Report released to public
- ✓ Green Operations Plan sent to HQ for review
- ✓ Green Operations Plan distributed nationally
- ✓ Thunder and Fagatele Bay Sanctuaries inquire about plan
- ✓ West Coast Region Ocean Acidification Team adopts several operations strategies
- ✓ 2009 Emissions Inventory completed

Action Plan Summary

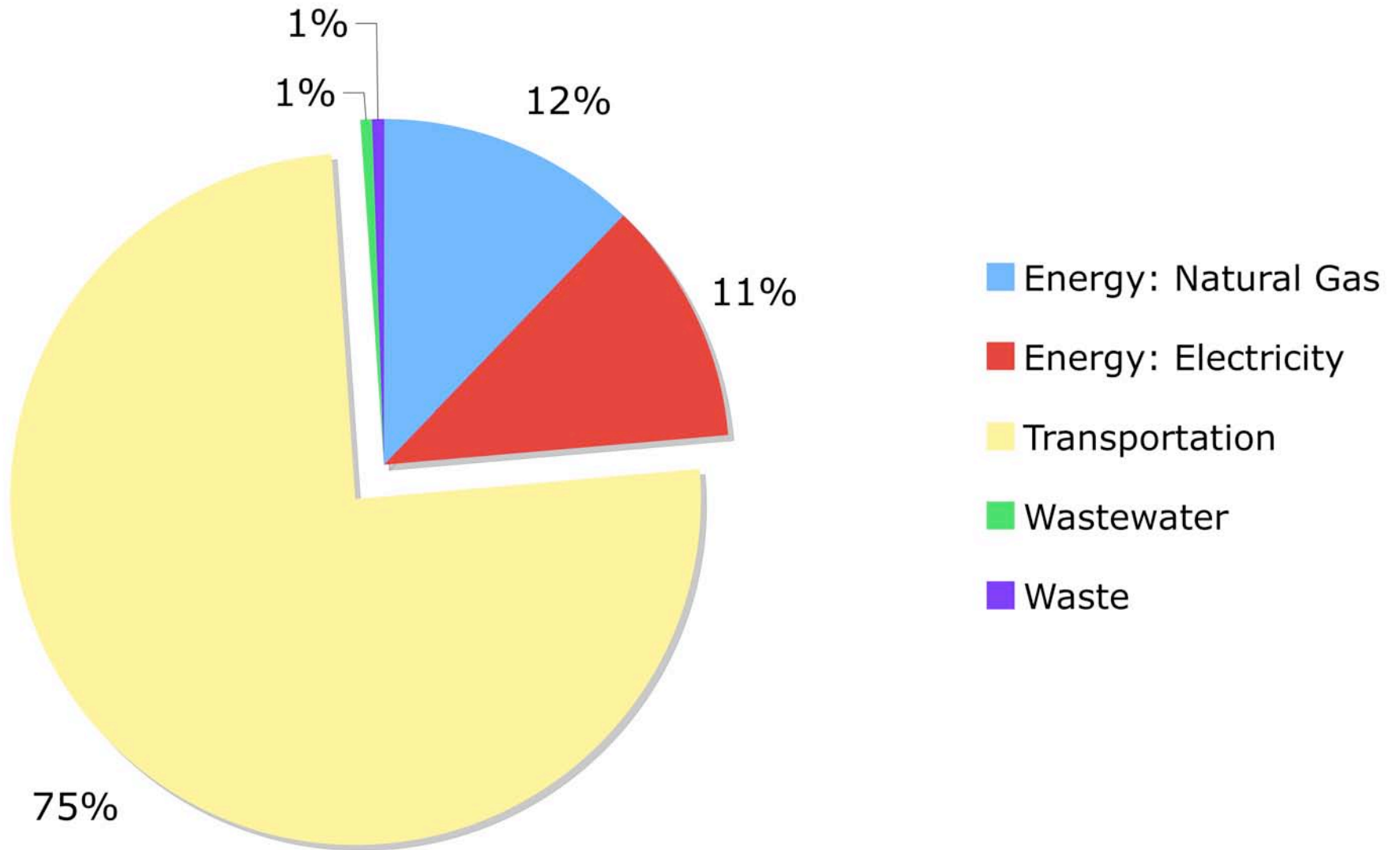
- Tracked status of all 136 actions
- Five categories: Energy, Transportation, Water, Waste, and Education & Outreach.
- Each category has a measurable reduction target, specific actions, evaluation metrics, and potential partners.
- Used emissions inventory to determine if reduction targets were met.

