DATA COLLECTION

The collated data were split into three sections and correspond to each goal: (1) temporal, spatial, and taxonomic
information, (2) experimental design information, and (3) measured coral response variables. The following information were collected from each publication reviewed:

1. **Temporal, spatial, and taxonomic information**
    a. Year of publication
    b. Date experiment began [a]
    c. Years between start of experiment and publication (determined from 1 and 2 above)
    d. Experiment location [b]
    e. Coral collection site [c]
    f. Latitude and longitude [d] of experiment location
    g. Latitude and longitude [d] of coral collection site
    h. Latitudinal distance [e] between collection site and experiment location (determined from 6 and 7 above)
    i. Coral family, genus and species name
    j. Number of coral species per experiment
    k. Coral life-stage (pre-settlement life-stages, larval settlement, post-settlement juveniles, or adult)

2. **Experimental design information**
    a. Treatment factors, parent colonies, and controls
        i. Number of treatment factors [f]
        ii. Type of treatment factors [g]
        iii. Number of parent colonies [h] sampled
        iv. If parent colony was a controlled factor [i]
        v. If time-zero control was collected [j]
    b. Experimental timeline and temperature conditions
        i. Coral healing period [k] duration (d)[l]
        ii. Coral acclimation [m] duration (d)[l]
        iii. Temperature-ramping period [n] duration (d)[l]
        iv. Temperature-stress exposure [o] duration (d)[l]
        v. Post-stress recovery duration (d) [p]
        vi. Seawater temperature above control (°C) [q]
        vii. Temperature ramp rate (°C h-1) [r]
    c. Light conditions
        i. Natural or artificial lighting
        ii. Type of artificial lighting
        iii. Indoor or outdoor tanks
        iv. Mean light intensity (µmol photons m-2 s-1) [l]
        v. Maximum light intensity (µmol photons m-2 s-1)
        vi. Light-dark cycle (h)
    d. Seawater and tank conditions
        i. Flow-through, recirculating, or static tank system
        ii. Natural or artificial seawater
        iii. Unfiltered or filtered seawater
        iv. Seawater filter type
        v. Coral feeding regime [s]
        vi. Number of replicate tanks per treatment
        vii. Experimental tank volume (l)
        viii. Tank turnover rate (l h-1) [t]
        ix. Seawater flow rate within tanks (cm s-1) [u]

3. **Measured coral response variables**

a. Number of response variables measured
b. Method of normalization / standardization [v]
c. Surface area method [if applicable] (e.g., wax dip, foil, image analysis).
d. Type of response variables measured:
    i. Bleaching phenotype
        1. Symbiodiniaceae density (cells cm-2, mitotic index)
        2. Photosynthetic pigments (Chlorophyll concentration)
        3. Color or optical characteristics (e.g., spectral reflectance)
        4. Photosynthesis rate (also belongs to Photosynthetic capacity category)
        5. Photosynthetic capacity
        6. Chlorophyll fluorescence (typically measured using pulse amplitude (PAM) fluorometry)
        7. Photosynthesis rate
    ii. Holobiont phenotype
        1. Mortality (survival and partial tissue mortality)
        2. Skeletal growth (calcification and skeletal extension)
        3. Respiration rate
        4. Energy reserves (total lipid, protein or carbohydrate content)
        5. Heterotrophy (i.e., Artemia, zooplankton, dissolved and particulate organic carbon)
        6. Tissue growth (biomass, tissue thickness)
        7. Reproduction (response variables associated with pre-settlement life-stages)
        8. Symbiodiniaceae identification
        9. Symbiodiniaceae
    iii. Other traits
        1. Immunological compounds
        2. Gene expression
        3. Nutrient cycling within holobiont
        4. Microbiome [w]
        5. Metabolites (a substance formed in or necessary for metabolism) \
        6. Proteomes (protein sets)

Superscripts:

a Day on which temperatures in the stress-treatment tanks were increased above that of the controls. In most cases, only month and/or year were reported.

b Country, state, city/island, and laboratory facility name

c Ocean basin / region (Caribbean, Central Pacific, Indo-Pacific, Atlantic, Mediterranean, Red Sea, or Indian Ocean), country, island, and reef name. For the purposes of this review, locations to the north of the Philippine Sea and the South China Sea were considered Central Pacific, as opposed to Indo-Pacific.

d Values in degrees and minutes only, not seconds

e The distance between each degree of latitude is between 110.5 and 111.6 kilometers, depending on location. For the purposes of this review, 111 km was used.

f Single-factor designs manipulated only one explanatory variable (i.e., temperature). Multiple-factor designs manipulated two or more explanatory variables

g In addition to temperature, for example: pH, light, turbidity, nutrients

h Author(s) specified that separate parent colonies were collected. However, in most cases, no testing was conducted to confirm genetic identity. We assumed that these colonies represented separate parent colonies (or genets).

i A fragment from every parent colony was represented under every treatment condition

j A coral fragment, was archived before the onset of temperature stress, representing a pre-treatment control

k Number of days between coral collection from the reef or fragging (genet is cut into multiple smaller ramets using bone-cutters or a similar tool) and placement into experimental tanks.

l In situations where authors reported a range of numerical values, the midpoint of the range was recorded. Example 1: *"corals were allowed to acclimate for 10 to 20 days",* the midpoint value is 15 days. Example 2: *"on average, tanks received between 200 and 300 µmol photons m-2 s-1 of light",* the midpoint value is 250 µmol photons m-2 s-1.

m Number of days corals were in the experimental tanks, acclimating to ambient conditions before the experiment formally began

n Number of days over which the seawater in the stress-treatment tanks was heated from the initial temperature (same as control) to the desired stress temperature.

o Number of days corals were exposed to stress-treatment temperature (not including the ramping period)

p Number of days of post-stress monitoring of coral health/physiology after the temperature in the stress-treatment tanks was lowered back to the control treatment.

q The difference in temperature between the control treatment and the stress treatment. In cases where experiments had multiple temperature treatments, multiple values were recorded and treated as independent when calculating the mean temperature stress above control (Table S4.b.6)

r Rate of seawater temperature increase in the stress-treatment tanks during the ramping period

s Coral feeding regime, frequency and type *(e.g., 200 Artemia per ml seawater twice a week for 1 hour)*

t Time for all seawater to be replaced within a tank, typically measured using a graduated cylinder and a stopwatch.

u Seawater circulation speed in the experimental tanks, typically measured using a ruler and dye/beads.

v Normalization method (e.g., standardized to surface area or biomass/ash-free dry weight) used for the most commonly measured response variables of Symbiodiniaceae density and chlorophyll concentration to assess the continuity in reporting units among studies.

w Any characterization of bacteria, archaea, viruses, and or microeukaryotes associated with a coral.