2009 Emissions Inventory

- Measured energy (natural gas and electricity), transportation, wastewater, and solid waste
- Park Service CLIP Tool
- Derived per capita estimate



2009 Emissions by Category Gulf of the Farallones National Marine Sanctuary



Energy Efficiency

39 ACTIONS

Challenges- EPEAT, windows

Successes- light sensors, Energy Star

| | | |
|--------------------|-----------|------------|
| Completed | 2 | 5% |
| Ongoing | 18 | 46% |
| In Progress | 8 | 20% |
| No Action | 8 | 20% |
| Unable | 3 | 8% |



TARGET: ↓ 3% annually or 30% by 2020.

RESULTS: ↑ 7% (4% new building) (23% of total emissions)

Transportation Management

27 ACTIONS

Challenges- incentive programs, biodeisel
Successes- flexible schedules, telecommuting



| | | |
|--------------------|-----------|------------|
| Completed | 0 | 0% |
| Ongoing | 12 | 44% |
| In Progress | 11 | 41% |
| No Action | 4 | 15% |
| Unable | 0 | 0% |



TARGET: ↓ Emissions 5% annually or 50% by 2020.

RESULTS: TOTAL ↓ 16% (75% of emissions)

Car/Boat ↓ 0% Plane ↓ 42% Bus ↓ 50%

Water Management

20 Actions

Challenges- sprinklers, grey water
Successes- faucet in kitchen, toilets

| | | |
|--------------------|----------|------------|
| Completed | 2 | 10% |
| Ongoing | 6 | 30% |
| In Progress | 4 | 20% |
| No Action | 8 | 40% |
| Unable | 0 | 0% |

TARGET: ↓ 2% per yr or 20% by 2020.

RESULT: ↓ 10% (1% of emissions)

Waste Management

41 ACTIONS

Challenges- vendors, shipping

Successes- recycling center, purchases

| | | |
|-------------|----|-----|
| Completed | 9 | 22% |
| Ongoing | 24 | 59% |
| In Progress | 3 | 7% |
| No Action | 2 | 5% |
| Unable | 3 | 7% |



TARGET: ↓ 95% by 2015 and 100% by 2020.

RESULT: ↓ 50%

Education & Outreach

9 Actions

Challenges- tours, trainings

Successes- signs

| | | |
|--------------------|----------|------------|
| Completed | 0 | 0% |
| Ongoing | 1 | 11% |
| In Progress | 5 | 56% |
| No Action | 3 | 33% |
| Unable | 0 | 0% |



TARGET: A measurable increase in environmental education and outreach specific to climate change.

RESULT: 6 of 9 actions addressed

Action Plan Summary Results

Total - 136 Actions

| | | |
|--------------------|-----------|------------|
| Completed | 13 | 10% |
| Ongoing | 61 | 45% |
| In Progress | 31 | 23% |
| No Action | 25 | 18% |
| Unable | 6 | 4% |

Made progress on over 80% of actions!

Per Capita Emissions Inventory Results

Metric Tons Carbon Dioxide Equivalent (MTCO₂E)

| | Energy: Natural Gas | Energy: Electricity | Transport- ation | Wastewater | Waste | Gross Emissions |
|------|------------------------|------------------------|---------------------|------------|-------|--------------------|
| 2008 | 20 | 18 | 149 | 1 | 2 | 190 |
| 2009 | 21 | 19 | 128 | 1 | 1 | 171 |

Per Capita Emissions

- 190 metric tons / 23 staff = 8.26 MTCO₂E (2008)
- 171 metric tons / 23 staff = 7.43 MTCO₂E (2009)
- **REDUCED 0.83 MTCO₂E per capita**

Discussion

- Staff remained level
- Met all targets except Energy Efficiency
- Additional building included in inventory (Residence/Officer in Charge Quarters)
- Emissions will rise with Residence occupancy in Oct 2010
- Value in completing each action (e.g. composting, recycling electronics)
- Challenging to correlate individual actions to reduction targets

More Information

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GFNMS Crissy Field Campus Update

Background

- NPS Permit/MOA for all buildings of Ft Point Lifeboat Station
- Icon for Marine Stewardship
- HQ \$ ~ \$3M investment
- LEED Gold

GFNMS Crissy Field Campus Update

FY10

- Residence occupancy Sep 2010
- Exhibit concept plan

FY11

- Utilities upgrade
- Lifeboat Station 100% design (options for Boathouse & exhibit design)
- Renew ONMS MOA with NPS
- Funding dependent, next rehabilitation project

Definition of Carbon Dioxide Equivalent

Carbon Dioxide Equivalent (CO₂e):

The universal metric unit of measurement used to indicate the global warming potential of each of the six greenhouse gases. Carbon dioxide, a naturally occurring gas that is a byproduct of burning fossil fuels and biomass as well as land-use changes and other industrial processes, is the reference gas against which the other greenhouse gases are measured.

Transportation: Breakdown of Emissions (2009)

